



# THE GEOPOLITICS OF DECARBONISATION

Reshaping European foreign relations

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# **THE GEOPOLITICS OF DECARBONISATION**

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## LIST OF ABBREVIATIONS

<b>ACP</b>	African, Caribbean and Pacific Group of States
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>CAT</b>	Climate Action Tracker
<b>CETA</b>	Comprehensive Economic and Trade Agreement
<b>COVID-19</b>	Corona Virus Disease 2019
<b>EEAS</b>	European External Action Service
<b>EIB</b>	European Investment Bank
<b>ENP</b>	European Neighbourhood Policy
<b>EU</b>	European Union
<b>EU ETS</b>	EU Emissions Trading System
<b>FARC</b>	Revolutionary Armed Forces of Colombia
<b>G7</b>	Group of Seven
<b>G20</b>	Group of Twenty
<b>GCC</b>	Gulf Cooperation Council
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>IcSP</b>	Instrument contributing to Stability and Peace
<b>IAEA</b>	International Atomic Energy Agency
<b>MFF</b>	Multiannual Financial Framework
<b>NATO</b>	North Atlantic Treaty Organization
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>NDC</b>	Nationally Determined Contribution
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>SDG</b>	Sustainable Development Goals
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>US</b>	United States of America
<b>WTO</b>	World Trade Organization

## EXECUTIVE SUMMARY

### 1 INTRODUCTION

Under the Paris Agreement, governments committed to radically cutting carbon and other greenhouse gas (GHG) emissions over the coming decades, and thus to transforming their economies and societies. This decarbonisation process has profound implications for both domestic and foreign policy, and is likely to have important geopolitical consequences. This report contributes to the emerging literature on the geopolitical implications of decarbonisation and energy transition processes. It aims to provide insights on the external dimensions of the European Green Deal launched by the European Commission in 2019 and on how EU external relations can evolve to accelerate and shape the transition to a decarbonised world.

#### The decarbonisation challenge

Decarbonisation implies a fundamental change in the way economies and societies work, and it is likely to be characterised by two broad changes – the decline and destabilisation of carbon-intensive development models based on the production and burning of fossil fuels and overexploitation of natural resources, and the emergence of more sustainable forms of energy production and resource use. We expect it to have both adverse and positive effects on countries, with the particular challenges and opportunities they face varying considerably between them.

#### The geopolitical challenge

Foreign policy and external relations have a dual role to play in supporting deep decarbonisation. On the one hand, countries and regions must work together to support decarbonisation processes beyond their own borders – with a particular responsibility on historically high emitters and developed countries to support less developed regions of the world, and regions under-resourced to address the impacts of climate change. On the other, they must pave the way for developing fruitful external relations beyond fossil fuels and other carbon-intensive products. That means both promoting forms of cooperation that can help to prevent the potentially destabilising effects of fossil fuel phase-out and decarbonisation, and putting external relations on a new sustainable foundation based on other sectors, including low-carbon ones.

Whether a country is a net importer or exporter of fossil fuels or other carbon-intensive commodities, we can expect the process of decarbonisation to reconfigure countries' external energy relations. Climate action and decarbonisation processes are also likely to have a broader effect on trade relations, finance and investment flows, scientific cooperation, official development assistance, as well as efforts to promote conflict prevention and peacebuilding.

#### The geopolitical decarbonisation challenge for the EU

As a global power, as a leader on climate action, and as a region that by international comparison is relatively advanced in the transition to climate neutrality, the EU has an important role to play in meeting these challenges. Building sustainable, fruitful partnerships with EU partner countries under decarbonisation is likely to require wide-ranging action, both to support them in implementing the Paris Agreement and to place external relations with partner countries on a solid footing for future cooperation in the decades to come. In this task, the EU can make use of the entire diplomatic toolbox, including instruments related

to trade, finance, security, and research and innovation. This is essential to mitigate potential risks related to climate change and decarbonisation, and to diversify cooperation away from fossil fuels and high-carbon assets towards other sectors with potential in the long-term.

The current European Commission is aiming to usher in a new era of EU decarbonisation and renewed leadership on climate action. With the European Green Deal now at the heart of EU politics, it is even more pressing to consider what the foreign policy community should take into consideration when developing and implementing the European Green Deal's external dimensions.

## 2 ANALYSING THE GEOPOLITICS OF DECARBONISATION

This report is based on detailed case studies that consider the complex interaction of the multiple factors at play in decarbonisation processes. Our analysis focused on a particularly high-risk group of countries – fossil fuel exporters – and took into account each country's economic exposure to decarbonisation risks, the wider risks they could face as result of economic disruption under decarbonisation, their potential to diversify and develop a low-carbon economy, and their external relations with the EU.

The six case studies selected – **Azerbaijan, Canada, Colombia, Indonesia, Nigeria and Qatar** – represent a broad cross-section of six fossil fuel-exporting countries from different world regions, covering different resource endowments and stages of development, beyond the “usual suspects” like Russia, Norway and Algeria. As such, the selection has the potential to reveal a variety of ways in which fossil fuel exporters or, more generally, carbon-dependent economies may be vulnerable to the global transition away from coal, oil, gas and other emission-intensive products that should see falling demand under decarbonisation. As trade in fossil fuels – and other high-carbon products such as palm oil – accounts for a sizeable proportion of EU trade with many of these countries, the decarbonisation of the European economy (and eventually the world economy) is set to have important repercussions for bilateral relations. Each case study therefore also presents areas for the development of bilateral relations beyond carbon-intensive products and related trade under decarbonisation.

The sample includes two countries that are highly vulnerable to deep decarbonisation processes. In **Nigeria**, the economy is highly dependent on gas and particularly oil, with these two commodities accounting for almost all the countries export revenues and the EU an important export market. The country also scores poorly on indexes assessing state fragility, human development, strength of governance, and preparedness for climate change impacts. The economy in **Azerbaijan** is also highly dependent on oil and gas, and among the sample it is the country most dependent on trade in these commodities with the EU.



At the other end of the spectrum, **Canada** is a stable, highly developed democracy with a diversified economy and a well-educated workforce, although the oil industry remains economically important. **Qatar** is a rich petrostate with stable governance structures and one of the highest per capita incomes in the world. It has used the wealth generated by its oil industry to develop its gas sector, as well as other areas of the economy and its external relations.

The remaining two countries in the sample face both major risks and opportunities. In **Colombia**, revenues from coal and oil exports are economically significant, but the economy is increasingly diversifying into low-emission areas. However, the country is still in the process of emerging from decades of internal conflict. **Indonesia** is a rapidly developing economy, experiencing huge growth in the demand for goods and energy. This growth is highly dependent on the exploitation of its abundant hydrocarbons, primarily coal and oil, as well as other carbon-intensive assets, such as palm oil.

### 3 KEY FINDINGS

This study investigated the implications that the phase-out of fossil fuel use and broader decarbonisation processes may have for the EU's foreign policy toward and external relations with six fossil fuel exporters – Azerbaijan, Canada, Colombia, Indonesia, Nigeria and Qatar. Overall, the report draws five main findings from the country case studies.

#### **I: Decarbonisation constitutes a key political and economic challenge for exporters of fossil fuels and other carbon-intensive products.**

The economies and government budgets of the six studied countries are, with some variations, highly dependent on the production and export of fossil fuels (and other carbon-intensive goods). As a result, and again to varying degrees, they are also exposed to fluctuations in the price of fossil fuels, and continuing investments in related infrastructure carry a high risk of creating stranded assets.

- **High dependence on fossil fuel production and export:** The case studies illustrate that the economies and government budgets of a number of fossil fuel-exporting countries are highly dependent on the production and export of oil, gas, coal and/or other carbon-intensive goods. Fossil fuel production and export account for significant shares of these countries' economies, ranging from less than 10 percent to about half of GDP.
- **Exposure to price fluctuations:** Fluctuations in the price of fossil fuels in international markets illustrate the high dependence on fossil fuel production and export, as could be seen in the fall of the international oil price between 2014 and 2016 (and is confirmed by the dramatic falls resulting from the COVID-19 pandemic in 2020). This fall had a major impact on the economic development, in some cases causing recessions, and public budgets of the six countries studied. Although decarbonisation has not been a major driver of international fossil fuel markets to date, it could reinforce downward pressure on fossil fuel prices in future.
- **High risk of stranded assets and insufficient diversification:** The countries investigated have continued to invest heavily in fossil fuels and related high-carbon infrastructure, entailing a high risk of stranded assets under decarbonisation. This has contrasted with lower investment in non-fossil fuel sectors, and at times even undermined progress towards economic diversification.

## II: The decarbonisation challenge intersects with various other fragility and security risks.

These risks and their severity vary across countries. They include conflicts at national and regional level, weak and fragile governance arrangements, and the impacts of climate change. These risks can exacerbate the difficulty of moving away from fossil fuels, and decarbonisation could increase these risks if they are not adequately addressed. While such risks are negligible in Canada, they are particularly grave in countries where the political settlement depends to a large extent on income from fossil fuel exports (e.g. Azerbaijan, Qatar, Nigeria).

- **National and regional security risks:** Our case studies illustrate that fossil fuel-exporting countries frequently face significant national and/or regional security risks. Indeed, all our case study countries except Canada face significant or even serious security challenges; these take different forms and are highly specific to the respective contexts.
- **Fragile governance contexts:** Most of the fossil fuel-exporting countries also face governance challenges at the national level, although their significance varies. These seriously curtail the respective governments' capacities to effectively address dependence on fossil fuel exports and, more generally, to implement targeted policies to foster low-carbon development.
- **Climate change impacts:** Climate change is predicted to have a medium to high impact on the countries studied. These impacts could strengthen support for engaging in climate policy and related cooperation. However, the concrete impacts might also restrict the capacity to act on fossil fuel dependency, as priority might be given to urgent adaptation measures.

## III: Climate policy frameworks are in urgent need of further development, but ambitious climate policies face significant resistance.

While climate policy frameworks are at various stages of development, none of the countries studied have yet developed adequate targets and policies for meeting the goals of the Paris Agreement. Progress in the development of such targets and policies and in the climate transition of these countries is hampered by significant socio-economic barriers, in particular strong opposition from the fossil fuel industry that is often intertwined with the political system.

- **Climate policy frameworks are at various stages of underdevelopment:** The development of climate policy frameworks in the studied fossil fuel-exporting countries ranges from insufficient to grossly inadequate. The targets set out in the six countries' Nationally Determined Contributions (NDCs) are insufficient for achieving the objectives of the Paris Agreement, and there are concerns about the ability of existing domestic policy frameworks to effectively implement these targets (and to support the raising of ambition in future).
- **Significant opposition to transformational climate action.** The (under)development of domestic climate policy frameworks in the studied countries correlates with significant political and economic opposition to transformational climate action. Even in studied countries where fossil fuels have a comparatively modest importance for the national economy – Canada and Colombia – this opposition is significant and strong.

#### **IV: EU external relations can build on pre-existing cooperative arrangements of varying strength and form.**

Existing cooperative arrangements between the studied fossil fuel exporters and the EU provide a sound basis for "decarbonising" bilateral relations, i.e. developing them fruitfully beyond high-carbon products. The most important institutional arrangements in this respect include Partnership and Cooperation Agreements and Free Trade Agreements, but cooperation has a varied, more diverse basis, including regional and multilateral forums.

The EU's relations with the studied countries can build on existing Partnership and Cooperation Agreements or other forms of high-level dialogue. In several cases, bilateral trade relations find a further firm basis in relevant free trade agreements. Beyond these formal agreements, the studied fossil fuel exporters and the EU also cooperate within a web of other bilateral, regional, and multilateral forums. How tight this web is, and where its points of focus lie, varies between the countries, but generally these relations provide a solid basis for developing cooperation.

#### **V: There is ample potential for developing EU external relations with fossil fuel exporters beyond fossil fuels.**

Our case studies indicate that there is a strong and varied basis for successfully developing EU external relations with fossil fuel exporters away from and beyond fossil fuels. We identify five prime areas that deserve particular attention: (1) climate and energy, (2) trade and investment, (3) science and education, (4) finance and development, and (5) security and peace. Whereas these areas' specific potential varies across countries, they can serve to describe and assess the possibilities for advancing decarbonised EU external relations as part of the EU's aspirations for global leadership under the European Green Deal, thereby strengthening the deal's foreign policy dimension.



**1. Climate and energy:** Low-carbon development, including renewable and clean energy technologies, is a particularly promising field for developing future cooperation. There is considerable scope for stepping up action worldwide and the EU is relatively advanced in its climate and energy transition by international comparison. In virtually all the studied countries, there was also enormous potential to further intensify cooperation on renewable energy. As a first step in the energy transition, this has the potential to synergise with the exploitation of oil and gas, as it can enhance the availability of these fossil fuels for export. Beyond that, renewable energy has increasing price advantages, is becoming an internationally recognised prime energy resource, and can be linked to established programmes and strategies for economic diversification.



**2. Trade and investment:** There is enormous potential for trade, investment and, more generally, economic cooperation with the studied countries beyond fossil fuels and other carbon-intensive products. Partnership and cooperation agreements and free-trade agreements provide a strong basis for such economic cooperation. In countries that have strategies or plans for economic diversification, cooperation with the EU could more strongly build on and connect to priority sectors and industries.



**3. Science and education:** Poorer fossil fuel exporters in particular face significant challenges in developing a knowledge-based economy, which is itself closely linked to aspirations towards economic diversification. As an advanced knowledge economy with established educational and research programmes, including for international cooperation, the EU and its member states have much to offer in cooperating with fossil fuel exporters to enhance their education and skills development, as well as their research capacities.



**4. Finance and development:** The EU already has strong finance and development cooperation with the developing countries studied. There remains significant scope for realigning finance and development cooperation to support decarbonisation. External finance and development cooperation could aim to ensure a significant share of overall finance (at least 25 percent) is reserved for climate and low-carbon development purposes, and to phase-out or prohibit finance that is not aligned with low-carbon development objectives.



**5. Security and peace:** The geopolitics of decarbonisation is also closely related to issues of peace and security. All the fossil fuel exporters studied except Canada face serious internal and/or external security challenges. While Nigeria faces both serious internal and regional security threats, the main security challenges are primarily domestic for Colombia and Indonesia. Qatar and Azerbaijan in particular are embedded in precarious regional security contexts. In addition, these countries are – to varying extents – challenged by weaknesses of their governance systems. To this end, the EU and its member states can build on and intensify cooperation with fossil fuel exporters on these matters.

## 4 FUTURE PROSPECTS

Decarbonisation and the European Green Deal constitute both a challenge and an opportunity, also for EU external relations. This report systematically examined EU external relations with a cross-section of six fossil fuel-exporting countries, with the aim of using concrete cases to investigate what impact European and global decarbonisation could have on external relations. It also considers how the objectives of the climate transition and a fruitful development of bilateral relations can be aligned and synergised, and, more generally, the potential for successfully developing external relations under decarbonisation.

The study's findings suggest that there is ample scope for developing EU external relations beyond fossil fuels, even with those countries that may be considered particularly hard cases, namely fossil fuel exporters. Partners highly dependent on the production and export of coal, oil, gas and other high-carbon products also have other significant interests. These provide entry points for developing climate-neutral EU foreign relations, including cooperation on expanding the use of renewable energy and, more generally, developing a more diverse (knowledge) economy.

The potentials and conditions for developing relations under decarbonisation are highly specific to each country and need to be appraised on a case by case basis. Importantly, it seems evident that successfully developing relations with these – and other – countries requires the EU to take an active and targeted approach. Fruitful external relations are unlikely to come about by themselves in a decarbonising world; they need to be shaped via a proactive foreign-relations strategy. Since our case study analysis was concluded, the disruption of the COVID-19 pandemic has added to the complexity of decarbonisation processes, but also presented new opportunities for accelerating climate action via green recovery packages. Exactly how the European Green Deal will shape these recovery packages and other foreign policy priorities still remains to be seen and realised in concrete action. This will require coherent follow-up of engagement strategies with individual countries and regions.

We are hopeful that the present study constitutes a useful beginning for thinking about EU external relations and foreign policy beyond fossil fuels, and thereby stabilising international affairs in these challenging times. To this end, it develops two important lines of enquiry: (1) exploring the dependence on high-carbon products in their broader context (trade, security, etc.) and (2) systematically taking account of the opportunities and potentials for developing external relations that assist in and synergise with the decarbonisation challenge. A comprehensive approach that takes into account broader relations with the partner countries beyond climate and energy, including trade and investment, science and education, finance and development, and peace and security, should facilitate the development of coherent foreign relation strategies that support the transition to a climate-neutral world.







## **PART ONE: INTRODUCTION**

**This section provides the background for this report, states its intention, and introduces its methodology for examining the geopolitics of decarbonisation.**

# 1 INTRODUCTION

Decisive action is imperative to prevent the catastrophic effects of climate change and ensure global prosperity in the 21<sup>st</sup> century. Under the Paris Agreement, governments committed to radically cutting carbon and other greenhouse gas (GHG) emissions over the coming decades, and to thus transforming their economies and societies. This decarbonisation process has profound implications for both domestic and foreign policy, and is likely to have important geopolitical consequences. This report contributes to the emerging literature on the geopolitical implications of decarbonisation and energy transition processes (e.g. Scholten 2018; IRENA 2019; Overland 2019; Van de Graaf and Sovacool 2020). It aims to provide insights on the external dimensions of the European Green Deal launched by the European Commission in 2019 (European Commission 2019) and on how EU external relations can evolve to accelerate and shape the transition to a decarbonised world. Building sustainable, fruitful partnerships with EU partner countries under decarbonisation is likely to require wide-ranging action in two key areas. Firstly, support for the implementation of the Paris Agreement, and secondly using the entire diplomatic toolbox – including instruments related to trade, finance, security, and research and innovation – to place external relations with partner countries on a solid footing for future cooperation in the decades to come. This is essential to mitigate potential risks related to climate change and decarbonisation, and to diversify cooperation away from fossil fuels and high-carbon assets towards other sectors with potential in the long-term.



In 2015 in Paris, the international community agreed on the first-ever universal, legally binding global climate change agreement. Countries committed to taking increasingly ambitious action over the coming decades to limit warming to below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

## THE DECARBONISATION CHALLENGE

In 2015 the international community adopted the Paris Agreement and set the course for climate policy action up to the end of the century. Having committed to the goal of holding global temperature rise to well below 2°C and to pursue efforts to limit it to 1.5 degrees, many countries are now moving to cut GHG emissions. Crucial to these efforts will be the long-term transition away from fossil fuels to a decarbonised energy supply, but decarbonisation is also a much broader process that will require, for example, changes in land-use, greater resource efficiency, and the preservation of carbon sinks, such as forests and oceans (Dupont and Oberthür 2015).

Long-term commitment is required to achieve this, underpinned by strategies that aim to achieve net-zero emissions in the second half of the century. In accordance with Article 4 of the Paris Agreement, the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) has invited the international community to communicate their Long-term Strategies by 2020<sup>1</sup>. This process complements the shorter-term process of formulating and submitting Nationally Determined Contribution (NDCs). Long-term Strategies will not only guide countries in goal setting and thus help increase NDC ambition over time; they are also critical tools for planning the long-term transition towards a decarbonised economy that avoids the risks of a technological carbon lock-in.

Decarbonisation implies a fundamental change in the way economies and societies work, and it is likely to be characterised by two broad changes – the decline and destabilisation of carbon-intensive development models based on the production and burning of fossil fuels and overexploitation of natural resources, and the emergence of more sustainable forms of energy production and resource use. As a “disruptive, non-linear and contested” process (Geels et al. 2017a), we expect it to have both adverse and positive effects on countries, with the particular challenges and opportunities they face varying considerably between them. The scale of these challenges is likely to be linked to existing economic dependence on fossil fuels and other high-carbon assets, while the potential to reap positive benefits and take advantage of new opportunities arising from decarbonisation will depend on the flexibility of the economy and society to shift and diversify.

Countries will have to implement and manage deep, structural changes to their economies and societies to effectively lower GHG emissions. The depth and urgency of the changes required mean that governments must be proactive in turning away from high-emitting industries and promoting economic diversification and low-carbon sectors. The strength of governance and institutions, as well as overall economic and political stability, are therefore likely to be important success factors in driving deep decarbonisation processes. Conversely, conflict and instability can significantly undermine efforts to decarbonise. In fragile, conflict-prone regions, change may exacerbate existing tensions or lead to the emergence of new security threats.

<sup>1</sup> See decision 1/CP.21, para. 35, in accordance with Article 4, para. 19, of the Paris Agreement (UNFCCC 2016).





## THE GEOPOLITICAL CHALLENGE

The decarbonisation challenge also has important geopolitical dimensions (Ivleva and Tänzler 2019). Tackling climate change and deeply decarbonising economies and societies has profound geopolitical implications. Firstly, the transboundary impacts of climate change pose a challenge for political governance systems – both at national and international level. Secondly, in a globalised world, implementing national climate policies is likely to have effects far beyond a country's own borders. Both areas demand bilateral and multilateral coordination and cooperation with other countries, and therefore affect external relations and the various branches of foreign policy.

Foreign policy and external relations have a dual role to play in supporting deep decarbonisation. On the one hand, countries and regions must work together to support decarbonisation processes beyond their own borders – with a particular responsibility on historically high emitters and developed countries to support less developed regions of the world, and regions under-resourced to address the impacts of climate change. On the other, they must pave the way for developing fruitful external relations beyond fossil fuels. That means both promoting forms of cooperation that can help to prevent the potentially destabilising effects of fossil fuel phase-out and decarbonisation, and putting external relations on a new sustainable foundation based on other sectors, including low-carbon ones.

The consequences for foreign policy and external relations are wide-ranging. Beyond diplomatic efforts to strengthen the international community's resolve and ambition in implementing the Paris Agreement, energy diplomacy will be an important focus. Whether a country is a net importer or exporter of fossil fuels or other carbon-intensive commodities, we can expect the process of decarbonisation to reconfigure countries' external energy relations. Climate action and decarbonisation processes are also likely to have a broader effect on trade relations, finance and investment flows, scientific cooperation, official development assistance, as well as efforts to promote conflict prevention and peacebuilding.

## THE GEOPOLITICAL DECARBONISATION CHALLENGE FOR THE EU

As a global power, as a leader on climate action, and as a region that by international comparison is relatively advanced in the transition to climate neutrality, the EU has an important role to play in meeting these challenges. Honouring its commitments under the Paris Agreement requires it to play a strong and stabilising role in shaping the new decarbonised world that is emerging (Wolters et al. 2016). As such, its external relations and foreign policy will need to evolve in two ways. Firstly, in times when multilateralism and the “Paris spirit” are increasingly under threat, EU leadership in pushing for increased ambition and supporting the successful implementation of the Paris Agreement beyond its own borders is more important than ever. A focus on internal climate policy is vitally important, but also limited given the EU’s decreasing share in global emissions. Secondly, the transition of the EU and its member states to net-zero emission economies will affect relations with carbon-intensive economies outside the EU, including exporters of fossil fuels. By considering potential scenarios ahead of time and adopting a preventive and coordinated foreign policy approach that seeks to both facilitate decarbonisation efforts and mitigate associated challenges with key partners, the EU and its member states can pave the way for long-term, sustainable international cooperation – and thus smoothen the implementation of the Paris Agreement.

Despite the importance of the issue, the debates on how EU foreign policy should deal with the decarbonisation challenge remain in their early stages. There is a well-developed body of literature discussing European foreign policy and the EU in international affairs (see for example Vimont 2015; Jørgensen 2015), the EU’s role in international environmental and climate politics (see for example Adelle et al. 2018; Wurzel et al. 2016; Oberthür and Groen 2018), as well as the necessary conditions for deep decarbonisation processes at national level (see for example Geels et al. 2017a, b). Further there is an established literature on the links between climate change and foreign and security policy (see for example Rüttinger et al. 2015; Federal Foreign Office 2019; Podesta and Stern 2020). There has also been some important work on the geopolitics of energy transition in general, and its implications and imperatives for foreign policy, external relations and geopolitics (see for example de Jong et al. 2017; Scholten 2018; IRENA 2019; Van de Graaf and Sovacool 2020). However, there has been little work on bringing together these different areas to consider how **the EU could and should develop its foreign policy to support the Paris Agreement and develop fruitful external relations under decarbonisation**. With the European Green Deal now at the heart of EU politics, it is even more pressing to consider what the foreign policy community should take into consideration when developing and implementing the European Green Deal’s external dimension (European Commission 2019: 20-22).

### **This study aims to make a contribution to filling this key gap in the literature.**

The remainder of this introductory section outlines the other starting points for this study. Section 2 reviews the key milestones in the development of EU climate policy and a supporting foreign policy from the early 1990s to early 2020. Section 3 then outlines the key considerations that guided the development of our analytical framework for examining the geopolitics of decarbonisation, which is then introduced in more detail in section 4. Section 5 outlines the criteria and the process that guided the selection of the six case studies that lie at the core of the analysis in this report. Section 6 provides a short overview of the entire report.

## 2 THE EU AND DECARBONISATION

The EU has long sought to assume a leadership role in responding to climate change (Gupta and Grubb 2000; Oberthür and Roche Kelly 2008; Wurzel et al. 2017). Following the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the EU drew on its legal competences in the areas of environment and the internal market to begin formulating relevant policies. Progress was initially slow and incremental, but the pace of internal climate policy development increased considerably from the early 2000's. These advances were partly motivated by concerns about energy security and the EU's dependency on fossil fuel imports but were also galvanised by new, attractive prospects for expanding the use of renewable energies (ibid.).

The EU established the central pillars of its climate policy and the defining features of its decarbonisation pathway towards the end of the first decade of the new century. In 2007, it distilled its climate policy ambitions into the 20-20-20 commitment – a 20 percent reduction of GHG emissions by 2020 compared to 1990, an increase in the share of renewable energies in the final energy consumption of the EU to 20 percent by the same year, and a 20 percent improvement in energy efficiency compared to a business as usual scenario by 2020. A number of policies followed in 2008 and 2009 to implement this commitment, including the revision of the EU Emissions Trading System (ETS) (Oberthür and Pallemmaerts 2010; Jordan et al. 2010). In 2009, the European Council showed strong climate leadership by committing to reducing GHG emissions by 80 to 95 percent in 2050, compared to 1990 levels.

During this period, the EU also developed its climate diplomacy strategy, which rested on three main pillars: achieving a global climate agreement, supporting the implementation of climate policies in partner countries, and addressing the security risks expected to emerge as the climate changed in different regions around the world (European Commission 2008). The strategy highlighted the external dimensions of EU climate policy, but stopped short of outlining a clear framework for action and the specific policy adjustments that would be needed vis-à-vis international partners. Missing, or at best indirectly addressed, in this long-term decarbonisation commitment and the EU's burgeoning climate diplomacy were also the repercussions that deep decarbonisation processes could have on foreign policy and external relations.

In the run-up to the landmark climate conference in Paris in 2015 and in the years following, there were significant advances in the EU's internal climate policy approach. These included moves to further define the bloc's decarbonisation pathway and develop a meaningful climate diplomacy approach, even if the foreign policy dimensions of decarbonisation had yet to be fully addressed (Wolters et al. 2016). Both short and long-term policies and strategies were developed despite internal struggles over the pace of the overall transition process, which affects EU member states to different degrees depending on factors such as their domestic energy mix. Nevertheless, in 2014 the European Council agreed to reduce GHG emissions by 40 percent by 2030 (compared to 1990), and to increase the share of renewable energies in overall energy consumption to at least 27 percent by 2030. The targets for renewable energy and energy efficiency were subsequently upped to 32 percent and 32.5 percent, respectively, in the legislative process on the implicated directives in 2018 (Kulovesi and Oberthür Forthcoming).

In November 2018 the European Commission looked further into the future and presented its strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050 (European Commission 2018). The strategy sets out the pathway to a climate neutral economy, with joint action required in seven strategic areas: energy efficiency; deployment of renewables; clean, safe and connected mobility; competitive industry and circular economy; infrastructure and interconnections; bioeconomy and natural carbon sinks; and carbon capture and storage to address remaining emissions. The European Council approved the target of reaching climate neutrality by 2050 in December 2019 and the EU submitted its long-term strategy to the UNFCCC in March 2020 (European Union 2020).



Ursula von der Leyen, President of the European Commission, and Charles Michel, President of the European Council, speaking in December 2019 about the EU's commitment to be climate neutral by 2050.

The current European Commission is aiming to usher in a new era of EU decarbonisation and renewed leadership on climate action. During her bid to become president of the Commission from 2019 to 2024, Ursula von der Leyen announced that she would present a European Green Deal during her first 100 days in office. This initiative has included the preparation of the first European Climate Law to enshrine the 2050 climate neutrality target into law, the extension of the EU ETS to other sectors, the potential introduction of a carbon border tax to avoid carbon leakage, in line with World Trade Organization rules – all with the clear intention to strengthen the role of the EU as a global leader (European Commission 2019).

The mission letters sent to the new Commissioners on Climate Action, Energy and Trade in December 2019 highlighted the importance of this ambitious and timely initiative. However, the mission letter to the High Representative of the Union for Foreign Affairs only mentioned climate change in passing, indicating that decarbonisation's implications for foreign policy have yet to receive fuller consideration in the development of the EU's external relations. This will be essential to ensure that the EU is prepared for and able to play an active role in shaping the geopolitical dimensions of the decarbonisation process.

This process now needs to be seen in a new context due to the COVID-19 pandemic. In response to the crisis, the European Commission presented an ambitious recovery package for Europe in May 2020. President of the European Commission Ursula von der Leyen announced that the package would consist of two parts: the European budget and a recovery instrument. She also highlighted the importance of supporting partners beyond Europe as part of the instruments for Neighbourhood, Development and International Cooperation and stressed that the next Multiannual Financial Framework (MFF) would need to address both the economic recovery and the climate crisis (European Commission 2020a).

### 3 MOVING TOWARDS AN ANALYSIS OF THE GEOPOLITICAL CHALLENGES

Geopolitics is commonly understood as the interaction of international politics, power and geography, and their impacts on security and resource use, but it has also traditionally been considered the study of the evolving interests of nation states and how they relate to one another overall (Ivleva and Tänzler 2019; Steinmetz 2012). Deep decarbonisation, as required to achieve the goals of the Paris Agreement, demands that states actively phase-out carbon-intensive patterns of economic growth and resource use, and move towards low or zero-carbon models for economic development. As such, states' use of resources, and in turn their interests and concerns, are due to undergo profound shifts in the era of climate change and decarbonisation, and may therefore be considered a deeply geopolitical issue. In this study, we aimed to explore key aspects of the emerging geopolitics of decarbonisation, with the following four considerations marking the starting point for our analysis.

Firstly, we posit that decarbonisation **constitutes a significant challenge for countries economically and politically reliant on high global demand for fossil fuels – namely fossil fuel exporters**. As demand for fossil fuels and other high-carbon resources falls, these countries will need to find strategies to address the potential reductions in fossil fuel revenues, for example from foreign exchange earnings, taxes or royalties, which would create shortfalls and uncertainty in government budgets and planning processes (Van de Graaf and Verbruggen 2015). They also face the prospect of their substantial fossil fuel-related assets, including untapped hydrocarbon reserves and relevant infrastructure, becoming stranded – that is to say being prematurely devalued, written down or converted into liabilities (Curtin et al 2019; Ivleva et al 2017; CTI 2015).

A second consideration is that the decarbonisation challenge can **intersect with various other fragility and security risks**. Economic uncertainty or instability, potentially related to decarbonisation, may exacerbate or add to the complexity of existing political tensions or security risks at national or regional level (see for example Kim and Conceição 2010). In addition, weak governance may represent a significant barrier to diversifying government revenue streams beyond the oil and gas industries (Esanov 2012; Collier 2010). Climate change impacts are also likely to act as a “threat multiplier” in the coming decades (Rüttinger et al. 2015). As the climate crisis deepens, impacts such as rising temperatures and changing rainfall patterns may pose challenges for important economic sectors, such as agricultural production, as well as food, water and livelihood security in general.

A third consideration is that although **strong climate policy responses are urgently needed**, ambitious climate policies may face significant resistance – especially in countries that are heavily dependent on a carbon-intensive development model. Around the world, climate policy frameworks are at various stages of development, with most states still in the process of developing targets and policies capable of meeting the goals of the Paris Agreement (CAT 2020; Lamb and Minx 2020). Ambitious policies to drive transformational climate action and low-carbon development face significant opposition, especially from the fossil fuel industry, which is often influential at all levels of government, as well as among political parties and the public (Geels 2014).



A fourth consideration is that the challenges that countries face in a decarbonising world have external dimensions that foreign policy can help to address them (Podesta and Stern 2020). For example, via measures to diversify relations beyond fossil fuels and support the emergence of low-carbon development models (IRENA 2018), but also via measures to prevent the potential destabilisation of countries and regions under decarbonisation, or to counter fragility connected to the eruption of violent conflict (Rüttinger et al. 2015). Consequently, **foreign policymakers at EU and member-state level can play a role in supporting decarbonisation processes in other countries and creating a solid basis for external relations in the long-term under decarbonisation.**

Taken together, these considerations guided and helped to focus the structure and development of this study. They provided the starting point for developing the analytical framework for a case study analysis of fossil fuel-exporting countries and the future challenges and opportunities in their external relations with the EU under decarbonisation.



Global decarbonisation processes are set to reconfigure energy relations for both fossil fuel exporters and importers.

## 4 ANALYTICAL FRAMEWORK

Analytical approaches informing EU foreign policymaking under decarbonisation need to take into account both the risks that EU partner countries may face, and the potential they may have to harness emerging opportunities in a decarbonising world. The analytical framework developed for the case study selection and analysis in this study has four branches. The first three correspond to our key considerations about the geopolitical challenges that countries face as the world decarbonises, while the fourth examines relations with the EU and indicates to what extent they may support a sustainable and stable transition towards a new kind of partnership.

- 1. Economic exposure to decarbonisation risks:** The case studies examine how dependent a country's economy and trade is on fossil fuels or other carbon-intensive goods. The analysis considers how exposed the economy of a country could be to reductions in demand for these goods, both globally and within the EU. The higher the level of dependence, the more exposed the economy would potentially be to falls in demand or measures restricting the use of these goods, and the higher the risks under decarbonisation. A range of indicators are used to assess how important fossil fuels and other carbon-intensive goods are to a country's trade and economy.
- 2. Wider risks resulting from economic disruption under decarbonisation:** We broaden the scope of analysis and look beyond sectors directly affected by reductions in demand for fossil fuels and other carbon-intensive goods, also paying attention to the potential security risk of climate change itself. By evaluating the development and stability of the economy, society and political governance, we aim to inform thinking about how the carbon-dependent economy and other potentially destabilising factors may be interrelated. The analysis is based on a range of indicators measuring the level and trajectory of socio-economic development, political stability and strength of governance, and vulnerability to climate change impacts, as well as assessments of national and regional security challenges.
- 3. Potential to diversify and develop a low-carbon economy:** In addition, we consider the barriers to and potential for diversifying the economy and developing low-carbon sectors. The starting point for the analysis is the country's NDC, the status of domestic climate policy, and the strength of the institutions in charge of implementing it. In this context, it is also important to consider the political influence of the fossil fuel industries, their links to government and political parties, as well as the level of public support for climate action. In assessing the potential for low-carbon development, important factors include current levels of investment in low-carbon sectors, how well diversified the economy is, and whether the country is supporting the development of sectors that can play an important role in a low-carbon economy, such as the development of renewable energies. We also consider whether the educational system and vocational training is in a position to support decarbonisation.
- 4. External relations with the EU:** This analysis concerns the country's existing external relations with the EU, and how these relations may contribute to addressing the risks and realising potential co-benefits of decarbonisation. It informs recommendations about how relations can fruitfully be developed under decarbonisation and analysis of the overall geopolitical dimensions of climate change. The analysis aims to determine how close relations with the EU are, the main characteristics of the relationship, and to what extent relations are likely to be affected by decarbonisation. Key questions to consider are: What forms of political dialogue exist with the EU, particularly with regard to energy and sustainable development? Are there free trade agreements or other frameworks for cooperation in place? What is the focus of trade with the EU? If the country receives financial and technical assistance from the EU, what are the focuses of development cooperation? And is there existing cooperation or trade in low-carbon sectors, such as renewable energy?



Low-carbon development, including renewable and clean energy technologies, is an increasingly important focus of EU external relations.

Overall, we identify five concrete policy areas within the EU’s external relations that could help to shape new types and levels of partnerships during an era of decarbonisation. These guide and focus our analysis.



**1. Climate and energy policy:** The EU can use a range of instruments to promote exchange and dialogue on climate friendly solutions in the field of energy production and beyond. They may include coalitions and alliances for higher ambition climate action, bilateral energy partnerships and dialogues, or the promotion of key policy instruments, such as the EU Emissions Trading System (EU ETS).



**2. Trade and investment** form a key building block in the EU’s external relations and may be further recalibrated to strengthen support for the process of global decarbonisation in the context of the European Green Deal. The EU could play an important role in this regard by taking steps to abolish incentives that support trade and investment in fossil fuels, and create further incentives to boost trade and investment in sustainable energy and other sectors. Overall, trade agreements can be considered an important entry point – as acknowledged in the European Green Deal – for example by including enforceable measures to protect environmental and labour standards.



**3.** One instrument widely used in the EU’s external relations is support for **research and education** in and with partner countries. Cooperation in these areas can increase the options for diversifying economies away from fossil fuels and carbon-intensive products – for example by helping to develop a more knowledge-based economy. Instruments may range from programmes for higher education to the provision of financial and technical assistance for vocational education and training to support the development of skills required in low-carbon sectors.





The European Union and its member states provided EUR 75.2 billion in Official Development Assistance (ODA) in 2019, representing 55.2 percent of global assistance.



**4. Development finance and cooperation** can work hand-in-hand to accelerate the just transition toward a decarbonised economy in partner countries, and EU-led initiatives can offer crucial support in this regard. Taken together, the EU and its member states are by far the biggest provider of development assistance worldwide, providing EUR 75.2 billion to developing countries in 2019 (European Commission 2020). This is increasingly being used to support climate action, but further integration is still required. With funding allocations set within the EU budget, the Multiannual Financial Framework (MFF), the debates on the 2021-2027 MFF will set the direction in this regard and European Commission President Ursula von der Leyen has indicated support for climate friendly investments playing a greater role – also as part of the economic recovery package in response to the COVID-19 pandemic. President von der Leyen also stressed the objective of strengthening the instruments for Neighbourhood, Development and International Cooperation as key corner stones of the EU’s external relations (European Commission 2020a, World Economic Forum 2020).



**5. Security policy** in an era of decarbonisation can help avoid or manage destabilisation risks related to the sustainable transition. EU foreign policymakers may need to consider decarbonisation as part of long-term engagement strategies and risk assessments, as well as within mechanisms like the Instrument contributing to Stability and Peace (IcSP). In addition, these transitions may shape and reinforce changing or new regional power relations and coalitions. This needs to be duly reflected in the strategies of EU external relations.

This analytical framework guides and focuses the analysis in the six country case studies that form the core of this report. By combining both quantitative and qualitative elements, it allows for both the direct comparison of the countries studied and additional scope to explore each country’s characteristics and potential transition pathway. The nature of the framework is essential given the cross-cutting nature of the decarbonisation challenge and the wide range of factors that can shape responses to the risks and opportunities it is likely to create.



Almost all countries have committed to decarbonising their economies under the Paris Agreement and, irrespective of their own level of ambition; all countries are affected by others' efforts to restructure their economies and cut greenhouse gas emissions.

## 5 CASE STUDY SELECTION

Numerous studies have sought to provide overarching analysis or indexes to assess how advanced countries are in their decarbonisation processes (see for example Climate Action Tracker 2020) and determine common challenges and opportunities (see for example Lamb and Minx 2020). This report aims to complement such studies, which are largely quantitative in approach, by providing detailed qualitative case study analysis that can consider the complex interaction of the multiple factors at play in decarbonisation processes.

As the risks and opportunities arising from decarbonisation processes may take years or even decades to unfold, our analysis focuses on a particularly high-risk group of countries that may reasonably be considered to face particular challenges or opportunities in the coming decades. Given their economic dependence on trade in high-carbon assets, and thus on other countries' demand for such commodities, fossil fuel exporters are likely to be subject to a higher degree of risk as the world decarbonises. An initial selection of 25 fossil fuel-exporting countries was therefore made using large country-level data sets showing economic dependence on fossil fuels and other carbon-intensive assets. Key indicators used were fossil fuels rents as a percentage of GDP and fuel exports as a percentage of merchandise exports (World Bank 2017a, b, c; Chatham House 2020<sup>2</sup>).

<sup>2</sup>The resourcetrade.earth tool developed by Chatham House is based on UN Comtrade data. For more information about the methodology, please see here: <https://resourcetrade.earth/about#top>

The final selection of the countries for further analysis also took several other criteria into consideration. Firstly, although fossil fuel-exporting countries are a high-risk group under decarbonisation, the challenges and opportunities each country faces are likely to vary according to other factors. The selection process therefore also took into account fossil fuel exporters' scores on four key indicators and indexes measuring fragility and existing security threats, human development, strength of governance, climate change impacts and the development of sustainable energy sources, namely the Fragile States Index (Fund for Peace 2019), the Human Development Index (UNDP 2019), the Worldwide Governance Indicators (World Bank 2018), an index of Climate Change Vulnerability (ND-GAIN 2017) and the Regulatory Indicators for Sustainable Energy (World Bank 2017e). As EU external relations are a central focus of this study, countries' trading relationships with the EU with regard to fossil fuels and other high-carbon assets were also taken into account. An overview of the main indicators used in the case study selection is provided in the Annex.

Further, a substantial body of literature and analysis already exists with respect to the world's major fossil fuel exporters, such as Russia and Saudi Arabia, and how external relations with the EU could be affected by falling fossil fuel demand (see for example, Youngs 2014, Goldthau and Sitter 2015; Roszbach 2018; Khrushcheva and Maltby 2016). This study seeks to underscore that decarbonisation in Europe and the EU's climate foreign policy objectives are also highly relevant beyond this first tier of key players in the geopolitics of energy (Casier 2015), and therefore illuminates how second-tier fossil fuel exporters may be affected by decarbonisation processes in Europe and elsewhere. The sample includes countries from every continent to allow for analysis of different regional dynamics that may influence the geopolitics of decarbonisation.

The six case studies selected – Azerbaijan, Canada, Colombia, Indonesia, Nigeria and Qatar – represent a broad cross-section of countries. As such the selection has the potential to reveal a variety of ways in which fossil fuel exporters or, more generally, carbon-dependent economies may be vulnerable to the global transition away from coal, oil, gas and other emission-intensive products that should see falling demand under decarbonisation.

The sample includes two countries that are highly vulnerable to deep decarbonisation processes. In **Nigeria**, the economy is highly dependent on gas and particularly oil, with these two commodities accounting for almost all the country's export revenues and the EU an important export market. The country also scores poorly on indexes assessing state fragility, human development, strength of governance, and preparedness for climate change impacts, indicating that it may be ill-equipped to respond to economic shocks resulting from decarbonisation. The economy in **Azerbaijan** is also highly dependent on oil and gas, and among the sample it is the country most dependent on trade in these commodities with the EU. With scores on development, governance and climate change impacts also low, as well as indications that there has been little development of more sustainable energy sources, resilience to external shocks is also likely to be low.

At the other end of the spectrum, the sample includes two developed countries that are comparatively well placed to actively pursue an ambitious decarbonisation pathway. According to the indexes used in the initial case selection, **Canada** is a stable, highly developed democracy with a diversified economy and a well-educated workforce. Although the oil industry remains economically important, it has an established climate policy architecture and renewables energies sources are at an advanced stage of development. Trade in fossil fuels only accounts for around ten percent of trade with the EU, and it has well-established relations with the EU in many areas, including in domains that support decarbonisation. **Qatar** is a rich petrostate with stable governance structures and one of the highest per capita incomes in the world. Although it remains highly dependent on fossil fuels, it has used the wealth generated by its oil industry to develop its gas sector, which has longer-term prospects under decarbonisation, as well as other areas of the economy and its external relations.

The remaining two countries in the sample face both major risks and opportunities as they and the rest of the world decarbonise. In **Colombia**, revenues from coal and oil exports are economically significant, but the economy is increasingly diversifying into other areas and it has a strong climate policy architecture to steer growth into low-emission areas. However, the country is still emerging from decades of internal conflict and this peace is likely to rely on political and economic stability over the coming decades. With the EU a key market for Colombia coal at present, future bilateral relations may likely rely on developing trade in other sectors. **Indonesia** is a rapidly developing economy, experiencing huge growth in the demand for goods and energy. This growth is highly dependent on the exploitation of its abundant hydrocarbons, primarily coal and oil, as well as other carbon-intensive assets, such as palm oil. While trade in fossil fuels between Indonesia and EU member states is negligible, the EU is a major importer of Indonesian palm oil.

## 6 NAVIGATING THE REPORT

Building on the view that decarbonisation is likely to present EU partner countries with varying levels of risk and opportunity, the report is based on the detailed comparative case study analysis of six countries in Part II. The six countries are all part of a key risk group under decarbonisation – countries showing a high-level of dependency on the export of fossil fuels or other high-carbon assets – but otherwise reflect a broad cross-section in terms of state stability or fragility, economic development, geographical region, and the relative reliance on coal, oil and gas.

In Part II, the case studies are presented in the order of the fragility and security risks that the countries face. As the country that is subject to the greatest potential fragility and security risks, the Nigeria case study is presented first, followed by Azerbaijan, Colombia, Indonesia, Qatar and Canada. Each case study analysis is structured in four parts: **(1)** risks arising from economic dependence on fossil fuels, **(2)** wider risks related to economic (under)development, political governance, security risks, and climate change impacts; **(3)** climate policy and potential for economic diversification and low-carbon development; and **(4)** existing cooperation arrangements with the EU in areas such as (energy) trade, development cooperation and education, as well as climate action and clean energy. Finally, each case study aims to present areas for the development of bilateral relations beyond carbon-intensive products and related trade under decarbonisation.

In Part III, we review the key findings from the case studies, with the aim of providing both case-specific and general insights into how EU external relations could evolve to take into account potential negative and positive effects of decarbonisation. Finally, we present prospects for further research on the geopolitics of decarbonisation.





## **PART TWO: CASE STUDY ANALYSIS**

**This section includes the six case study analyses. The six countries are presented in the order of the fragility and security risks that they face, beginning with those confronted with the highest fragility and security risks under decarbonisation.**

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## **CASE STUDY: NIGERIA**







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## LIST OF ABBREVIATIONS

<b>ACP</b>	African, Caribbean and Pacific Group of States
<b>AFOLU</b>	Agriculture, Forestry and Land Use
<b>BAU</b>	Business as Usual
<b>ECOWAS</b>	Economic Community of West African States
<b>EIB</b>	European Investment Bank
<b>EPA</b>	Economic Partnership Agreement
<b>EU</b>	European Union
<b>FDI</b>	Foreign Direct Investment
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>IEA</b>	International Energy Agency
<b>IMF</b>	International Monetary Fund
<b>LNG</b>	Liquefied Natural Gas
<b>LULUCF</b>	Land Use, Land Use Change and Forestry
<b>MAN</b>	Manufacturers Association of Nigeria
<b>MRV</b>	Monitoring, Reporting and Verification
<b>NCCP-RS</b>	National Climate Change Policy Response and Strategy
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>NDC</b>	Nationally Determined Contribution
<b>NGEP</b>	Nigerian-German Energy Partnership
<b>NNPC</b>	Nigerian National Petroleum Corporation
<b>ODA</b>	Official Development Assistance
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>OPEC</b>	Organization of the Petroleum Exporting Countries
<b>SDG</b>	Sustainable Development Goals
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WTO</b>	World Trade Organization

# NIGERIA



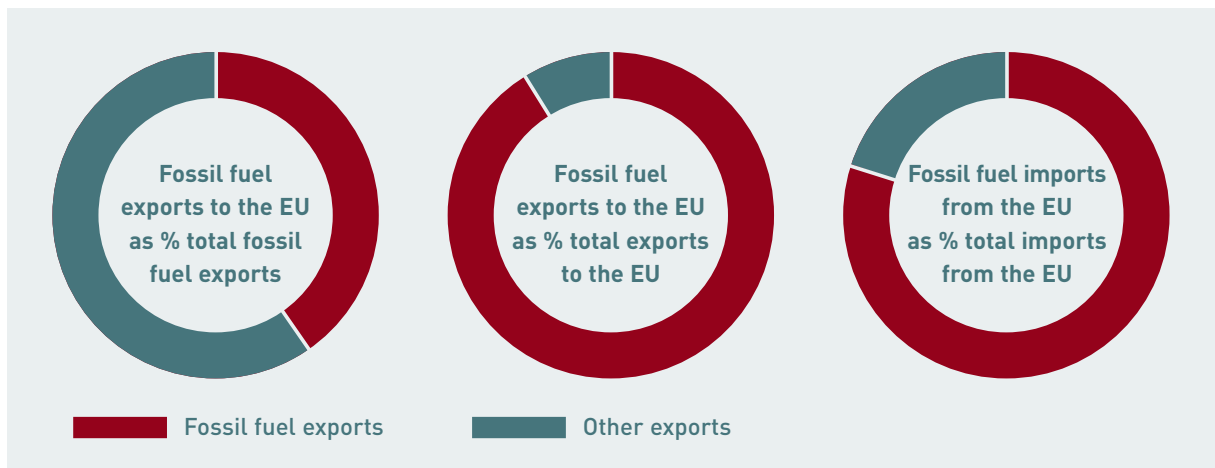
	POPULATION (2019; growth rate y-o-y)	GDP PER CAPITA (2018)
	200 m (2.59 %)	US\$ 2,028
	510 m (0.12 %)	US\$ 33,715

	CO <sub>2</sub> EMISSIONS PER CAPITA (2014)	
	EXCL. LULUCF	INCL. LULUCF
	1.72 t	2.79 t
	8.04 t	7.19 t

Fossil fuel rents as % GDP (2017)	6.9 %
Fossil fuel as % exports (2018)	94 %



<b>Fragility (2019)</b>	Sustainable	Stable	Warning	Alert
<b>Human development (2018)</b>	Very high	High	Medium	Low
<b>Strength of governance (2017)</b>	Very high	High	Medium	Low
<b>Climate change vulnerability (2017)</b>	Low	Medium	High	Very high
<b>Sustainable energy development (2017)</b>	Very high	High	Medium	Low

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Sources for dashboard statistics: Population (UN DESA 2018); GDP per capita (current US\$, World Bank 2018a); CO<sub>2</sub> emissions per capita (WRI 2018); CO<sub>2</sub> emissions per capita (WRI 2018); fossil fuels rents as % GDP (own calculation using World Bank data 2017a); fossil fuels as % commodities exports, fossil fuel exports to the EU as % total fossil fuel exports, fossil fuel exports to the EU as % total exports to the EU, fossil fuel imports from the EU as % total imports from the EU (Chatham House 2019); Fragility (Fund for Peace 2019, score 98.5/120); Human development (UNDP 2018, 0.532/1); Governance (World Bank 2017b, 105/600); Climate change vulnerability (ND-GAIN 2017, score 37.6/100); Sustainable energy development (30/100, World Bank 2017c).

# 1 INTRODUCTION

The fortunes of the Nigerian economy are closely tied to the oil price, making it vulnerable to oil market fluctuations and the phase-out of fossil fuels. While its oil and gas reserves have brought huge wealth to the country, the profits and benefits have not been equitably shared or sufficiently invested in key public services and infrastructure. This underinvestment coupled with other major challenges has held back efforts to diversify the economy, although significant potential exists. There are numerous entry points for the EU to support Nigeria in sustainably developing its non-oil economy.

The Federal Republic of Nigeria (henceforth Nigeria) is a hugely diverse country with over 250 ethnic groups and a growing, youthful populace. With the largest population and the biggest economy in Sub-Saharan Africa, it is also a major force on the African continent. Between 2010 and 2016, its GDP rose from ranking 45<sup>th</sup> to 27<sup>th</sup> in the world (World Bank, 2016; World Bank 2011), with this growth largely driven by revenues from oil and gas extraction.

However, the billions of dollars generated each year in oil and gas revenues have not brought prosperity to most Nigerians, with GDP per capita only the 128<sup>th</sup> highest globally. Unlike in some other resource-rich countries, where the wealth generated has been invested in developing key public goods, such as education, healthcare or transport networks, Nigeria’s fossil fuel industries have mainly enriched a small minority of Nigerians, as well as foreign investors. As such, Nigeria is often referred to as a case illustrating the “resource curse”, with oil and gas profits breeding corruption, fuelling conflict between ethnic groups, undermining governance and institutional frameworks, and holding back other areas of the economy. The country features low down on indexes measuring overall wellbeing, development and inclusiveness (UNDP 2017; WEF 2018; Sachs et al. 2018).

The oil and gas industries have also had a devastating impact on the environment and climate. Liquid pollutants and gas flaring<sup>1</sup> have contaminated the oil-producing Niger Delta’s rich ecosystem and posed health risks for around 20 million people (Anejionua et al. 2015). Aside from the major climate impacts of its oil and gas exports in other countries, alone gas flaring in Nigeria is estimated over the past 50 years to have emitted more carbon dioxide than 1,000 coal-fired power plants would in a year.<sup>2</sup> Nigeria is highly vulnerable to the impacts of climate change, and has been ranked among the 40 most vulnerable countries in the world (ND-GAIN 2017).

<sup>1</sup> “Gas flaring is the burning of natural gas that is associated with crude oil when it is pumped up from the ground. In petroleum-producing areas where insufficient investment was made in infrastructure to utilize natural gas, flaring is employed to dispose of this associated gas.” (JINN 2010: 1)

<sup>2</sup> Calculated using the United States Environmental Projection Agency’s Greenhouse Gas Equivalencies Calculator using data from Giwa et al. 2014.

## 2 EXPOSURE AND RISKS

### 2.1 EXPOSURE TO GLOBAL DECARBONISATION TRENDS

The oil price collapse from 2014 to 2016 showed that Nigeria is highly exposed to shifts in the international oil market. With government revenues and foreign exchange earnings strongly linked to the oil and gas sector, the downturn had major implications for the entire Nigerian economy. Further, as the world decarbonises, Nigerian fossil fuel assets risk losing their value.

#### The Nigerian oil and gas sectors form a major pillar of the economy

Possessing the largest oil and gas reserves in Sub-Saharan Africa, Nigeria is the region's largest and the world's 12<sup>th</sup> largest oil producer (BP 2019). Nigeria's oil boom began when oil industry was nationalised and the country joined OPEC in 1971. Since 1973, crude oil production has averaged 1.8 million barrels per day (bpd), and in 2017 production totalled almost 2 million bpd (BP 2019). The marginal production cost of onshore oil is relatively low at US\$ 15 per barrel, and US\$ 30 per barrel for deepwater extraction (Knoema 2018). While it is only the 17<sup>th</sup> largest producer of natural gas (BP 2019), Nigeria ranks fourth in the world in terms of liquefied natural gas (LNG) exports (IGU 2017: 9). Nigeria's natural gas reserves came on stream in 1998 and at the time were estimated to be twice the size of its oil reserves (NGA 2017). Since then, the gas sector has been developed for domestic supply and foreign export, with production increasing by 35 percent since 2011 to 49.2 billion cubic metres (bcm) in 2018 (BP 2019). However, large quantities continue to be flared, or burnt off, as many oilfields lack the infrastructure to capture the gas they also produce (Raval 2017).

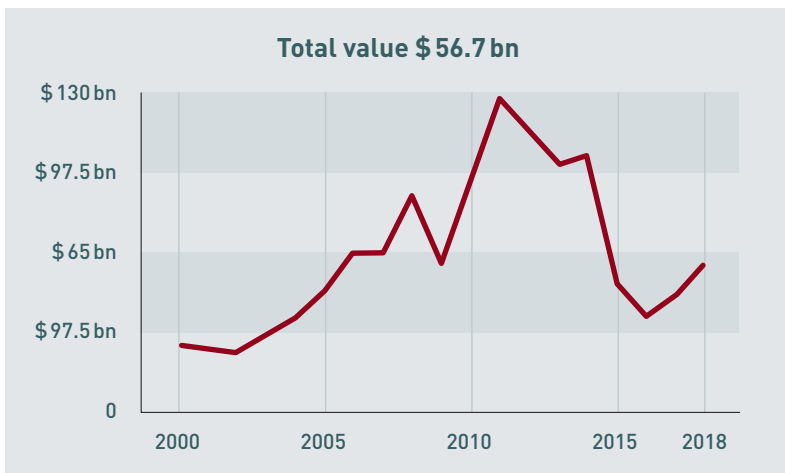
The oil industry accounted for 9.2 percent of Nigeria's GDP in 2017 (World Bank 2018b). Although this figure is relatively low compared to some other oil producing nations, revenues from the oil and gas sectors are a vital source of foreign exchange and fiscal revenues. Since the 1970s, fossil fuels have consistently accounted for over 80 percent of Nigeria's total exports (Chatham House 2019), and in 2014 fossil fuel exports generated US\$ 103 billion, accounting for around 95 percent of Nigeria's foreign exchange earnings (Chatham House 2019). Tax revenues from the oil and gas sectors provide by far the largest share of the government budget<sup>3</sup> and, as such, public spending at federal and state level is dependent on production levels and international commodity markets. This notwithstanding, the under-assessment and underpayment of taxes has been a significant issue in Nigeria, and in 2017 the government realised only 53 percent of budgeted oil revenues (World Bank 2018b). Further, the Nigerian government supports the industry with significant subsidies. Although the government began to rein in its "massive expenditure" on subsidies in 2016, Nigeria was 21<sup>st</sup> in the IEA's 2016 ranking of government energy subsidies with subsidies to the upstream oil industry totalling almost US\$ 2.5 billion that year (IEA 2016).

#### Economy highly exposed to variations in oil prices and production

Between 2005 and 2015, the Nigerian economy experienced impressive GDP growth of 8 percent per year on average. This was largely driven by the high oil price, with the country's exports generating the foreign currency to import most of the country's needs (Adeosun 2017). In 2017 these included US\$ 7.3 billion worth of refined petroleum imports, 84 percent of which came from Europe (Chatham House 2019). However, the economy's exposure to changes in the international oil market became strikingly apparent when oil prices collapsed from more than US\$ 100 per barrel in 2014 to under US\$ 30 in early 2016 (BBC 2016). This broke the economy's strong upward trend, due to major knock-on effects on non-oil sectors dependent on imports of inputs and raw materials, such as industry and services (World Bank 2017d: 5).

<sup>3</sup>Nigeria is a low-taxed economy with tax to GDP estimated to be 8 percent – the second lowest in Africa and fourth lowest in the world (PWC 2016).





**Figure 1: Total Value of Nigeria's Fossil Fuel Exports 2000-2018**

(Chatham House 2019)

As a result, in 2015 Nigeria experienced its first full year of recession in 25 years, with real GDP contracting 1.5 percent (World Bank 2017d: 5) and lost oil revenues potentially totalling US\$ 18 billion (PWC 2016a). Whereas crude oil generated 58 percent of government revenues in 2014 (EIA 2016), this figure fell to 42 percent in 2017 and is estimated to be 37 percent in 2018 (PWC 2018). Public debt levels also increased as a result. Although still boasting the second-lowest public debt levels among emerging economies (WEF 2018), public debt rose from 12 percent of GDP in 2013 to 21 percent in 2017 (Trading Economics 2018).

Nigerian oil production has also fluctuated significantly over time. Since the mid-2000s, this has predominantly been due to militant groups sabotaging pipelines and other key infrastructure in the Niger Delta, and staging kidnappings and militant takeovers of oil facilities to forward their political objectives of greater redistribution of oil wealth and local control of the oil sector (EIA 2016b).

**Future stranded asset risks for Nigeria's oil and gas industries**

Fossil fuel reserves make up 40 percent of Nigeria's total assets (Manley et al. 2017). With proven reserves of 37.5 billion barrels of oil in 2018 (BP 2019), Nigeria could maintain current oil production levels for another 50 years.<sup>4</sup> Exploration has slowed in recent years due to the low oil price, increased security threats and regulatory uncertainty (EIA 2016: 4). Nonetheless, under the 450 ppm scenario<sup>5</sup>, estimates suggest that by 2025 Nigeria may unnecessarily invest US\$ 42.5 billion in capital expenditure (capex) – 22 percent of the oil sector capex for that period (CTI 2015: 16; Ivleva et al. 2017).

The National Petroleum Policy adopted in 2017 evaluates the potential end of the oil era and explores options for reducing oil dependency (George and Onuah 2017). One key pillar of plans to diversify the economy is to significantly expand gas production for domestic use and international export (Wallace et al. 2018, Raval 2017), given the longer-term prospects of this fuel in the global low-carbon energy transition. The country currently has discovered reserves of 5.3 trillion cubic metres (tcm) of natural gas (BP 2019), which would allow it to maintain current production levels for 108 years.<sup>6</sup> However, a geological survey carried out in 2008 by the Federal Ministry of Petroleum Resources and the NNPC indicated that Nigeria's undiscovered natural gas reserves may be as high as 600 tcf (CBN 2015). In any event, heavily investing in infrastructure to exploit these natural gas assets is likely to create stranded asset risks further down the line.

<sup>4</sup> Calculated on the basis of 2018 oil production levels of 2051 thousand barrels (BP 2019)

<sup>5</sup> Introduced in the International Energy Agency (IEA) 2014 World Energy Outlook, the 450 ppm scenario – compatible with limiting warming to 2°C – assumes that oil demand will peak around 2020.

<sup>6</sup> Calculated on the basis of 2018 gas production levels of 49.2 billion cubic metres (BP 2019)



**Decades of underinvestment and lost revenues in non-oil sectors**

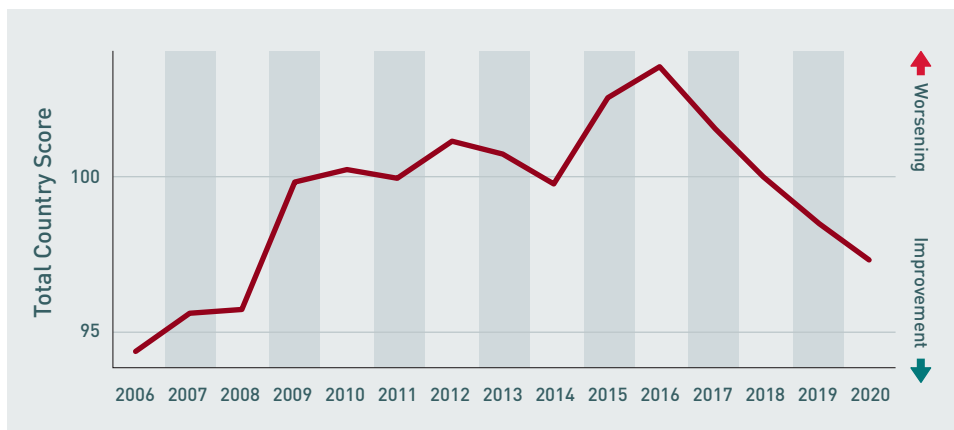
Although diversifying the economy is now a government priority, the rise in federal revenues from petroleum extraction from the 1970s was accompanied by decades of neglect of other key economic sectors, particularly agricultural production (Eigege and Cooke 2016). Prior to the oil boom, Nigeria was a world-leader in the production of cocoa, palm oil and kernel, and other cash crops, with agriculture contributing over 60 percent to GDP. In 2017 this figure stood at 25.4 percent (World Bank 2018b), and Nigeria is losing an estimated US\$ 10 billion in annual export opportunity from palm oil, cocoa and others due to a production decline of these goods (FAO 2018a). Although the declining fortunes of the agricultural sector may in part be attributable to – and corresponding to – the reduced global importance of this sector relative to others, the competitiveness of Nigerian agricultural products may also have suffered the effects of the ‘Dutch disease’ – an appreciating exchange rate due to the overwhelming amount of oil-based foreign currency earnings. Nigeria went from being a major exporter of agricultural products to an importer of basic foodstuffs, such as wheat (Otaha 2012; Eigege and Cook 2016).

**2.2 OTHER FRAGILITY AND SECURITY RISKS**

Nigeria faces substantial fragility risks and security threats, and as such is ranked 14<sup>th</sup> out of 178 countries in the 2019 Fragile State Index. High levels of corruption and the poor distribution of oil wealth, both throughout society and geographically across different regions have resulted in significant socio-economic inequality, fuelled ethnic tensions and led to instability and violence in some areas. The country is also highly vulnerable to the impacts of climate change, with the Lake Chad region and coastal megacity Lagos examples of high-risk areas.

**Increasingly unequal development**

Even the Nigerian economy’s impressive growth in the years prior to the recent recession did not result in significant poverty reduction or job creation. Around two thirds of the Nigerian population live on less than US\$1.90 per day<sup>7</sup> and almost 30 percent live in severe poverty (UNDP 2016: 6). However, there are wide disparities between different regions, with those living in the north of the country much more likely to be deprived and vulnerable (AfDB 2018: 8). Decades of underinvestment in public services and infrastructure have left 59 million Nigerians without clean water (WaterAid 2018), and most without access to public transport or more than rudimentary health facilities (Holman 2017). In spite of its abundant oil and gas resources, and huge renewable energy potential, Nigeria is also locked in a “full-blown energy crisis” (Raval 2017, see also Section 4.2). The country is gradually becoming more unequal in terms of wealth, income, opportunities, basic services and intergenerational equity (WEF 2018).



**Figure 2: Nigeria’s performance in the Fragile States Index, 2006-2020**  
 (Fund for Peace 2020)

<sup>7</sup> In purchasing power parity (PPP) terms

Nigeria also faces significant demographic pressures. The country is estimated to have a population of around 196 million in 2018 and, despite the birth rate falling, its population is estimated to reach 264 million in 2030 and 411 million in 2050 (UN DESA 2017; IARAN 2016). As such, around 1.8 million young Nigerians enter the workforce every year and GDP growth may have to reach into double figures for job creation to keep pace (Alemu 2015). The opposite scenario emerged during the recent economic downturn when unemployment increased in both rural and urban areas, almost tripling between late 2014 and the third quarter of 2017 to 18.8 percent<sup>8</sup>, particularly among young people (Trading Economics 2018). Significant job creation is unlikely to come from the oil and gas sector, which accounts for less than 1 percent of jobs in Nigeria (PWC 2016a: 23). By contrast, the agricultural sector employs over 60 percent of the labour force, but is characterised by low productivity and production, with the latter increasingly impacted by climate change (Eigege and Cooke 2016).

**High levels of corruption and weak governance**

Although military rule ended in Nigeria in 1999, the first democratic transfer of power only occurred in 2015 when opposition candidate General Muhammandu Buhari was elected president. The country performs poorly on indexes measuring voice and accountability, government effectiveness, regulatory quality, rule of law, and control of corruption<sup>9</sup>. In particular, the country has faced significant challenges in managing the unaccountable use of revenues and corruption in the oil and gas sector (EITI n.d.), with Nigeria’s central bank governor warning that US\$ 20 billion in sales revenues from the NNPC had disappeared (NRGI 2015). Despite efforts by the government, a 2017 study by Nigeria’s National Bureau of Statistics and the UN Office on Drugs and Crime showed that corruption is still rife, with an estimated 82.3 million bribes, amounting to US\$ 1.1 billion paid out each year (Johnson 2017). This has consequences for the provision of public services and the wider economy.

Weak governance represents a significant barrier to diversifying government revenue streams beyond the oil and gas industries. Reform of Nigeria’s “cumbersome and ambiguous” tax system has long been needed (PWC 2016), with IMF research suggesting the informal economy may account for as much as 65 percent of the country’s GDP, by far the highest proportion of the 37 Sub-Saharan Africa countries compared in its study (IMF 2017: 51; Hoffmann et al. 2015: 2). Increasing non-fossil fuel trade would reduce volatility in export revenues. However, the “overwhelming” complexity and cost of trading procedures in Nigeria and the near impossibility of controlling its 4,000-kilometre land border have created strong disincentives to trading through formal channels, and resulted in a sophisticated network of unrecorded trade in non-oil sectors. It has been estimated that official government statistics may not reflect between 70 and 80 percent of Nigeria’s total import and export trade (Hoffmann et al., 2015: 2).

**Unequal distribution of oil wealth and climate change among root causes of key security challenges**

Nigeria faces numerous security challenges, with development efforts regularly undermined by terrorist attacks and regional conflicts in the north-east, the Niger Delta and the Middle Belt, each of which have different drivers and economic implications (Johnson 2017). Control of Nigeria’s oil wealth has been at least a contributing factor in many of the country’s most violent conflicts, notably the bloody secessionist Biafran War (1967-1970) and the security challenges in the oil-producing Niger Delta since the early 2000s, the latter fuelled by militant groups seeking greater local control and revenues from the oil industry. Secessionist sentiments are increasing the South East (Munshi 2018). The wide disparities in

<sup>8</sup> Nigerian statistics count anyone working under 20 hours a week as unemployed. For more information, see <https://africacheck.org/reports/nigerias-unemployment-rate-18-8-widely-tweeted/>

<sup>9</sup> Nigeria performed poorly in the 2017 World Bank Worldwide Governance Indicators for Voice and Accountability (35%), Political Stability and Absence of Violence (7%), Government Effectiveness (12%), Regulatory Quality (18%), Rule of Law (14%) and Control of Corruption (13%) (Kaufman et al. 2016) and ranks 148 out of 180 countries in the Transparency International Corruption Perceptions Index 2017, scoring 27 out of a potential 100. Despite Buhari campaigning for the presidency on the promise to crack down on corruption, the country’s score on the TI CPI did not improve between 2014 and 2018 (TI 2018).



Public investment in infrastructure, such as roads and the electricity grid, is needed to support the development of the Nigerian economy.

income and opportunity across society and the country are another key root cause of conflict, with the security challenges in the north-east and the brutal insurgency of the Islamist sect Boko Haram driven by “a dangerous mix of unemployment, depleting resources, economic hardship and violent conflict” (Nett and Rüttinger 2016: 10). As a result, almost 1.7 million people are currently internally displaced and a third of households food insecure in Nigeria’s north-eastern states (UNHCR 2018; FAO 2018b). Intensifying competition for fertile land is also contributing to the country’s security challenges, particularly in the North East and Middle Belt, where clashes between farmers and herdsmen over access to farming or grazing land and water have been frequent (Eigege and Cooke 2016). Although the administration of President Muhammadu Buhari has made progress in calming these conflicts, both regions continue to experience sporadic attacks and both areas remain fragile, posing a risk to political and economic stability in Nigeria (CrisisWatch 2018; Johnson 2017).

### **Climate change acting as a threat multiplier in rural and urban areas**

Nigeria is vulnerable to the impacts of climate change and already struggling with increasing temperatures, erratic rainfall, desertification, rising sea-levels and hydrological drought (Eckstein et al. 2018, ND-GAIN 2016). In the agricultural sector, these impacts have diminished crop yields and “disrupted long-held crop rotation practices and traditions”. Food insecurity is on the rise, particularly in northern Nigeria, where agriculture is the economy’s “lifeline” and which had thus already been disproportionately disadvantaged by the sector’s decades of decline. The variability in the water levels of Lake Chad and the unfolding crisis in the region has put additional pressure on a population of which less than 40 percent have access to potable water (Government of Nigeria 2015: 5). Climate change also poses significant challenges for Nigeria’s rapidly growing urban centres. Nigeria and Africa’s largest city Lagos, which has a population of 21 million, 70 percent of whom live in slums, is also exposed to sea-level rise and flooding given its low-lying position on the Atlantic coast (Slaughter and Odume 2017). Furthermore, Nigeria has a long road ahead when it comes to preparing for the impacts of climate change, ranking 169<sup>th</sup> out of 191 countries in terms of its economic, governance and social readiness (ND-GAIN 2017).



### 3 PAST AND PRESENT EFFORTS TO DECARBONISE

Despite being on an upward trend, Nigeria’s total greenhouse gas emissions remain low compared to more developed nations. The country is making progress in developing its climate policy and governance, with the energy and land-use change and forestry sectors holding the most potential for emissions reductions. However, significant obstacles to the implementation of its NDC remain.

#### 3.1 ROLE IN THE UNFCCC AND THE PARIS AGREEMENT

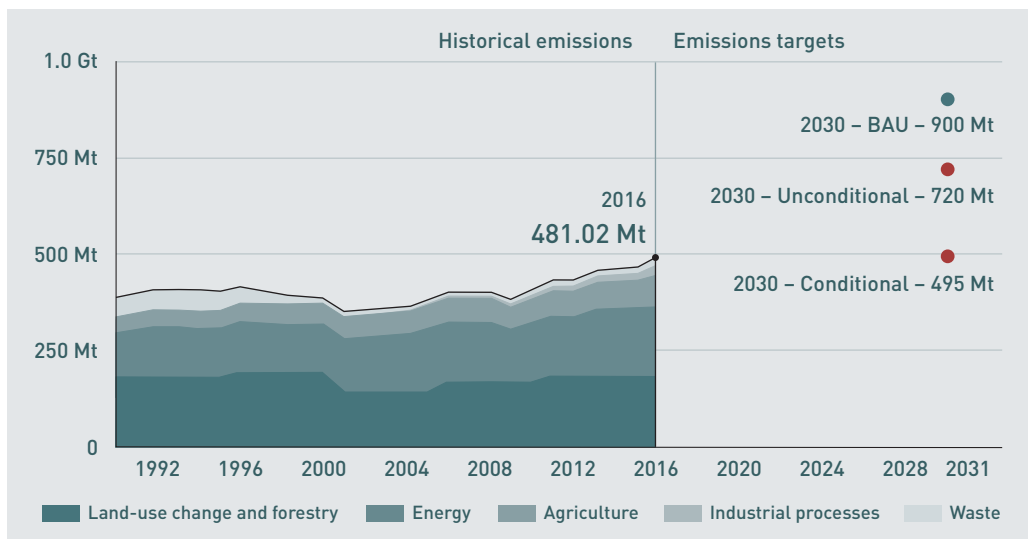
Nigeria is party to most major climate treaties, having ratified the UN Framework Convention on Climate Change in 1994, the Kyoto Protocol in 2004 and the Paris Agreement in 2016<sup>10</sup>. It is a non-Annex I Party to the UNFCCC and is hence considered a developing country in climate treaties. In its Nationally Determined Contribution (NDC) to the Paris Agreement, Nigeria committed to a 20 percent emission reduction relative to a business as usual (BAU) scenario by 2030, and, if international support is provided, to increase this to 45 percent. The latter shows significantly more ambition and would ensure that Nigeria’s emissions remained almost stable up until 2030. The NDC identifies climate-smart agriculture and land use, renewable electricity generation, energy efficiency, the oil and gas sector, and transport as priority areas for reducing emissions (FRN 2015: 12).

#### 3.2 EMISSIONS PROFILE

Nigeria accounts for less than 1 percent of total global GHG emissions (FRN 2015: 2). Nigeria’s greenhouse gas emissions exceeded 490 Mt CO<sub>2e</sub> in 2014, and energy and land use, land-use change and forestry (LULUCF) are by far the highest emitting sectors (WRI 2018). Having lost a total of 41 percent of its forest cover between 1990 and 2015, reducing deforestation and implementing afforestation programmes will be crucial for both adaptation and mitigation in Nigeria (World Bank 2015).

**Figure 3: Nigeria’s greenhouse gas emissions in total and by sector**

(ClimateWatch 2018)



<sup>10</sup> However, as of November 2019 Nigeria had not yet ratified the Doha Amendment to the Kyoto Protocol.

### 3.3 STATUS OF DOMESTIC CLIMATE POLICY

Nigerian climate policy is still in the early stages of development, and its legislature has yet to enact a climate change law with binding emission reduction targets. However, there have been new initiatives to strengthen and mainstream climate policy and governance, which falls under the remit of the Ministry of Environment. Notably, a bill to establish a Nigeria Climate Change Commission has passed through both parliamentary chambers and as of November 2018 was awaiting President Buhari's signature (Ikenga Chronicals 2018). With regard to climate change mitigation and adaptation policy, the National Climate Change Policy Response and Strategy (NCCP-RS), adopted in 2012, provides the framework and central vision for the implementation of Nigeria's NDC, while the National Policy on Climate Change, approved a year later, will form the basis for any new climate change laws (GRICCE 2018).

The oil price collapse and ensuing recession strengthened the political will for structural reform and diversifying the Nigerian economy beyond fossil fuels. In early 2017 the Buhari administration launched Nigeria's current overarching economic development plan – the Economic Recovery and Growth Plan 2017-2020. Its three stated core objectives are to restore economic growth, build a globally competitive economy and invest in improving Nigeria's human capital and social justice. The Plan and the preceding Vision 20:2020, acknowledge climate change as a threat to long-term economic progress and development, with the plan outlining measures to promote renewable energy production and use, energy efficiency, climate change adaptation, and combat land degradation and desertification (GRICCE 2018). However, the government envisions oil and gas continuing to play a major role in the Nigeria economy, along with five other "engines of growth", namely agriculture, manufacturing, solid minerals (including coal), services, and construction (FRN 2017: 26 and 54-69). Priorities include improving the regulatory and business environment for investors in the fossil fuel sectors, ramping up gas production, and developing its small downstream oil refining and processing sectors.

### 3.4 CLIMATE POLITICS

Enacting the structural reforms to implement Nigeria's NDC and other policies aimed at diversifying and decarbonising the economy will require sustained political will and strong governance at national, state and local level. Among the governance concerns already addressed above (see section 2.2), the extent to which Nigerian politicians and public servants may have vested interests in the country's fossil fuel industries is of particular concern for climate policy. While these sectors lack of transparency and accountability, repeated corruption scandals and the slow pace of reform suggest significant links between public officials and the fossil fuel lobby. Further, aside from revenues from these sectors forming a significant proportion of public budgets, the Nigerian government is heavily invested in the country's oil sector via state-owned enterprise the NNPC. Although the NNPC is only directly responsible for the production of around 15,000 bpd (NNPC 2018), it sells a large proportion of the country's oil production – around one million bpd in 2015, almost half the country's production at the time (NRGI 2015) – and plays a central role in all stages of decision-making relating to the oil sector (NRGI 2018).

Although Nigeria has made "meaningful progress" in recent years to improve the transparency of the oil and gas sectors (EITI 2018), there is still an acute lack of information concerning revenue flows and the beneficiaries. Despite top officials' repeated commitments to tackling the poor governance of the NNPC and the sector in general, Africa's largest state-owned enterprise has yet to produce comprehensive annual reports detailing its finances, or to disclose information on the earnings by its subsidiaries, the costs of its operations and its significant spending on non-commercial activities. A particular area for concern is the licensing and contracts for oil and gas projects, as the Nigerian government "does not regularly disclose government officials' financial interest in the extractive sector or identities of beneficial owners of extractive companies" (NRGI 2018).

## 4 TRENDS AND POTENTIAL

Nigeria is a country with huge resources for developing beyond fossil fuels, including a growing, youthful population and enormous renewable energy potential. However, to take advantage of these opportunities, it requires major investment in its low-carbon sectors and its overstretched public infrastructure and services, which are essential for promoting economic diversification, and more climate-friendly and inclusive development. For example, Nigeria's erratic and unreliable power grid and the gaps in its public education system are significant barriers to development and job creation.

### 4.1 FINANCING LOW-CARBON DEVELOPMENT

Nigeria faces a huge investment gap in areas that are essential for promoting economic diversification, and more climate-friendly and inclusive development. Alongside fiscal reforms and other measures to boost public revenues and spending in areas such as education and power infrastructure, private sector investment is needed to push the development of low-carbon sectors. Foreign, diaspora and domestic investors have generally been wary of investing in the country, due to the largely poor state of public infrastructure and services, combined with the country's endemic corruption, weak institutions, poor enforcement of regulation and laws, low skill levels and macroeconomic uncertainty (PWC 2016a: 4; Barungi et al. 2017: 8). Many investors prefer to launch import-export businesses, rather than navigate the challenges and uncertainties of investing and operating directly in Nigeria (Feng 2018).

To encourage investor confidence, the current administration allocated significant public spending to power and transport infrastructure in its 2017 and 2018 budgets (Ivleva et al. 2017; PWC 2018), and enacted reforms to improve the business environment. These resulted in Nigeria moving 24 places up the World Bank's Ease of Doing Business Index in 2017, although it still ranks 145<sup>th</sup> out of 190 countries. Nigeria's growing population, middle class<sup>11</sup> and cities are likely to generate a significant increase in demand for energy and consumer goods over the coming decades (PWC 2016a) and this, combined with relatively underdeveloped consumer and e-commerce markets, means Nigeria could potentially offer significant opportunities for smart investors. The vibrant digital start-up scenes in cities like Lagos are increasingly attracting foreign investment (Green 2017a). Nigerians in diaspora also contributed US\$ 21 billion to the economy in 2015 and "local Nigerians also have billions of dollars locked in low-performing assets because people are unsure of the investor environment" (Heinrich Böll Foundation 2017: 20).

The Buhari administration also took a significant step forward in its low-carbon transition in December 2017 when it launched Africa's first Sovereign Green Bond to fill the funding gap generated by the recession and raise capital for NDC implementation, which the World Bank has estimated will require US\$ 142 billion by 2030 (Gyamfi 2017). The bonds are being used to finance projects to protect the environment and to mitigate and adapt to the impacts of climate change, and the first issuance of 10 billion naira (around US\$ 27.6 million) successfully financed three projects related to reforestation and promoting energy security via off-grid solar and hydropower systems. The government has also made moves towards a second bond issuance in 2019 (Climate Action 2018).

<sup>11</sup> Nigeria's middle class grew from 13 percent of the population in 2003/4 to 19 percent in 2012/13, although this increase was lower than expected given the high increases in GDP during that period. The middle class in the country's southern states grew quicker than in northern regions (Corral Rodas et al. 2017).

## 4.2 POTENTIAL IN KEY LOW-CARBON SECTORS

### The energy sector

Responsible for a large proportion of Nigeria's GHG emissions, the energy sector is an important focal area for Nigeria's low-carbon development. Only around 60 percent of Nigeria's population are connected to the electricity grid, and 80 percent of those with grid access rely on generators running on expensive imported diesel fuel to cope with frequent outages (IEA 2017: 83). In rural areas 75 percent of people do not have access to electricity and instead rely on wood, charcoal, manure and crop residues for heating and cooking. In northern Nigeria, this is likely the case for 99 percent of families, and the need for firewood is a major driver of deforestation (Climatescope 2017). Expanding electricity access rapidly enough to meet existing, let alone future demand, is a major concern, given that power consumption increased by 37 percent between 2012 and 2016 alone (Climatescope 2017). Required electricity sector investment over the next 25 years has been estimated to be as high as US\$ 100 billion (Heinrich Böll Foundation 2017: 20).

However, the scope for improvements on both the demand and supply side is huge. With energy efficiency regulation currently underdeveloped (World Bank 2017c), there are a range of options available for decreasing energy consumption. Many of these – from introducing more efficient stoves in rural areas to reducing gas flaring – offer co-benefits like reduced air pollution alongside cost-savings. Nigeria is considered to have huge renewable energy potential, particularly with regard to solar PV. While Nigeria's installed solar capacity was only around 19 MW in 2017 (IRENA 2018), it has been estimated that covering just 1 percent of Nigeria's land area with state-of-the-art polycrystalline PV modules would generate 207,000 GWh per year – ten times total electricity production in Nigeria in 2011 (Ley et al. 2015: 85). The government has been slow to promote renewables, although the issuance of green bonds in December 2017 is a step forward (Bellini 2017). However, entrepreneurs and aid agencies are leading the way with innovative mini-grid and decentralised solar energy schemes in urban and rural areas (Green 2017).

### The agricultural sector

The Nigerian agricultural sector has major potential, but for the last 50 years it has been cheaper to import rice from China, India or Thailand than to source food in Nigeria. Increasing production and moving towards self-sufficiency, particularly for cereals, would reduce Nigeria's food import bill, which amounted to US\$ 4.5 billion in 2017 (Chatham House 2019). The agricultural sector employs 70 percent of the population, with 95 percent of the country's US\$ 90 billion farm output estimated to be produced by subsistence farmers, often with less than a hectare of land each (Wheatley 2017). As such, there is ample scope for increasing productivity and creating higher paid jobs in processing, marketing or distribution. Improvements to infrastructure would also significantly boost sector output. The delays caused by the country's unreliable power supply and congested transport networks and ports, combined with bureaucracy, corruption and poor governance, mean that at present fruit and vegetables often perish before making it to market. Furthermore, most subsistence farmers do not have access to credit to buy the storage and processing equipment they need to bring their produce to market. Investment is also needed to increase the sector's resilience to climate change impacts. Nigeria's NDC states that "under a business-as-usual scenario agricultural productivity could decline between 10 to 25 percent by 2080. In some parts of the north, the decline in yield in rain fed agriculture could be as much as 50 percent. This in turn would impact GDP, reducing it by as much as 4.5 percent by 2050, even though the share of agriculture in GDP will decline from 40 to just 15 percent" (FRN 2015).

Despite major challenges, revitalising the sector could be central to Nigeria's future development and the weakening of the naira and various policy initiatives have begun to turn the situation around (Wheatley 2017). Government, private sector and foreign donors are promoting innovative and scalable schemes to expand market access, provide credit to farmers and reduce post-harvest losses (Downie 2017). Increasing production to become a net exporter of agricultural products would diversify and stabilise the economy



by providing a major source of non-oil revenue and foreign currency. Improving nutrition and food security would also raise living standards and tackle some of the root causes at the heart of Nigeria's security challenges. For example, the food emergency in the North-East has served to significantly strengthen support for the insurgency of Boko Haram. (Downie 2017: 7; Nett and Rüttinger 2016).

### 4.3 EDUCATION AND SKILLS DEVELOPMENT

Nigeria's growing and youthful population presents both challenges and opportunities for the future. With around 67 percent of the population under the age of 30 and 43 percent under 15, Nigeria has the potential to follow the path of other emerging economies that have reaped a "demographic dividend" as a result of a growing working population. However, this is contingent on the rapid expansion of the public schools system, educational and vocational curriculums being suited to the future demands of the labour market, and on ample jobs being available for school leavers when they enter the workforce (PWC 2016a; OBG 2017a).

There are significant gaps in the Nigerian public education system at present. Net enrolment in primary education has declined from a peak of 85 percent in 2005 to 64 percent in 2017, and the quality of Nigeria's primary and secondary education has been rated below the regional average (WEF 2017), mainly due to a lack of investment and basic infrastructure, poor teaching, a rigid curriculum and large class sizes, which can reach 80 to 100 students in some regions. According to 2015 UNESCO data, one in three children drop out of school at primary level, only one in two children in the Nigerian public education system can read or write, and in rural areas two in three children cannot read at all (OBG 2017a).

As regards higher education, the number of university spaces is currently inadequate to absorb the rising number of applicants, with the 1.8 million candidates who sat the exam university admissions exams in 2017 jostling for only 850,000 places (Adesulu 2017). Among those who do secure places, there is a clear preference for arts and social science subjects, as well as professional degrees in law, medicine and engineering. The comparative lack of school-leavers opting for vocational courses and university students studying science, technology, engineering and mathematics subjects (OBG 2017a, 2017b) may leave Nigeria with a workforce ill-prepared for low-carbon professions, such as those related to the design, maintenance and installation of energy-efficient or renewable-energy technologies.

The Nigerian government has put in place policies to improve access to education and the public school and university systems. Although falling during the 2015 recession, spending on education has risen again since 2016, with 7 percent of the 2018 budget allocated to this policy area. However, this still falls well short of the 15 percent recommended by the United Nations (Adedigba 2017). To date, the programme the government launched in 2016 to create more jobs for teachers, provide school food and other measures has also suffered from slow implementation (Barungi et al. 2017: 10-1). The number of private-sector schools and universities is rising rapidly to fill the gaps in the overstretched public system, especially in urban areas (Härmä 2016). With youth unemployment at 24 percent in mid-2016 (OBG 2017b), the government has launched initiatives to better prepare more school and university leavers for jobs in sectors, such as the construction sector, which will be crucial to Nigeria's future development (OBG 2017b). Major investment is also required in university education, vocational centres and technical colleges to educate and train the kinds of high-skilled workers needed by the country's growing services sector (PWC 2017).

## 5 COOPERATION WITH THE EU

The EU's foreign policy towards Nigeria is already providing support for many of the major challenges the country faces in making a stable transition to a non-oil economy and meeting the sustainable development goals. The EU has been active in supporting on the fundamental issues of good governance and security, as well as in key areas for promoting low-carbon development, such as renewable energy and energy access, sustainable agriculture, entrepreneurship and innovation. However, efforts to deepen trade in non-oil sectors via an Economic Partnership Agreement have stalled.

### 5.1 POLITICAL DIALOGUE

The EU's cooperation with Nigeria currently finds its legal basis in the Cotonou Agreement, a partnership agreement that since 2000 has provided the framework for cooperation with 79 developing countries in Africa, the Caribbean and Pacific (ACP) in the fields of development cooperation, trade and political dialogue. With the Cotonou Agreement due to expire in 2020, the EU is already moving towards "post-Cotonou" arrangements with ACP countries. Political negotiations began in September 2018, and the future partnership agreement with African nations will aim to support the implementation of the 2030 Agenda for Sustainable Development, focusing on peace and stability, democracy and good governance, economic and human development (EC 2018a, EP 2018).

The EU and Nigeria began to intensify political dialogue beyond the Cotonou Agreement in 2004, and in 2009 established the "Nigeria-EU Joint Way Forward" as a new political framework for dialogue. Agreed priority issues of mutual interest and concern include peace and security, good governance and human rights, economic development including trade and regional integration, energy, and environmental sustainability and climate change (EEAS 2009). Although at least annual meetings between senior officials were envisaged, the most recent ministerial dialogue took place in March 2016, when the EU and Nigeria reaffirmed cooperation on security issues, the fight against corruption, and migration and mobility (EEAS 2016a). In 2018, the EU made commitments to support Nigeria in the fight against terrorism, most notably Boko Haram, and offered support in strengthening democratic governance and institution-building in the run up to the 2019 general elections (EEAS 2018a; EEAS 2018b).

### 5.2 TRADE RELATIONS

Nigeria and the EU maintain strong economic ties. Nigeria is the destination for around half of the EU's exports to the West African region and close to 70 percent of the imports (EEAS 2016b). Fossil fuels, and particularly oil, are the main pillar of this trading relationship in commodities, in 2016 accounting for 92 percent (US\$ 10.9 billion) of total Nigerian exports to the EU and 84 percent (US\$ 6.7 billion) of total EU exports to Nigeria. While the EU's crude oil imports are highly diversified, with Nigeria providing only 4.5 percent (worth US\$ 9.4 billion) in 2016, refined oil and oil products from the EU, worth US\$ 6.7 billion, accounted for over 80 percent of Nigerian oil imports. Agricultural products, mainly cacao and leather, are the second most important commodities exported by Nigeria to the EU, gradually increasing to reach US\$ 1.6 billion between 2000 and 2013. However, exports of these products fell back to US\$ 749 million (4.5 percent of total exports to the EU) in 2017. Other EU exports to Nigeria include agricultural products, such as milk and frozen fish, and iron and steel (Chatham House 2019).

Efforts to expand trade in non-oil sectors have stalled in recent years. As of July 2019, Nigeria was the only country among the 15 member states of the Economic Community of West African States (ECOWAS), home to 300 million people, not to have signed up to the Economic Partnership Agreement with the EU



Ship with oil rig in the background in the port of Lagos, Nigeria.

(EC 2018b). Negotiated between 2004 and 2014, the EPA offers ECOWAS countries immediate tariff-free access to the EU in return for the phased liberalisation over a 20 year period of 75 percent of the bloc's markets to EU trade. Powerful voices in Nigerian politics, including the Manufacturers Association of Nigeria (MAN), have opposed the EPA, arguing that it would interfere with the government's strategy to promote and protect burgeoning non-oil segments of the economy. The government's position is that Nigeria's industries – even in 20 years' time – will be too underdeveloped to benefit from more liberalised trade, and that the US\$ 8.94 billion in financial and technical assistance offered to ECOWAS member states via the EPA Development Programme to prepare for competition from European products is insufficient (Boyo 2017). Alone, Nigeria's annual infrastructure investment gap is estimated to be US\$ 8 billion, and Nigeria officials have noted that the same financial assistance is available via the European Development Fund and EU state budgets. As all ECOWAS members have to sign up to the EPA for it to enter into force, the EPA is therefore unlikely to enter into force under the current Buhari administration, especially given that other ECOWAS member states are unwilling or unable to pressure Nigeria into signing (Vasey 2017). Trade liberalisation was not a prominent issue in the campaigns for the presidential election in February 2019.

### 5.3 DEVELOPMENT COOPERATION

Due to its oil and gas exports, Nigeria has never been a country dependent on aid. Nonetheless, development assistance has an important role in Nigeria's relations with the EU (EC n.d.). The EU institutions allocated EUR 512 million in official development assistance (ODA) to Nigeria for the period 2014-2020, with the National Indicative Programme for Nigeria outlining the main areas of cooperation, namely sustainable energy and access to electricity, health, nutrition and resilience, and rule of law, governance and democracy (EC 2014). In view of the growing crisis in the Lake Chad region, the EU has also increased its humanitarian support to Nigeria year on year, and in 2017 provided EUR 224.5 million in support to Borno state in the country's north-east (EC 2017).

To date, by far the largest EU Member State donor to Nigeria has been the United Kingdom, which provided US\$ 428 million in assistance in 2016, with US\$ 269 directed towards improving social infrastructure. Post-Brexit, EU Member State contributions are therefore likely to fall significantly, with the next largest Member State donors France and Germany providing US\$ 40 million and US\$ 30 million respectively (OECD 2018).

## 5.4 LOW-CARBON DEVELOPMENT

The EU's efforts to promote sustainable energy include the Nigeria Energy Support Programme funded by the EU Delegation to Nigeria and the German government (GIZ 2017). The programme is taking a range of approaches to improve on and off-grid access to sustainable energy in Nigeria. These include support for planning and monitoring of sector strategies, assistance to existing initiatives by public actors such as the Rural Electrification Agency, and providing its expertise on creating an enabling environment for private investment in renewable energy and energy efficiency. Initiatives at member-state level are also supporting renewable energy rollout in Nigeria – for example, the German government has sought to more strongly focus the Nigerian-German Energy Partnership (NGEP, enacted in 2008) on sustainable energy sources in recent years (Adekoya 2019).

With regard to promoting sustainable agriculture, the EU is funding numerous projects to reduce malnutrition, and support sustainable agricultural livelihoods and rural adaptation to climate impacts. Two examples are the Produce and Sell (PROSELL) initiative being jointly implemented by Oxfam in Nigeria and the Development Exchange Center. Targeting 300,000 people in 30,000 farming households, it aims at improving the “resilience of small-scale farmers, fishermen and livestock owners in the face of shocks from climate change, such as changing rainfall patterns, drought and desertification” (Oxfam 2018). The EU Emergency Trust Fund for Stability and Addressing Root Causes of Irregular Migration and Displaced Persons in Africa is also funding a project to promote sustainable agriculture in Nigeria's northern Borno state. Beneficiaries will receive resources and training to help them implement best practices in fish farming, animal husbandry and agricultural production, and manage their businesses (EEAS 2017).

The EU is also providing support for improving conditions for business and agricultural investment in Nigeria. The European Investment Bank (EIB) has contributed US\$ 20 million alongside the US\$ 50 million from the African Development Bank to support the new Nigerian Development Bank (NDB) set up in 2018. The NDB is also being supported by 13 EU member state shareholders. Given that only 5 percent of the country's 37 million entrepreneurs and small business can access credit from financial institutions, it aims to support Nigeria's micro, small and medium-scale enterprises with funding and risk-sharing facilities (EIB 2018). Innovation in Nigeria is benefiting from the Digital4Development initiative to promote digital infrastructure, literacy and entrepreneurship (EEAS 2018c), and the EU is also providing support to Nigeria and the ECOWAS region through the West Africa Competitiveness Programme to boost economic integration, growth and jobs with EUR 120 million funding (ECOWAS 2018).

## 6 CONCLUSIONS

Nigeria is a country where economic development has been dependent on gas and particularly oil export revenues. Although it has grown to become the largest economy in Sub-Saharan Africa, the country is grappling with a high poverty rate, corruption and poor governance, climate change impacts, rapid urbanisation, growing youth unemployment and low productivity, due to patchy energy and transport infrastructure and low access to quality education and healthcare. The country is also facing multiple security threats. Boko Haram is weakened but not defeated in the North, with sporadic attacks continuing, and other threats including conflicts between herdsman in the Middle Belt and secessionist sentiment in the South-East are becoming more acute.

The importance of oil revenues for government budgets and foreign exchange earnings means that Nigeria is highly exposed to shifts in the international oil market, which is increasingly being shaped by decarbonisation trends in Europe and the world. As such, decarbonisation increases the likelihood of oil price drops that sent the Nigerian economy into recession in 2015. This could place further strain on oil



and non-oil sectors, socio-economic welfare, social cohesion and political stability in a country already facing a range of complex, interrelated challenges. Nigeria’s challenge is to reduce security threats, strengthen governance and channel its resource wealth – both revenues from its oil and gas sectors, and climate-friendly sectors, such as renewable energy and sustainable agriculture – into low-carbon sectors to push development in a direction that prepares it for a decarbonised future, rather than increasing its vulnerability to it.

The EU is an important trading partner for Nigeria, but to date this trading relationship has been based mainly on oil. Efforts to increase and liberalise trade in non-oil sectors have stalled. The EU and its member states are already providing support to Nigeria in many of the areas where the country is facing significant challenges – including on security issues and strengthening democratic governance. These can arguably be considered as the areas most fundamental to helping Nigeria to cope with the potential negative impacts of global decarbonisation on its oil sector. However, there is plenty of scope for intensifying this cooperation. It is worth noting that at present the UK is the member state that provides by far the most development assistance to Nigeria, and that Brexit may therefore have implications for future EU-Nigeria relations.

### 6.1 FOCAL POINTS FOR FOREIGN POLICY

While trade agreements remain off the table at present, the EU and Germany can still support Nigeria via political dialogue, development cooperation, and climate finance and assistance. Key priorities are:



**Security situation:** Support measures to prevent the further escalation of humanitarian and security crises, particularly in the North-East, Middle Belt and Niger Delta. The roots of these crises are deep and complex. A coordinated, long-term strategy is required for the EU and its member states involving its military, security, development, humanitarian and environmental agencies and institutions – in dialogue and cooperation with the Nigerian authorities. With the UK being Nigeria’s most important development partner among EU member states, the EU can continue to cooperate with the UK in its relationship with Nigeria in the wake of Brexit.



**Good governance:** Strong governance and policies will be needed to drive the transition to a low-carbon economy and harness the country’s potential. The EU and member states should continue their efforts to support democracy, and free and fair elections. Capacity-building instruments such as the NDC partnership can help Nigeria achieve its climate targets.



**Sustainable energy and agriculture:** Strengthen rural regions by investing in sustainable energy access and climate-smart agriculture. Continuing to use development cooperation to support climate-smart agriculture, low-tech innovations like efficient cook stoves, and rural electrification with renewable energy can improve the health, living standards and livelihoods of Nigeria’s rural communities.



**Trade:** Use trade relations to support Nigeria’s readiness to a decarbonised world. Encourage adoption of the Economic Partnership Agreement; Nigeria needs reduced barriers to export non-oil goods, particularly agricultural ones, to the EU. Insert environmental standards and climate considerations into trade relations; prepare the long-term trade relationship for a declining demand for oil.



**Support for investment, innovation and education:** Continuing to fund initiatives that support and expand access to credit for entrepreneurs and small businesses in Nigeria, particularly in sectors supporting the country’s non-oil economy like agriculture, energy efficiency and renewable energy. Targeted schemes to help young entrepreneurs and vocational programmes for jobs with long-term prospects could also play a role in tackling youth unemployment.

Overall, Nigeria, the EU and EU member states have already established a good basis for cooperation. Although efforts to deepen the trading relationship between the EU and Nigeria beyond oil and gas have stalled for now, a variety of dialogues, frameworks and different types of assistance have been set up to provide EU expertise and funding to support Nigeria in addressing many of its most pressing security, economic and socio-political issues, and to promote the development of the non-oil economy. However, given the scale of the challenges and intensifying risks due to decarbonisation, climate change, and demographic change, there is significant scope for scaling up support in all areas.

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## **CASE STUDY: AZERBAIJAN**

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## LIST OF ABBREVIATIONS

<b>EIB</b>	European Investment Bank
<b>ENI</b>	European Neighbourhood Instrument
<b>FDI</b>	Foreign Direct Investment
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>IMF</b>	International Monetary Fund
<b>NDC</b>	Nationally Determined Contribution
<b>LULUCF</b>	Land Use, Land Use Change and Forestry
<b>MRV</b>	Monitoring, Reporting and Verification
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>PISA</b>	Programme for International Student Assessment
<b>SOCAR</b>	State Oil Company of Azerbaijan
<b>SOFAZ</b>	State Oil Fund of the Republic of Azerbaijan
<b>SGC</b>	Southern Gas Corridor
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WTO</b>	World Trade Organization



# AZERBAIJAN



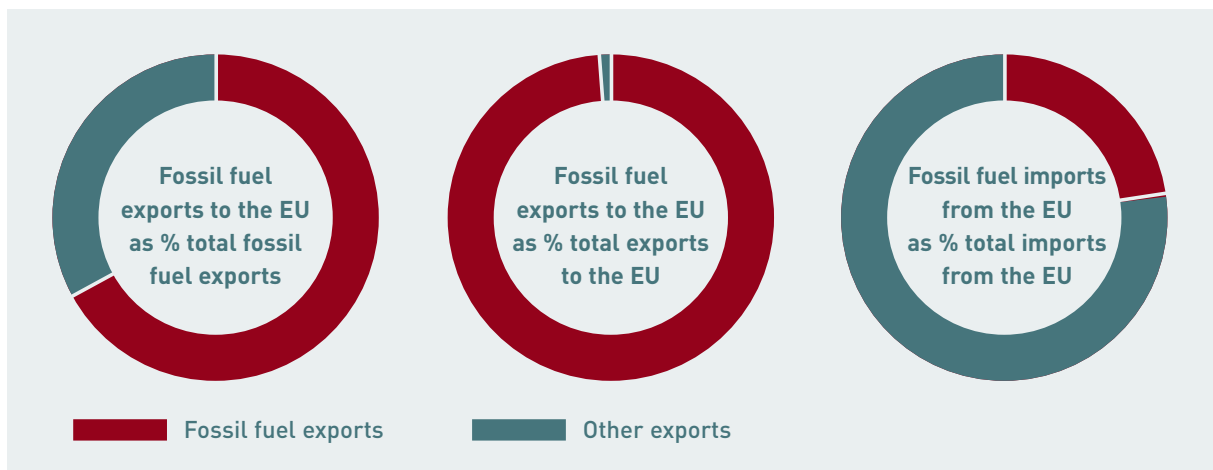
	POPULATION (2019; growth rate y-o-y)	GDP PER CAPITA (2018)
	10.04 m (1.05 %)	US\$ 4,721
	510 m (0.12 %)	US\$ 33,715

	CO <sub>2</sub> EMISSIONS PER CAPITA (2014)	
	EXCL. LULUCF	INCL. LULUCF
	7.61 t	6.73 t
	8.04 t	7.19 t

Fossil fuel rents as % GDP (2017)	20.9 %
Fossil fuel as % exports (2018)	94 %



<b>Fragility (2019)</b>	Sustainable	Stable	<b>Warning</b>	Alert
<b>Human development (2018)</b>	Very high	<b>High</b>	Medium	Low
<b>Strength of governance (2017)</b>	Very high	High	<b>Medium</b>	Low
<b>Climate change vulnerability (2017)</b>	Low	<b>Medium</b>	High	Very high
<b>Sustainable energy development (2017)</b>	Very high	<b>High</b>	Medium	Low

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Sources for dashboard statistics: Population (UN DESA 2018); GDP per capita (current US\$, World Bank 2018a); CO<sub>2</sub> emissions per capita (WRI 2018); CO<sub>2</sub> emissions per capita (WRI 2018); fossil fuels rents as % GDP (own calculation using World Bank data 2017a); fossil fuels as % commodities exports, fossil fuel exports to the EU as % total fossil fuel exports, fossil fuel exports to the EU as % total exports to the EU, fossil fuel imports from the EU as % total imports from the EU (Chatham House 2019); Fragility (Fund for Peace 2019, 73.2/120); Human development (UNDP 2018, 0.757/1); Governance (World Bank 2017b, 166/600); Climate change vulnerability (ND-GAIN 2017, score 51/100); Sustainable energy development (52/100, World Bank 2017d).



# 1 INTRODUCTION

Azerbaijan is highly dependent on the production and export of oil and gas. Accordingly, while the development of its oil and gas resources have in general helped to advance welfare and provide for political stability in the 21<sup>st</sup> century, its economic development has fluctuated with the world market price of oil and gas. Efforts to diversify the economy have had limited effect so far, but provide an important entry point for developing EU-Azerbaijan relations beyond fossil fuels.

The Republic of Azerbaijan (henceforth Azerbaijan) is a country of around 10 million inhabitants located in the South Caucasus region between Eastern Europe and Western Asia. Azerbaijan shares borders with Iran, Armenia, Georgia and Russia, and it is a coastal state to the west of the Caspian Sea. A quarter of the size of Germany, Azerbaijan is composed of 66 administrative divisions with Baku its biggest city and capital. The country is semi-urbanised with 55.2 percent of the population living in towns and cities (CIA 2018). Azerbaijan is a presidential republic headed since 2003 by Ilham Aliyev, in his fourth term, having succeeded his father Haider Aliyev. The country gained independence from the Soviet Union on 30 August 1991 and became part of the Commonwealth of Independent States (CIS) (CIA 2018). Azerbaijan-Russia ties remain close and friendly.

Azerbaijan's economy has seen dynamic development since the mid-1990s and in particular after 2004, driven by the development of its oil and gas industry. From 1995 to 2016, Azerbaijan's Gross Domestic Product (GDP) increased more than tenfold to about US\$ 40.750 billion (in current US\$) (World Bank 2017c). GDP per capita similarly grew tenfold to more than US\$ 4,100 in 2017 (World Bank 2017a). As a result, the percentage of people living under the poverty line decreased from 24 percent in 2005 to around 6 percent in 2016 (Indexmundi 2015; CIA 2018). Unemployment is relatively low at around 5 percent (2016) (Trading Economics 2018a). In 2016, Azerbaijan's Gross Domestic Product (GDP) was the 88<sup>th</sup> largest in the world.

Accordingly, Azerbaijan has become an upper-middle income country and available indices indicate a medium-ranking of Azerbaijan regarding economic welfare and human development. Hence, on the Human Development Index of 2017 Azerbaijan ranks 80<sup>th</sup> out of 188 countries (UNDP 2018). On the World Economic Forum's Inclusive Development Index of 2018 Azerbaijan ranks third among the emerging and developing economies (World Economic Forum 2018a). On the Sustainable Development Goals Index Azerbaijan is ranked 48<sup>th</sup> of 157 countries, progressing at an average pace for its region (Bertelsmann Stiftung 2017). Also, Azerbaijan ranks 76<sup>th</sup> out of 178 countries on the Fragile States Index in 2019 (Fund for Peace 2019), with a significant improvement especially in the economic dimension since 2009. Similarly, Azerbaijan overall ranked 100<sup>th</sup> out of 129 countries on the Bertelsmann Stiftung's Transformation Index, taking place 85 on economic transformation (Bertelsmann Stiftung 2018).

## 2 EXPOSURE AND RISKS

### 2.1 EXPOSURE TO GLOBAL DECARBONISATION RISKS

Azerbaijan's economy is highly dependent on the production and export of oil and gas. The country depends on oil and gas for at least half of its economy and government revenue. It consequently also remains exposed to oil price fluctuations and investments in oil and gas may become "stranded".

#### Significant oil and gas production, reserves, and consumption

Azerbaijan is a significant producer of oil and gas. In 2017, Azerbaijan produced 795 thousand barrels of oil per day, equivalent to somewhat less than 1 percent of the world total. Oil production has decreased by more than 20 percent since the beginning of the 2010s. Azerbaijan's gas production reached 17.7 billion cubic metres in 2016 (an increase of about 10 percent over the course of the decade) which put Azerbaijan among the top 30 gas producing countries (BP 2019; SOCAR 2018a; CIA 2018).

Azeri gas reserves are more significant than its oil reserves. Azerbaijan's proven oil reserves are estimated to amount to about 7 billion barrels, which might – given current production levels – be exhausted within the next two to three decades (BP 2019; see also Shepard 2016). Accordingly, Azeri oil production is expected to decline further in the medium term (Gurbanov et al. 2017). In contrast, estimated gas reserves of up to 2.1 trillion cubic metres (BP 2019; see for other conservative estimates: SOCAR 2018b; CIA 2018; EIA 2018) could support current production levels for about 75 years.

In accordance with its resource base, Azerbaijan mainly uses gas and oil as a source of energy supply. Overall, domestic oil consumption has been increasing slightly in the 2010s to around 90-100 thousand barrels per day (around 12 percent of production) (BP 2019). Similarly, gas consumption has been increasing over the past decade, accounting for nearly two-thirds of overall production (10.3 billion cubic metres in 2018: BP 2019), which has also been increasing (see above). Gas (13 power stations) generally provides for more than 90 percent of power production (with some fluctuation depending on the availability of hydropower depending on rainfall). Overall, about two-thirds of overall energy consumption is accounted for by gas, about 30 percent by oil, with the remaining 2-3 percent made up of renewable energy, primarily hydropower (BP 2019; World Bank 2018b).

#### Oil and gas account for 90 percent of exports

Oil and gas exports are of crucial importance for Azerbaijan's economy. In the 2010s, the country exported about 85 percent of its oil production (IEA 2015a) and about 40 percent of its gas production (BP 2019; IEA 2015a and b; CIA 2018). Oil and gas account for over 90 percent of Azeri exports (Chatham House 2019), which makes the country 'vulnerable to external shocks' (European Parliament 2017, p. 22).<sup>1</sup>

#### Government budget and the overall economy are heavily dependent on oil and gas

Oil and gas continue to play a dominant role in the Azeri economy and for the government budget. As the engine of the economy, the sector accounts for about half of GDP (fluctuating somewhat with the oil price) and the state budget. Both shares have tended to decline in the 2010s because of the declining oil production and oil price (see below) and the Azeri government's efforts to diversify the economy, including through the State Oil Fund of the Republic of Azerbaijan (SOFAZ), as well as its attempts to broaden the budget income base. The SOFAZ was created in 1999 to accumulate oil revenues for the benefit of current

<sup>1</sup> Production, consumption and export data vary between different sources (including IEA, CIA, BP Statistical Review), but all give roughly the same overall picture.

and future generations. One of its major objectives is to provide support for the development of non-oil sectors. (Breban and Mukhtarov 2017; Gurbanov et al. 2017, p. 6). Overall, the diversification of the economy nevertheless remains a major challenge (see below).

While relying on the oil and gas sector for its income, the Azeri government also provides subsidies for energy. According to the International Energy Agency, in 2017 US\$ 603 million subsidies were given to the oil sector, US\$ 825 million for electricity and US\$ 634 million for natural gas, primarily for consumption (overall amounting to about 5 percent of GDP) (IEA 2018a).

### Exposure to oil price fluctuations

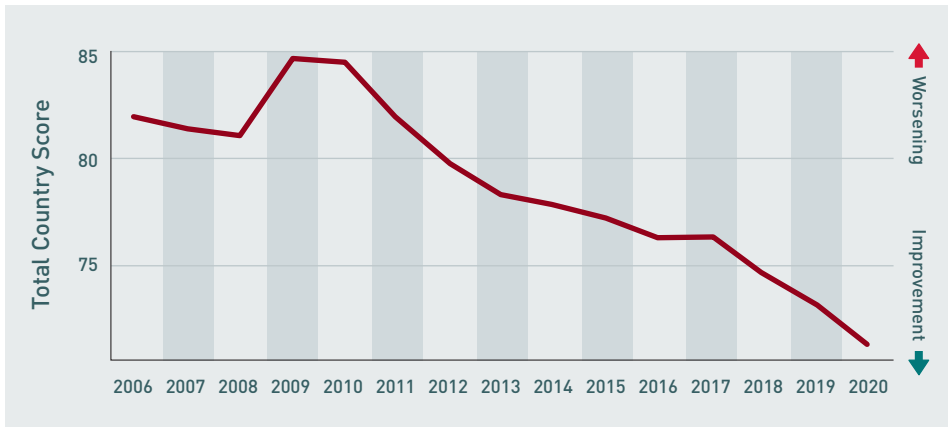
Despite some tools to manage oil-price fluctuations, Azerbaijan remains exposed to variations in oil (and related gas) prices. Declining oil prices after 2014 have left a clear mark on economic development. GDP in current US\$ declined sharply from 75.2 billion in 2014 to 37.9 billion in 2016 and 40.7 billion in 2017. GDP per capita similarly dropped from US\$ 7,900 in 2014 to less than 3,900 in 2016 and 4,130 in 2017. Due to exchange rate fluctuations, the figures look far less dramatic in constant 2010 US\$ according to which overall GDP dropped from 58.4 billion in 2014 to 57.2 billion in 2016 and 2017, where GDP per capita declined from 6,123 in 2014 to 5,800 in 2017 (World Bank 2018c and 2018a).

Accordingly, the contribution of revenue from the oil and gas sector to the government budget has also declined. While the SOFAR has been used as a buffer for balancing the state budget in times of low or falling oil prices (under the banner of “supporting macroeconomic stability”) (Breban and Mukhtarov 2017; Gurbanov et al. 2017, p. 6), Azerbaijan’s public debt has nevertheless risen in the wake of sharp falls in the oil price from 2014-2016. The debt-to-GDP ratio rose from 7.3 percent in 2008 to over 50 percent in 2016, after which it has declined to below 50 percent (with the partial recovery of oil prices) (Trading Economics 2018b). Overall, the debt-to-GDP ratio has hence remained modest (with significant remaining exposure to fluctuations).

### Risk of stranded assets

Azerbaijan’s energy infrastructure has remained closely tied to its oil and gas resource base. Three oil pipelines serve exports to the Russian and Georgian Black Sea coasts as well as the Turkish Mediterranean harbour of Ceyhan. The Baku-Tbilisi-Ceyhan Pipeline is by far the most important of these pipelines and started operating in the 2000s. It has sufficient capacity (1,200,000 barrels per day) to support current/declining Azeri oil exports. By far the most important gas pipeline is the South Caucasus Pipeline, which runs along the BTC oil pipeline via Georgia to Turkey and started operating in 2007. It is planned to be further developed as the “Southern Gas Corridor (SGC)” to connect to Greece and Italy (via Turkey). It is expected to then directly connect to the EU gas grid and supply increased Azeri gas production to Europe. Also, gas power stations have been modernised over the past decade (including a further switch from oil to gas) (EIA 2016).

Enormous investments continue to be made in the oil and gas sector, partially by Azerbaijan itself and partially by foreign private investors (Foreign Direct Investment, FDI). The investments required for the Southern Gas Corridor have been estimated to amount to about EUR 40 billion. FDI in Azerbaijan amounted to nearly US\$ 15 billion in 2017, the lion’s share of which went to oil and gas (Santander 2016).



**Figure 1: Azerbaijan’s performance in the Fragile States Index 2006-2020**  
 (Fund for Peace 2020)

## 2.2 OTHER FRAGILITY AND SECURITY RISKS

Azerbaijan faces serious challenges regarding corruption, human rights and personal liberties, and state legitimacy and repression. The “frozen” conflict with Armenia over Nagorno-Karabakh constitutes a significant security challenge, while climate change impacts are likely to be significant but less dramatic than in other countries.

### Corruption, democracy and political rights

Contrasting its economic advances, Azerbaijan continues to face relatively serious challenges of corruption, democracy and political rights. Accordingly, the country ranks 122<sup>nd</sup> out of 180 countries on the Transparency International Corruption Perceptions Index (Transparency International 2017). Similarly, the EU’s Global Conflict Risk Index indicates problems with corruption and “lack of democracy” as well as the level of repression (Global Conflict Risk Index 2017). The Freedom House Index of 2018 categorises Azerbaijan as ‘not free’, pointing to serious limitations regarding political rights, civil liberties and press freedom (Freedom House 2018). Similarly, sub-indicators of the Fragile States Index relating to state legitimacy and human rights are relatively low and have even worsened since 2009 (Fund for Peace 2019), which is consistent with the findings of the Bertelsmann Stiftung’s Transformation Index of 2018 (Bertelsmann Stiftung 2018).

Accordingly, the European Union criticised the presidential elections of April 2018 in which President Aliyev won a fourth term of office (and which the opposition boycotted). The EU’s Spokesperson for Foreign Affairs and Security Policy, including European Neighbourhood Policy and Enlargement Negotiations stated that the elections took place “within a restrictive political environment and under laws that curtail fundamental rights and freedoms” and that “observers reported widespread disregard for mandatory procedures, a lack of transparency and numerous serious irregularities” (European Union 2018).

### Security challenge: Nagorno-Karabakh

The continuing, if “frozen” conflict with Armenia over the enclave/exclave of Nagorno-Karabakh constitutes a significant security risk for Azerbaijan. While the exclave of Nakhchivan Autonomous Republic in Armenia belongs to Azerbaijan, the exclave of Nagorno-Karabakh lies wholly within Azerbaijan and possesses an Armenian ethnic majority. Nagorno-Karabakh is internationally recognised as part of Azerbaijan, but most of the region is actually governed by the Republic of Artsakh (formerly named Nagorno-Karabakh Republic). Armenia and Azerbaijan went to war in 1988 over the Nagorno-Karabakh region and are technically still at war since the 1994 ceasefire, which remains precarious (CIA 2018). According to Azerbaijan’s government, the conflict forms a serious obstacle for full-scale development of the country (Azerbaijan 2015b: 18).

### Relatively modest climate change impacts

Azerbaijan faces relatively modest challenges with respect to climate change impacts, which are nonetheless not negligible. In particular, the agricultural sector of Azerbaijan is under threat because of increased evaporation, water shortages and droughts due to rising temperatures (while the sea-level of the Caspian Sea may in fact fall as a result of increased evaporation) (Azerbaijan 2015b: 68-76). Accordingly, Azerbaijan ranked 102 out of 182 countries on the Global Climate Risk Index for 2016 and 146 for the period 1997-2016. The Index assesses the extent to which countries have been subject to weather-related loss events (storms, floods, heat waves, etc.). Considering eight life-supporting sectors (food, water, health, ecosystems, human habitat, coastal/energy/transportation infrastructure), the index of the Notre Dame Global Adaptation Initiative (ND-Gain) gives a medium score and rank to Azerbaijan for its overall vulnerability and readiness (ND-GAIN 2017).

## 3 PAST AND PRESENT EFFORTS TO DECARBONISE

While Azerbaijan has submitted a relatively ambitious NDC under the Paris Agreement (emission reduction of 35 percent by 2030), its domestic climate policy framework is still emerging and in need of further development. This should enable the country to address its main emission sectors, including oil and gas production, power production, transport and agriculture. The oil and gas sector is closely intertwined with the government.

### 3.1 ROLE IN THE UNFCCC AND THE PARIS AGREEMENT

Azerbaijan is a party to all major climate treaties. It ratified the UN Framework Convention on Climate Change (UNFCCC) in 1995, the Kyoto Protocol in 2000 and the Doha Amendment to the Kyoto Protocol in 2015. It also ratified the Paris Agreement in January 2017. It is a non-Annex I Party to the UNFCCC and considered a developing country for the purposes of the climate treaties.

According to its Nationally Determined Contribution (NDC) submitted under the Paris Agreement, Azerbaijan aims at a GHG emissions reduction of 35 percent by 2030 in comparison to 1990. This implies a modest decrease from 2012 emission levels (about 5 percentage points – see below) and thus a reversal of the trend of rising emissions in more recent years (Figure 2). The NDC lists general measures or areas of measures to achieve the set objectives for the energy sector, oil and gas extraction, the residential and commercial sectors, the transport sector, the agricultural sector, the waste sector and LULUCF. No further details (e.g. on timing or status of these measures) is provided (Azerbaijan 2015a). Future emissions and hence the ambitiousness of Azerbaijan's NDC depend heavily on economic development (which itself is highly dependent on oil and gas prices) and are consequently difficult to assess. According to one source, Azerbaijan's NDC does represent a certain level of ambition (Climatescope 2017; see also World Energy Council 2017).

### 3.2 EMISSIONS PROFILE

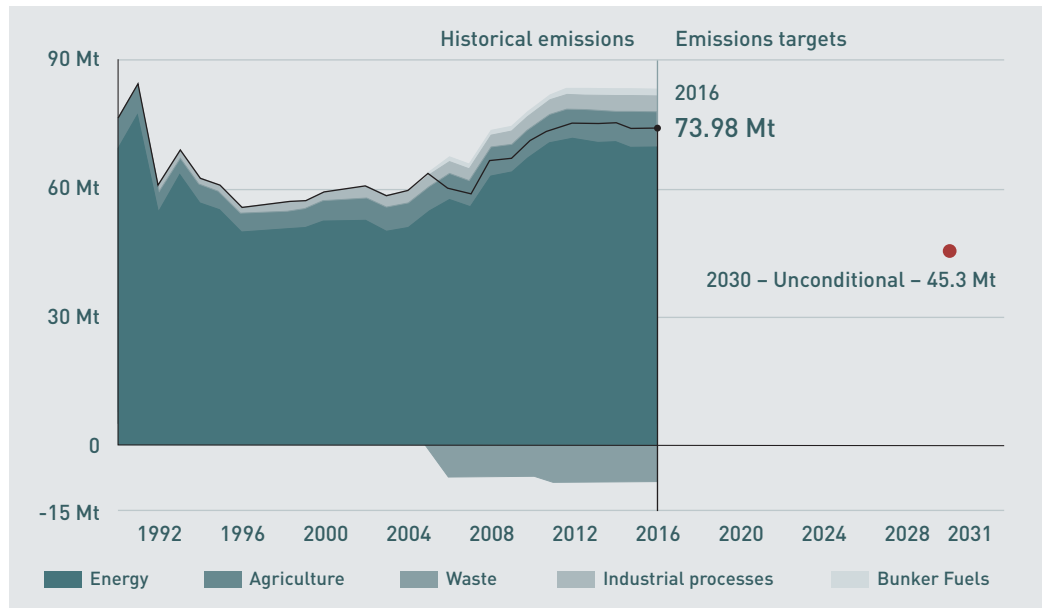
According to the UNFCCC, Azerbaijan's GHG emissions excluding LULUCF (land use, land use change and forestry) in 2012 (the latest available data) stood at 51,803.95 Gg CO<sub>2</sub> equivalent, a decline of nearly 30 percent from 1990 levels (73,385.78 Gt CO<sub>2</sub> equivalent) but an increase of nearly 27 percent since 2001. Azerbaijan's GHG emissions including LULUCF in 2012 stood at 46,361.95 Gg CO<sub>2</sub> equivalent compared to 69,695.78 Gg CO<sub>2</sub> equivalent in 1990 (minus 33.5 percent since 1990). The LULUCF sector and forestry in particular have thus consistently constituted a net carbon sink in Azerbaijan. 76 percent of GHG emissions



in 2012 were energy-related, while agriculture accounted for about 13.6 percent (with industrial process figuring at 5.7 and waste at 4.8 percent). Energy industries, fugitive emissions (from oil and gas production) and transport accounted for the lion’s share of energy-related emissions (UNFCCC 2018). As Figure 1 indicates, GHG emissions data from other sources vary from those officially submitted to the UNFCCC and indicate that emissions are likely to have increased after 2014 and the NDC may even be more ambitious. However, the economic decline in subsequent years may have reversed this trend.

**Figure 2: Azerbaijan’s greenhouse gas emissions in total and by sector**

(ClimateWatch 2019)



### 3.3 STATUS OF DOMESTIC CLIMATE POLICY

A climate policy framework in Azerbaijan is at a very early stage of development. The country has reported the adoption of a number of “laws, state programs and regulatory acts concerning the Convention” and to address climate change in general, and certain institutional structures have been created (e.g. a ministry for the environment) (Azerbaijan 2015b: p. 10). However, these measures do not amount yet to a true climate policy framework. According to one assessment, Azerbaijan “has no climate change policy, incentives or regulations” (Climatescope 2017).

### 3.4 CLIMATE POLITICS

Political framework conditions for the development and implementation of effective climate policy have been problematic. The oil and gas sector is closely intertwined with the government as the two core institutions in the oil and gas sector are state-run. First, the State Oil Company of the Azerbaijan Republic (SOCAR) engages in exploration, preparation, exploitation of oil and gas fields in Azerbaijan as well as transportation, processing and refining of oil and gas and related products. SOCAR accounts for about 20 percent of oil production in Azerbaijan, with the remaining 80 percent produced by international oil companies. SOCAR manages the country’s two refineries, runs the country’s pipeline system and manages the country’s oil and gas exports and imports. SOCAR is regulated directly by means of presidential regulations. It is overseen by the Energy Ministry that is also responsible for attracting foreign investment in the oil and gas sector as well as negotiations on pipelines and production-sharing agreements (EIA 2016; SOCAR 2018b).

Second, the State Oil Fund of the Republic of Azerbaijan (SOFAZ), created in 1999, accumulates savings from oil and gas revenues for the purpose of macroeconomic stabilisation of the country, to save resources for future generations and to invest in national development projects, including through stimulating development of the non-oil and gas sector. SOFAZ remains much more closely related to and intertwined with the government than similar funds in other countries (such as the sovereign wealth fund in Norway). Hence, there are no limits on how much money can be transferred from the fund to the government so that it has in fact also served to balance budget deficits (see above). The president appoints the leadership of the fund directly and SOFAZ' management only reports directly to the president (Osservatorio balcani 2012).

## 4 TRENDS AND POTENTIAL

Azerbaijan has long-standing intentions and efforts to diversify its economy beyond fossil fuels, with limited success so far. Education and training are crucial areas for developing its economy. Azerbaijan has also made significant investments to become a transport hub connecting Europe and Asia (including as part of the Chinese One Belt, One Road initiative). Renewable energy has considerable potential, but plans for their expansion have not come to fruition yet.

### 4.1 DIVERSIFICATION OF THE ECONOMY

Longstanding efforts of Azerbaijan to diversify its economy, including through SOFAZ (see above), have only produced very limited results so far. Several programmes have been launched to support the diversification of the economy. They aim, among other things, to enhance the export potential of non-oil industry and more generally the development of new manufacturing, but also at developing the agricultural and service sectors of the economy. State investments have in particular served to support significant construction activity and the development of considerable transport infrastructure (including ports). Overall, the non-oil sector has seen significant growth in recent years, but the oil and gas sector remains crucial and its decline is in significant part a consequence of the falling oil price. Accordingly, international organisations such as the International Monetary Fund (IMF) and the World Bank have found that further efforts are needed (IMF 2016; Antidze 2018a; see in general, Guliyev 2015; Asgarova, n.d.; Lianlei and Baghirov 2016; Gurbanov et al. 2017).

### 4.2 TRANSPORT-HUB ASPIRATIONS

One particular area of development is, based on the significant infrastructure investments of the past years, the role of Azerbaijan as a transport hub. Azerbaijan sees itself as a crucial connecting country between Europe and Asia. Beyond its position in the transport of oil and gas through pipelines, this concerns general air, train and sea transport (see new Baku International Sea Trade Port and Baku-Tbilisi-Kars railway). Consequently, Azerbaijan has accepted China's offer to join its One Belt, One Road initiative that plays into Azerbaijan's aspiration to become a transport hub. Also beyond the One Belt, One Road initiative (and possibly driven by it), relations between Azerbaijan and China have grown closer over the past years, including trade, tourism and even security and military cooperation. China has grown to become Azerbaijan's fourth biggest trading partner (Gotev 2017; Osmanli 2017; Azernews 2018a, b, c; Xinhuanet 2018).

### 4.3 RENEWABLE ENERGY AND CLEAN ENERGY

The significant potential for the expansion of renewable energy and clean energy investments in Azerbaijan still remains to be realised. Eight hydropower stations already supply about 5-6 percent of all electricity on average. However, solar and wind power are all but non-existent, supplying a fraction of a percent of total electricity. As a result, renewable energy has a share of little more than two percent of total energy consumption (World Bank 2018b). Investments in renewable energy have been minimal and the attractiveness of clean energy investments has remained low, despite considerable potential. Consequently, it is all but certain that ambitious targets for the expansion of renewable energy by 2020 (20 percent of electricity consumption and 9.7 percent of overall energy consumption) will not be met (UNECE 2017; EIA 2016; World Bank 2018d; IEA 2018b; Climatescope 2017).

### 4.4 EDUCATION AND SKILLS DEVELOPMENT

Azerbaijan's educational system is solid but has further potential for advancing excellence. It provides for a broad basic education and training of the population. Literacy is close to 100 percent and school life expectancy 13 years (CIA 2018). However, Azerbaijan ranked second but last of the 65 countries participating on the Programme for International Student Assessment (PISA) in 2009 (Bertelsmann Stiftung 2018). The enrolment rate at universities (27.2 percent) has also remained low compared to other upper-middle income countries (European Training Foundation 2019). Overall, Azerbaijan's workforce is considered medium-qualified, with 70 percent of the population holding at least an upper-secondary qualification and less than 10 percent described as low-skilled (graduating at most from compulsory education) (European Training Foundation 2016). Accordingly, Azerbaijan ranks 122<sup>nd</sup> out of 124 countries in the Economic Complexity Index that measures "the knowledge intensity of an economy" (Observatory of Economic Complexity 2017).

Azerbaijan has started several initiatives to improve its vocational education and training. In 2016, a Strategic Roadmap for vocational education and training was adopted, including several strategic goals such as the improvement of normative, legal and economic conditions and the information base. For the years 2015-2020, a State Programme for the sector is in place. Nevertheless, the supply of skilled graduates does not suffice to meet the demand (European Training Foundation 2016). In general, the improvement of the conditions for the emergence of a knowledge-based economy has been one of the major focal points on Azerbaijan's objective to diversify its economy and develop the non-oil sector (e.g., European Training Foundation 2016; Aliyev 2014: 13).

Investments into education and training seem crucial for advancing the development and transition of the country and the diversification of its economic base. In 2015, 36.4 percent of the workforce was still employed in the agricultural sector (a slight decline from 39.3 percent in 2005), somewhat more than 14 percent in industry and nearly 50 percent in the service sector (Statista 2018). Especially the relatively large share of employment in the agricultural sector, which provides for more than a third of employment but only contributes seven percent of GDP, constitutes a challenge. Against the backdrop of a growing population of young people entering the labour market, new employment opportunities will need to be created in the private sector (World Bank 2015; European Training Foundation 2016). Whereas Azerbaijan has improved its ranking on the World Economic Forum's Global Competitiveness Index from 46 in 2012-13 to 35 in 2017-18, the Forum has identified education and training among the most important areas with potential and need for significant improvement (World Economic Forum 2018b).



Azerbaijan's capital city Baku is home to 2.9 million people, around a fifth of the total Azeri population, and has developed into a modern metropolis since the second oil boom began in 2006.

## 5 EU-AZERBAIJAN COOPERATION

EU-Azerbaijan cooperation can build on a firm and broad institutional framework. The EU is Azerbaijan's most important trading partner, accounting for nearly half of the latter's trade. Energy has been key to EU-Azerbaijan relations, with a strong focus on oil and gas. Renewable energy has received less attention and existing cooperation on education provides a basis for further development.

### 5.1 INSTITUTIONAL FRAMEWORK: PARTNERSHIP AND COOPERATION AGREEMENT, EUROPEAN NEIGHBOURHOOD POLICY AND EASTERN PARTNERSHIP

Cooperation between the EU and Azerbaijan can rely on a firm institutional basis. First of all, a Partnership and Cooperation Agreement has been in force since 1999 and addresses political dialogue, trade, investment, economic matters, legislation and culture. In 2017, negotiations on a new comprehensive agreement that is to replace the Partnership and Cooperation Agreement of 1999 were launched. The new agreement should "offer a renewed basis for political dialogue and mutually beneficial cooperation between the EU and Azerbaijan" (EEAS 2017a). In this context, it is noteworthy that a survey conducted in 2017 found that pro-EU feelings have risen in Azerbaijan, with 47 percent of the respondents having a positive image of the EU and 68 percent assessing Azerbaijan's relations with the EU as good (EEAS 2017b).

Azerbaijan is also part of the European Neighbourhood Policy (ENP, since 2004) and the Eastern Partnership (since its inception in 2009). These frameworks provide a basis for cooperation on democracy, the rule of law, prosperity and social cohesion, including cooperation in the domain of environmental policy (Agnieszka 2008). In this context, Azerbaijan receives support from and has access to a number of financial support mechanisms, including the European Neighbourhood Instrument (ENI) (with an allocation of up to EUR 169 million for 2014-2020). ENI support focuses on regional and rural development,

justice sector reform, education and skills development, and general capacity building and institution-building (EEAS 2018). The EU's Clima East project that assists in the implementation of the Paris Agreement (Clima East 2017) has specifically helped Azerbaijan with the preparation of its Intended Nationally Determined Contributions (INDC) and the formulation of a national climate change strategy (as seen above, to limited effect so far) (Clima East 2017).

## 5.2 TRADE

The EU's trade relationship with Azerbaijan has evolved significantly in the 2000s. The Partnership and Cooperation Agreement did not include tariff preferences but abolished a number of trade quotas between the EU and Azerbaijan and aimed at Azerbaijan adapting to several European standards. Until 2014, Azerbaijan benefitted from the EU's Generalized Scheme of Preferences that reduces EU import duties by about 66 percent (European Commission 2018). Azerbaijan lost this benefit in 2014 when it was classified as an upper-middle income country by the World Bank for three years in a row (European Commission 2018). Azerbaijan applied to become a member of the World Trade Organization (WTO) in 1997, with negotiations still ongoing. The EU supports Azerbaijan in its ambition to join the WTO.

The EU is Azerbaijan's most important trading partner, accounting for 48.6 percent of Azerbaijan's total trade in 2016: 60.7 percent of exports went to the EU and 31.8 percent of Azerbaijan's imports came from the EU in 2016. EU imports from Azerbaijan (overwhelmingly oil and gas – see below) were worth EUR 9.1 billion in 2017, total trade amounted to EUR 9.2 billion (Chatham House 2019). EU exports to Azerbaijan are mainly machinery, transport equipment, manufactured goods and chemicals (European Commission 2018).

## 5.3 ENERGY: FOCUS ON FOSSIL FUELS

The EU is the top destination of Azeri fossil fuel exports, accounting for nearly two thirds in 2017, with Italy (32 percent), Germany (6.7 percent) and the Czech Republic (6.1 percent) as main destinations (Chatham House 2019). EU imports from Azerbaijan currently mainly consist of oil, with increased gas exports planned for the future. Oil and gas account for about 98 percent of EU imports from Azerbaijan. The main destinations for Azeri gas exports are Turkey (by far the biggest client), Georgia and Greece (Razayeva 2015; BP 2019).

As obvious from the trade figures, energy has been, and has emerged as, a major area of the relationship between Azerbaijan and the EU. In 2006, the Memorandum of Understanding on a Strategic Partnership between the Republic of Azerbaijan and the European Union in the Field of Energy was signed (covering harmonisation of legislation, enhancing security of supply and transit systems, development of Renewable Energy Systems and technical cooperation). In 2016, furthermore, the EU4Energy initiative was launched that supports Eastern Partnership countries in achieving their energy policy objectives (EEAS 2017c). Within this broader framework, a strategic emphasis has been put on developing the Southern Gas Corridor (SGC) in order to bring Azeri gas to Europe. In 2011, then commission president Barroso and Azerbaijan's president Aliyev signed a Joint Declaration on the Southern Gas Corridor. The SGC is defined as an EU Project of Common Interest and has, on this basis, received active support from the European Commission and, in February 2018, a loan of EUR 1.5 billion from the European Investment Bank (EIB) (EIA 2016). The apparent focus of the relationship on developing fossil fuel trade, and especially gas deliveries from Azerbaijan to Europe, has drawn significant criticism because of its potential conflict with medium and long-term climate objectives (Teffer 2018).





Although Azerbaijan's educational system is solid, investments into education and training seem crucial for advancing the development and transition of the country and the diversification of its economic base.

#### 5.4 EDUCATION: ROOM FOR FURTHER DEVELOPMENT

In addition to trade and energy, EU-Azerbaijan relations also cover education and training, and mobility. Azerbaijan is part of the Erasmus+ programme that supports higher education institutions, staff, and students. From 2015 to 2017, the EU funded nearly 880 students and staff member mobility from Azerbaijan to Europe and 450 European students and staff mobility to Azerbaijan (3-12 months). The EU, several of its member states and Azerbaijan also operate under a Mobility Partnership that was signed in 2013. Perhaps most notable, a Visa Facilitation Agreement that entered into force in 2014 makes it easier for Azerbaijani citizens to acquire travel visas for EU member states (European Council 2018).

#### 5.5 SECURITY AND GEOPOLITICS

Finally, EU-Azerbaijan relations have a significant security and geopolitical component. Geopolitically, the ambiguous position of Azerbaijan vis-à-vis Russia is significant, with the latter supporting Armenia in the conflict over Nagorno-Karabakh, while at the same time having close relations to Azerbaijan (as a CIS member). The EU has supported efforts by the Co-Chairs of the OSCE Minsk group to resolve the conflict and has generally promoted relevant confidence- and peace-building activities, including through the *European Partnership for the peaceful settlement of the conflict over Nagorno-Karabakh* (EEAS 2017a; European Partnership for the Peaceful Settlement of the Conflict over Nagorno-Karabakh 2018). Azerbaijan has sought closer cooperation in the field of security policy, including a more proactive role of the EU in the Nagorno-Karabakh conflict (Merabishvili 2015). At the same time, Azeri relations with China have grown over the past years, including with respect to the economy and security (Azernews 2018a, b; The Diplomat 2018; Xinhuanet 2018).



The export of oil and gas have played a major role in Azerbaijan's development, with the country depending on oil and gas for economic growth and government spending.

## 6 CONCLUSIONS

Azerbaijan is a country that is highly dependent on oil and gas exports for its economic welfare and political stability. It is located in the Caucasian region that is characterised by a number of frozen conflicts and a fragile, and evolving, geopolitical balance, involving Russia, China and the EU. The EU is one of the main export markets for oil and gas from Azerbaijan (while Azerbaijan's relations with China are becoming more important).

Without proper accompanying political efforts, decarbonisation of Europe and the world consequently has the potential to undermine political and economic stability of Azerbaijan. Phasing out fossil fuel production and exports will mean replacing Azerbaijan's main engine of economic development and source of government income, which could reinforce existing risks to political stability, including limited political freedom and military conflicts that are currently contained but not resolved (with respect to Nagorno-Karabakh). Decarbonisation hence poses the challenge to find alternatives to oil and gas as a basis for Azerbaijan's economic well-being and political settlement.

There are a number of areas of mutual interest between Azerbaijan and the European Union beyond oil and gas that can provide a basis for fruitfully developing the relationship under decarbonisation. At a geopolitical level, the EU has an interest in developing this relationship because Azerbaijan belongs to its neighbourhood, while Azerbaijan has an interest in diversifying its external relations and opportunities (i.e. beyond Russia). More specifically with respect to the decarbonisation challenge, Azerbaijan has an interest in developing its economy beyond oil and gas, in which the EU can assist in important ways. This would, however, require a re-orientation away from the current focus on the fossil fuel relationship (including the Southern Gas Corridor).

## 6.1 FOCAL POINTS FOR FOREIGN POLICY

Possible focal areas for developing the relationship beyond oil and gas include:



**Education and training** are a central part of the effort at economic diversification and developing a knowledge-based economy. Building on existing cooperation (e.g. in the context of the Erasmus+ programme, etc.), bilateral cooperation can be intensified so as to bring the significant resources of the EU and its member states to bear to assist in enhancing and shaping education and training in Azerbaijan. One significant focus in this respect could be cooperation supporting the expansion of renewable energy (e.g. a degree in renewable energy in engineering).



**The further development of the energy system, especially the expansion of renewable energy** promises obvious advantages by making the economy less dependent on oil and gas and developing energy infrastructure. While it is urgently required for moving toward decarbonisation, it also makes sense with continued exploitation of domestic oil and gas resources as it will increase the share of (declining) resources available for export. Concrete first steps may include studying the risk of stranded assets with respect to relevant fossil fuel investments and the creation of a policy dialogue on the potential of clean/renewable energy.



**Strengthening the rule of law and advancing the fight against corruption** is one of the crucial bases of attracting foreign investors at a large scale, including SMEs. The EU and its member states have significant experience and expertise to offer to this end. Part of such a focus could also be dialogue on strengthening financial governance, including SOFAZ and the changing landscape of climate-proofing investments.



Multiple other areas can be further developed over time, including water management and advancing mutual market access and investments.

Overall, there is hence a range of options for developing the EU-Azerbaijan relationship beyond oil and gas. Such a renewed direction for the bilateral relationship would promise significant returns for Azerbaijan as it would help address stability risks arising from the dependence of the country on oil and gas and put Azerbaijan's economic development on a broader basis, preparing for declining returns from decreasing oil and gas reserves. It would at the same time help put EU-Azerbaijan relations on a broader basis making them fit for a decarbonising world and strengthening them in a precarious geopolitical constellation.

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## **CASE STUDY: COLOMBIA**

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## LIST OF ABBREVIATIONS

<b>ACP</b>	Colombian Petroleum Association
<b>AFOLU</b>	Agriculture, Forestry and Land Use
<b>BAU</b>	Business as Usual
<b>CONPES</b>	National Economic and Social Policy Council
<b>ECDBC</b>	Colombian Low Carbon Development Strategy
<b>EIB</b>	European Investment Bank
<b>ELN</b>	National Liberation Army
<b>FARC</b>	Revolutionary Armed Forces of Colombia
<b>FDI</b>	Foreign Direct Investment
<b>FTA</b>	Free Trade Agreement
<b>GHG</b>	Greenhouse Gas
<b>IEA</b>	International Energy Agency
<b>IMF</b>	International Monetary Fund
<b>INDC</b>	Intended Nationally Determined Contribution
<b>IRENA</b>	International Renewable Energy Agency
<b>LULUCF</b>	Land Use, Land Use Change and Forestry
<b>MRV</b>	Monitoring, Reporting and Verification
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>NDC</b>	Nationally Determined Contribution
<b>NDP</b>	National Development Plan
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>OPEC</b>	Organization of the Petroleum Exporting Countries
<b>REDD+</b>	Reducing Emissions from Deforestation and Forest Degradation
<b>SDG</b>	Sustainable Development Goals
<b>SISCLIMA</b>	National Climate Change System
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WTO</b>	World Trade Organization



# COLOMBIA



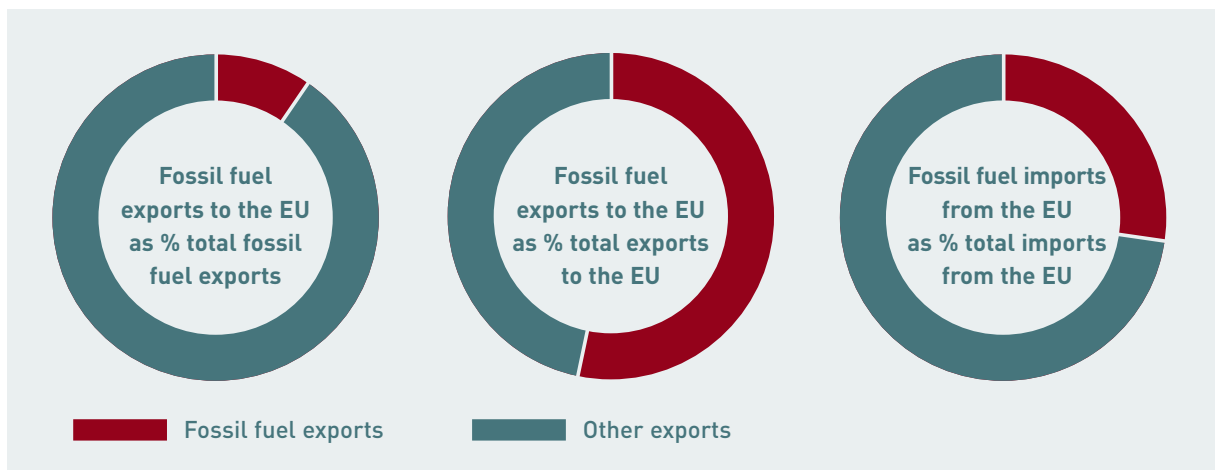
	POPULATION (2019; growth rate y-o-y)	GDP PER CAPITA (2018)
	48.3 m (1.37 %)	US\$ 6,651
	510 m (0.12 %)	US\$ 33,715

	CO <sub>2</sub> EMISSIONS PER CAPITA (2014)	
	EXCL. LULUCF	INCL. LULUCF
	3.41 t	3.82 t
	8.04 t	7.19 t

Fossil fuel rents as % GDP (2017)	3.5 %
Fossil fuel as % exports (2018)	72 %



<b>Fragility (2019)</b>	Sustainable	Stable	<b>Warning</b>	Alert
<b>Human development (2018)</b>	Very high	<b>High</b>	Medium	Low
<b>Strength of governance (2017)</b>	Very high	High	<b>Medium</b>	Low
<b>Climate change vulnerability (2017)</b>	Low	Medium	<b>High</b>	Very high
<b>Sustainable energy development (2017)</b>	Very high	<b>High</b>	Medium	Low

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Sources for dashboard statistics: Population (DANE 2018; UN DESA 2019); GDP per capita (current US\$, World Bank 2018a); CO<sub>2</sub> emissions per capita (WRI 2018); CO<sub>2</sub> emissions per capita (WRI 2018); fossil fuels rents as % GDP (own calculation using World Bank data 2017a); fossil fuels as % commodities exports, fossil fuel exports to the EU as % total fossil fuel exports, fossil fuel exports to the EU as % total exports to the EU, fossil fuel imports from the EU as % total imports from the EU (Chatham House 2019); Fragility (Fund for Peace 2019, 75.7/120); Human development (UNDP 2018, 0.747/1); Governance (World Bank 2017b, 268/600); Climate change vulnerability (ND-GAIN 2017, score 50.7/100); Sustainable energy development (59/100, World Bank 2017c).



# 1 INTRODUCTION

Fossil fuel export revenues make a significant contribution to the Colombian economy, which has been vulnerable to drops in commodity prices. However, the last 25 years have also seen important structural transformations and shifts towards economic diversification. The 2016 peace agreement that ended the internal conflict with the FARC has also considerably improved Colombia's political stability, although a stable economy and continued political commitment are needed to ensure lasting peace. Rural development, climate action and economic diversification are important entry points for EU-Colombia cooperation to support both decarbonisation and post-conflict development processes.

The Republic of Colombia (henceforth Colombia) is a country with varied geography and climate, ranging from the cooler climate of the central Andean highlands to a tropical climate along the coast, in the Llanos, its vast eastern plains, and in the Amazon rainforest to the south. Most people therefore live in north and west of the country where most of the country's agricultural activities and natural resources are found (CIA 2018). Colombia is largely urbanised with around 80 percent of the population living in cities (CIA 2018) and Bogotá, the world's fourth highest capital city, has a population of 7.9 million (WPR 2018). With 48.3 million inhabitants (DANE 2018), Colombia has the fourth largest population in Latin America.

Colombia is at an important turning point in its political, economic and social development. In late 2016, the former coalition government led by President Juan Manuel Santos completed six years of negotiations to sign a peace agreement (GoC 2015) with the country's largest leftist armed militant group, the Revolutionary Armed Forces of Colombia (known by its Spanish acronym, FARC). This ended a long and complex conflict that had spanned over 50 years, leaving over 220,000 people dead, 25,000 disappeared and 5.7 million displaced (Felter and Renwick 2017). The success of the peace agreement rests on continued commitment from both sides, and major investment and reform in rural areas by the Colombian government. As well as opening up new opportunities for development, the peace process is creating new dynamics and challenges for the government, headed since August 2018 by President Iván Duque Márquez, known as Duque, who was highly critical of the peace process during his campaign for the presidency.

In the decade up to 2015, the Colombian economy grew strongly by almost 5 percent per year. High commodity prices largely protected it from the impacts of the 2008 financial crisis and it has proved more resilient to falls in the price of crude oil between 2014 and 2016 than other oil producing countries (OECD 2017). As a result, the proportion of people living in extreme and moderate poverty almost halved from 18 percent to 9 percent and from 50 percent to 28 percent respectively from 2002 to 2016 (World Bank 2018b). However, its unemployment and poverty rates are still higher than the regional average (OECD 2015b) and inequality remains high due to the large disparities in income between rural and urban areas. In May 2018 Colombia became a member of the Organisation for Economic Cooperation and Development (OECD), after major reforms to bring its labour policies, justice system, corporate governance of state-owned enterprises, and trade rules among others into line with OECD standards (OECD 2018).

Colombia has many natural resources, including petroleum, coal and natural gas, as well as precious metals and minerals, such as gold, copper, iron ore and nickel (CIA 2018). Although the economy is well diversified, its extractive sectors remain important. The country also has rich, fertile land and the agricultural sector is expected to grow rapidly now that the peace process is underway (OBG 2018). This could diversify exports away from fossil fuels. However, the sector is highly vulnerable to climate change impacts and may also increase emissions by driving deforestation. Colombia is among the world's mega-diverse nations. Although only covering 1 percent of the Earth's surface, it is home to 10 percent of all known species and has forests covering 55 percent of its land area (UNEP 2016, OECD 2014).

## 2 EXPOSURE AND RISKS

### 2.1 EXPOSURE TO GLOBAL DECARBONISATION TRENDS

Colombia is a significant producer of crude oil and coal. A large proportion of production is destined for export, generating revenues that are important to the economy. With oil reserves diminishing, the future of the Colombia oil sector is uncertain. Oil rents have also been vulnerable to international price fluctuations, although the Colombian economy fared better than those of other oil producers during the 2014 to 2016 oil price slump. Decarbonisation is contributing to shifts in Colombia's coal export markets, leading it to become increasingly reliant on just a few markets.

#### Significant producer and low consumer of fossil fuels

Although not one of the world's leading energy producers, Colombia is a significant producer of oil, coal and gas in South America. It is the third largest oil producer in the region, and between 2001 and 2018 overall production rose 60 percent to around 866,000 barrels per day (BP 2019). However, production decreased 14 percent from 2015 to 2018, in part due to falling oil sector investment, as well as frequent outages due to attacks by Marxist insurgent group the National Liberation Army (ELN) (Acosta and Cobb 2017). Colombia is now by far the largest coal producer in Latin America and the eighth largest in the world, with 1.5 percent of total world production in 2018. That year Colombian coal production stood at 57.9 million tonnes of oil equivalent, a 15 percent increase on production levels in 2008. Colombia produced 13 billion cubic metres of natural gas in 2018, 0.3 percent of global supply (BP 2019).

With its oil reserves diminishing, it has been estimated Colombia can only support current levels of production for another five years (Smith 2018). This has led to concerns about the future of the industry and sparked heated political debates on the issue of fracking, still only in the exploratory stages in Colombia, with arguments relating to export revenues, energy independence and the environment shaping the discussion. The Colombian Petroleum Association (ACP) has estimated that about US\$ 7 billion of investment would be needed each year to maintain current production levels (Murphy and Acosta 2018). With regard to coal, in 2018 Colombia had proven reserves of 4,881 million tonnes, meaning current production levels could be sustained almost until the end of the century (BP 2019, WEC 2016). Capital investment in the Colombian gas sector has also decreased in recent years due to declining global prices, and its gas reserves of 100 billion cubic metres will only last for another decade (BP 2019).

Despite its major hydrocarbon reserves, fossil fuels play a relatively minor role in electricity generation in Colombia, with natural gas accounting for 17 percent of generation capacity in 2016 (Climatescope 2017) and 9 percent of electricity generation in 2017 (IHA 2018). Coal and oil provided 7 percent and 6 percent of installed capacity in 2016 respectively (Climatescope 2016). The Colombian power sector has a low-carbon footprint due to the high proportion of hydropower in its energy basket. In 2017 mainly large-scale dams provided 70 percent of the country's installed capacity and 86 percent of electricity generation (IHA 2018). It is also continuing to build out its hydropower capacity, although the focus has recently been more on smaller capacity projects (IHA 2018). Other renewable energy technologies, such as wind and solar PV, only account for negligible amounts of capacity (IRENA 2019).

The electrification rate in Colombia is high at almost 98 percent (Climatescope 2016), and energy demand has risen steadily over the past decade. Further increases of 3.5 percent per year are projected up to 2020, despite "significant progress" in increasing energy efficiency among household and industrial users, and in the power and transport sectors (GRICCE 2018). The latter is projected to remain the sector with the largest energy needs up to 2050 (Paez et al 2017).

### Oil and coal major, yet increasingly uncertain source of export revenues

The high proportion of hydropower in Colombia's electricity mix has meant that it has largely been able to exploit its hydrocarbon reserves for export. In 2017 fossil fuel exports generated US\$ 24 billion in revenue, accounting for around 69 percent of Colombian merchandise export revenues, although down from US\$ 44.6 billion at the height of the oil price boom in 2013 (Chatham House 2019). Crude oil and coal exports accounted for the vast majority of these earnings, with Colombian natural gas mainly destined for domestic consumption<sup>1</sup>.

With Colombian oil reserves dwindling, investment in exploration low, and the future of Colombia's nascent fracking industry still uncertain, earnings from Colombia's to date most valuable export commodity may decrease over the coming decade. A key barrier to investment is that Colombian oil is relatively expensive to produce, with Colombia's largely state-owned oil company Ecopetrol and foreign field operators requiring the international oil price to stay above US\$ 50 to remain profitable (Slav 2017). Oil industry investment and export revenues took a tumble when the oil price slumped from almost US\$ 100 in 2014 to US\$ 30 in 2016, and remains to be seen if the Duque government's efforts to revive the sector will bear fruit (Acosta and Cobb 2019). Colombian crude oil exports generated US\$ 13.7 billion in 2017, down from US\$ 31.4 billion in 2013. If oil reserves were to decline, reduced exposure to such external price shocks could be a silver lining to falling oil rents. In 2017, just under half of Colombia's oil exports went to the United States, with China and Panama also significant export markets for Colombian crude oil (Chatham House 2019).

Coal has grown to become a key export commodity since 2000, and Colombia is the world's fourth largest exporter of thermal coal (IEA 2017a). In 2017 all but a tenth of the coal produced in Colombia was exported, generating a fifth of the country's foreign exchange earnings (Strambo and Atteridge 2018). However, future demand for Colombian coal exports is likely to rely on the development of new export markets. While in 2018 the European Union was still Colombia's largest export market for coal, accounting for 26 percent of its commodities exports in 2018, EU coal imports decreased significantly between 2011 and 2018 (Chatham House 2019; Trademap 2019). The consumption of hard coal has halved in the European Union since 1990 and demand looks set to fall further, as many EU member states move to reduce power sector emissions by phasing out coal-fired power plants, and some, such as Poland and Czechia, seek to support their domestic coal industries (Oei and Mendelevitch 2016). Demand for coal imports is also falling in what has traditionally been Colombia's other main export market, the US (Trademap 2019). Although demand for coal is still increasing in Asian markets, Colombian coal is unlikely to be able to compete against coal from Indonesia and Australia, which can be extracted and transported at lower cost (Strambo and Atteridge 2018). Colombia is therefore likely to become increasingly reliant on just a few export markets. In 2017 and 2018 it increased its coal exports by significantly increasing its exports to Turkey and other Latin American countries (Trademap 2019).

### Economy vulnerable to external price shocks and the decline of Colombian coal

Colombia has faced significant budgetary pressures in recent years – due both to fluctuations in its key commodity markets and the major public spending commitments made by the government under the peace agreement with the FARC. Keeping the economy stable is therefore essential to honouring these commitments and Colombia's post-conflict development.

<sup>1</sup>An extensive network comprising approximately 3,100 miles of natural gas pipelines transports natural gas throughout the country (WEC 2016). Long self-sufficient, Colombia began regularly importing LNG from the US for the first time in late 2017, with imports set to double by 2019 (Kraul 2017).

The fall in commodity prices, particularly the falling coal price and the sharp drop in the price of crude oil between 2014 and 2016, had a significant impact on the Colombian economy. The contribution of fuel exports to gross domestic product (GDP) decreased from 11 percent in 2013 to 6 percent in 2016<sup>2</sup> and also had a knock on effect on government budgets. The fiscal contribution of Colombia's extractives sector slumped from US\$11.1 billion in 2013 to US\$4.6 billion in 2015 – a drop from 19 percent of Colombia's national fiscal income in 2013 to just 5 percent in 2016 (EITI 2018). However, the economy fared better than other oil producing countries and although heavily impacted, with GDP growth falling from 4.9 percent in 2013 to 2.0 percent in 2016, it did not slide into recession. The stabilisation of the economy has been underpinned by important structural reforms including the floating of the Colombian peso and two sets of tax reforms in 2014 and 2016 to raise public revenues and compensate for the shortfalls in export earnings (IMF 2018a, b). A further tax reform was passed in late 2018 with a lower revenue target and a potential freeze on public spending. In 2018 Colombia's deficit stood at 3.1 percent of GDP (Murphy and Vargas 2018).

However, future drops in oil rents, either due to falling reserves or oil market fluctuations, combined with the decline of the Colombian coal industry could subject the economy and public budgets to further pressures. At national level, coal contributes the majority of the 2.4 percent of national income generated by the extractives sector, with 80 percent of "mining taxes, royalties and other financial compensations" coming from coal mining (EITI and Gobierno de Colombia 2017, quoted in Strambo and Atteridge 2018). However, economic growth and public budgets would be most vulnerable in the Departments of Cesar and La Guajira, which produce and export 90 percent of Colombian coal production. In 2015, coal accounted for around 40 percent of GDP and 30,000 direct jobs in these two departments. A further 100,000 jobs reportedly rely on the mines in the other departments. There has also been little focus on this issue in public debates or policy documents at national, departmental and municipal level, and as such the likely decline of the coal industry could lead to hardship in coal-producing regions (Strambo and Atteridge 2018).

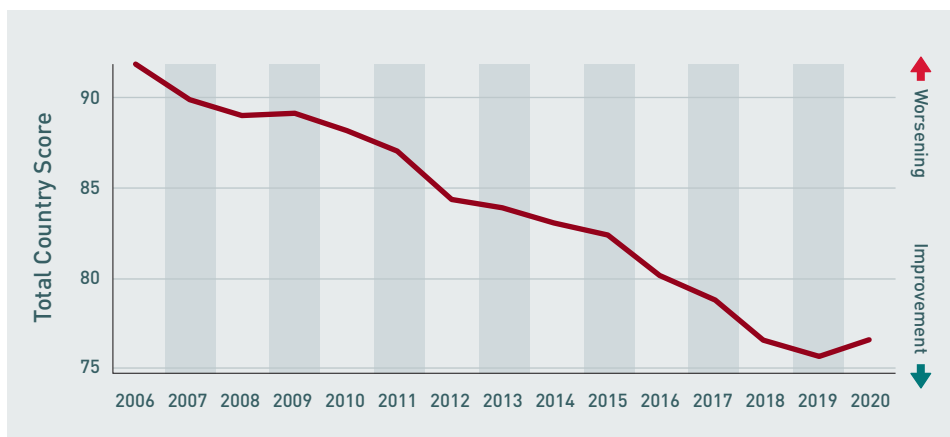
## 2.2 OTHER FRAGILITY AND SECURITY RISKS

Although still classed as a "warning" area in the Fragile States Index, Colombia has become progressively more stable over the past decade. There has been "significant improvement" in the strength of its democratic institutions and governance, and in its moves towards ending the long-standing internal conflicts with insurgent groups, most notably the peace agreement with the FARC in 2016 (Fund for Peace 2019). However, the peace agreement is still not fully implemented, and corruption remains a barrier to effective governance. Climate change may also intensify existing fragility risks in rural areas, and impair hydropower electricity generation.

### The peace process with FARC

Achieving long-term peace with the FARC, and other insurgent groups, will depend on the successful implementation of the 2016 peace agreement, which covered six main areas – comprehensive rural development, illegal crop eradication, the FARC's political participation in Colombian politics, transitional justice and reparations for victims, and the demobilisation, disarmament and reintegration of ex-combatants (Felter and Renwick 2017).

<sup>2</sup> Calculated using World Bank development indicators (GDP in current US\$, Merchandise exports in current US\$ and fuel exports as percentage merchandise exports).



**Figure 1: Colombia's performance in the Fragile States Index 2006-2020**

(Fund for Peace 2020)

Colombia's long and complex internal conflict has been shaped by a number of political and socio-economic drivers. A major root cause of the conflict was the issue of land tenure and land concentration. Extremely unequal land ownership had been a long-standing cause of political tensions since colonial times, and FARC and ELN insurgents gained legitimacy and recruits by opposing the privatisation of natural resources and striving for the redistribution of land to small peasants and the abolition of large landholdings (Bilotta 2017). The peace agreement set out a series of bold initiatives to comprehensively reform and revitalise Colombia's rural areas, which experts estimated could cost between US\$ 80 and US\$ 90 billion over the subsequent decade (Felter and Renwick 2017). Land is also central to reparations under the peace agreement, with an estimated 8 million hectares of land – 14 percent of Colombia's territory – illegally acquired either by dispossessing or forcibly displacing people over the course of the conflict (Oxfam 2016, Amnesty 2014). Coca<sup>3</sup> and cocaine production was also a key driver of the conflict due to its role in financing the activities of rebel groups, and it continues to present complex challenges for the peace process. Providing economic alternatives to the drugs trade is of crucial importance, but fraught with difficulty as other insurgent groups and cartels compete to take control of coca-growing areas previous controlled by the FARC (Bristow 2018) and former coca farmers lack the infrastructure to transport legal crops (Economist 2019).

Although other issues took centre stage in the 2018 presidential elections, the conflict and the peace process continue to shape the country's politics. President Duque was elected in June 2018 on a platform that included harsh criticism of the peace agreement, which he described as "a prize for criminals and a monument to impunity" (Long 2018). Since taking office, he has sought, albeit unsuccessfully, to change more lenient sentencing for former FARC members under the Special Jurisdiction for Peace – the tribunal at the core of the transitional justice arrangement in the peace deal. Further, due to strong opposition from his party's political base of elite landowners, his administration track record has also been "uneven at best" in implementing the peace agreement's land reform initiatives, which aim to address the deep socio-economic disparities that have fuelled the violence and conflict in Colombia for decades (International Crisis Group 2019a; See also Section 4.2).

The sustainable use of Colombia's immense natural resources also has a crucial role to play in Colombia's post-conflict development (UNEP 2017), and the peace agreement set important precedents in terms of environmental peacebuilding with specific actions regarding environmental sustainability, natural resource management, and progressive measures on gender. However, FARC's demobilisation and the end to violence also opened up a vacuum in terms of environmental governance and in 2016 deforestation increased by 44 percent as smallholder farmers and industry rushed to take control of the jungle and the Amazon, to log it and convert it for uses such as cattle ranching and gold-mining (Reardon 2018).

<sup>3</sup>The raw material for producing cocaine.



### The Venezuelan crisis

In June 2019, Colombia was hosting 1.3 million of the 4 million Venezuelans who had fled their country since the economic and political situation severely deteriorated in 2017 (UNHCR 2019). Over the same period, 300,000 Colombians were also internally displaced due to violence, adding to the millions of Colombians that have been displaced over the decades of conflict. The government has provided support in the form of temporary shelter along the border, as well as temporary residency, and access to healthcare and education. However, it faces growing challenges and rapidly increasing costs to stem the emerging humanitarian crisis. International support only covered 24 percent of the estimated EUR 280 million required to provide for the Venezuelan refugees' basic needs in 2019. Consequently, there is growing pressure on public budgets, and the government "is contemplating relaxing deficit targets so that it can spend an extra EUR 800 million on meeting the needs of Venezuelan refugees and reallocating money that should be spent on other priorities, including implementation of the 2016 peace deal" (International Crisis Group 2019b).

### Governance and political rights

Despite the aforementioned conflicts, over the past decades Colombia has developed relatively strong democratic institutions. There have been free and fair elections in Colombia for nearly 50 years and the number of cases of vote-buying, corruption and intimidation is low, falling and concentrated in a few areas (Bertelsmann Stiftung 2018). Looking at the World Bank's Worldwide Governance Indicators, over the past decade there have also been gradual improvements in regulatory quality, and voice and accountability in Colombia, although this index shows that overall few gains have been made in enhancing government effectiveness and the rule of law (World Bank 2018c). Though still categorizing Colombia as "partly free", the Freedom House Index 2019 states "the incidence of violence has declined in recent years, and public institutions have demonstrated the capacity to check executive power and enforce the rule of law" (Freedom House 2019).

Alongside poverty and inequality, corruption constitutes a central challenge for Colombia (Bertelsmann Stiftung 2018). Following a series of high-profile scandals, corruption was a central issue in the 2018 elections, with both presidential candidates promising tough action and harsher prison sentences for corrupt officials. Each year, corruption is estimated to cost the Colombian economy US\$ 17 billion – equivalent to 5.3 percent of GDP (Grattan 2018). As such, Colombia scored 37 out of a potential 100 on Transparency International's 2019 Perceived Corruption Index, placing it 96<sup>th</sup> in the world (TI 2019). One drivers of corruption may be the process of decentralisation in Colombia. Beginning in the 1980s and consolidated in the 1991 constitution, this process resulted in greater efficiencies and social spending, but also created openings for organised crime groups. "Following the 2015 local elections, nearly one in three governors' offices and nearly one in seven mayors' offices came under investigation for various suspected crimes, including ties to paramilitaries, drug traffickers and other criminal groups" (Yagoub 2016).

### Climate change impacts

Colombia is highly vulnerable to the slow and sudden impacts of climate change and, given its varied geography, the country will have to cope with a variety of adaptation challenges. Projections show that rainfall may decrease by nearly a third in some areas, with the Andean region shifting from a semi-humid to a semi-arid climate (OECD 2014). Sea-level rise will impact coastal and marine ecosystems and fisheries, as well as on Colombia's coastal infrastructure and cities (US AID 2017). Extreme weather events and disasters such as landslides also represent major climate change threats. Like the rest of Latin America, Colombia is experiencing more frequent and severe La Niña and El Niño phenomena, which are characterised by intense periods of drought followed by heavy rain and flooding (FAO 2018). It has been estimated that 85 percent of the Colombian population and 87 percent of the country's GDP are "at risk" from natural disasters (OECD 2014). The 2010-2011 La Niña led to estimated economic losses of approximately US\$ 6 billion (NDC Partnership 2017).

Higher temperatures and increased water scarcity are of particular concern in the Andean region, home to 75 percent of the population. There, the run-off from the mountains is the main water source for

domestic and industrial users, farming and irrigation, and electricity generation (OECD 2014). Indeed, 80 percent of Colombia's GDP is generated in the basin of the two largest rivers running through the Colombian Andes, the Magdalena and the Cauca. The large-scale dams in the watershed hold 84 percent of the Colombia's hydroelectric power (Baptiste et al 2017). Their vulnerability to climate change became evident during the 1992 and 2015-2016 El Niños. Droughts combined with forest loss to reduce water levels to record lows and increase sedimentation. These conditions triggered major electricity crises and a sharp increase in the use of thermal plants (Semana 2015).

In the agricultural sector, farmers may have to move high-value agricultural crops such as coffee to higher altitudes to achieve the same yields, and other important crops, such as tropical fruit, cocoa and bananas are also at risk (US AID 2017). The impact of climate change on livelihoods in these areas will be shaped by the socio-economic struggles that influence activities like illegal land acquisition, conversion of forests to agricultural farms or cattle breeding grounds and pasture lands. For example, communities' vulnerability to extreme weather events is "strongly influenced by deforestation, slash-and-burn agriculture, artificial drainage of wetlands, changes of natural river courses and the building of human settlements in areas at risk of floods or landslides" (OECD 2014).

### 3 PAST AND PRESENT EFFORTS TO DECARBONISE

Due to the high proportion of hydropower in Colombia's electricity mix, the economy's carbon intensity is lower than in many other fossil fuel-rich countries. Colombia has made good progress in developing robust institutions, policies and laws to mainstream climate action, environmental sustainability and green growth strategies into its economic development. However, with deforestation on the rise, emissions from land-use change and forestry may increase in future, and President Duque's administration is renewing efforts to expand the country's fossil fuel industries.

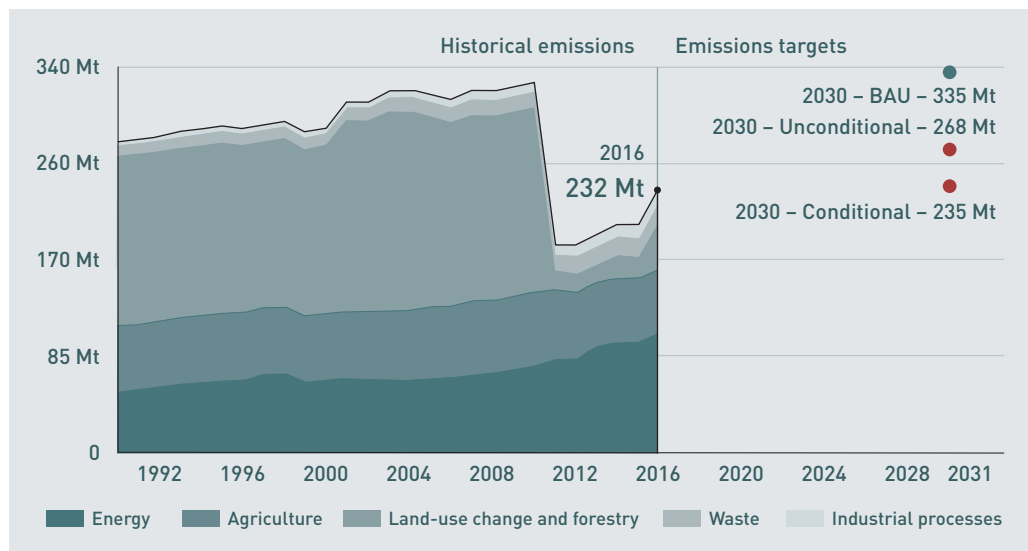
#### 3.1 ROLE IN THE UNFCCC AND THE PARIS AGREEMENT

Colombia has been one of the most active developing countries in the international climate negotiations (Bustos 2017). It ratified the UN Framework Convention on Climate Change (UNFCCC) in 1994 as a non-Annex I party to the Convention. Colombia ratified the Kyoto Protocol in 2005 and has also been active in the UNFCCC REDD+ negotiations (GRICCE, 2018). It has pushed for greater ambition under the UNFCCC as a leading member of the AILAC group of progressive Latin American countries, the Cartagena Dialogue, the Climate Vulnerable Forum and as part of the High Ambition Coalition. Its congress unanimously ratified the Paris Agreement in July 2017 (WWF 2017).

Colombia submitted its intended nationally determined contribution (INDC) to the Paris Agreement in September 2015, committing to unconditionally reduce its emissions by 20 percent compared to the projected business-as-usual scenario by 2030. Its NDC also states that, conditional on international support, Colombia would increase its commitment to a 30 percent emissions reduction on the 2030 BAU scenario. Mitigation, adaptation and means of implementation are all addressed in Colombia's NDC, with adaptation a priority due to the country's high vulnerability. Mitigation is most important in the energy sector and the agriculture, forestry and land use (AFOLU) sectors, but eight Sectoral Mitigation Action Plans (SMAPs) have been developed to reduce emissions across all sectors specified by the Intergovernmental Panel on Climate Change (IPCC) (NDC Partnership 2017). Emissions projections are strongly influenced by emissions from land-use, land use change and forestry (LULUCF), which are "very uncertain", but in 2017 Colombia was considered on track to achieve or overachieve its unconditional NDC target (Kuramochi et al 2017: 3).

**Figure 2: Colombia's greenhouse gas emissions in total and by sector**

[ClimateWatch 2019]



### 3.2 EMISSIONS PROFILE

In 2014 Colombia's greenhouse gas (GHG) emissions amounted to 188 Mt of CO<sub>2</sub> equivalents, accounting for 0.36 percent of global emissions. In that year, the energy sector and the AFOLU sector were the highest emitting sectors, accounting for approximately 42 percent and 46 percent of total emissions respectively (NDC Partnership 2017). Emissions in both sectors are set to rise in future. Historically, land-use, land-use change and forestry have accounted for a far larger proportion of Colombia's GHG emissions, but a number of developments, including efforts to combat coca cultivation, illegal forestry and mining, as well as reforestation, led to a significant fall in the share of LULUCF emissions after 2010 (Kuramochi et al 2017: 29; El Espectador 2013). However, as mentioned above, emissions from deforestation are likely to have increased after 2014 as large areas of forest previously controlled by the FARC are converted for agricultural production.

### 3.3 STATUS OF DOMESTIC CLIMATE POLICY

Colombia has developed a "robust" institutional, legal and policy framework for implementing its NDC (NDC Partnership 2017). In 2016 the National Economic and Social Policy Council (CONPES) played a leading role in establishing the National Climate Change System (Sistema Nacional de Cambio Climático, SISCLIMA), which is being developed to provide a comprehensive institutional framework for the implementation of the Colombian government's main climate strategies, including the Climate Change National Adaptation Plan (PNACC); the Colombian Low Carbon Development Strategy (ECDBC); the National REDD+ Strategy (ENREDD+); and the Strategy for Fiscal Protection Against Natural Disasters (GRICCE 2018). SISCLIMA coordinates Colombian climate action at local, departmental, national and international level (GRICCE 2016; LSE 2019), and brings ministries together with the private sector and non-state actors (NDC Cluster 2018). Since passing the Guidelines for Climate Change Policy in 2002, the Colombian government has adopted successive legislation and laws to strengthen the country's climate change mitigation and adaptation action, with a significant focus on promoting market mechanisms. Key pieces of recent legislation include the National Policy on Climate Change and the introduction of a carbon tax in 2017, and the Green Growth Policy introduced in 2018. The country's first climate change law was passed in July 2018.

The Colombian government has conducted analysis of the economic benefits of climate action for Colombia's long-term growth (DNP 2015) and taken steps towards mainstreaming climate action and environmental sustainability within Colombia's overarching economic development plans. The last three National Development Plans (PND in Spanish) have prioritised the sustainable use of Colombia's national resources. Introduced by the Duque administration in autumn 2018, the latest PND for 2018-2022 acknowledges climate change as one of the key "constraints on the country's progress" and comprises a "pact for sustainability" that outlines, for example, national priorities for climate change mitigation and the circular economy (DNP 2018). While plan's exact implementation remains to be seen, the pact's provisions have been criticised as "not precise and lacking ambition" – for example, due to the absence of strategy to halt deforestation. The PND also includes a "Pact for mining-energy resources for sustainable growth and the expansion of opportunities", which foresees an increase in coal extraction, hydrocarbon production, and oil exploration (Peñaloza 2019).

### 3.4 CLIMATE POLITICS

Colombia challenges the idea that middle-income countries dependent on fossil fuel exports are not able to play a constructive role in international climate negotiations (Bustos 2017). This is the result of the dynamics between the different institutions and pressure groups active in domestic climate politics. The 2018 presidential elections provided a snapshot of these different coalitions of interest, with the future of the country's fossil fuel industries a key issue distinguishing the two candidates<sup>4</sup>. While leftist candidate Gustavo Petro pledged to phase-out coal and oil exports for both economic and environmental reasons, President Duque supported the continued development of the country's oil, coal and gas sectors (Casey and Abad 2018). In July 2018 he appointed former Executive Vice President of state oil company Ecopetrol<sup>5</sup> Maria Fernanda Suarez Londoño as Minister of Mines and Energy, and is encouraging investment in exploration by offering tax relief to the industry. His administration continues to support initiatives to explore whether fracking can be economically and environmentally viable (Acosta and Taj 2019), but has also taken action to realise the previous Santos administration's plans for renewable energy auctions (See Section 4.2). Nonetheless, the changing political economy of coal mining and the huge investment needed to maintain current levels of oil production are eroding the strong support and institutional framework that has supported fossil fuel extraction and mining activities in Colombia for decades (Strambo 2017).

Among the public, there is widespread acceptance that climate change is happening and over two thirds believe that climate change is the result of human activities. A focus group study suggested that Colombians are strongly in favour of measures to mitigate and adapt to the effects of climate change, and were most likely to associate climate change with the more frequent and severe flooding and droughts that had occurred in recent years. They were concerned about the negative impacts on the agricultural activities and quality of life (Pardo Martinez and Alfonso 2018).

<sup>4</sup> "Mr. Duque, a former senator from the right-wing Democratic Center party, won about 54 percent of the vote in the second and last round of elections.... He defeated Gustavo Petro, a former guerrilla member and onetime mayor of Bogotá, the capital, who got about 42 percent." (Casey and Abad 2018).

<sup>5</sup> Ecopetrol has been partly privatised, with state-owned companies controlling 89 percent of its shares (Ecopetrol 2018). The largest company in Colombia, Ecopetrol is responsible for producing almost two thirds of Colombia's oil and owns the country's two of the largest refineries and most of the pipeline network (Acosta 2017). The company has begun diversifying into renewable energy (Morais 2018), but the focus is likely to remain heavily on fossil fuels under the new government.

## 4 TRENDS AND POTENTIAL

Colombia's future prosperity will rest on three pillars: the peace process, economic stability and environmental sustainability. Colombia's NDC has a major role to play in this, and its implementation is being financed in part by climate finance, a carbon tax and, in future, an emissions trading system. Provided the peace process continues, the economy also looks set to reap a "peace dividend" – first and foremost in the agricultural sector. The "orange economy", comprising the innovation and creative industries, is a focus for the current administration, with its development reliant on high educational standards.

### 4.1 FINANCING LOW-CARBON DEVELOPMENT

#### Climate finance

Colombia has been successful in attracting climate finance from a range of streams, including international donors and domestic sources of public and private climate finance. The financial committee of SISCLIMA has been meeting regularly since 2013 and has developed a robust monitoring, reporting and verification (MRV) system for the country's climate change project financing. The process has been led by the National Planning Department, with the assistance of the Ministry of Foreign Affairs, and other institutions have gradually been invited to become members (GRICCE 2018). Financing from international donors amounted to the equivalent of almost US\$ 2.8 billion from 2011 to 2015, and donors range from bilateral instruments such as Germany's International Climate Initiative (IKI 2018), multilateral instruments, such as the Clean Development Mechanism (CDM) of the Kyoto Protocol and the Green Climate Fund (Duque, Ruiz and Restrepo 2017; GCF 2018), and multilateral initiatives, such as the US\$ 100 million that Germany, Norway and the United Kingdom pledged to support Colombia's efforts to reduce deforestation in the Amazon under the UNFCCC's Reducing Emissions from Deforestation and Forest Degradation (REDD+) scheme (GGGI 2015).

#### Carbon market mechanisms

At domestic level, Colombia is using green taxes and market mechanisms to support the country's sustainable development and the ongoing peace process, as well as to compensate for a potential decline in oil tax revenues. The major tax reform passed by the Colombian Congress in 2016 included a new carbon tax to be levied on all sales and imports of fuels, including all petroleum derivatives, but excluding coal and consumption of natural gas in electricity generation. As such, it covers half of Colombia's fossil fuel emissions and 16 percent of its emissions overall. The tax entered into force on 1 January 2017 at US\$ 5/tCO<sub>2e</sub> – below average when compared with other carbon taxes around the world – but is set to gradually increase until the price reaches US\$ 10/tCO<sub>2e</sub>. The tax is estimated to generate around US\$ 200 million in revenue each year, which is channelled into the "Colombia in Peace Fund" administered by the Ministry of Environment and Sustainable Development. Around 70 percent of the funds are directed towards peacebuilding initiatives meeting certain sustainability criteria, and a quarter towards environmental activities related to coastal erosion, reduction of deforestation, conservation of water sources, conservation of strategic ecosystems and climate change. The remaining 5 percent of funds are allocated to a national heritage fund for conservation of biodiversity (Monge 2018; IETA 2018; El Espectador 2018; MADS 2018).

Offset schemes and emissions certificates are also being developed. Since June 2017, companies and other types of organisations have had the option of offsetting their fuel consumption and obligations under the carbon tax by buying certificates generated, for example, by UN REDD+<sup>6</sup> projects (CI 2018). This has in turn led to the development of more projects designed to mitigate carbon emissions. In the first six months, these offsets compensated around 2 MtCO<sub>2</sub>, equivalent to around 5 percent of the expected tax collection (ICAP 2018; Alarcon-Diaz and Lubowski 2018).





Developing the bioeconomy is an important pillar of Colombia's green growth policies.

Further, Colombia has taken initial steps towards establishing an emissions trading scheme in the medium term. An assessment is currently looking at the potential economic advantages of different design options and Congress laid the groundwork for creating a system of carbon credits and allowances in the new Climate Change Law, passed in July 2018. The Colombian Mercantile Exchange has also taken the first steps towards creating a platform to register and trade verified emissions (ICAP 2018).

## 4.2 POTENTIAL IN KEY LOW-CARBON SECTORS

In July 2018 the Santos administration approved a Long-Term Green Growth Strategy for Colombia. Recognising that Colombia's current economic development model is depleting its resource base and generating high costs for the environment and society – estimated at more than 16.6 billion pesos, equivalent to 2.08 percent of GDP in 2015 (DNP, 2018) – the strategy aims to increase the economy's productivity and competitiveness up to 2030, while also achieving the SDGs and the emissions reductions targets outlined in Colombia's NDC. Developed in collaboration with international partners<sup>7</sup> and Colombian stakeholders, the strategy specifies key sectors and cross-cutting priorities for the economy, which include developing agribusiness and forestry; expanding and diversifying the use of clean energies, increasing efficiency in the use of water, soil and energy, promoting the circular economy, and encouraging science, technology, innovation and green jobs (GGGI 2018). The strategy launched a wide-ranging implementation process comprising 150 actions to be carried out by over 25 ministries and agencies. However, there has been criticism that its objectives have not sufficiently been incorporated into the 2018-2022 National Development Plan (Peñaloza 2019).

<sup>6</sup> "Reducing emissions from deforestation and forest degradation (REDD+) is a mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC). It creates a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development" (UN REDD 2018).

<sup>7</sup> The Green Growth Taskforce was initiated by Colombia's National Planning Department (NDP). Strategic partners were Global Green Growth Institute (GGGI), Government of Norway, the World Bank, the French Development Agency, KfW, UNEP and the Inter-American Development Bank.



Colombia's second largest city Medellín is aiming to become a major hub for innovation and creativity. It hosted the first Orange Economy Summit in 2019.

### Agriculture and forestry

Although the importance of the agribusiness sector in the economy has declined in recent decades, the peace process has opened up opportunities for future investment and growth. Large areas of land previously controlled by the FARC are now accessible<sup>8</sup> and, combined with Colombia's favourable climate and water resources, could represent a significant peace dividend. The government's Green Growth Strategy estimates that the bioeconomy sector could grow 2.5 percent annually, with the number of planted hectares expected to increase by 44 percent between 2015 and 2030 (GoC 2018a). The National Association of Entrepreneurs of Colombia is even more optimistic, predicting an annual 8-10 percent increase in agricultural production, with major increases in crops such as African palm, cocoa and mangos (OBG 2018). Much of this increase in production could be exported, and in 2018 agricultural products were already worth US\$ 7.7 billion, making up 21 percent of Colombian commodities exports (Chatham House 2019).

The rural reforms launched as part of the peace process will be crucial in determining both the development of Colombia's agribusiness sector and the stability of the peacebuilding process. Agriculture and cattle ranching are important livelihoods in the rural areas affected by Colombia's internal conflicts. The peace agreement aimed to simultaneously increase the cultivation of licit crops and address long-standing grievances about land rights and land concentration by establishing Zones of Interest for Rural and Economic Development (Zidres), which open up previously uncultivated land to agribusiness, including smallholder farmers, and the Integral Rural Reform, which created a land fund with 3 million hectares to formalise small and medium landholdings. It also aimed to strengthen the property rights and economic independence of rural women (OBG 2018, Oxfam 2016). However, implementation of the reforms has slowed since President Duque took office. "According to the Kroc Institute, which tracks peace agreement progress, 51 percent of the initiatives in the rural reform chapter have made such little progress that it is unclear they will ever be fully implemented and a further 38 percent have made no progress at all" (Kroc Institute 2019; International Crisis Group 2019b).

As acknowledged in its NDC, measures to adapt to and mitigate the impacts of climate change can also be designed to play an important role in strengthening the peace process and the agribusiness sector in

<sup>8</sup>The national Rural Agricultural Planning Unit (UPRA) estimates that only a third of available agricultural land is currently being used (CIAT 2018).

Colombia. For example, promoting the cultivation of crops, such as cocoa, in already deforested areas previously used for coca production is preferable to clearing forest to make way for cattle ranching (CIAT 2018). Although many farmers in the Amazon are turning to the latter as an alternative to growing coca, it is unsustainable as ever greater areas of land are needed due to the unsuitable soil (Palmer 2018). Introducing climate-smart agricultural techniques will also be important in the main producing regions in Colombia's mountain and coastal areas (US AID 2017). For example, the land reforms agreed during the peace process included a National Irrigation and Drainage plan to ensure "democratic and environmentally sustainable access to water" for family-run and community based" farming (GoC 2016).

### Unconventional renewable energy

Domestic energy production in Colombia already has a very low-carbon footprint due to the large proportion of hydropower in its electricity mix. However, the National Energy Plan for 2050 aims to diversify the country's renewable energy mix beyond hydropower to meet growing demand and ensure a reliable, low-emission electricity supply, even during the droughts in El Niño cycles. There is significant potential for the inclusion of wind power plants, photovoltaic solar generation, geothermal energy and generation from biomass in the country's energy basket, and the plan's most feasible scenario estimates these other "unconventional" sources could account for 6 percent of the electricity mix by 2028, equivalent to an installed capacity of 1,207 MW (IEA 2017b). The Duque administration drew up contracting projects for up to 1,500 MW of installed capacity, prioritizing the Non-Conventional Sources of Renewable Energy" in its first month in office (Ministry of Mines 2018). It also plans to allocate 1.18 million MWh per year via auctions, with its first large-scale auction for unconventional renewable energy capacity held in February 2019 and a second auction due to take place by late October 2019 (Bellini 2019; RenewablesNow 2019).

### The orange economy

During his presidential campaign, Duque frequently highlighted the importance of developing the "orange economy" – entrepreneurship, innovative technologies and the creative sector, including music, film and fashion design – as new exporting industries and engines of the Colombian economy. Before entering politics, he co-authored an Inter-American Development Bank publication entitled "The Orange Economy – An Infinite Opportunity", which highlighted that Latin America had yet to harness the economic potential of its creative industries, which had seen exponential growth in other parts of the world. It also made the argument that the creative industries were more profitable than extractives – stating that "by 2012 activities at the core of the orange economy would be contributing US\$ 2.2 trillion per year to the world economy,... equivalent to 230 percent of the actual value of the oil exports of all the OPEC members for the same year" (Duque and Buitrago 2013). Once in office as a senator, Duque also wrote the "Orange Law", passed in May 2017, to promote, develop and protect Colombia's creative industries. In 2017, the industries associated with the orange economy accounted for 3.4 percent of Colombia's GDP, more than mining or coffee (Oppenheimer 2018), and the National Development Plan 2018-2022 targets growth to 6 percent by 2022 (DNP 2018).

## 4.3 EDUCATION AND SKILLS DEVELOPMENT

Both access to education and the quality of teaching in Colombia have improved significantly over the past two decades and, according to the World Bank's Human Capital Index, the current level of education and healthcare would allow the average child born in Colombia today to achieve around 60 percent of their potential, somewhat above the worldwide and Latin American average (World Bank 2018d). Successive reforms have boosted enrolment rates in primary, secondary and higher education, and increased standards in the teaching profession – for example, by raising entry requirements or channelling investment into skills development. New governance structures and funding arrangements have also made the education system more efficient (OECD 2016). In 2015 the literacy rate stood at around 94.2 percent and the average number of years spent in primary to tertiary education was 14 years for males and 15 years for females (CIA 2018).



Ensuring a lasting peace and sustainable development in Colombia will depend on many factors, but it has been argued that “none will be more important to the country’s future than its ability to build a strong and inclusive education system” (OECD 2016). The 2018-2022 National Development Plan (PND) lists education as one of the main pillars Colombia’s future prosperity (DNP 2018). However, to achieve the government’s goal of becoming the “most educated” country in Latin America by 2025, further investment and changes are needed. In 2016, expenditure on education amounted to 4.5 percent of the Colombian GDP, slightly below the average in the OECD (5.2 percent in 2014) and the EU (5.3 percent in 2014) (World Bank 2018e). The strong inequalities between socio-economic groups and regions in Colombia are also more than evident in its educational system. Depending on a child’s location and background, the number of years a child spends in formal education can range from 6 to 12 years (OECD 2016). These disparities also affect the enrolment rates in tertiary education across different socio-economic groups. While 53 percent of students from wealthy families enrol at universities, only 9 percent of students from poor families do so (OECD 2016).

Low skills and access to training present major barriers to those seeking decent jobs in the labour market. Many low-skilled workers end up in Colombia’s large informal labour market, which is estimated to employ almost half the workforce (Bertelsmann Stiftung 2018: 19). Although young people benefit from a “positive labour market climate”, at 18.7 percent the youth unemployment rate is twice as high as total unemployment in the country (OECD 2015a: 1; World Bank 2017f). The distribution of employment has not changed significantly over the past decade and in 2017 64.5 percent were employed in the services sector, 19.4 percent in industry and 16.1 percent in agriculture (Statista 2018). Besides policies to level out the enrolment rates between regions and socio-economic groups, the OECD has argued that improving the quality of technical and technological education should be a priority (OECD 2016: 12).



Colombia’s education system has seen significant improvement in recent decades, but it is still characterised by strong inequalities between socio-economic groups and regions.

## 5 COOPERATION WITH THE EU

Cooperation between Colombia and the EU is well developed, with Colombia one of the EU’s most important partners in Latin America. After the US and China, the EU is Colombia’s most important trade partner and has also been a strong supporter of Colombia’s peace process and post-conflict development. Fossil fuels represent a major pillar of EU-Colombia trade, and the reduction in European coal demand is leading the Colombian coal sector to seek new export markets.

### 5.1 INSTITUTIONAL FRAMEWORK: MULTI-PARTY FREE-TRADE AGREEMENT

As Colombia has developed into an upper-middle income country, the focus of bilateral relations has shifted from development cooperation towards political dialogue and trade. Trade between Colombia and EU is now governed by the multi-party free trade agreement (FTA), which was formalised with Colombia and Peru in 2013, and Ecuador in 2017 (Grieger and Harte, 2017). Overall it is considered have had a “stabilising” and “clear positive impact” on trade between the EU and the three Andean countries (EPRS 2018). The European Union is Colombia’s third biggest trading partner after the US and China, and in 2018 bilateral trade totalled EUR 11 billion, with the EU importing EUR 5 billion worth of goods from Colombia. Since the FTA came into force in 2013, Colombia has diversified its exports to the EU (EP 2018). Although fossil fuels still account for the largest share, representing 48 percent of Colombian exports to the EU (of which coal accounts for 75 percent) (trademap 2018), the share of agricultural products rose from 18 percent in 2012 to 43 percent in 2018 (EEAS 2018a). This has had a positive effect on the implementation of the peace agreement by improving regional employment opportunities (EC 2018). The agreement has also allowed Colombian SMEs to increase their exports to the EU, with 1,115 companies exporting products unrelated to mining to the EU in 2017, including 328 SMEs and 582 microenterprises (EC 2018). Colombian imports largely comprise manufactured goods, equipment, pharmaceuticals and chemicals (Garcia 2016).

The European Union is the largest investor in Colombia and in 2016 foreign direct investment represented 4.8 percent of Colombia’s GDP, with Europe contributing 34 percent (US\$ 4.7 billion). European investments have mainly been in the services sector and directed towards companies, software, IT and finance (ProColombia 2018). Colombia’s membership of the OECD is likely to yield further opportunities for cooperation on modernising the economy, for example, in reforming its education system and labour market, and the reforms that accompanied OECD membership, such as those to reduce corruption, have made the country a more attractive destination for European foreign investment. Colombia achieved the highest score in the Latin America and Caribbean region on the World Bank’s Ease of Doing Business Index (World Bank 2019).

The free-trade agreement is an example of a “new generation” of free-trade agreements, in which the EU has sought to promote sustainable development in its external trade relations, and includes clauses on human and labour rights, environmental protection and good governance. At the time it was negotiated, the agreement was welcomed by business associations, but criticised by civil society groups for its lack of detail regarding the enforcement of the sustainable development clauses<sup>9</sup>. Five years later, an assessment on behalf of the European Parliament concluded that “serious concerns” remained about the agreement’s ability to ensure that “environmental standards will be met and that those standards will be relaxed to facilitate investment in extractive industries”. The report recommended closer cooperation in international

<sup>9</sup>A notable exception were the enforceable labour provisions in the agreement, included due to pressure from the European Parliament. The move was intended to ensure that the EU supports the improvement of the labour situation in Colombia, which has one of the world’s highest murder rates of trade unionists (Van den Putte and Velluti 2018: 236-7).





Iván Duque Márquez, President of Colombia and Federica Mogherini, former High Representative of the EU for Foreign Affairs and Security Policy in Bogotá in September 2019.

and multilateral fora relevant to the mining, energy and hydrocarbon sectors, as well as the monitoring of good practices among European enterprises in Colombia as potential entry points for promoting sustainable development (EPRS 2018).

## 5.2 COOPERATION ON CLIMATE ACTION AND CLEAN ENERGY

Colombia and the EU are strong partners with “very like-minded views” in international processes related to climate change, and under the UNFCCC Colombia and the AILAC group have coordinated efforts to increase ambition in the negotiations via the Cartagena Dialogue, and the High Ambition Coalition. This also applies to broader processes relating to the Agenda 2030 and sustainable development, the sustainable use of natural resources and the protection of biodiversity (EEAS 2018a). For example, cooperation via the International Urban Cooperation programme has linked up European and Colombian cities, so that they can share knowledge and experience for meeting the goals of New Urban Agenda, the Paris Agreement and the Sustainable Development Goals (EC n.d./IUC n.d.). The diversification of Colombia’s renewable energy mix could provide an entry point for further cooperation, as it remains relatively underdeveloped in this area to date.

## 5.3 SUPPORT FOR THE PEACE PROCESS

A major focus of EU-Colombia relations to date has been supporting Colombia on the road to peace. Since 2002, the EU and its member states have provided EUR 1.5 billion to support peacebuilding in Colombia, EUR 550 million of which came from the EU budget. This has been used to promote reconciliation and address the root causes of the conflict by investing in economic and regional development, human rights and democratic governance at local level. The EU also provided support throughout the peace process with the FARC, but was particularly active during the final six months of the negotiations when

the Colombian government reached out for international partners to support Colombia's post-conflict development. At this stage, High Representative Frederica Mogherini appointed a special envoy to coordinate the European Union's response and support, allowing for a more rapid, organised and strategic cooperation at a critical time (Alba 2018). The EU has since reaffirmed its support for Colombia's post-conflict development with an overall support package totalling almost EUR 600 million. This includes EUR 95 million for the EU Trust Fund for Colombia agreed in December 2016 support "comprehensive rural development", reinforce "state presence and restore the social fabric in areas affected by the conflict" and to reintegrate ex-combatants (EEAS 2018a). The EU is also assisting in the ongoing peace negotiations with the ELN.

## 5.4 BROADER COOPERATION AGENDA

The EU and Colombia are engaged in a number of political and policy consultations at bilateral, regional and global level. The latest round of bilateral high-level political dialogue in July 2019 saw the two sides affirm their commitment to continued cooperation on a range of areas of mutual interest, including human rights, security and defence matters, protection of the environment, education, science and innovation, and cooperation in the fight against illicit drugs. They also agreed to explore new areas of cooperation, including the creative industries (the "orange economy") and the circular economy. They also agreed to explore new mechanisms for "lifting bilateral relations to a new level" in future (EEAS 2019). In the area of security and defence, the Framework Participation Agreement that the EU and Colombia concluded in August 2014 has also made way for greater future cooperation between Colombia and the EU in missions undertaken within the framework of the Common Security and Defence Policy. Colombia has also asked for further EU assistance to help respond to the Venezuelan crisis.

EU-Colombia relations are also shaped by various dialogues promoting cooperation within the Community of Latin American and Caribbean States (CELAC). These include the Joint Initiative on Research and Innovation, the Erasmus+ programme for cooperation in higher education, the EU-CELAC Structured Dialogue on Migration, and the EU-CELAC Coordination and Cooperation Mechanism on Drugs (EEAS 2018b). In 2015 Colombia's Ministry of External Relations and the European Commission's Directorate-General for Regional and Urban Policy also established regional policy dialogues to support the strengthening economic, social and territorial cohesion – an important aspect of Colombia's post-conflict development (EC 2015).

## 6 CONCLUSIONS

After decades of internal conflict, Colombia made an important step towards peace in the 2016 peace agreement with the FARC. However, the process of building a lasting peace can still be said to be in its early stages. Continued political commitment is needed, and economic stability will also be crucial, given the high cost of fulfilling the terms of the peace agreement. Major public spending is required to enact, for example, the rural reforms that are fundamental to the peace deal and Colombia's post-conflict development, as well as to respond to other security challenges, such as narcotics production and trafficking, the continued activities of other insurgent groups, and the large influx of Venezuelan refugees. Oil and coal are important contributors to the economy, accounting for a substantial proportion of Colombian exports and the Duque administration's renewed focus on expanding fossil fuel production suggests that they should continue to be so in the short to medium term.

Global decarbonisation processes therefore have the potential to play a role in undermining economic and political stability in Colombia. With decarbonisation precipitating falls in demand for coal imports in its traditional export markets, including the EU, and Colombian coal uncompetitive in other major coal

markets, Colombian coal exports will likely rely on a shrinking circle of countries who still favour coal power. With no coal exit strategies or policies in place as of 2018, any significant short-term decline in coal exports could harm the economy, and present significant economic and development challenges in coal mining regions. Further, although Colombia proved more resilient than other countries to the sharp drop in the oil price between 2014 and 2016, future market fluctuations combined with a potential decline of its coal exports could place pressure on public budgets, with implications for political stability. Decarbonisation therefore presents the challenge of diversifying away from fossil fuel extraction and developing a strong low-carbon economy, on top of the complex task of implementing the fundamental reforms required for the success of the peace process.

The EU and Colombia have well-established relations, and are cooperating in many areas that can support both decarbonisation and Colombia’s post-conflict development. The EU has offered solid support to Colombia throughout the peace negotiations and has launched initiatives that can play a role in supporting long-term peace, particularly in the crucial area of rural development via the trust fund. Although trade relations between Colombia and EU Member States remain focused on coal, trade in agricultural products has increased under the multi-party free-trade agreement, also supporting rural development. Although the sustainable development clauses of the FTA have played a limited role in strengthening environmental governance to date, cooperation in other forums could begin to fill this gap. The EU and Colombia have also cooperated constructively in climate policy. With Colombia an example of an oil-producing state playing an active and constructive role in the international climate negotiations, it has also cooperated with the EU delegation to advance decarbonisation by increasing ambition in the UNFCCC.

## 6.1 FOCAL POINTS FOR FOREIGN POLICY

Key priorities for European foreign policy towards Colombia are:



**Political and diplomatic support for peace and post-conflict development:** The European Union has assured a reliable, coordinated support for the peace process with the FARC using a range of diplomatic instruments, including appointment of a special envoy. The EU can continue to make use its diplomatic toolbox to develop sound European responses to support lasting peace, as well as responses to other security challenges, such as the Venezuelan crisis.



**Economic diversification:** To support the transition towards a low-carbon economy in Colombia, the EU can support initiatives and investment supporting and strengthening commercial ties in the alternative sectors proposed by the Colombian Government in its Green Growth Strategy (bioeconomy, forestry, sustainable energy, sustainable energy) and in the priority of the new president Duque for the development of the creative industries or “orange economy”.



**Investment in rural development and reform** is an important lever for supporting both post-conflict development and decarbonisation in Colombia. Projects financed by the EU Trust Fund have provided valuable support in this area and could be expanded in future. Beyond development cooperation, the EU can also promote European foreign direct investment in the development of climate-resilient agriculture and thereby the sustainable development of Colombia’s bioeconomy.



**Renewable energy sources beyond hydropower:** Further developing renewable energy sources beyond hydropower can safeguard the electricity production when water levels drop in El-Nino years and also help to meet rising energy demand. The EU can support renewable energy development in a variety of ways – for example, by supporting the development of higher education courses on renewable energy technologies, by promoting European investment in Colombian renewable energy projects, and by pairing forward-thinking European cities with Colombian cities investing in renewable energy sources.



**Promote just transition narratives in EU (climate) diplomacy with Colombia:** Colombia is likely to have to prepare for a decline in its coal exports in the short to medium term. As well as promoting wider economic diversification, decarbonisation calls for targeted policies to ensure a just transition and new types of employment in Colombia's coal-producing regions. EU member states are developing policies and good practices in this area, as well as gathering lessons learned and the EU can encourage exchange between relevant member-state representatives and their Colombian counterparts on this issue.



**Continued cooperation within the UNFCCC:** The EU and Colombia have coordinated their efforts to push for increased ambition within UNFCCC processes. They can continue to work together to push for higher ambition on remaining sections of the rulebook for the Paris Agreement, such as robust rules for the use of market-based climate change mitigation mechanisms under Article 6. Once implementation begins in 2020, countries that have pushed for more ambition will be required to also show they can "walk the walk", and the EU has significant expertise to support this.

Overall, the EU has already developed a sound basis for cooperation to support both peace and low-carbon development in Colombia, with increasing political dialogue in relevant areas of mutual interest. The EU proved a valuable partner in the final phases of the peace process, and it continues to help tackle the root causes of the conflict as a donor, and more and more via investment and trade. The free-trade agreement has played a role in shifting EU-Colombia trade relations away from fossil fuels towards agricultural products, and therefore in supporting rural development and economic diversification in Colombia. This also bodes well for building up trade and other ties (e.g. via higher education and research and development) in the other low-carbon, knowledge-based sectors.

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## **CASE STUDY: INDONESIA**



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## LIST OF ABBREVIATIONS

<b>ASEAN</b>	Association of Southeast Asian Nations
<b>BAU</b>	Business as Usual
<b>CEPA</b>	Comprehensive Economic Partnership Agreement
<b>CETA</b>	Comprehensive Economic and Trade Agreement
<b>EPA</b>	Economic Partnership Agreement
<b>FDI</b>	Foreign Direct Investment
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>IEA</b>	International Energy Agency
<b>IISD</b>	International Institute for Sustainable Development
<b>IMF</b>	International Monetary Fund
<b>IPPs</b>	Independent Power Producers
<b>LULUCF</b>	Land Use, Land Use Change and Forestry
<b>MoEMR</b>	Ministry of Energy and Mineral Resources Indonesia
<b>MRV</b>	Monitoring, Reporting and Verification
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>NDC</b>	Nationally Determined Contribution
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>OPEC</b>	Organization of the Petroleum Exporting Countries
<b>PCA</b>	Partnership and Cooperation Agreement
<b>PLN</b>	Perusahaan Listrik Negara (Indonesian state-owned power utility)
<b>RAN – GRK</b>	National Action Plan for Greenhouse Gas Emission Reduction (Indonesia)
<b>RAN-API</b>	National Adaptation Action Plan on Climate Change
<b>REDD+</b>	Reducing Emissions from Deforestation and Forest Degradation
<b>RUPTL</b>	Indonesian Electricity Supply Business Plan
<b>SDG</b>	Sustainable Development Goals
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>VPA</b>	Voluntary Partnership Agreement
<b>WTO</b>	World Trade Organization

# INDONESIA



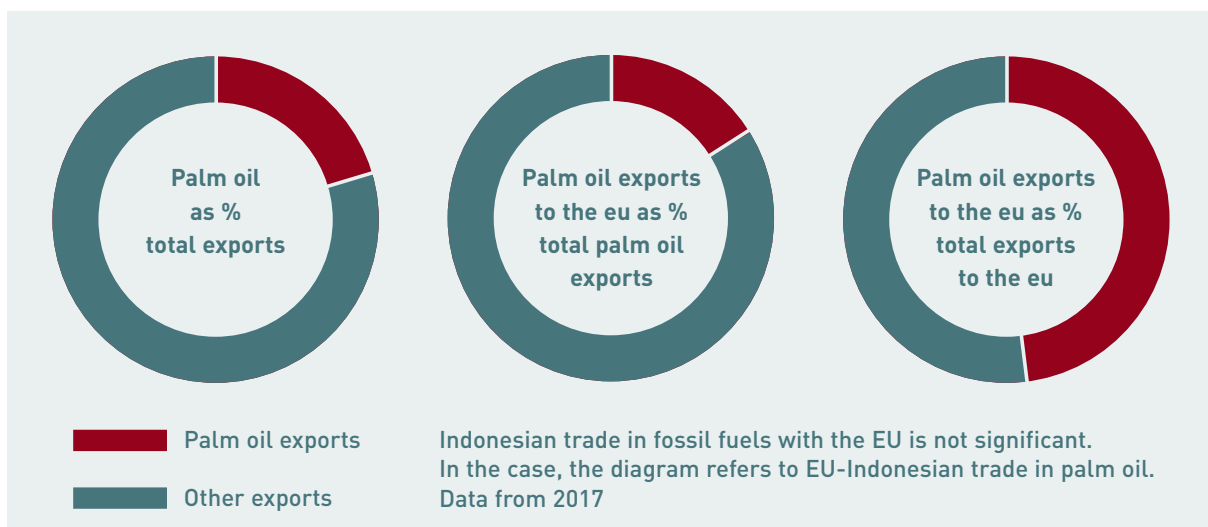
	POPULATION (2019; growth rate y-o-y)	GDP PER CAPITA (2018)
	270 m (1.14 %)	US\$ 3,893
	510 m (0.12 %)	US\$ 33,715

	CO <sub>2</sub> EMISSIONS PER CAPITA (2014)	
	EXCL. LULUCF	INCL. LULUCF
	3.09 t	9.69 t
	8.04 t	7.19 t

Fossil fuel rents as % GDP (2017)	2.3%
Fossil fuel as % exports (2018)	39%



<b>Fragility (2019)</b>	Sustainable	Stable	Warning	Alert
<b>Human development (2018)</b>	Very high	High	Medium	Low
<b>Strength of governance (2017)</b>	Very high	High	Medium	Low
<b>Climate change vulnerability (2017)</b>	Low	Medium	High	Very high
<b>Sustainable energy development (2017)</b>	Very high	High	Medium	Low

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Sources for dashboard statistics: Population (UN DESA 2018a); GDP per capita (current US\$, World Bank 2018a); CO<sub>2</sub> emissions per capita (WRI 2018); Fossil fuels rents as % GDP (own calculation using World Bank data 2017a); fossil fuels as % commodities exports, palm oil as % total commodities exports, palm oil exports to the EU as % total fossil fuel exports, palm oil exports to the EU as % total exports to the EU (Chatham House 2019); Fragility (Fund for Peace 2019, 70.4/120); Human development (UNDP 2018, 0.694/1); Governance (World Bank 2017b, 276/600); Climate change vulnerability (ND-GAIN 2017, score 45.9/100); Sustainable energy development (49/100, World Bank 2017c).

# 1 INTRODUCTION

Indonesia's economic growth has been underpinned by the huge variety of natural resources at its disposal. After the Amazon, it is the world's most heavily forested region and it also has rich deposits of hydrocarbons and minerals. Many of these natural assets have also been developed for export, and the country is the second largest exporter of coal after Australia and the world's largest exporter of palm oil – the latter accounting for a large proportion of its trade with the EU. Indonesia has diversified its export base beyond fossil fuels over the past 15 years, but become increasingly dependent on coal to meet rising domestic energy demands.

The Republic of Indonesia (henceforth Indonesia) is the world's largest archipelagic nation, with 13,466 islands, 922 of which are permanently inhabited (CIA 2018). It is also the world's fourth largest in terms of inhabitants, with the population due to hit 300 million in the early 2030s (UN DESA 2018a). The capital Jakarta is located on the densely populated island of Java, which although only around the size of England is home to 145 million people. Indonesia is urbanising faster than other country in the region, with 55 percent living in cities in 2018 and 73 percent projected to do so by 2050 (UN DESA 2018a).

Indonesia is the world's third largest democracy and largest Muslim majority nation, with 87 percent of the population practising Islam (CIA 2018). Reelected in April 2019, its current and seventh president Joko Widodo, also known as Jokowi, has pledged to protect Indonesia's tradition of pluralism and moderate Islam in the officially secular country (Rizki and Cahya 2018). His relatively high approval ratings are underpinned by the sustained strength of the Indonesian economy over the last two decades since the Asian financial crisis. The Indonesian economy is by far the largest in Southeast Asia and the 16<sup>th</sup> largest in the world<sup>1</sup> (IMF 2018). Accordingly, Indonesia is the seat of and a leading voice in the Association of Southeast Asian Nations (ASEAN) and a member of the G20.

Averaging around 5 percent per year, the country's strong GDP growth has been accompanied by significant increases in consumption and living standards, with GDP per capita increasing 84 percent from 2000 to 2016<sup>2</sup> and the poverty rate falling from 39 to 7 percent over the same period<sup>3</sup>. Unemployment is relatively low at 4.3 percent (World Bank 2017d), although in 2017 youth unemployment stood at 21 percent (World Bank 2017e). However, despite these gains, there is still significant wealth inequality and around 40 percent of the population lives on an income only just above the poverty line (World Bank 2018b). Further, rapid economic development and urbanisation are leading to intensifying environmental problems, including large-scale deforestation, overexploitation of marine resources, air pollution, traffic congestion, unsustainable waste management, and water pollution (CIA 2018).

<sup>1</sup> According to the IMF ranking of 2017 GDP in terms of nominal value, current prices, in US\$.

<sup>2</sup> GDP per capita increased from US\$ 2,143 in 2000 to US\$ 3,975 in 2016. Per capita GDP rose again to US\$ 4,131 in 2017 (in constant 2010 US\$, World Bank 2017f).

<sup>3</sup> Measured in terms of the poverty headcount ratio at US\$ 1.90 a day (2011 PPP) (World Bank 2016).

## 2 EXPOSURE AND RISKS

### 2.1 EXPOSURE TO GLOBAL DECARBONISATION TRENDS

Indonesia’s economic growth has been underpinned by the exploitation of its abundant hydrocarbons and rich forests. However, continuing down a high-carbon development path while the rest of the world decarbonises carries the risk of enormous amounts of investment becoming stranded, with major opportunity costs for low-carbon development, not to mention broader threats to the health of citizens and ecosystems. Indonesia’s energy subsidies also increase its vulnerability to price shocks on international commodity markets.

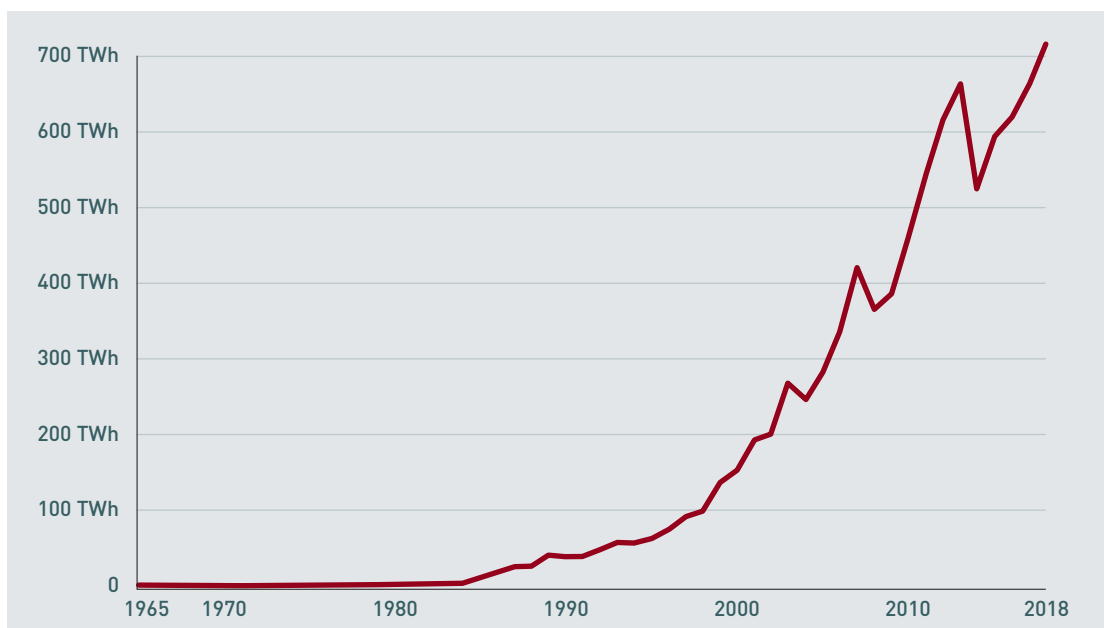
#### Indonesia is a major fossil fuel producer with significant reserves

Indonesia is a major producer of fossil fuels and in 2017 was the world’s fifth, 12<sup>th</sup> and 21<sup>st</sup> largest producer of coal, natural gas and oil respectively. Coal accounts for almost 70 percent of Indonesian fossil fuel production (Our World in Data 2018), and production more than doubled from 2007 to 2017 to 271.6 million tonnes of oil equivalent (toe). Oil production has been on an overall downward trend since the 1990s, although production did increase 12 percent from 2014 to 2017 to 949,000 barrels of oil per day. Indonesia withdrew from OPEC in 2016 so as not to have to comply with the group’s production cuts (Singgih 2017). Natural gas production has also fallen, decreasing 16 percent from 87 billion cubic metres (bcm) in 2010 to 73.2 bcm in 2018 (BP 2019: 16, 32, 44).

In 2018, Indonesia had proven coal reserves of 37,000 million tonnes, the sixth largest in the world (BP 2019: 42), and the Ministry of Energy and Mineral Resources estimates coal reserves would last for another 60 years at current production rates (Palma 2018). In late 2018, Indonesia had proven oil reserves of around 3.2 billion barrels, which would be exhausted within the next decade if production continued at current levels (BP 2019: 14). By contrast, estimated natural gas reserves of up to 2.8 trillion cubic metres (BP 2019: 30) would support current production levels for up to 30 years.

**Figure 1: Coal consumption in Indonesia, 1965 to 2018**

(Adapted from BP Statistical Review of Global Energy 2019; Our World in Data 2020)







A coal mine in South Kalimantan, Indonesia.

**Electricity generation is dominated by coal and energy demands are rising rapidly**

Despite enormous potential and ambitious policies to harness renewable forms of energy, coal remains the mainstay of the Indonesian electricity mix, providing 57 percent of generating capacity in 2017 (PWC 2018). With reserves that are plentiful and easy to extract and transport, coal is less expensive to produce than lower-emission fuels such as natural gas, and benefits from more favourable policy environment than increasingly cost-competitive renewables (PWC 2018). Over the past decade, the consumption of oil and natural gas has risen only gradually, while coal consumption has surged, increasing by almost 60 percent between 2008 and 2018 (BP 2019: 21, 29, 45). The proportion of oil in the power generation mix has decreased by almost 20 percent since 2009, in line with government policies to reduce petroleum imports (PWC 2017).

Although overall per capita electricity and fuel consumption remains low in Indonesia compared to other Southeast Asian countries, demand for energy is increasing rapidly. As the country’s GDP doubled between 2000 and 2015, electricity demand increased 150 percent (IEA 2017: 108). The rising incomes and energy needs of its growing and increasingly urban population, as well as government plans to ensure almost universal energy access by 2025 mean that the country’s electricity demand is projected to triple by 2030 (IRENA 2017: 3). The upsurge in energy use is expected to be highest in industry and transport, with demand growing by more than half in these sectors over the same period. The country’s industrialisation continues apace, and around 75 million new scooters and motorcycles and a million new cars hit Indonesia’s roads every year, adding to domestic oil demand and the heavy air pollution in its densely populated cities (IRENA 2017). A growing number of household consumers are also investing in appliances like air-conditioners, fans and cookers (PWC 2017).

**Carbon-intensive goods are important contributors to the economy and exports**

Steep falls in the oil price in the 1980s prompted government action to diversify the Indonesian economy and export base (Elias and Noone 2011; World Bank 2018c). Today, the economy is “well-balanced”, and the strong growth over the past two years has been underpinned by rising prices in Indonesia’s key export commodity markets, including coal, crude oil and natural gas (Deloitte 2017; World Bank 2018d). Exports and taxation of fossil fuel extraction remain a significant source of government revenues (Ivleva et al 2017). Coal has become increasingly important and in 2017 coal mining accounted for 2.3 percent of Indonesia’s GDP (PWC 2018). By contrast, the contribution the oil and gas sectors to state revenues fell from around 20 percent in 2004 to 14 percent in 2014 and then further to 3 percent in 2016 due to the oil price slump. Initiatives to attract major new investment to revive these industries have largely been unsuccessful (Ariffin 2018).



Harvested oil palm fruit. Each piece of fruit is around 50 percent oil.

Export revenues contributed 20.9 percent of Indonesia's GDP in 2018 (World Bank 2018e), with fossil fuels and agricultural products each providing just under 40 percent of foreign exchange earnings from merchandise trade (Chatham House 2019). Coal is Indonesia's most valuable export commodity, and in 2017 the country was the world's second largest exporter of coal after Australia, with export revenues totalling US\$ 23.2 billion. The economy is benefiting from the upturn in the global coal price, and in 2016 over half of its coal export revenues came from China and India, the world's first and third largest importers of coal respectively. Nonetheless, the government has sought to lower the country's dependence on coal demand in other countries by creating incentives for domestic industry and power generation to use coal to maximise coal extraction profits (CAT 2019). The country also has significant gas and oil exports totalling US\$ 14 billion in 2017 (Chatham House 2019). However, due to growing domestic demand and falling production, Indonesia has been a net importer of crude oil since 2004 and could become a net importer of gas by 2020 (Karlis and Rusmana 2017).

Palm oil is the country's second most valuable export commodity, with revenues totalling US\$ 16.5 billion and accounting for just under 20 percent of all foreign exchange earnings from merchandise trade in 2017 (Chatham House 2019). The 30 million tons of palm oil Indonesia produces each year generate 4.5 percent of its GDP and provide jobs to 3 million people (UNDP 2018). India, China and Pakistan are the largest country importer of palm oil, but collectively EU member states are its second largest market, importing US\$ 3.5 billion worth Indonesian palm oil in 2017. In Europe palm oil is mainly used in food, animal feed and industry, as well as for transportation, with 46 percent of imports being used for biodiesel in 2015 (Copenhagen Economics 2018). As oil palms are higher yielding than other similar crops, they are likely to continue to play an important role in meeting growing global demand for vegetable oils (Meijaard et al. 2018). Timber and other forestry products are also significant exports to Europe, generating US\$ 334 million in 2017 (Chatham House 2019).

### **Fossil fuel subsidies divert away development spending and increase vulnerability to international oil market fluctuations**

Increases in domestic oil demand in the transport sector mean that Indonesia may become more vulnerable to the downsides of fuel subsidies in future. Engaged in oil, gas and renewable energy production and refining (NRGI 2018), state-owned energy company Pertamina bears the costs of subsidising fuel for Indonesian consumers. Since mismanagement and underinvestment in the oil sector led Indonesia to become a net importer of crude and refined oil in 2004, state revenues have been linked to global oil prices via subsidies on imported fuels, with increases in the global oil price necessitating greater spending on fuel subsidies to keep domestic prices stable (Chelminski 2018). Energy subsidies to reduce and stabilise energy and fuel costs have typically accounted for 10 to 20 percent of government spending, and are an important reason why spending on key development areas such as health, education and public infrastructure has lagged behind other Southeast Asian and lower-middle income countries (Beaton et al. 2018: 138-9).

On taking office in 2014, the new administration of Joko Widodo was widely praised for reducing fossil fuel subsidies by 90 percent, lowering government spending on fuel subsidies from more than 3 percent of GDP in 2014 to less than 1 percent in 2016 (IEA 2016a). However, in 2016 Indonesia still ranked sixth in the world in terms of its spending on energy subsidies, mainly for the electricity and oil sectors (IEA 2016b). New subsidies have also since been introduced. In March 2018 the government capped domestic coal prices at US\$ 70 per tonne, 30 percent below the market rate, until late 2019 – a subsidy that is estimated to cost US\$ 630 million and negatively impact government revenues from coal (Indonesia Investments 2018; Suzuki 2018) – and in April 2018 it introduced controls on fuel and electricity prices. Although artificially keeping fuel prices low has been justified on the basis that it preserves consumer purchasing power, subsidies stimulate over-consumption of imported petrol, which both weakens the rupiah and purchasing power by increasing inflation (Varagur 2018). Even worse, these artificially cheap fossil fuel prices provide an incentive for a less sustainable, more carbon-intensive development path.

**Coal expansion means Indonesia faces high health and opportunity costs**

Indonesia’s rising energy demands from industry and households means that state-owned power utility Perusahaan Listrik Negara (PLN) and private-sector investors are set to make huge investments to expand electricity generation capacity over the coming decade. In its 2018 business plan, known as the RUPTL, PLN set out targets to add 20 GW of capacity by 2019 and a total of 56 GW by 2027. Given that installed power plant capacity stood at 59.6 GW in 2016 and average annual capacity growth at 3 GW between 2012 and 2017 (PWC 2017, 2018), these plans are highly ambitious and would reshape the Indonesian power sector for decades to come. They could also potentially result in significant idle capacity, given that Indonesia has “consistently overbuilt capacity” (CAT 2019). Coal is due to play a preeminent role in reaching the RUPTL targets, accounting 48 percent of new generation capacity. Both plans envisioned renewables accounting for only around a quarter of new power generation capacity up to 2027 (PWC 2018: 12), despite the falling costs of key renewable energy technologies.

In view of the long-term nature of these investments, taking a more carbon-intensive path is likely to present high stranded assets risks and major opportunity costs. The International Renewable Energy Agency (IRENA) estimated in 2017 that upstream energy production could account for over 80 percent of potentially stranded assets in Indonesia, and in 2015 the Carbon Tracker Initiative calculated that unneeded capital expenditure investments could total almost US\$ 92 billion under 450 ppm scenario of the International Energy Agency (IEA), with 62 percent of coal investments and 54 percent of investments in natural gas at risk of stranding (CTI 2015; Ivelva et al 2017: 26). Indonesia’s NDC foresees coal contributing a minimum 30 percent share of the electricity mix in 2025 and minimum 25 percent share in 2050 (GOI 2015). Further, policies to promote coal are locking in large amounts of investment and high-carbon capacity – with all the associated costs for health and climate change impacts – when these funds could be used to further expand cleaner forms of energy production. Under the contracts drawn up between PLN and independent coal power producers, PLN commits to paying for the contracted amount of electricity whether it is required or not (Sanchez 2017; Chung 2017). The Indonesian state could therefore be locked into funding coal power for decades to come, regardless of future advances and price-drops in low-carbon energy technologies.

The rapid expansion of coal also has significant health implications, particularly for those living on the islands of Java and Sumatra where most coal-fired power plants are located. The situation may be particularly grave in Jakarta, with 22 coal power plant units operating within 100 kilometres of the city in 2017, and 7 more units planned (Greenpeace 2017). Non-communicable diseases caused by air pollution have been found to be a leading cause of premature death in Indonesia (IISD 2018) and it is estimated that every year 100,000 Indonesian die early as a result of poor air quality, caused at least in part by the current energy system (Wright 2016, cited by Ivelva et al 2017: 27). When the cost of health and climate change impacts are taken into account, coal power generation may cost up to US\$ 61.5 per MWh – over twice the current market price of coal generation in Indonesia (IISD 2017).

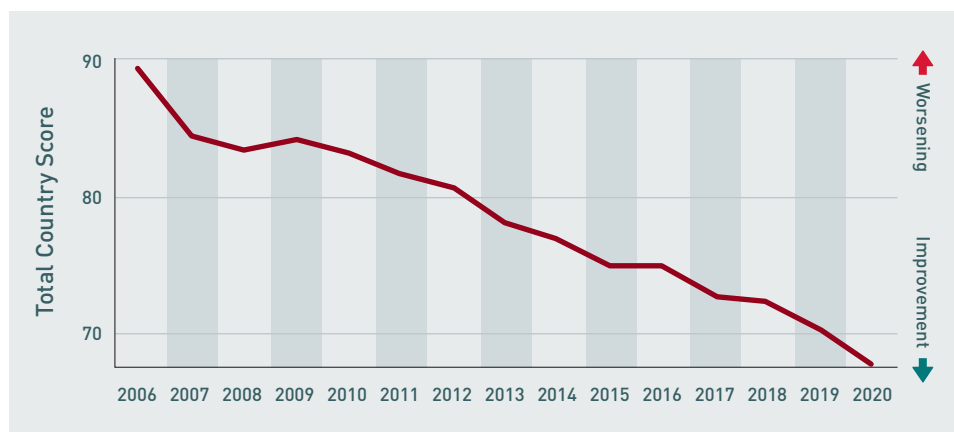


## 2.2 OTHER FRAGILITY AND SECURITY RISKS

Indonesia has become increasingly secure and stable over the last decade. However, growing wealth inequality, ongoing security challenges and climate impacts could put pressure on politics and society in future.

### A stable democracy subject to the pressures of rising inequality

Since Asian financial crisis and the overthrow of H. Muhammed Suharto’s 30-year dictatorship in 1998, Indonesia has made steady progress in developing the political institutions of a stable, fully functioning democracy. There is an established pluralism in politics, the media is “largely free of government control and sanction”, and a variety of civil society organisations supporting democracy, human rights and the environment are actively driving this trend (McWilliams 2018). The Freedom House Index of 2018 categorises Indonesia as “partly free” and the Fragile States Index shows strong improvement in state legitimacy and public services (Freedom House 2018; Fund for Peace 2019).



**Figure 2: Indonesia’s performance in the Fragile States Index 2006-2020**

(Fund for Peace 2020)

However, the country also continues to face many of the same challenges it did 20 years ago. An elite class who benefited from association with the Suharto regime remains largely intact, including those that are linked to Indonesia’s still powerful military, which has seen a strengthening of its political role in recent years (Bertelsmann Stiftung 2018). Accordingly, the country’s growing economic wealth has been concentrated in relatively few hands. Indonesia has one of the highest rates of wealth inequality<sup>4</sup> in the world and the gap between rich and poor is widening, putting social cohesion under stress. Almost half the population is living in poverty or just above the poverty line, and there are major differences in the provision of basic services like health and education across the country (McWilliams 2018).

Despite continued high approval ratings (Rizki and Cahya 2018), the performance of President Widodo’s administration in fulfilling his promises on improving social justice and delivering democratic progress, combating corruption and addressing human rights issues remains ambivalent. While many headline development indicators show improvement since he was first elected in 2014, Indonesia’s score on the Transparency International Corruption Perceptions Index has improved very little and the country ranked 96<sup>th</sup> out of 180 countries in 2017 (Transparency International 2017). Two key indexes – the 2018 Fragile States Index and the Bertelsmann Stiftung’s 2018 Transformation Index – point to increasing human rights abuses, including discrimination against minorities and “the filing of treason charges against the administration’s political opponents” (Fund for Peace 2019; Bertelsmann Stiftung 2018).

<sup>4</sup> “Indonesia’s wealth Gini coefficient – 84 on a 0-to-100 scale – is among the highest in the world and has gone up since 2012. Income disparity is comparatively almost as severe [62<sup>nd</sup>] and has deepened since 2012.” (WEF 2018).

### Security challenges: multiple dormant threats

Indonesia ranks 55 out of 163 in the 2018 Global Peace Index and is considered a stable, yet “flawed democracy” by the 2017 Democracy Index. Multiple security threats at the national level pose a risk to democracy and stability in the Indonesian archipelago. At the national level, Indonesia’s long history of separatist movements, clashes between divergent ethnic and religious groups, and growing discontent over unequal treatment of indigenous groups have led to tensions in the past. Dissident movements are particularly active in the Aceh and Papua region. Observers also warn about the “threat of a military coup in the event of a political crisis” as a consequence of persistent scepticism among military leaders with regards to the “merits of civilian democracy” (Russel 2016).

Despite increased efforts by the Indonesia government to fight terrorism after the 2002 Bali bombing, terrorism remains a palpable threat to security, as the recent attacks of 2016, 2017 and 2018 have highlighted. In addition, the potential border crossing of extremists and terrorist groups from the Philippines and the rehabilitation of returning Indonesian foreign fighters from Syria represent an important challenge for the Indonesian security landscape (Gupta and Ayesch 2018).

Piracy, illegal fishing, natural disasters and people and drug-trafficking bear further conflict potential (Sukma n.d.). Although the number of piracy incidents has been decreasing since 2015, 43 piracy attacks and attempts were recorded in 2017 by the ICC International Maritime Bureau. Intrusions of the country’s maritime borders and hijacking and kidnapping incidents in the surrounding waters have affected Indonesia’s maritime security in the past (Gindarsah n.d.).

### High climate change impacts and costs on the horizon

With the second longest coastline in the world, Indonesia is vulnerable to the effects of climate change and is likely to be severely impacted by changing rainfall patterns, temperature and sea-level rise, and extreme weather events and natural disasters. It has been estimated that climate change impacts in the areas of agriculture, health and sea-level rise could cost 132 trillion Indonesian rupiahs (equivalent to approximately US\$ 8.9 billion) by 2050, with the capital Jakarta potentially experiencing a quarter of these total projected costs (Hecht 2016).

Concerning agriculture and food security, temperature increase and sea-level rise may result in reduced rice productivity and increased damage to crops (US AID 2017), food deficits and food production loss. As a consequence, the number of undernourished people is likely to increase (Case et al. n.d.). Climatic changes will also decrease water quality, increase salinisation of coastal aquifers (US AID 2017), and diminish groundwater resources, drinking water supplies and irrigation water for agriculture (The Dutch Sustainability Unit 2016).

The increased flood risk due to changing rainfall patterns is likely to increase the pollution of local sources of clean water (Dreierstad 2018). Warming waters, damage to reefs and mangroves, and the erosion of coastlines will likely also contribute to a decreasing marine fish population (US AID 2017), endangering the livelihoods and increasing the vulnerability of coastal communities. It is expected that climate change will also increase risk of forest fires and a loss of habits. It will thus affect both land and ocean ecosystems (US AID 2017).

Further, sea-level rise will increase the frequency of floods in Jakarta’s and Bekasi’s densely populated areas. Runaway development and a near total lack of planning, means that Jakarta is already the world’s fastest sinking city, with around 40 percent of the city now below sea-level. Some estimates predict 95 percent of Jakarta’s northern port district, home to 1.2 million people, being submerged by 2050 (Kimmelman 2017). As stated in Indonesia’s NDCs, climate change induced natural disasters particularly affect people below the poverty line, preventing asset accumulation, provoking rising food, water and energy prices, and ultimately further reinforcing the already existing poverty. As a consequence, the resulting strong socio-economic disparity might lead to political instability (GOI, 2016). Health impacts are also a concern due to the potential for increased incidence of vector- and waterborne diseases, such as dengue fever and malaria (US AID 2017).



### 3 PAST AND PRESENT EFFORTS TO DECARBONISE

Indonesia’s emissions profile is changing. While land-use and forestry will remain a key focus, meeting its climate policy objectives will increasingly require its fast-evolving industries and burgeoning cities to embrace more efficient and climate-friendly modes of electricity generation, production and transportation.

#### 3.1 ROLE IN THE UNFCCC AND THE PARIS AGREEMENT

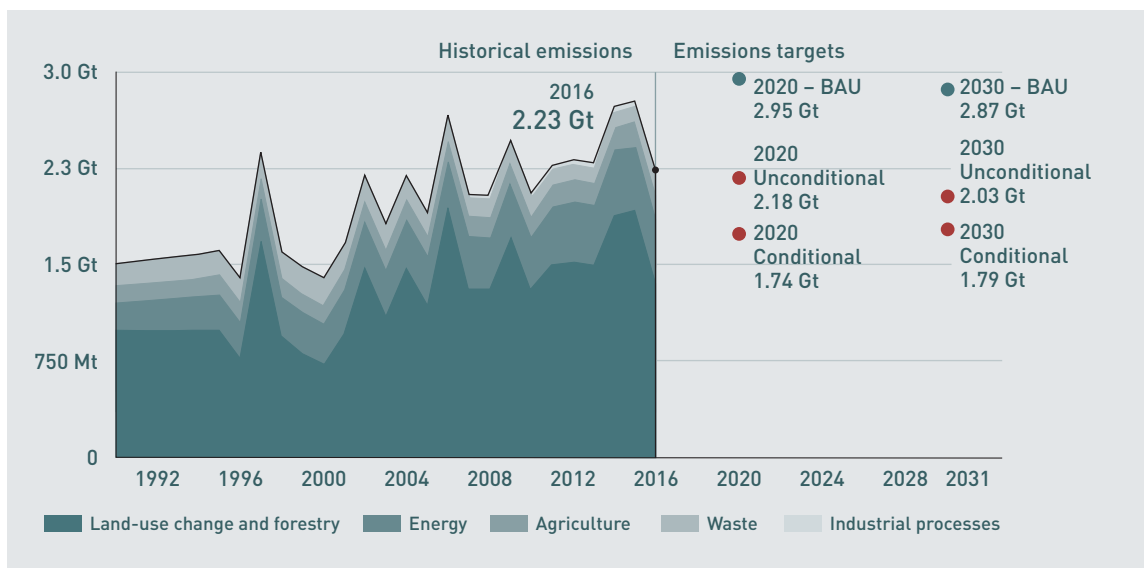
Indonesia is party to most major climate treaties, having ratified the UN Framework Convention on Climate Change in 1994, the Kyoto Protocol in 2004 and the Paris Agreement in 2016. It is a non-Annex I Party to the UNFCCC and is considered a developing country in climate treaties. Indonesia has submitted three National Communications under the UNFCCC, the most recent one in 2018. It issued its last Biennial Update Report in 2016.

In its Nationally Determined Contribution (NDC) to the Paris Agreement, the country has committed to a 29 percent emission reduction relative to a business as usual (BAU) scenario by 2030 and, if international support is provided, to increase these efforts to ensure a reduction of 41 percent. Priority areas for reducing emissions outlined in Indonesia’s NDC cover both sustainable forest management, a forest moratorium and REDD+, and the transition towards a mixed energy use policy with at least 23 percent renewable energy in 2025, and waste management (GOI 2016: 2-3).

#### 3.2 EMISSIONS PROFILE

Figure 3: Indonesia's greenhouse gas emissions in total and by sector

(ClimateWatch 2019)



Indonesia accounts for around 1.7 percent of the total global emissions (WRI 2017), with its historical emissions between 1850 and 2012 estimated at 9,554 million tonnes (WRI 2018). To date, energy and land use, land-use change and forestry (LULUCF) have been by far the highest emitting sectors (WRI 2018). Having lost a total of 15 percent of its forest cover due to land-use change and peat fires between 2001 and 2017 (Global Forest Watch 2018), reducing deforestation and implementing afforestation programmes will be crucial for both adaptation and mitigation. Palm oil is the largest single cause of deforestation, and palm oil plantations are also reducing biodiversity, having been found to have harmed over 190 threatened species (Carrington 2018). However, the country's rapid industrial and urban development means that future emissions growth will in large part come from industry, transportation and the electricity supply sectors (Rissmann 2017). Analysis by the World Resources Institute forecasts that energy emissions will outstrip LULUCF emissions and account for over half of total emissions by 2026 (Wijaya et al 2017).

### 3.3 STATUS OF DOMESTIC CLIMATE POLICY

At the start of the 2015 Paris climate conference, President Joko Widodo made clear that Indonesia was committed to an agreement that was “legally binding” and “ambitious” but that the Paris Agreement should also “not impede the development of developing countries” (UNFCCC 2015). Indonesia's long-term development priorities, as expressed in its national development plan for 2005 to 2025 are squarely focused on stimulating economic growth to lift more people out of poverty and on strengthening its democracy and international standing. Climate and environmental protection, and their contribution to long-term prosperity, are not explicitly mentioned among these core objectives.

Climate policy falls under the remit of the Ministry of Forestry and Environment. Several policies detailing Indonesia's climate action efforts exist, including the National Medium Term Development Plan for 2015-2019 (RPJMN) with its green economy approach. The government has launched a Low-Carbon Development Initiative to ensure the environmental credentials of the next five-year plan (GCEC 2018), and a low-carbon development plan, including three emission pathways to 2045 (CAT 2019). The National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK) and the National Adaptation Action Plan on Climate Change (RAN-API) are the country's core mitigation and adaptation policies. They present Indonesia's strategic vision and specify areas for action on green cities, rural development, natural resources, community resilience, forestry and peat lands, agriculture, energy and transportation, industry, and waste (GRICCE 2018).

Current policy projections for sectors beyond LULUCF show that the country will easily overachieve its current NDC targets, and this likely overachievement has led the ambition of its NDC target (excluding forestry) to be rated as “highly insufficient” (CAT 2019). Indeed, a large proportion of emission reductions up to 2030 set to come from the forestry sector and Indonesia's forest moratorium is the policy with the greatest potential to reduce emissions. It has been calculated that if it is renewed in its current form up to 2030, it could lower emissions by around 199 MtCO<sub>2</sub>. Further if the moratorium were extended to cover more forest and forest areas under concession licenses, emissions might be reduced by as much as 437 MtCO<sub>2</sub> by 2030 – the equivalent to shutting off 108 coal power plants for a year (WRI 2017; calculated using EPA 2017). This would require better enforcement of existing policies and regulations, with more resources for combatting illegal deforestation and mining (UNDP 2018).



A busy road in Indonesia's capital city, Jakarta.

### 3.4 CLIMATE POLITICS

To date, there has been strong government, private-sector and public support for Indonesia's current development path, which exploits its abundant domestic coal reserves and promises low-cost energy in the short-term. A 2018 survey of stakeholders in the Indonesian power sector found that they prioritised the affordability of energy and security of supply over sustainability (PWC 2018: 30). This focus on keeping the price of energy low reflects mainstream public opinion. The huge increases in coal-fired power generation, including in and around major cities, has not prompted any significant backlash in Indonesia – unlike in other nearby countries like Thailand where local people have protested and staged hunger strikes against new coal power plants (Palma 2018) – and a 2015 survey found that 79 percent of Indonesians were opposed energy subsidy reform, despite its benefits (Pfefferle 2018). Although sustainable development was an important manifesto issue for Jokowi in the presidential elections in April 2019 (Heriyanto 2019), the affordability of energy was a much more prominent issue in both candidates' campaigns. The government's cap on domestic coal prices and price controls on fuel and electricity were widely considered to be aimed at boosting Widodo's popularity and other candidates were reluctant to announce measures that would raise the cost of electricity or fuel (Crooks 2018). However, in the medium term as the price of renewable energy technologies continues to fall, there is likely to be less of trade-off between affordability and sustainability (PWC 2018).

However, there are also powerful players supporting the continued development of fossil fuels in Indonesia. Its history of oil production and fossil fuel subsidies have given rise to an "oil and gas mafia", known for its corruption, including embezzlement of funds from the Ministry of Energy, extortion, tax fraud and smuggling" (Cassin 2014; Sukoyo 2014), and the coal industry is also perceived to have a strong lobby in Indonesian politics and business (Crooks 2018). "State-owned oil company Pertamina, the Indonesian oil-trading lobby, vehicle manufacturers and distributors and freight and public transport" and other vested interests in industries that benefit most from subsidised fuels have lobbied intensively against them. (IEA 2016c, quoted in Chelminski 2018). Pertamina, for example, would be unable to compete in the market for refined oil products without subsidies due to decades of insufficient investment in the company (Chelminski 2018).

## 4 TRENDS AND POTENTIAL

While the country's growth model is bringing prosperity to a rising number of Indonesians at present, Indonesia's challenge is to leapfrog the carbon-intensive development pattern taken by the West and China, and to move towards sectors with a more sustainable, long-term future. How well and how quickly Indonesia achieves this could also have implications more globally as other emerging economies and developing countries in Southeast Asia and Africa look to Indonesia as a model for successful economic development (Rissmann 2017).

### 4.1 FINANCING LOW-CARBON DEVELOPMENT

Putting Indonesia on a sound footing in a decarbonised world will require sustained political will and increased investments in renewable energy technologies and efficient equipment. As shown above in Section 2.1, Indonesia is already set to invest enormous sums into its energy system over the coming decades. Greater ambition in investing in clean energy technologies could significantly reduce stranded asset risks and, even before the costs of health impacts and climate change are factored in, these investments would more than pay for themselves over time (Rissmann 2017).

#### Energy subsidy reform

As well as reducing vulnerability to shocks on international markets and increasing spending on public goods such as healthcare and education (see section 2.1), reducing subsidies on fuel and on electricity generated by fossil fuels could support Indonesia's low-carbon transition in at least two important ways. Firstly, reducing government spending on these subsidies could offer significant scope for increasing investment in energy efficiency, renewable energy technologies and other low-carbon sectors of the economy. Secondly, reducing subsidies can improve efficiency, preventing unnecessary investments in expensive new power stations. The increases in electricity prices resulting from lower power-sector subsidies have put electricity consumption on a lower-growth trajectory (Varagur 2018). Between its 2017 and 2018 RUPTL business plan, state utility PLN reduced its target for new power generation capacity down from 78 GW to 56 GW by 2027, with a key reason being the decrease in expected average energy demand growth rate<sup>5</sup> (PWC 2018). Fuel subsidies have increased demand for fuel and contributed to the rapid spread of privately owned motor vehicles (ADB 2015, IEA 2016a). The transport sector is responsible for almost 40 percent of Indonesian energy demand, and this is also where the greatest future increase is to be expected (APERC 2016). Consequently reducing subsidies has been shown to significantly reduce traffic in Indonesia's congested cities (Burke et al 2017).

Subsidy reform has had a chequered history in Indonesia – the steep reductions in subsidies and fuel price hikes following the Asian financial crisis in 1998 resulted in riots that contributed to the toppling of the Suharto regime. However, successful reforms, such as those enacted by Jokowi in 2014, have shown that to ensure social acceptance, reforms must be accompanied by social assistance to ensure that poorer households are not disadvantaged by rising energy prices. Strong political leadership and how reform is strategically communicated to the public have also been important (Chelminski 2018).

<sup>5</sup> "From 8.3% in the 2017 RUPTL to 6.9% in the 2018 RUPTL (PWC 2018: 12).

## 4.2 POTENTIAL IN KEY LOW-CARBON SECTORS

### Energy efficiency

Indonesia accounts for over 36 percent of primary energy demand in Southeast Asia, making it the largest energy consumer in the region. With energy demand rising, efficiency measures are essential to keep energy use and expenditure down and reduce emissions. If current policies are implemented and enforced, they could result in energy savings of 2 percent per year up to 2025 (IEA 2017). However, there is ample scope for increasing ambition, with Indonesia scoring only 34 out of 100 for energy efficiency in the World Bank's Regulatory Indicators for Sustainable Energy Index (World Bank 2017c). Important areas for action include cooling and transport. Demand for air-conditioning is set to double between 2016 and 2020, and if implementation of regional targets for energy efficiency in the cooling sector were to be accelerated, Indonesia could avoid an additional 32 petajoules (PJ) of electricity consumption by 2030, equivalent to 5.2 million barrels of oil. With regard to the transport sector, if Indonesia matched China in terms of fuel efficiency standards for heavy duty vehicles, and if electric motorcycles were to achieve the same market penetration as in China, Indonesia would reduce its fuel exports by 13 percent by 2030 and reduce its spending on oil imports by over US\$ 1.4 billion per year (IEA 2017). Regulatory frameworks and a lack of infrastructure are also holding back progress in electric mobility (IRENA 2017).

### Renewable energy

Indonesia is a country with "phenomenal resources for renewable power generation" (IRENA 2017). Aside from emissions reduction, renewable energy poses major advantages for Indonesia in terms of improving air quality in cities, reducing health hazards and supplying electricity to its more remote provinces and islands. There are also important financial co-benefits – taking into account the impacts of climate change and health costs of air pollution – scaling up renewables can save the country between US\$ 15.6 billion and US\$ 51.7 billion per year (IRENA 2017). Some technologies are also increasingly able to compete with domestic coal in terms of affordability. In 2017, installed capacity from renewable sources totalled 9,095 MW, accounting for 12 percent of the country's electricity mix (IRENA 2018, PWC 2018). In its business plan for developing Indonesia's electricity supply for the period of 2018-2027 (RUPTL), state-owned electricity utility PLN's envisages adding almost 15 GW of new renewable generation capacity by 2027, which would represent 27 percent of new capacity overall (PWC 2018). Indonesia's NDC states that renewable energy will provide at least 23 percent of the country's primary energy supply by 2025 and at least 31 percent by 2050.

In 2017 hydropower and geothermal power accounted for over 80 percent of electricity from renewable sources. Hydropower provides the greatest proportion, with 5,382 MW of installed capacity covering over 6 percent of national electricity production in 2017 (IRENA 2018, PWC 2017: 20). The RUPTL foresees around 8 GW of new power generation capacity being added by 2027, although the Ministry of Energy and Mineral Resources ("MoEMR") estimates that potential hydropower generation could be as high as 75 GW<sup>6</sup> (PWC 2018). Indonesia also has the world's second largest reserves of geothermal energy, with potential power generation of 29 GW (PWC 2017). In 2017 just under 2 GW of power – around 5 percent of the Indonesian energy mix – was generated by geothermal plants, with 4.5 GW of new power generation capacity set to be added by 2027 (PWC 2017, 2018). The development of this form of energy is being driven by state-owned enterprises (PWC 2017). Both these technologies provide base-load renewable power that can balance a high-share of intermittent renewable energy sources, such as wind and solar PV. However, in 2017 Indonesia still trailed other G20 countries in installed capacity of wind and solar PV (Allianz 2017). Although solar photovoltaic (PV) and wind respectively contributed a mere 16 MW and 1 MW of generation capacity in 2017, MoEMR assessments found installed peak capacity could total 207.8 GWp (4.80 kWh/m<sup>2</sup>/day) from solar PV and 60.6 GW (3-6 m/s) from wind power. In the latest business plan (RUPTL), PLN proposed raising its target for renewables other than hydropower and geothermal energy to 2,046 MW, which would represent only 4 percent of the projected new generation capacity by 2027.

<sup>6</sup>Although the MoEMR technical assessments of potential power generation do not take into account financial/economic viability (PWC 2018).



To accelerate capacity growth in renewables, both government and private sector investment will be needed. However, the power sector is still heavily regulated by the government, and there have been numerous changes to regulations for independent power producers (IPPs), creating uncertainty and holding back investment (IRENA 2017, Allianz 2017). As such, Indonesia ranks 19<sup>th</sup> on the Allianz Climate and Energy Investment Index for G20 countries, which evaluates policy adequacy, policy reliability, market absorption capacity and general involvement conditions<sup>7</sup> (Allianz 2018: 4). Private sector investors are demanding high rates of return before entering or increasing their stake in the Indonesian renewables market (PWC 2018; Allianz 2017). Further barriers include the fragmented nature of the grid across the Indonesian archipelago, which makes effective policy and planning difficult, and the bottlenecks in PLN's transmission and distribution systems, which is unlikely to be able to accommodate high amounts of distributed solar PV power without significant investment (IRENA 2017). Ensuring the continued and successful rollout will therefore require more detailed long-term policy and investment planning. Indonesia is one of four countries in the G20 without a long-term plan to decarbonise the grid and power system (Allianz 2018).

### 4.3 EDUCATION AND SKILLS DEVELOPMENT

Indonesia has made huge progress raising the level of education among its young and growing population, particularly in the last 15 years. However, according to the World Bank's Human Capital Index, the current level of education and healthcare would allow the average child born in Indonesia today to achieve around 53 percent of their potential, just below the worldwide average (World Bank 2018f). Indonesia still lags behind neighbouring countries like Vietnam and Singapore in terms of average years of schooling and the quality of its education system (World Bank 2018d). While it ranks 36<sup>th</sup> out of 137 participating countries in the Global Competitiveness Index overall, it only comes in 94<sup>th</sup> place for primary education and health and 64<sup>th</sup> for higher education and training. The literacy rate in Indonesia is 95.4 percent (male 97.2 percent, female 93.6 percent) and the average Indonesian attends school for 13 years (CIA 2018). Enrolment in both secondary education and tertiary education rose between 2005 and 2016, increasing to 86 percent and 28 percent respectively (World Bank 2018a).

Services was the fastest growing sector in Indonesia in the period from 2007 to 2017, averaging annual growth of 7 percent (Statista 2017, ILO 2017) to employ around 47 percent of the population in 2017. Agriculture remains a significant employer, but its share of the workforce has gradually fallen from 41 percent in 2007 to 31 percent in 2017 (Statista 2016), despite the sector growing on average 4 percent per year (ILO 2017). Just over a fifth of Indonesians are employed in industry, which includes mining, manufacturing and construction (Statista 2017, ILO 2017). Although the general unemployment rate is relatively low (5.3 percent) (ILO 2017), youth unemployment stands at 22.6 percent (CIA 2018). The economy is also facing further challenges in terms of the quality of work, gender, and disparities across the provinces (ILO 2017).

Technological advancements are shaping the economy in Indonesia, and digitisation will likely lead to both the loss and creation of jobs. The e-commerce, on-demand services, and transportation sectors are growing and offering new employment opportunities. However, the "technology versus jobs debate" continues, and further education and training schemes will become increasingly important as increasing numbers of jobs are automated, especially since many Indonesians only have low-level educational qualifications (ILO 2017).

<sup>7</sup>In the Allianz Climate and Energy Investment Index for the G20, Indonesia ranks fourth highest in terms of investment needs and 14<sup>th</sup> in term of investment attractiveness, for which it scores 31 out of 100 (Allianz 2017: 40).

## 5 COOPERATION WITH THE EU

As the largest economy in Southeast Asia and the seat of ASEAN, Indonesia is an increasingly important partner for the EU and a sound basis has already been developed for cooperation. Trade in fossil fuels between Indonesia and the EU is relatively insignificant. By contrast, the EU is a major importer of Indonesian palm oil, which is used in many sectors including for biofuels. Sustainable forest management has been a focal area for development cooperation.

### 5.1 INSTITUTIONAL FRAMEWORK FOR COOPERATION WITH INDONESIA AND ASEAN

EU-Indonesia relations have developed rapidly in recent years. The Partnership and Cooperation Agreement (PCA) that entered into force in 2014 established a firm framework for cooperation in the fields of trade, tourism, energy, transport, environment and natural resources, as well as on security and combating terrorism (EC 2009; EU 2014). Additionally, the EU and Indonesia hold regular political dialogues, human rights dialogues and security dialogues (EU-Indonesia n.d.). For example, the EU and Indonesia are working towards advancing the EU-Indonesia Security and Defence Partnership (EEAS 2018a).

Negotiations for a Comprehensive Economic Partnership Agreement (CEPA) were launched in 2016 with the aim of achieving an “ambitious and mutually beneficial trade agreement” (EEAS 2018b). The agreement is set to cover a broad range of issues, including tariffs and non-tariff barriers to trade, as well as trade in services and investment (EC 2018a). The eighth round of negotiations in July 2019 made good progress on a variety of issues, and with regard to sustainable development the text on trade supporting climate action was the most advanced (EC 2019). As of July 2019, a Sustainability Impact Assessment (SIA) was ongoing to determine the effect of the CEPA on different Indonesian stakeholders.

The EU is also deepening its ties with ASEAN. In 2015, the High Representative of the Union for Foreign Affairs and Security Policy issued a Joint Communication entitled “The EU and ASEAN: a partnership with a strategic purpose” (EC 2015) which specifies climate change action as a key focal area for strengthening interregional cooperation. Initiatives are underway to support sustainable forest and peatland management in ASEAN countries. These include measures to the Sustainable Use of Peatlands and Haze Mitigation in ASEAN (SUPA) programme, and the EU’s FLEGT (Forest Law Enforcement, Governance and Trade) Facility to promote the trade of legally produced timber. In 2013 the latter resulted in a Voluntary Partnership Agreement (VPA) between the EU and Indonesia to assure access of legal timber exports to the EU market (EC 2016).

Ultimately, the EU hopes to use its bilateral trade negotiations and agreements with ASEAN countries as stepping stones towards an EU-ASEAN trade agreement. Free trade agreements have already been concluded with Singapore (2014) and Vietnam (2015) and, alongside Indonesia, negotiations are ongoing with Malaysia, Thailand and the Philippines (EC 2018a). In 2018 the High Representative also issued a Joint Communication proposing several policy initiatives and proposals to serve as building blocks for an EU strategy for improving connectivity between the EU and Asia, including improving transport, energy and digital links (EC 2018b). An example of an EU-ASEAN initiative that will feed into this strategy is the EUR 85 million the EU has provided to support for consolidating the ASEAN community via a single market and reduced non-tariff barriers to trade (EC 2018c).



The Ampera bridge in the city of Palembang, South Sumatra, Indonesia.

## 5.2 TRADE

In 2016 the bilateral trade in merchandise (non-oil and gas) between the EU and Indonesia amounted to EUR 25.1 billion (EEAS 2017) and in services bilateral trade amounted to EUR 6 billion (EC 2018a). The EU mainly exports high-tech machinery, transport equipment, manufacturing goods, and chemicals to Indonesia (EEAS 2017). For example, half of Indonesia's defence imports throughout the period 2004-2017 were from the EU and Switzerland (ISS 2018). All-in-all the EU28 account for 3 percent of Indonesian commodities imports, with the Netherlands (1 percent) as the biggest export partner (Chatham House 2019). Trade in fossil fuels between Indonesia and the EU is relatively insignificant, with EU coal and oil exports accounting for more than 2 percent of Indonesian imports and Indonesian coal exports to the EU down 16 percent between 2011 and 2017 to just 1 percent of EU coal imports (Chatham House 2019).

Far more significant are Indonesia's crude palm oil exports to the EU, which is its second largest export market. The EU is "the most open market for Indonesian palm oil", with Indonesia providing 49 percent of all EU palm oil imports. Almost half of EU palm oil imports are used for the production of biofuels (Copenhagen Economics 2018). The issue of palm oil in European biofuels has become a focal issue as the European Commission's Renewable Energy Directive (RED II) agreed in June 2018 foresees the gradual phase-out of food crops such as palm oil that it alleges result in high indirect land use change (ILUC) (EEAS 2018d; Voegelé 2018). Both the EU and Indonesia made moves to increase bilateral engagement and dialogue, even at the highest level, throughout the RED II trialogue negotiation process. For example, Joko Widodo appointed a special envoy for sustainable palm oil, Luhut Pandjaitan, and high-level EU delegations have visited Indonesia to "gain a greater understanding of the issues on the ground" (Sparringa 2018). However, in the eighth round of CEPA negotiations in July 2019, the negotiations on sustainability proved to be "very difficult", due to differences in how to define sustainability the palm oil (EC 2019; Nangoy and Munthe 2019).





The city of Surabaya in East Java, Indonesia.

### 5.3 DEVELOPMENT COOPERATION

The EU and its Member States are working in partnership with Indonesia on a range of initiatives to achieve the SDGs and tackle climate change (EEAS 2018e). Over the last 10 years, the EU has spent over EUR 500 million on development assistance to Indonesia (EC 2018b). However, due to Indonesia achieving G20 member status, the EU is no longer providing Indonesia with bilateral aid during the 2014-2020 programming period, although programmes under previous financial frameworks are continuing (EU-Indonesia n.d.). The EU is supporting Indonesia's national climate change response via a EUR 15 million Climate Change Programme, which is particularly supporting the Aceh and Papua provinces in their efforts towards low-emission development planning (EEAS 2016). The EU also provided EUR 1.5 million in emergency humanitarian assistance after the Sulawesi earthquake and tsunami in September 2018. The total collective EU aid amounts to EUR 18 million. Additionally, the EU deployed civil protection and humanitarian experts to help coordinate relief efforts on site (EEAS 2018f).

At member-state level, in 2018 Germany and ASEAN launched the ASEAN-Germany Development Partnership, which aims to strengthen cooperation in a variety of areas including good governance, food, agriculture and forests, and energy security. An important initiative in the context of efforts to protect Indonesia's forests and reduce land-use emissions has been Norway's pledge in 2010 to spend US\$ 1 billion on reducing deforestation. However, due to the lack of progress to date and the funds being granted via the performance-based aid mechanism REDD+, only US\$ 50 million had been distributed by 2016 (Lou 2017).

## 6 CONCLUSIONS

With its abundant natural resources and as one of the world's most populous countries, Indonesia has advanced to become a regional leader and a major economy. Since the 1980s it has diversified its economy beyond fossil fuels, although carbon-intensive exports, such as coal and palm oil, remain important pillars of its economic development. Further, as a fast-developing nation with a growing population and rising expectations in terms of income and living standards, electricity and fuel consumption are increasing rapidly, and their affordability is an important political issue. The Indonesian government and state utility are investing heavily in exploiting the country's abundant hydrocarbons, particularly coal, to meet these energy needs. While this may be considered cost-effective at present, there are major health and opportunity costs to following the high-carbon development path taken by the West and China, rather than leap-frogging more quickly to low-carbon development models. As Indonesia is a role model for other developing countries in Southeast Asia and Africa, the way it develops and how quickly it is able to harness its high energy efficiency and renewable energy potential to move to a low-emission economy may also have wider implications for global emissions reduction.

Efforts to green the European transport sector and reduce the impact of biofuels on deforestation and emissions in other parts of the world may present a risk for Indonesian palm oil exports. Continued exports to Europe are likely to rely on Indonesia achieving a balance between developing its economically important palm oil industry and measures to protect its tropical forests and reduce its high emissions from land-use and land-use change. This also applies to Indonesian timber exports to Europe. With regard to the power sector, coal consumption and power sector decarbonisation trends in India and China will have an important influence on Indonesian coal export revenues. Oil imports and the pressure of continued – albeit reduced – fuel subsidies on government budgets leave Indonesia exposed to fluctuations in the international oil price, which is increasingly being influenced by decarbonisation trends. In the past oil price increases have led to domestic price shocks and political unrest in Indonesia.

The European Union and Indonesia are cooperating to improve the sustainability of Indonesia's palm oil and timber exports – for example via strengthened diplomacy, certification schemes and a strong focus on sustainable forest management in development cooperation. Further, in the negotiations for a Comprehensive Partnership Agreement (CEPA), the EU and Indonesia are establishing a broader basis for future EU-Indonesia relations and a deeper economic partnership. This will support the development of other areas of mutual interest for future EU-Indonesia relations, including diversified trade and sustainable development. The European Union and its member states can assist in important ways to help Indonesia accelerate its transition to a low-carbon economy.



## 6.1 FOCAL POINTS FOR FOREIGN POLICY

The EU can support Indonesia's low-carbon development in several key ways.



**EU-Indonesia Comprehensive Economic Partnership Agreement (CEPA):** The conclusion of the CEPA with Indonesia can provide a basis for increased and more diversified trade with Indonesia. Maintaining an open and constructive dialogue with the Indonesian government and stakeholders throughout the negotiations, and particularly on sensitive issue such as definitions of sustainability, will be key to the success of the final agreement.



**Sustainable forest management:** The EU can continue to provide assistance and work with Indonesian stakeholders to strengthen the Voluntary Partnership Agreement on timber exports by improving the system assuring the legality of timber, its implementation, and monitoring of the agreement's social, economic and environmental effects.



**Renewable energy:** EU and its member states have substantial expertise in the fields such as renewable energy and energy efficiency in industrial processes and households, and can therefore provide positive support for Indonesia's low-carbon energy transition in the form of capacity building and technology transfer. Offering economically viable alternative pathways is absolutely essential, as domestic availability of coal – and in the forest sector the economic importance of palm oil production – are seemingly first-best solutions for Indonesia to develop its economy. Finance and technology transfer can improve the attractiveness of a lower-carbon pathway.



**Promote just transition narratives in EU (climate) diplomacy:** EU member states are developing policies and good practices to support coal producing regions diversify and create low-carbon jobs, as well as gathering lessons learned. The EU can encourage exchange between relevant member-state representatives and Indonesian counterparts on this issue. The EU and its member states can also seek closer cooperation with Indonesia within international and multilateral forums promoting low-carbon energy transition. For example, Denmark could seek opportunities to encourage Indonesia to join the Powering Past Coal Alliance.



**Promote sustainable urban development:** European cities have also tested a range of policies to reduce traffic congestion and air pollution in urban areas. European diplomacy can encourage exchange on this issue as European best practices (and failures) may be a valuable source of knowledge for Indonesian cities as they grow and country becomes increasingly urbanised.

Overall, Indonesia is an increasingly important partner for the EU, as it is both a major economy and a leading voice within ASEAN. The EU has established a fruitful basis for cooperation, and the ongoing CEPA negotiations are creating the potential for further cooperation and trade in existing and new areas, including many that are relevant for decarbonisation. Building a consensus on the sensitive issue of palm oil sustainability in biofuels will be important to the success of the agreement and to future relations, given its significance for Indonesian trade with the EU – and for shaping decarbonisation pathways on both sides. Indonesia and EU member states also share common challenges with regard to decarbonisation, such as sustainable urban development and low-carbon energy transition, including ensuring the just transition of coal-producing regions and the rollout of high proportions of renewable energy technologies – and these can form the basis of deepened cooperation as they pursue more ambitious decarbonisation policies.

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## **CASE STUDY: QATAR**

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## LIST OF ABBREVIATIONS

<b>BAU</b>	Business as Usual
<b>CCS</b>	Carbon Capture and Storage
<b>CEN</b>	The EU GCC Clean Energy (Technology) Network
<b>EU</b>	European Union
<b>FDI</b>	Foreign Direct Investment
<b>FTA</b>	Free Trade Agreement
<b>GCC</b>	Gulf Cooperation Council
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>GTL</b>	Gas-To-Liquids
<b>IEA</b>	International Energy Agency
<b>IMF</b>	International Monetary Fund
<b>LNG</b>	Liquefied Natural Gas
<b>LULUCF</b>	Land Use, Land Use Change and Forestry
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>NDC</b>	Nationally Determined Contribution
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>OPEC</b>	Organization of the Petroleum Exporting Countries
<b>QAR</b>	Qatari Rials
<b>QIA</b>	Qatar Investment Authority
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WTO</b>	World Trade Organization

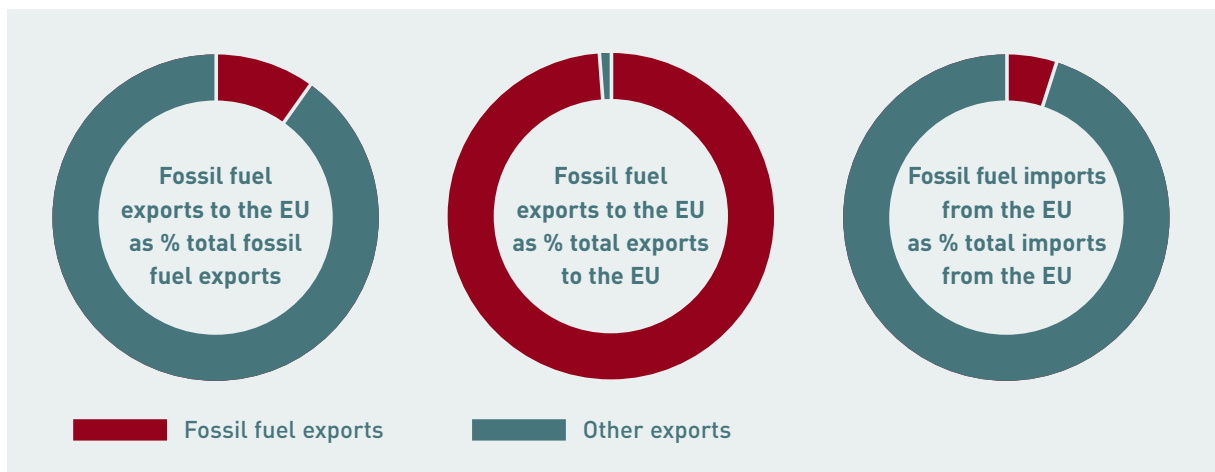
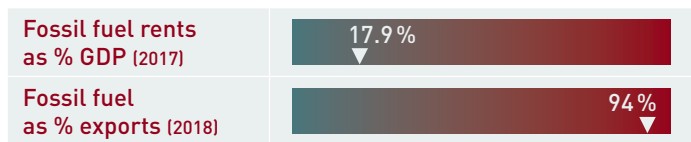


# QATAR



	POPULATION (2019; growth rate y-o-y)	GDP PER CAPITA (2018)
	2.83 m (2.36 %)	US\$ 69,026
	510 m (0.12 %)	US\$ 33,715

	CO <sub>2</sub> EMISSIONS PER CAPITA (2014)	
	EXCL. LULUCF	INCL. LULUCF
	37.11 t	37.11 t
	8.04 t	7.19 t



<b>Fragility (2019)</b>	Sustainable	<b>Stable</b>	Warning	Alert
<b>Human development (2018)</b>	<b>Very high</b>	High	Medium	Low
<b>Strength of governance (2017)</b>	Very high	<b>High</b>	Medium	Low
<b>Climate change vulnerability (2017)</b>	Low	<b>Medium</b>	High	Very high
<b>Sustainable energy development (2017)</b>	Very high	<b>High</b>	Medium	Low

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Sources for dashboard statistics: Population (UN DESA 2018a); GDP per capita (current US\$, World Bank 2018a); CO<sub>2</sub> emissions per capita (WRI 2018); CO<sub>2</sub> emissions per capita (WRI 2018); Fossil fuels rents as % GDP (own calculation using World Bank data 2017a); fossil fuels as % commodities exports, fossil fuel exports to the EU as % total fossil fuel exports, fossil fuel exports to the EU as % total exports to the EU, fossil fuel imports from the EU as % total imports from the EU (Chatham House 2019); Fragility (Fund for Peace 2019, 45.4/120); Human development (UNDP 2018, 0.848/1); Governance (World Bank 2017b, 376/600); Climate change vulnerability (ND-GAIN 2017, score 53.0/100); Sustainable energy development (56/100, World Bank 2017c).

# 1 INTRODUCTION

Qatar is highly dependent on the production and export of oil and gas. The development of its oil and gas resources provides the backbone of its economy and the basis of its considerable wealth. Its reliance on oil and gas also makes Qatar vulnerable to price fluctuations and the phase-out of fossil fuels. Efforts to diversify the economy have only been effective to a limited extent so far. These efforts and other circumstances (e.g. the geopolitical position of Qatar in the Gulf region and the Middle East more generally) provide important entry points for developing EU-Qatar relations beyond fossil fuels.

The State of Qatar (henceforth Qatar) is a country of around 2.5 million inhabitants located in the Persian Gulf with neighbouring countries Saudi Arabia, the United Arab Emirates, Kuwait and Iran. Of the total population, approximately 2 million are foreign workers, mainly from India, Nepal, Bangladesh and the Philippines. When Qatar started exploiting its fossil fuel resources in 1949, it had less than 16,000 inhabitants. In the 21<sup>st</sup> century, population growth has been driven primarily by an increase of (primarily male) foreign workers (De Bel Air 2014). Qatar has a territory of only 11,571 km<sup>2</sup> (somewhat less than Northern Ireland) and is composed of eight municipalities, with Doha as the country's biggest city and capital. The country is highly urbanised with 99.4 percent of the inhabitants living in cities in 2017 (CIA 2018). Qatar gained independence from the United Kingdom in 1971 and is ruled as an absolute monarchy by Emir Tamim bin Hamad Al Thani, who has been in power since 2013.

In recent decades, Qatar has experienced dynamic economic development, driven by its oil and gas industry. From 1995 to 2017, Qatar's Gross Domestic Product (GDP) increased more than 20-fold to about US\$ 167.6 billion (in current US\$) (World Bank 2018a). Over the same period, GDP per capita grew four-fold to around US\$ 63,500 (World Bank 2018b), one of the highest per capita incomes in the world. By 2017, industry and services each contributed approximately half of Qatar's GDP, while the role of the agricultural sector was negligible (0.2 percent) (Index Mundi 2018). Poverty is an issue to some extent among the foreign population, but unemployment is all but absent. Qatar has been selected as the host of the 2022 FIFA World Cup, a prospect that has motivated numerous, ambitious construction projects in the country (which have drawn significant criticism – see below). Overall, Qatar has become a high-income country, ranking relatively high on economic welfare and human development indices.

Qatar's relations with other countries in the region have been under strain in recent years, and particularly since 2017 when several neighbouring countries led by Saudi Arabia cut off diplomatic relations and established an economic embargo against Qatar. They accused Qatar of supporting the Muslim Brotherhood and of being a close ally of Iran. The embargo has constituted an enormous challenge, since Qatar is highly dependent on its neighbouring countries for food imports and general trade (CIA World Factbook 2018). In 2016, Qatar had imported goods and services valued US\$ 5 billion from the countries behind the embargo and exported about US\$ 5.6 billion of goods and services to these countries. However, since the embargo Qatar has largely succeeded in rebuilding its trade links and food supply chain with other countries (Collins 2018). In December 2018, Qatar furthermore announced its departure from OPEC, a sign of the troubled relationship with Saudi Arabi and its allies as well as of its strategic economic orientation towards producing and exporting natural gas rather than oil.

## 2 EXPOSURE AND RISK

### 2.1 EXPOSURE TO GLOBAL DECARBONISATION TRENDS

Qatar's economy is highly dependent on the production and export of oil and gas. It is the largest exporter of LNG in the world, which accounts for a large share of its GDP and government revenue. Qatar consequently also remains exposed to oil price fluctuations and investments in oil and gas may become "stranded".

#### Significant oil and gas production, reserves, and consumption

Qatar is a significant producer of gas and oil. In 2017, it produced about 1.9 million barrels of oil per day, equivalent to more than 2 percent of the world total. Qatar's gas production reached 195 billion cubic metres in 2016 (a doubling over the previous decade), which represented nearly 5 percent of global production (BP 2019; CIA 2018). There is no coal production in the country (IEA 2015).

Qatar possesses both significant oil and gas reserves, with the latter being particularly impressive. Its proven oil reserves are estimated to amount to around 25 billion barrels, which could support current production levels for another 36 years (BP 2019). Estimated gas reserves are even more abundant and amount to 25 trillion cubic metres, the third largest gas reserves in the world after Russia and Iran (BP 2019; see for other estimates: CIA 2018; EIA 2015). They could support current production levels for more than 140 years. Gas production and exports are expected to increase further (Meltzer et al. 2014).

In accordance with its resource base, Qatar mainly uses gas and oil to supply its own energy needs. Since 2008, its oil consumption has doubled to more than 328,000 barrels per day (close to 20 percent of production) (BP 2019). Similarly, gas consumption has been steadily and steeply increasing, more than doubling to over 41 billion cubic metres in 2018 (equivalent to about 25 percent of production) (BP 2019). Overall, about three quarters of overall energy consumption is accounted for by gas and the remaining quarter by oil (BP 2019).<sup>1</sup> Plans to diversify the energy mix and develop renewable energy sources have yet to bear fruit (see also below).

#### Oil and gas account for more than 80 percent of exports

Oil and gas exports are of crucial importance for Qatar's economy. In 2017 the country exported more than 80 percent of its oil production and about 75 percent of its gas production (BP 2018; CIA 2018). Oil and gas account for over 90 percent of Qatari exports (Chatham House 2019), with this share having fluctuated somewhat over the past two decades (varying between 70 and 95 percent), also as a result of price fluctuations. Qatar is the world's largest exporter of liquefied natural gas (LNG).

#### Government budget and the overall economy are heavily dependent on oil and gas

Oil and gas continue to play a dominant role in Qatar's economy and government budget. The oil and gas industries are the engines of the economy, with the sectors accounting for around 21 percent of GDP in 2016 (fluctuating somewhat with the oil price) and for the lion's share of the state budget (World Bank 2017d). To be sure, Qatar has made significant efforts to diversify its economy. Notably, the Emir Hamad bin Khalifa al Thani founded the Qatar Investment Authority (QIA) in 2005 to invest revenues from the oil and gas sectors in a variety of projects in Qatar and abroad. QIA makes investments in international markets (including in Europe) and in non-oil projects in Qatar itself (QIA 2016). Even though the share of non-oil/gas sources of government revenues grew to 22 percent in 2018 (Federal Reserve Bank of St. Louis

<sup>1</sup> Production, consumption and export data vary between different sources (including IEA, CIA, BP Statistical Review), but all give roughly the same overall picture.

2018), the fossil fuel sector still generates the largest share of government revenues and Qatar remains highly dependent on these sources of income. Indeed, a previous diversification strategy was to increase gas production and exports (in order to diversify away from oil).

Qatar's government also provides significant subsidies for energy. According to the International Energy Agency (IEA), the country supported oil, gas and electricity with about US\$ 1.5 billion in 2017, almost one percent of GDP. However, this constituted a significant decrease of around one third on previous years (IEA 2018). Qatar is among the countries with the highest energy subsidies per capita in the world. Electricity is free for Qatari nationals, for example (Meltzer et al. 2014).

### Exposure to oil and gas price fluctuations

Qatar remains highly exposed to variations in oil and gas prices. Declining oil prices after 2014 have left a clear mark on economic development. GDP dropped from US\$ 206 billion in 2014 to 152.5 billion in 2016 and 167.5 billion in 2017 (in current US\$). GDP per capita similarly dropped from nearly US\$ 90,000 in 2014 to less than US\$ 60,000 in 2016 and 63,500 in 2017. Due to exchange rate fluctuations, the figures differ in constant 2010 US\$, according to which overall GDP continued to grow over the period (driven by growing gas production), whereas GDP per capita decreased from nearly US\$ 68,000 in 2014 to US\$ 65,700 in 2017 (World Bank 2018a and b).

Accordingly, the government budget situation has also seen significant fluctuations. Qatar's government revenues increased from 54 billion Qatari Rials (QAR) in 2005 to QAR 365 billion in 2014, before decreasing, in the wake of plummeting oil prices, to QAR 173 billion in 2017 (equivalent to about EUR 40 billion). As oil prices recover and gas production increases, government revenues are expected to increase (Quandl 2018). Qatar's public debt to GDP ratio rose from 32.3 percent in 2014 to 56.5 percent in 2016. Subsequently, the ratio dropped somewhat to 54.4 percent in 2017 with the recovery of oil prices (Trading Economics 2018). Qatar has recorded government budget deficits since 2015. However, overall the debt-to-GDP ratio has remained modest compared to the international average, even though it remains vulnerable to oil price fluctuations.

### Risk of stranded assets

Reflecting its resource base, Qatar has a vast network of pipelines, transport ships and extraction and production facilities for oil and gas. Petroleum and petroleum products are exported from three major terminals: Umm Said (Mesaieed), Halul Islan and Ras Laffan. The oil pipeline network of the state-owned company Qatar Petroleum (QP – see below) brings oil from offshore fields to the Halul Islan terminal where it is further processed and then exported. Oil from onshore sources is mainly transported to the Umm Said (Mesaieed) terminal where the oil is either refined or exported. Qatar is also a world leader in gas-to-liquids (GTL) technologies and has two operational facilities that can turn dry natural gas into liquid fuels (EIA 2015).

The oil and gas sector remains a major focus of Qatari investments, creating a high risk of stranded assets under decarbonisation. The emphasis on fossil fuel investments is increasingly shifting towards gas (which may somewhat mitigate the decarbonisation risk at least in the medium term). In 2018, Qatar announced investments of US\$ 12 billion in the oil and gas sectors, out of a total of new investments of US\$ 85 billion in different sectors. The three biggest planned projects are the Bul Hanine Field Redevelopment Project (US\$ 6.4 billion), the North Field Gas Development Project (US\$ 2 billion) and the Barzan Gas Development Offshore Project (US\$ 700 million) (Trade Arabia 2018). The North Field is estimated to hold recoverable gas reserves of more than 900 trillion standard cubic feet, which makes it the largest single non-associated gas reservoir in the world (Offshore Energy Today 2017). The Barzan Gas Development Offshore Project forms part of the broader Barzan Gas Project, a joint venture between Qatar Gas and Exxon Mobile. This US\$ 10.4 billion project includes onshore and offshore developments, a gas processing unit and several pipelines (Hydrocarbons Technology 2018; EIA 2015). Several of the investment projects involve foreign investors (such as Exxon Mobile, Royal Dutch/Shell and Total; Reuters 2018).

## 2.2 OTHER FRAGILITY AND SECURITY RISKS

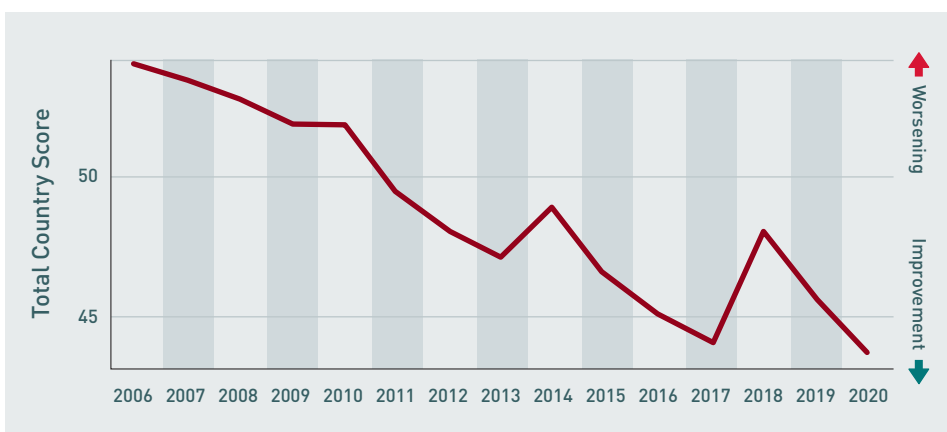
While it scores well on human development and corruption, Qatar faces serious challenges regarding political freedom, personal liberties and the stability of the state. A particular challenge is the situation of the approximately two million expatriate workers who are mainly employed in the construction sector. In addition, tensions within the Middle East provide for a challenging security environment. Climate change impacts are likely to be significant but less dramatic than in other countries.

### Democracy and political rights

While Qatar has developed into an advanced economy and has low levels of corruption or repression, it does face challenges with respect to democracy and political rights. Ranking 141<sup>th</sup> out of 178 countries on the Fragile States Index, Qatar can be considered relatively stable, although sub-indicators do indicate issues with respect to economic inequality and state legitimacy (Fund for Peace 2019). Corruption is not a major concern, with the country ranked 29<sup>th</sup> among the 176 countries on the Transparency International Corruption Perceptions Index (Transparency International 2018). While this is confirmed by the EU’s Global Conflict Risk Index, this index also indicates a lack of democracy. Similarly, the Freedom House Index of 2018 categorises Qatar as ‘not free’ with problems indicated in particular for general freedom, political rights and civil liberties (Freedom House 2018). This is in line with the findings of the Bertelsmann Stiftung’s Transformation Index, which shows a clear contrast between strong progress towards establishing a market economy and general economic performance, on the one side, and clear deficiencies with respect to political participation, the rule of law and democratic institutions, on the other (Bertelsmann Stiftung 2018).

### Expatriate workers

The situation of the about two million expatriate workers, mainly low skilled Asian construction workers, is highly problematic. While Qatar’s sizeable public sector employs about 80 percent of Qatari nationals, almost 80 percent of non-nationals are employed in the private sector, mainly in the construction sector. While the numbers of expatriate workers have increased, Qatar has been criticised for the exploitation of these blue-collar workers especially in the construction sector, including in preparation for the 2022 FIFA World Cup (The Independent 2017). The very large number of foreign workers has led to concerns about their relationship with native Qataris and the long-term prospects for their future and integration into Qatari society. According to its National Vision for 2030, Qatar is aiming to attract more high-skilled workers (De Bel Air 2014).



**Figure 1: Qatar’s performance in the Fragile States Index 2006-2020**

(Fund for Peace 2020)



**Embedding in Middle East security challenges**

Being located in the Middle East and the Gulf region, Qatar is part of a sensitive and challenging security environment. The region has long been subject to serious political tensions and these have repeatedly culminated in violent and armed conflict (most recently in Syria and Yemen). The rivalry between Iran and Saudi Arabia for regional dominance is a key factor shaping the region’s precarious security situation, as is the engagement of the US and Russia (as well as other players such as Turkey). Other countries and actors have strategically aligned themselves with these major players according to the resulting fault lines in various ways.

The recent escalation of tensions between Saudi Arabia and others, on the one hand, and Qatar on the other is one expression and result of this precarious regional security balance. Saudi Arabia, the United Arab Emirates and Bahrain first withdrew their ambassadors from Doha in 2014. One of the reasons given was that Qatar did not want to categorise the Muslim Brotherhood as a terrorist organisation. In 2017, the crisis escalated further. Qatar was asked, among other things, to cut its ties with the Muslim Brotherhood, to loosen its relations with Iran, and to shut down the Al Jazeera news network. When Qatar refused to follow these requests, Saudi Arabia and its allies launched an embargo against Qatar (as discussed in the introduction). At the time of writing, the crisis has not been resolved and, as a result, the Gulf Cooperation Council (GCC) is in paralysis (Galeeva 2018).

**Relatively modest climate change impacts**

Qatar faces significant challenges with respect to climate change impacts. In particular, Qatar is highly likely to be affected by sea-level rise and the associated risk of salinisation of groundwater. With water demand increasing due to industrial uses and population growth, water scarcity is already an issue and precipitation is forecast to decrease with climate change. Rising sea-levels might require moving much of Qatar’s population (of which 96 percent live in coastal towns or cities; Qatar 2011) away from coastal areas and could endanger oil and gas, as well as power producing infrastructure. Further increases to already very high temperatures also pose challenges (Qatar 2011; Meltzer et al. 2014; Al-Sarihi 2018).

Nevertheless, Qatar ranked low on the Global Climate Risk Index for 2016 and for the period 1997-2016. The Index assesses the extent to which countries have been subject to weather-related loss events (storms, floods, heat waves, etc.). Similarly, the index of the Notre Dame Global Adaptation Initiative (ND-Gain), which considers eight life-supporting sectors (food, water, health, ecosystems, human habitat, coastal, energy and transportation infrastructure), gives Qatar a favourable medium score and rank for its overall vulnerability and readiness. Its vulnerability is considered less than average and its readiness slightly higher than average (ND-GAIN 2017). Hence, climate change impacts in Qatar are considered significant, but modest in international comparison.

### 3 PAST AND PRESENT EFFORTS TO DECARBONISE

Qatar can be considered a climate policy laggard. It has submitted a vague NDC under the Paris Agreement that focuses on economic diversification, adaptation and the danger that climate action by others constitutes for the Qatari economy, but does not foresee much tangible action to address GHG emissions. Like other Arab countries, its oil and gas industry is closely intertwined with the government, its domestic climate policy is in embryonic state, and Qatar does not play a progressive role in international climate policy.

#### 3.1 ROLE IN THE UNFCCC AND THE PARIS AGREEMENT

Qatar is a party to all major climate treaties. It ratified the UN Framework on Climate Change (UNFCCC) in 1996, the Kyoto Protocol in 2005 and the Paris Agreement in 2017. It is a non-Annex I party to the UNFCCC and hence – despite its status as a high-income country – considered a developing country for the purposes of the climate treaties.

Furthermore, Qatar forms part of the Arab States within the UNFCCC negotiations, a group (led by Saudi Arabia) that is widely considered as “obstructionist” in the international climate negotiations. Arab oil producers see climate policy and its international cooperation as a serious threat to their economic welfare and political stability (Ulrichsen 2010; Carbon Brief 2015a; Reiche 2010). It is unclear whether worsening relations with Saudi Arabia and its allies will affect Qatar’s role in the UNFCCC negotiations.

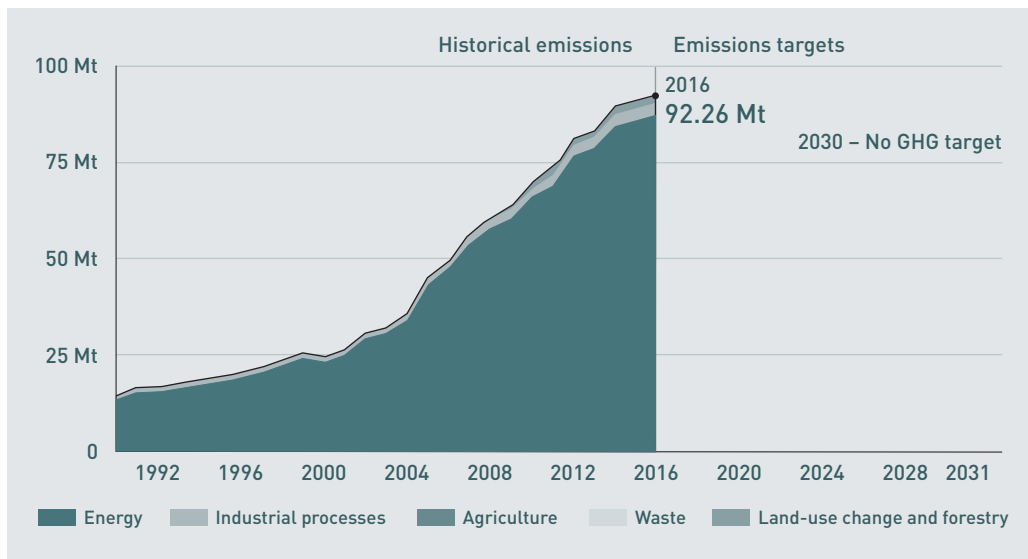
Consequently, Qatar’s Nationally Determined Contribution (NDC) submitted under the Paris Agreement remains vague and does not establish any firm commitments to address climate change and mitigate GHG emissions. It establishes that Qatar is “extremely vulnerable to sea-level rise” and in particular addresses (1) economic diversification with mitigation co-benefits (energy efficiency, clean energy and renewables, research and development, education, tourism), (2) adaptation actions with mitigation co-benefits (water management, infrastructure and transport, waste management, and awareness), and (3) response measures to climate change (Qatar 2015). Hence, there is no clear focus on mitigating climate change (but its exports of LNG are portrayed as contributing to emission reductions elsewhere). Qatar’s NDC does not include GHG emission targets nor does it identify sectors for mitigation action. Plans to invest in and use renewable energy sources, especially solar energy, are mentioned but, again, no concrete actions or targets established. Instead, it highlights the need for technological assistance and technology transfers (Qatar 2015; see also Climatewatch 2018; Carbon Brief 2015b). Overall, Qatar’s NDC reflects a lack of commitment to take ambitious action to mitigate climate change.

#### 3.2 EMISSIONS PROFILE

According to the UNFCCC, Qatar’s GHG emissions excluding land use, land use change and forestry (LULUCF) in 2007 stood at 61,592.97 Gg CO<sub>2</sub> equivalent. Given the size and geographical location of Qatar, the LULUCF sector is insignificant (UNFCCC 2007). Qatar has the largest per capita emissions in the world (Qatar 2011). According to Qatar’s National Communication to the UNFCCC, the oil and gas sector accounted for half of the country’s GHG emissions, while the power and water sectors contributed 27 percent, road transport about 7 percent and industrial processes 8.5 percent (Qatar 2011). The latest UNFCCC data suggests over 90 percent of emissions are related to energy (UNFCCC 2007). Other more recent datasets suggest that emissions may have increased more than six-fold between 1990 and 2014 to nearly 90,000 Gg CO<sub>2</sub> equivalent (see Figure 2).

**Figure 2: Qatar’s greenhouse gas emissions in total and by sector**

(ClimateWatch 2018)



### 3.3 STATUS OF DOMESTIC CLIMATE POLICY

Overall, Qatar does not have a firm framework for its domestic climate policy. In line with its NDC under the Paris Agreement, existing plans and measures seem to focus on the economy, with side or co-benefits for GHG mitigation. Instead of binding legislation, Qatar mainly works with non-binding initiatives, programmes and incentives. Economic development is considered as the primary concern, with climate change mitigation a lower priority. Accordingly, the World Energy Council gave Qatar almost the worst possible score for environmental sustainability in its Energy Trilemma Index (World Energy Council 2017). Although Qatar can also look back on a history of failed attempts to expand the use of renewable energy, there are signs that this may be emerging once again as a priority (see Section 4.3 below).

### 3.4 CLIMATE POLITICS

Qatar’s oil and gas sectors are closely intertwined with the government. Qatar Petroleum, the dominant oil and gas company, is a state-owned public cooperation, which was established by an Emiri Decree in 1974. It is responsible for the oil and gas sectors in Qatar and is engaged in the exploration, production and sale of, among others, crude oil, natural gas and gas liquids refined products and LNG in Qatar. The company’s chairman is the Minister of Energy and Industry, but it also receives direct guidance from the Emir himself (Qatar Petroleum 2014, 2018).

Qatar Petroleum operates several subsidiaries. One of these, Qatargas, is a joint venture with several private companies, including ExxonMobil. Qatargas is responsible for the development, production and management of the country’s gas fields and is the world’s largest LNG producer (Qatargas 2018).

## 4 TRENDS AND POTENTIAL

Qatar has strong potential and has invested heavily in education and developing a knowledge-based economy. This forms part of a long-standing strategy of diversifying the economy beyond oil and gas production. Increasing the qualification level of its expatriate workforce constitutes a particular challenge in this respect. Although there is major potential in renewable energy and solar energy in particular, existing plans for their development have been delayed and have yet to be implemented.

### 4.1 DIVERSIFICATION OF THE ECONOMY

Also related to education and developing a knowledge-based economy are Qatar's longstanding efforts to diversify its economy, both through domestic and foreign investment (in particular through the Qatar Investment Authority). Progress has been made, but Qatar is pursuing further diversification in and away from the hydrocarbon sector in order to ensure a "steady and robust" economy in the long term (Qatar 2011: 13; see also General Secretariat 2008). Past efforts have led to an expansion of gas production and exports (in large part via LNG capacities), development of petrochemical, non-metallic and metallic industries, programmes for improving the quality of higher education, and the expansion of the maritime and airline transport sectors. In addition, Qatar has allowed more privatisation in order to enable small and medium scale industries to grow faster. The construction sector (roads, high-rise buildings, private water and power projects, hospitality infrastructure and residences) has been growing and making increasing contributions to GDP. Another growing sector is the transport and communications sector (Qatar 2011). Like small European countries, Qatar has faced challenges in the process of diversification such as a small domestic market, high production costs, low economies of scale and low levels of industrial production (Miller and al-Mansouri 2016). Further diversification along similar lines is foreseen in Qatar's National Vision for 2030, which puts particular emphasis on developing a knowledge-based economy (see above), with a stronger focus on the private sector and more investment in infrastructure (General Secretariat 2008).

However, from a decarbonisation perspective, it is worth highlighting that Qatar's diversification strategy does not appear to take into account the need to decarbonise and the risks associated with investments vulnerable to global decarbonisation. In other words, investments are not being vetted to assess whether they are climate-proof. Hence, as mentioned above, expansion of the gas sector has been part of the diversification strategy (to reduce dependence on oil). Qatar's National Vision 2030 considers the oil and gas sectors to be of central importance for the development of human resources and economic capacities and, in this context, gas is considered a source of clean energy (General Secretariat 2008, p. 32). Furthermore, efforts to build a domestic industrial base have been largely focused on the petrochemical industry, which itself is highly dependent on oil and gas and vulnerable to decarbonisation. Foreign industrial investment (e.g. in the European car industry) runs related risks. Under the circumstances, the emphasis of Qatar's NDC on the possible negative impacts of climate change mitigation measures on the Qatari economy is understandable (Qatar 2015). However, Qatar lags in its own efforts to enhance its resilience.

## 4.2 RENEWABLE ENERGY AND CLEAN ENERGY

As mentioned above, renewable energy seems to be emerging as a new priority field for action. This contrasts with a lack of delivery on past plans for renewable energy expansion. These included the target to generate 10 percent of total energy use for electricity and water desalination with solar power by 2018 (Arabian Business 2012). In 2015, renewable energy generation still amounted to a negligible 28 MW (of which 25 MW were bioenergy/waste and only 3 MW photovoltaics: IRENA 2016). In 2017, Qatar published a renewable energy strategy aimed at cutting emissions and diversifying the energy sector and the economy (Gulf Times 2017). Qatar has set a target to generate 2 percent of its electricity with renewable energy sources by 2020 and 20 percent by 2030 (Ren21 2018; Oxford Business Group 2017). It also intends to power the football stadiums built for the 2022 FIFA World Cup with solar power. However, 2018 data showed that renewable energy sources were, due to delays in planned investments, not yet contributing significantly to power generation (BP 2018). Qatar planned to launch a 500 MW solar power tender, with a scheduled start of operation in 2019 or 2020 (Renewables Now 2017). In short, much of the country's considerable potential for concentrated solar power (CSP), wind and photovoltaics (Flamos 2015) has yet to be realised.

## 4.3 EDUCATION AND KNOWLEDGE-BASED ECONOMY

Qatar has a solid basic educational system, although there is still scope for further development and improvements. According to the World Bank's Human Capital Index, the level of education and healthcare would allow the average child born in Qatar today to achieve around 61 percent of their potential, just above the worldwide average (World Bank 2018c). Young people attend school for 13 years in Qatar, and literacy was 97.3 percent in 2015. Between 2000 and 2005, expenditure for education accounted for around 10 percent of total government expenditure (with some fluctuations). In the 2015 Program for International Student Assessment (PISA), Qatar was ranked 60<sup>th</sup> out of 72 countries and even scored above average in the social background and immigrant student categories (PISA 2015). Since 2010, expenditure on education per student has been among the highest in the world (De Bel Air 2014). In the academic year 2014/2015, 77.8 percent of the relevant age groups attended secondary school and about 10 percent university (Qatar Ministry of Development Planning and Statistics 2017).

Qatar does have the ambition to develop a world-class educational system to underpin the development of a knowledge-based economy. To this end, the National Vision 2030 envisages the creation of a national network of formal and non-formal educational programmes (General Secretariat 2008). The country wants to "accomplish a culture of innovation through investment in research and development" (Mohtar 2015: 49). To realise this ambition, the Qatari government has announced it will invest 2.8 percent of its GDP (US\$ 2-3 billion) into research and development (General Secretariat 2009: 24). The Qatar National Research Fund that issues grants for different research programmes and the Qatar Science Leadership Programme that aims to motivate students to pursue careers in science and research are important tools in this context.

The significant expatriate workforce is also an important factor to consider in this respect. Currently, this workforce is mainly low skilled. Qatar's National Vision for 2030 therefore aims to improve "the size and quality of the expatriate labour force and the selected path of development" in particular by promoting a recruitment policy "in line with a knowledge-based economy" (De Bel Air 2014: 5). Efforts aim to balance "local and imported talent" (Mohtar 2015: 54).



## 5 EU-QATAR COOPERATION

EU-Qatar relations have grown closer over recent years, and a Cooperation Agreement was signed in 2018. Furthermore, EU-Qatar relations are embedded in broader EU-GCC cooperation. Trade and investment as well as energy are important and evolving areas, with significant potential to integrate decarbonisation. Given the precarious situation in the Middle East, security and geopolitics form another key area of the relations between Qatar and the EU, with member states playing a central role.

### 5.1 INSTITUTIONAL FRAMEWORK: COOPERATION AGREEMENT AND EMBEDDING IN THE GULF COOPERATION COUNCIL

Relations between the EU and Qatar have grown closer in recent years, particularly in certain economic areas. Since 2011, there have been annual rounds of high-level strategic dialogue between Qatar and the EU (Miller and al-Mansouri 2016), and a dedicated dialogue on trade and investment issues was launched in 2017 (EC 2018). In March 2018, a Cooperation Agreement between the EU and Qatar was signed as a basis for 'enhanced political dialogue and strengthened cooperation on sectoral areas of mutual interests' (EEAS 2018), such as private-sector development, research and innovation. These processes are intended to support Qatar in realising its National Vision for 2030. Qatar also maintains important bilateral relations with several EU member states, such as France, the United Kingdom, Germany, Italy, Spain and some of the smaller EU member states (Miller and al-Mansouri, 2016).

Relations between the EU and Qatar have been very much embedded in the broader relations between the EU and the Gulf Cooperation Council (GCC). Founded in 1981, the GCC consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. An EU-GCC Cooperation Agreement was adopted in 1989. A Joint Council and a Joint Cooperation Committee under the Agreement both meet annually. Cooperation covers trade and investment issues, macroeconomic matters, climate change, energy, environment and research. Negotiations on a Free Trade Agreement (FTA) were launched in 1990, but GCC countries suspended them in 2008. As mentioned above, since 2010 increasing tensions between GCC countries and especially between Qatar and Saudi Arabia have called into question the future role of the GCC (including for EU-Gulf cooperation). Qatar's announcement in December 2018 to leave OPEC points in a similar direction.

### 5.2 TRADE AND INVESTMENT

There is already significant trade and investment between Qatar and the EU, and there is potential for increasing both in future. The EU's total trade in goods with Qatar in 2017 was around EUR 17 billion, with the EU exporting about EUR 10.5 billion to Qatar and importing around EUR 6.5 billion from Qatar. More than half of EU exports to Qatar were machinery, while gas and oil accounted for more than two-thirds of imports from Qatar. In 2017, 5.2 percent of EU imports of natural gas came from Qatar (Eurostat 2018). EU exports accounted for more than 35 percent of Qatari imports, whereas EU imports made up little more than 10 percent of Qatar's exports. Trade in services was somewhat less significant at around EUR 6 billion (2016), accounting for close to 15 percent of Qatar's total trade in services (European Commission 2018c; see also Miller and al-Mansouri 2016). Like all GCC countries, Qatar is classified as high-income country by the World Bank and therefore does not benefit from the EU's Generalized Scheme of Preferences (European Commission 2018a). It is also not a recipient of EU aid (European Commission 2018b).



The Museum of Islamic Art in Doha, Qatar.

Trade in fossil fuels is relatively modest for both sides. In 2015, the Republic of Korea and Japan were the top importers of Qatar's fossil fuels, with shares of 22 and 21 percent respectively. India accounted for a share of 13 percent, and China 6.6 percent. As visible from the above trade figures, the EU received slightly more than 10 percent of Qatari fossil fuel exports, with the UK (4.5 percent) and Italy (2 percent) as important destinations (Chatham House 2019). Nevertheless, Qatar is an important partner for the EU's efforts to diversify its gas supplies.

The investment relationship between Qatar and the EU is also significant and inverse to trade in comparison. The stock of EU foreign direct investments (FDI) in Qatar amounted to EUR 6 billion in 2016, whereas Qatari FDI in the EU stood at EUR 20.8 billion (European Commission 2018c). This reflects that Qatar considered the economic crisis that struck Europe after 2008 an investment opportunity. Qatar used the situation to buy European sovereign debt and rescued several financial institutions (Miller and al-Mansouri 2016). Qatar has made various strategic investments in EU companies (for example, Siemens and Volkswagen). The EU and Europe are therefore an important partner for Qatar in its efforts to diversify its economy by investing in other economic activities.

### 5.3 ENERGY

Beyond existing relations related to trade and investment, in particular related to oil and gas (see above), the potential for cooperation on (renewable and clean) energy remain to be exploited to a large extent. The EU GCC Clean Energy (Technology) Network (CEN) has the ambition to catalyse and coordinate joint EU-GCC clean energy initiatives, including policy and technology aspects. The network's main instruments are activities such as policy discussions, joint research or technology implementation projects organised in a system of different Working Groups and a web-based cooperation platform (European Commission 2016). However, it has not yet led to a measurable increase in renewable and clean energy in Qatar.

Carbon Capture and Storage (CCS) has been identified as another potential area for cooperation. CCS has the potential to contribute to emissions reductions in the power and industry sectors. CCS may be attractive for Qatar and other GCC states because it could “green” natural gas-fired power generation and emissions-intensive industrial processes such as LNG production, as well as being used for enhanced recovery of oil and natural gas (Flamos 2015; Meltzer et al. 2014). Its use in enhanced oil recovery could also reduce the cost of oil production. Qatar has itself developed some CCS projects in recent years, some in cooperation with international companies such as Shell, others based at the Qatari University. Some GCC countries (Qatar, Saudi Arabia and Kuwait) have also cooperated on funding CCS research (Meltzer et al. 2014).

Clean energy cooperation between the EU and GCC has been challenging due to GCC and EU countries’ different approaches to climate change. While the EU has developed a broad policy framework with legislation and other measures to mitigate greenhouse gas emissions, GCC countries (including Qatar) are more concerned about the effects of climate policy on their economies (Flamos 2015).

## 5.4 SECURITY AND GEOPOLITICS

The geopolitical and security component of EU-Qatar relations also deserves highlighting. The EU and its member states are only some among the many players in the delicate regional security balance between Saudi Arabia and Iran with the involvement of other regional players, including the US and Russia. These security and defence aspects are particularly relevant to Qatar’s bilateral relations with France and Great Britain (which are significant arms suppliers to Qatar), while the US is the dominant external regional security actor and a crucial partner for Qatar (Miller and al-Mansouri 2016). While socio-economic aspects remain most prominent in relations between the EU and Qatar, the EU has offered to support Kuwait in mediating in the GCC crisis (EEAS 2018). Overall, the role of the EU has been rather that of a mediating power (which has had its value for Qatar in recent years).

## 6 CONCLUSIONS

Qatar is highly dependent on oil and gas exports for its economic welfare and political stability. Hence, decarbonisation in Europe and the world has the potential to undermine the political and economic stability of Qatar. Phasing out fossil fuel production and exports will mean replacing Qatar’s main engine of economic development and source of government income, which could reinforce existing risks to political stability, including limited political freedom and the integration of a large number of (low-skilled) expatriate workers. Decarbonisation hence poses the challenge to develop alternatives to oil and gas as a basis for Qatar’s economic well-being and political settlement.

Risks to political stability in Qatar could have important wider regional ramifications. Being located in the Gulf region, Qatar is part of a politically delicate regional power play and balance with a high potential for conflict. Also, neighbouring countries face very similar challenges under decarbonisation. Hence, decarbonisation requires proactive transition management in order to contain stability risks across the region more broadly. Such transition management may best address relations with Qatar in the context of an integrated approach towards the Gulf region and the Gulf Cooperation Council as its main regional organisation. This task has in recent years become even more intricate as a result of the conflict between Qatar and several of its regional neighbours led by Saudi Arabia.

There are a number of entry points for fruitfully developing the relationship between Qatar (and the Gulf region) and the European Union under decarbonisation. At a geopolitical level, the EU has an interest in developing this relationship because of the central role of the Middle East in its neighbourhood and the

potential for diversifying its relations with the region (and strengthening its role as a neutral bridge builder). On its side, Qatar – given current intra-regional tensions – has a growing interest in diversifying its external relations and opportunities. More specifically related to the decarbonisation challenge, Qatar has an interest in developing its economy beyond oil (as evidenced by its recent withdrawal from OPEC) and eventually also beyond gas (which, however, will remain of strategic importance in the medium term). The EU can offer to be a partner in important ways to this end. The rather limited fossil fuel/oil relationship between the EU and Qatar may provide a useful background in this respect.

### 6.1 FOCAL POINTS FOR FOREIGN POLICY

Possible focal areas for developing the relationship beyond oil and gas include:



**Education and training** are a central part of the effort at economic diversification and developing a knowledge-based economy and a priority for Qatar. Bilateral cooperation to this end could be developed to bring the significant resources of the EU and its member states to bear to assist in enhancing and shaping education and training in Qatar (and the wider Gulf region). One significant focus in this respect could be cooperation supporting the expansion of renewable energy. Concretely, partnership between universities in the EU and Qatar could be fostered.



**Further developing the energy system, and particularly expanding renewable energy,** could result in numerous benefits by reducing economic dependence on oil and gas. As well as addressing the urgent need to decarbonise, it also makes sense in terms of Qatar’s continued exploitation of its oil and gas resources. Increasing the proportion of renewables in domestic power generation would increase the share of resources available for export. Concrete first steps may include cooperation in the installation of renewable energy capacity prior to and for the 2022 FIFA World Cup and creation of a policy dialogue on the potential of clean/renewable energy (possibly in a GCC context). Such efforts could also be developed into a more comprehensive partnership for climate and clean energy which could integrate several elements, including development of the adaptation-mitigation nexus (e.g., benefits of renewables development in building resilience) and a medium-term strategy for the development of gas sector as a bridge to decarbonisation.



**Advancing mutual market access and investments.** Qatar’s efforts to develop its external investment portfolio and to spur foreign direct investment in Qatar (as part of its diversification strategy) provide a fruitful basis for further advancing economic cooperation. The EU and its member states possess significant experience and expertise in this regard, and are attractive for and engage in FDI. Part of enhancing cooperation in this area could be a dialogue on strengthening financial governance, including the Qatar Investment Authority and the changing landscape of climate-proofing investments. Again, renewable and clean energy may be an obvious focal area.



Multiple other areas can be further developed over time, including water management and security cooperation.

Overall, there is a range of options for developing the EU-Qatar relationship under decarbonisation. Such a renewed direction for the bilateral relationship would promise significant benefits for Qatar as it would support the country in advancing its own diversification strategy and making it climate-proof. This may in turn increase awareness in Qatar about the needs, feasibility and benefits of moving beyond oil and gas. At the same time, it would help make EU-Qatar relations fit for a decarbonising world and could make a significant contribution to stabilising the geopolitically precarious Gulf region in the context of decarbonisation.

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## LIST OF ABBREVIATIONS

<b>BAU</b>	Business as Usual
<b>BC</b>	British Columbia
<b>CCS</b>	Carbon Capture and Storage
<b>CEN</b>	The EU GCC Clean Energy (Technology) Network
<b>CETA</b>	Comprehensive Economic and Trade Agreement
<b>CIS</b>	Commonwealth of Independent States
<b>EIB</b>	European Investment Bank
<b>ENI</b>	European Neighbourhood Instrument
<b>EPA</b>	Economic Partnership Agreement
<b>EU</b>	European Union
<b>FDI</b>	Foreign Direct Investment
<b>FTA</b>	Free Trade Agreement
<b>GCC</b>	Gulf Cooperation Council
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>IEA</b>	International Energy Agency
<b>IISD</b>	International Institute for Sustainable Development
<b>ILUC</b>	Indirect Land Use Change
<b>IMF</b>	International Monetary Fund
<b>INDC</b>	Intended Nationally Determined Contribution
<b>LNG</b>	Liquefied Natural Gas
<b>LULUCF</b>	Land Use, Land Use Change and Forestry
<b>MRV</b>	Monitoring, Reporting and Verification
<b>NAFTA</b>	North American Free Trade Agreement
<b>ND-Gain</b>	Notre Dame Global Adaptation Initiative
<b>NDC</b>	Nationally Determined Contribution
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>SIA</b>	Sustainability Impact Assessment
<b>SPA</b>	Strategic Partnership Agreement

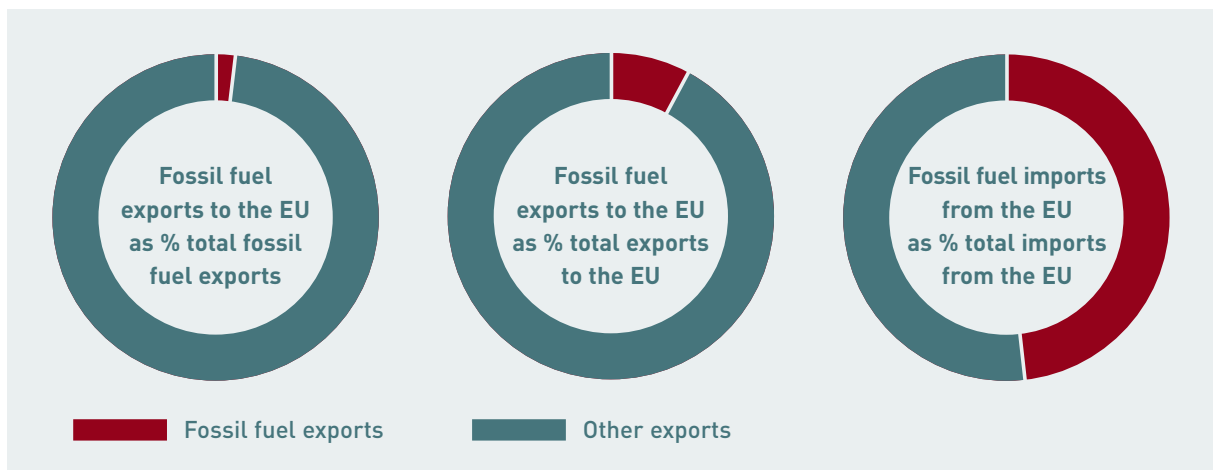
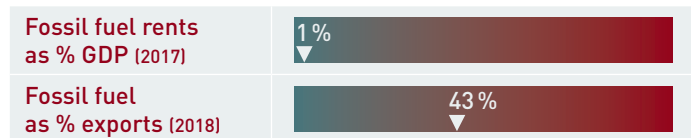


# CANADA



	POPULATION (2019; growth rate y-o-y)	GDP PER CAPITA (2018)
	37.08 m (0.93 %)	US\$ 46,124
	510 m (0.12 %)	US\$ 33,715

	CO <sub>2</sub> EMISSIONS PER CAPITA (2014)	
	EXCL. LULUCF	INCL. LULUCF
	20.96 t	24,94 t
	8.04 t	7.19 t



<b>Fragility (2019)</b>	<b>Sustainable</b>	Stable	Warning	Alert
<b>Human development (2018)</b>	<b>Very high</b>	High	Medium	Low
<b>Strength of governance (2017)</b>	<b>Very high</b>	High	Medium	Low
<b>Climate change vulnerability (2017)</b>	Low	<b>Medium</b>	High	Very high
<b>Sustainable energy development (2017)</b>	<b>Very high</b>	High	Medium	Low

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Sources for dashboard statistics: Population (UN DESA 2018a); GDP per capita (current US\$, World Bank 2018a); CO<sub>2</sub> emissions per capita (WRI 2018); Fossil fuels rents as % GDP (own calculation using World Bank data 2017a); fossil fuels as % commodities exports, fossil fuel exports to the EU as % total fossil fuel exports, fossil fuel exports to the EU as % total exports to the EU, fossil fuel imports from the EU as % total imports from the EU (Chatham House 2019); Fragility (Fund for Peace 2019, 20/120); Human development (UNDP 2018, 0.922/1); Governance (World Bank 2017b, 572/600); Climate change vulnerability (ND-GAIN 2017, score 68.8/100); Sustainable energy development (90/100, World Bank 2017c).

## 1 INTRODUCTION

The production and export of oil, gas and coal are important for the Canadian economy; however, it is highly developed far beyond fossil fuels. While Canada is vulnerable to price fluctuations and the phase-out of fossil fuels, it can build on a highly diversified developed economy for transitioning towards climate neutrality. Regional differences provide a significant challenge for this process. Historical ties, shared interests and values provide a fruitful basis for developing EU-Canada relations under decarbonisation and help both partners address shared challenges in this respect.

Canada is a country of more than 35 million people, with Ottawa as its capital. It is the world's second largest country by area (including waters) and stretches from the Atlantic Ocean in the east to the Pacific Ocean in the west, with the Arctic Ocean to the north. Its neighbours include the US (with borders to the US to the south and to the US state of Alaska to the northwest), Greenland to the northeast, and the French overseas territories of Saint Pierre and Miquelon to the southeast. Canada is an industrialised economy and a highly urbanised country with 83 percent of its population living in metropolitan areas and census agglomerations (Statistics Canada 2016), principally near its southern border with the US. Canada has the tenth largest GDP in the world, amounting to US\$ 1.65 trillion in 2017 (World Bank 2018a). Canada's debt to GDP ratio stood at 98.2 percent in 2017, down from 99.4 percent in 2016 (CIA 2018). It is a stable federal parliamentary democracy and a constitutional monarchy, with the UK's Queen Elizabeth II as the head of state. It is one of the world's most ethnically diverse and multicultural nations.

The Canadian federal political system deserves particular attention. Canada is composed of ten provinces (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan) and three territories (Northwest Territories, Nunavut and the Yukon). Territorial governments exercise authority delegated by the federal government, whereas the ten provinces each possess a formally independent government (so that Canada is governed by 11 governments in total). Canadian federalism has its roots in long-standing differences and tensions, especially between French-speaking and English-speaking parts (with French-speaking Quebec hosting a strong independence movement). The provinces possess far-reaching authority independent of the federal government, including for the exploration, development and export to other provinces of non-renewable natural resources, forestry resources and electricity. Important aspects of climate and energy policy are therefore either partly or entirely determined at provincial level. The division of powers between the provincial and federal level has evolved over the years and has remained the subject of intense political and legal battles.

Amongst developed nations, Canada's economy is unusual given the relative importance of the primary and energy sector – logging, mining and the oil industry are among the most important. Canada is also one of the few advanced economies to be a net exporter of energy. Canada's energy sector constitutes approximately 11.61 percent of its GDP (2015) and 21.32 percent of its total merchandise exports employing approximately 280,000 people or 1.5 percent of total employment (World Bank 2016). Revenues collected from the oil and gas industries averaged CAN\$ 20.3 billion between 2010–2014 including CAN\$ 17.7 billion from upstream oil and gas extraction and its support activities (NRCAN 2017a). In addition, the Canadian forest sector provides employment to more than 210,000 workers and accounts for about 7 percent of total Canadian exports, adding CAN\$ 23 billion to the economy (GoC 2018). Canada also has a very significant mining sector beyond fossil fuels (including chromite and iron mining and others). It possesses around 8 percent of the world's unmined uranium resources, and accounts for a quarter of global primary uranium production (NRCAN 2017b).

Canada is highly interdependent with and dependent on the US. The US is the only country with which Canada has a (very long) land border and the US and Canadian economies are closely intertwined. Economic and trade relations have further intensified through their embedding on the North American Free Trade Agreement (NAFTA). As a result, the US is by far Canada's most important trading partner, accounting for more than half of Canadian imports and three quarters of Canadian exports (EC 2018). More than 90 percent of Canadian exports of oil and gas have the US as their destination, mainly through several pipelines (also due to a lack of sufficient other export capacity in Canada).



## 2 EXPOSURE AND RISK

### 2.1 EXPOSURE TO GLOBAL DECARBONISATION TRENDS

Energy resources, in particular fossil fuels, form an important part of the Canadian economy. They account for a significant share of total GDP, trade, employment and government revenues. Whereas these shares are relatively modest in comparison with other fossil fuel exporters, the Canadian fossil fuel sector is huge in absolute size, given the size of the Canadian economy. As such, Canada remains exposed to oil price fluctuations and significant investments in oil and gas may become “stranded”.

#### **Sizeable oil and gas production, reserves, and consumption**

Canada is a major producer of oil, gas and also coal. In 2017, it produced more than 4.8 million barrels of oil per day, equivalent to more than 5 percent of the world total and an increase of 50 percent from 2008 levels. Canada's gas production reached 176 billion cubic metres in 2017 (up from about 150 billion cubic metres five years earlier), which represented nearly 5 percent of global production. Coal production in 2018 amounted to about 28.6 million tonnes of oil equivalent, down from a high of 36.1 million tonnes of oil equivalent in 2013 and accounting for less than 1 percent of global production (BP 2019; see also CIA 2018; EIA 2015).

Canada also possesses significant fossil fuel reserves, especially oil and gas. Its proven oil reserves – primarily in the form of oil sands – are estimated to amount to nearly 170 billion barrels, which could support current production levels for another 90-100 years. They are the third largest in the world (after Venezuela and Saudi Arabia) and account for 10 percent of the global total. Estimated gas reserves are less abundant and amount to 1.9 trillion cubic metres (BP 2019; see for other estimates: CIA 2018; EIA 2015). They could support current production levels only for another 10 years. Canada also has significant reserves of shale gas that remain to be further explored. Proved coal reserves of nearly 6,582 million tonnes could support 2018 production levels for another 111 years (BP 2019; EIA 2015).

In accordance with its resource base, gas and oil supply a large part of Canada’s energy needs. Oil consumption exceeded 2.4 million barrels per day in 2018 accounting for about half of production. Gas consumption exceeded 115 billion cubic metres in 2018, up from about 90 billion cubic metres in 2007 and equivalent to about two-thirds of production. Coal consumption reached 14.4 million tonnes oil equivalent, down from almost 30 million tonnes oil equivalent in 2008 and accounting for about 60 percent of production. Overall, about 60 percent of overall energy consumption is accounted for by oil and gas, about 5 percent by coal, about 25 percent by hydroelectricity, and the remainder by nuclear power and renewable energy other than hydro (BP 2019).<sup>1</sup> Hydropower is the backbone of the electricity system, supplying around 60 percent of electricity consumption. Amongst IEA member countries, Canada has the highest energy supply per capita: total primary energy supply per capita in Canada in 2016 was 7.69 tonnes of oil equivalent versus an IEA average of 4.42 (IEA 2016).

Fossil fuel production and reserves display enormous regional differences across Canada. Gas, oil and coal production and reserves are concentrated in the broader Western Canada Sedimentary Basin (in addition to oil production in the offshore oil fields in the Atlantic Ocean, that is declining) and hence in Alberta (oil, gas and coal), British Columbia (gas and coal) and Saskatchewan (oil and gas). By far the largest share of Canada’s proved oil (oil sands) and gas reserves are located in Alberta. Consequently, Alberta accounts for more than three quarters of Canadian oil and gas production.

**Oil and gas account for more than 20 percent of exports – mainly to the US**

Energy exports are of great importance for Canada’s economy. In 2018, the country exported around 50 percent of its oil production, 45 percent of its gas production, and around 40 percent of its coal production (BP 2019). Fossil fuels account for more than 43 percent of Canadian exports (Chatham House 2019), with this share having fluctuated roughly between 20 and 30 percent since 2005, also as a result of price fluctuations.

The US is Canada’s top energy trade partner. In 2016, the US accounted for 92 percent (CAN\$ 78.2 billion by value) of Canada’s exported energy products: 97 percent of Canadian oil and gas exports totalling over CAN\$ 75 billion went to the US. Most of Canada’s crude oil goes to the US principally due to a lack of sufficient export capacity in Canada to send its liquids elsewhere. All of the country’s current natural gas exports go to the US. Canada also imported energy products from the US worth CAN\$ 23.2 billion (EIA 2015; NRCAN 2018). The pressure to advance decarbonisation there depends to a significant degree also on the US demand for Canadian oil and gas.

**Fossil fuels an important contributor to government budget and the overall economy**

Fossil fuels play an important role in Canada’s economy and government budget. Especially oil and gas industries are an important engine of the economy, with the overall energy sector (including electricity) accounting for around 10 percent of GDP (fluctuating somewhat with the oil price). Fossil fuel exports accounted for around 6 percent of GDP in 2017. The contribution of fossil fuels to the government budget was significant (but not dominant) at around 7 percent of total government income over 2010-2014

<sup>1</sup> Production, consumption and export data vary between different sources (including IEA, CIA, BP Statistical Review), but all give roughly the same overall picture.

(NRCAN 2017a). Government revenues in 2015 were CAN\$ 295.5 billion (Department of Finance n.d.). The sector employs approximately 270-280,000 people directly (and about 600,000 indirectly), accounting for 1.5 percent of total employment (NRCAN 2018).

Different from other fossil fuel-exporting countries, Canada possesses a highly developed and diversified economy. Fossil fuel production and export are significant (especially, as mentioned previously, in Alberta, Saskatchewan and British Columbia), but the Canadian economy has other significant sectors to build on (see section 4.2 below).

Canada also provides significant subsidies for fossil fuels. Data on these subsidies are hard to come by. Canada's federal Auditor General in 2017 expressed frustration at his inability to gain access to government documents which would allow him to determine the extent of the country's subsidies for the oil, gas and coal industries (Office of the Auditor General of Canada 2017). The International Institute for Sustainable Development (IISD) estimated that Canada's annual fossil fuel subsidies – including tax breaks and direct cash – in 2013-2015 amounted to CAN\$ 3.3 billion annually. Tax expenditures occurring at both the federal and provincial levels represent a combined minimum total of CAN\$ 2.5 billion annually (CAN\$ 1.6 billion at federal level) while direct spending includes budgetary transfers the Canadian government provides to producers of oil, gas and coal (Touchette 2015). IISD found in 2018 that federal subsidies had declined somewhat in 2016-18 compared to 2015, but that this decline was not the result of a subsidy reform and may not be lasting (also because subsidies inter-relate with oil prices) (IISD 2018a).

### **Exposure to oil and gas price fluctuations**

Canada is, as a result of the significance of its oil and gas sectors, exposed to variations in oil and gas prices to some extent. Declining oil prices after 2014 have left a mark on economic development. GDP per capita in constant US\$ stagnated from 2014 to 2016 (at approximately US\$ 50,000). GDP growth slowed from 2.9 percent in 2014 to 1 percent in 2015 and 1.4 percent in 2016. GDP growth picked up with the recovery of world oil prices in 2017 (3 percent) (World Bank 2018b and c).

Accordingly, the government budget situation has also seen significant fluctuations. Canada's public debt to GDP ratio rose from 85.7 percent in 2014 to 91.9 percent in 2016, before dropping slightly to 90.1 percent in 2017 and 89.7 percent in 2018 with the recovery of oil prices (Trading Economics 2019). Given the diversification of the Canadian economy, oil price fluctuations have left their mark on economic development and the government budget, but have overall remained manageable, as they could be balanced by other sectors of the economy.

### **Risk of stranded assets**

Reflecting its resource base, Canada has a vast network of more than 840,000 km of oil and gas pipelines. Pipelines mainly serve to transport oil, natural gas and liquefied natural gas from Alberta west to British Columbia, north to the Northwest Territories, east to Quebec and south to the US (Texas). Several major additional pipeline projects are under construction or in planning, prominently including TransCanada's contentious Keystone XL project that would significantly increase oil transport capacity to the US at a cost of US\$ 5-8 billion. Other prominent pipeline projects include the Trans Mountain expansion and Enbridge's Line 3 expansion. Over the years, indigenous groups, environmentalists, municipalities, mayors and labour unions have increasingly opposed new pipeline projects over fears of contamination and the significant contribution of fossil fuel use to climate change (Hughes 2018; The Canadian Encyclopedia 2018).

Also beyond oil and gas pipelines, Canada is continuing to make considerable investments into fossil fuels. These in particular concern the production of oil from the large oil sands deposits, especially in Alberta. They also include investments in LNG terminals. Overall, 435 Canadian energy companies were identified as having energy assets either in Canada or abroad in 2014. In this year, total Canadian energy assets amounted to CAN\$ 543.9 billion (up 12 percent from CAN\$ 484.9 billion in 2013), of which more than 70 percent were in Canada (NRCAN 2017a).



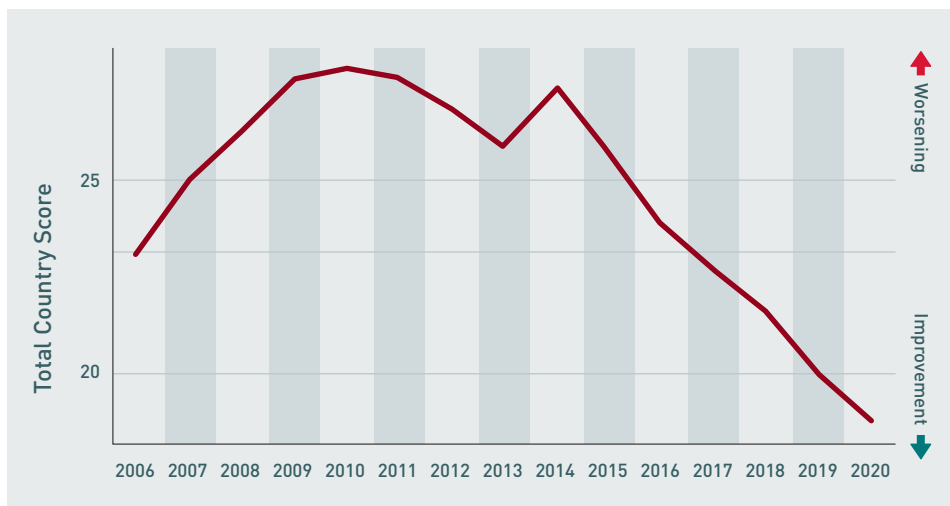
The risk of stranded assets is far lower in the power sector. This is not least the result of the dominant role of hydropower in the Canadian electricity system. About two-thirds of Canada’s total electricity production comes from renewables and hydropower alone accounts for about 60 percent (with wind, biofuels and solar providing for the balance). Hydropower had a generation capacity of 80 GW in 2016, with an emphasis on Quebec. Nuclear power provided a further 15 percent of total electricity in 2015. Coal and gas provide the remainder and are concentrated in selected provinces, contributing to electricity production in particular in Alberta and Nova Scotia. Canada is one of the co-founders of the Power Past Coal Coalition and has committed to a phase-out of coal in electricity production by 2030. In 2018, it adopted performance standards for coal and natural-gas fired power stations to this end. Accordingly, it plans to significantly increase the use of renewables (including wind and solar, but also further expanding the use of hydropower and biomass) in power generation (OCI 2015; Hughes 2018; Climate Action Tracker 2019).

## 2.2 OTHER FRAGILITY AND SECURITY RISKS

As a highly developed country with a stable federal parliamentary democracy, Canada faces few other fragility risks. Canada does face significant climate change impacts that are, however, comparatively modest. Canada also possesses considerable means to manage and adapt to these impacts and hence is relatively resilient.

### Democracy and political rights

A range of available indices confirm that Canada is a stable federal parliamentary democracy with strong socio-political institutions, a welfare state with well-developed social security, public healthcare and educational systems. Accordingly, Canada ranked 172<sup>nd</sup> out of 178 countries on the 2019 Fragile States Index. Canada scores very highly on most indicators and has made significant progress on economic equality, while “group grievances” remain somewhat of a challenge (especially reflecting internal challenges between francophone and anglophone communities) (Fund for Peace 2019). Corruption is not a significant issue with Canada eighth among the 176 countries on the Transparency International Corruption Perceptions Index (TI 2018). The EU’s Global Conflict Risk Index confirms that Canada is politically and economically stable and internally secure. Also, Canada ranks high on the Freedom House Index of 2018 scoring a near perfect 99 aggregate score (highest marks on both political freedom and civil liberties) (Freedom House 2018) as well as on the World Bank’s Worldwide Governance Indicators (World Bank 2017b).



**Figure 1: Canada’s performance in the Fragile States Index 2006-2020**  
(Fund for Peace 2020)

As indicated, a particular feature of Canadian politics is long-standing differences and tensions between French-speaking and English-speaking parts. French-speaking Quebec hosts a strong independence movement. Two referendums on achieving (greater) independence from the rest of Canada were narrowly defeated in the 1980s and 1990s. Underlying tensions have since been successfully managed but remain a virulent undercurrent of Canadian politics.

**Relatively modest climate change impacts**

Climate change impacts are already being felt in Canada and set to grow further. Temperature increase in Canada has already exceeded 1.5°C between 1950 and 2010, approximately double the global average. This has had significant impacts in the coastal and northern parts of the country. Indigenous peoples are the most vulnerable to climate change impacts. As they enjoy special rights in Canada, they have become increasingly important voices advocating action on climate change. Further impacts such as an increase in extreme weather events, sea-level rise and a further change of the northern and Arctic parts of the country are expected. At the same time, some positive impacts such as a growth of food production from agriculture are also anticipated (GoC 2016b; Warren and Lemmen 2014).

Accordingly, Canada ranked low on the Global Climate Risk Index for 2017 and for the period 1998-2017. The index assesses the extent to which countries have been subject to weather-related loss events (storms, floods, heat waves, etc.) (Eckstein et al. 2019). Similarly, the index of the Notre Dame Global Adaptation Initiative (ND-2017), which considers eight life-supporting sectors (food, water, health, ecosystems, human habitat, coastal, energy and transportation infrastructure), gives Canada a favourable score and rank for its overall vulnerability and readiness. Its vulnerability is considered relatively low (among top 10) and its readiness high (among top 20) (ND-GAIN 2017). Hence, climate change impacts in Canada are considered significant, but modest.



The First Nations peoples are important advocates for action on climate change in Canada.

### 3 PAST AND PRESENT EFFORTS TO DECARBONISE

Canada has submitted an NDC under the Paris Agreement that commits the country to reducing GHG emissions to 30 percent below 2005 levels by 2030. While this constitutes a significant deviation from business as usual, it is insufficient as a contribution to the Paris Agreement's temperature target. In addition, it is as yet uncertain whether Canada will be able to fully achieve its 2030 target: important measures have been initiated under a Pan-Canadian Framework on Clean Growth and Climate Change, but they fall short of what would be required. The achievement of Canada's NDC is also uncertain as climate policy has remained a partisan issue in Canadian politics, with the conservative party largely opposed to decisive climate action.

#### 3.1 ROLE IN THE UNFCCC AND THE PARIS AGREEMENT

Canada is a party to the UN Framework on Climate Change (UNFCCC) and its Paris Agreement. It ratified the UNFCCC in 1992 and the Paris Agreement in 2016. It was also originally a party to the Kyoto Protocol. It withdrew from the Protocol in late 2011, when it was clear that the country would not be able to live up to its commitment to reduce GHG emissions by 6 percent below 1990 levels. Canada is an Annex I party to the UNFCCC and considered a developed country for the purposes of the climate treaties. Within the UN climate negotiations, Canada forms part of the so-called "Umbrella Group" of non-EU developed countries.

According to its Nationally Determined Contribution (NDC) submitted under the Paris Agreement, Canada is committed to achieving an economy-wide (including LULUCF) GHG emission reduction target of 30 percent below 2005 levels by 2030. This implies a reduction from 747 MtCO<sub>2e</sub> to 523 MtCO<sub>2e</sub> in 2030 (GoC 2017). In 2016, the Canadian government further adopted a long-term target of reducing emissions by 80 percent below 2005 levels by 2050. Canada submitted its initial "intended" NDC in 2015 and revised its NDC submission in 2017. The 2017 submission in particular also provides information on the Pan-Canadian Framework on Clean Growth and Climate Change adopted in late 2016 as the main vehicle for the implementation of the Canadian NDC (see below on the status of domestic climate policy).

The Canadian NDC represents a significant departure from a business as usual that would reduce projected Canadian GHG emissions to around 2005 levels by 2030. Additional measures are therefore required to achieve the envisaged 30 percent reduction. The Canadian government's own projections show that the national measures currently planned and under implementation will significantly reduce GHG emissions, but will be insufficient to achieve the 2030 target. In this respect, the Canadian government points to the additional potential of planned investment in public transit, green infrastructure, innovation and clean technologies, potential increases in stored carbon (carbon sequestration) in forests, soils and wetlands, and additional mitigation policies or measures by the provinces and territories (GoC 2017).

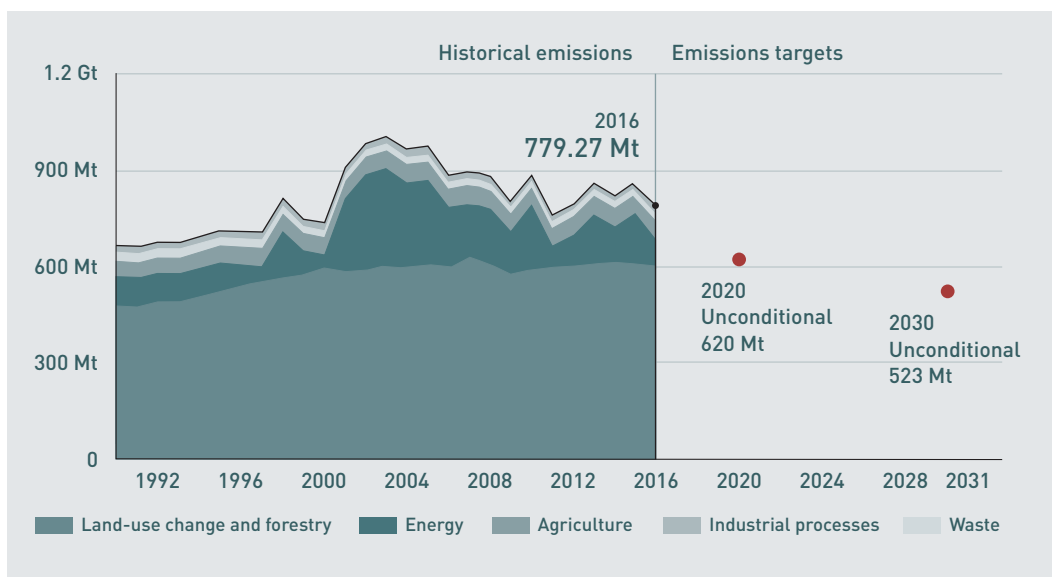
The Climate Action Tracker concludes that the Canadian NDC is "insufficient" for achieving the Paris Agreement's temperature goal of well below 2°C or 1.5°C of warming. This marks an improvement on past ratings, and resulting from updated Canadian 2030 projections quantifying the contribution that the forestry sector (LULUCF) would make towards achieving the Canadian NDC (Climate Action Tracker 2019). The 2018 update of the Canadian government's own projections appear to confirm the persistence of a growing gap (Environment and Climate Change Canada 2019).

### 3.2 EMISSIONS PROFILE

According to the UNFCCC, Canada’s GHG emissions excluding land use, land use change and forestry (LULUCF) in 2015 stood at 721,801.5 Gg CO<sub>2</sub> equivalent (up 18.13 percent since 1990) (UNFCCC 2017). Given its large forestry sector, LULUCF is significant and was estimated to have acted as a sink of the size of 33,543 Gg CO<sub>2</sub> equivalent (equivalent to more than 4 percent of emissions). Accounting of LULUCF is surrounded by large uncertainties, as also illustrated by the fact that other sources come to the conclusion that LULUCF has been a net source (see Figure 1). More than 80 percent of Canada’s total GHG emissions in 2015 were energy-related. Together, the oil and gas sectors were the largest GHG emitter contributing about 26 percent to total emissions, followed by the transport sector with 24 percent. Other sectors like buildings, electricity, heavy industry, agriculture, and waste and others each accounted for between 7 and 12 percent of total GHG emissions (Environment and Climate Change Canada 2017). Between 1990 and 2015, emissions of the oil and gas and transport sectors rose by 76 percent and 42 percent, respectively. In contrast, emissions in the electricity and heavy industry sectors declined. In 2015, the largest reported GHG emitted (without LULUCF) was CO<sub>2</sub> (78.71 percent), while methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and aggregate fluorinated GHG emissions stood at 14.19 percent, 5.39 percent and 1.72 percent respectively (Environment and Climate Change Canada 2017; UNFCCC 2017).

**Figure 2: Canada’s greenhouse gas emissions in total and by sector**

(ClimateWatch 2019)



### 3.3 STATUS OF DOMESTIC CLIMATE POLICY

In December 2016, Canada under the new liberal Prime Minister Trudeau adopted a Pan-Canadian Framework on Clean Growth and Climate Change. This Framework constitutes “a comprehensive plan to reduce emissions across all sectors of the economy, accelerate clean economic growth, and build resilience to the impacts of climate change” (GoC 2017) and thereby (over)achieve Canada’s NDC to reduce GHG emissions to 30 percent below 2005 levels by 2030. The central pillar of the Pan-Canadian Framework is the establishment of a carbon price across Canada, which should initially reach at least CAN\$ 10 per tonne of CO<sub>2e</sub> in 2018 and rise to CAN\$ 50 per tonne by 2022. To be implemented in collaboration with the Canadian provinces that enjoy considerable flexibility as to how to implement carbon pricing (e.g. through a tax or levy or through emissions trading), the carbon pricing initiative has

seen a delay to 2019 and opposition in particular from the conservative opposition party. Victories for the conservatives in the provincial elections in Ontario in 2018 and Alberta in 2019 have led to roll-backs of climate policy in these provinces (Climate Action Tracker 2019). While court proceedings against carbon pricing are ongoing, the fate of the initiative at a political level seems to be secured after the liberal party won the federal elections in October 2019 (GoC 2017; Climate Action Tracker 2019).

The Pan-Canadian Framework contains a number of complementary measures beyond the carbon pricing initiative. Hence, Canada will seek to develop a clean fuel standard to reduce emissions from fuels used in transportation, buildings, and industry and drive down emissions from electricity, including through passing new regulations to accelerate the phase-out of traditional coal units by 2030 and performance standards for natural gas-fired electricity, and modernizing Canada's electricity systems (including smart grid and energy storage technologies, and new and enhanced transmission lines to connect new sources of clean power). New codes for new and existing buildings and new standards for energy-efficient appliances and equipment are planned. In the transport sector, planned actions include setting and improving vehicle emissions standards and efficiency of vehicles, expanding zero-emission vehicles use, promoting the shift to lower-emitting transportation (including through infrastructure) and using cleaner fuels. The framework also aims to achieve a 40-45 percent reduction of methane emissions from the oil and gas sectors by 2025 through regulations and covers actions to enhance carbon sinks (forests, wetlands and agricultural lands), waste-to-energy, and adaptation (GoC 2017; see also Climate Action Tracker 2019).

The Framework includes several significant investment measures. A new Low Carbon Economy Fund worth CAN\$ 2 billion is to support new provincial and territorial actions to reduce emissions by 2030. CAN\$ 21.9 billion are to be invested in green infrastructure by 2030 (including electricity, renewable energy, electric vehicle charging, etc.), CAN\$ 20.1 billion in urban public transit and CAN\$ 2.2 billion for clean technology initiatives (GoC 2017; Climate Action Tracker 2019).

Canada has already made significant efforts in harnessing Carbon Capture and Storage (CCS). Three of the world's fifteen existing large-scale operational CCS projects are located in Canada. These include Boundary Dam (first commercial CCS project at a coal-fired power plant), Quest (first industrial CCS project designed to capture and store over 1 million tonnes of CO<sub>2</sub> per year) and Weyburn-Midale (largest ongoing CO<sub>2</sub>-enhanced oil recovery project with over 30 million tonnes of stored CO<sub>2</sub> since 2000) (NRCAN 2017a).

In line with the overall federal governance system, Canadian provinces and territories enjoy considerable flexibility to determine policies, including climate policy (see above). As a result, both Quebec and Ontario established emissions trading systems, which were linked to each other and to the emissions trading system of California through the Western Climate Initiative. However, a change of government in Ontario in 2018 resulted in the province abandoning its emissions trading system in 2018 (Climate Action Tracker 2019).

Measures implemented and planned under the Pan-Canadian Framework are currently considered insufficient to ensure that Canada will achieve its NDC under the Paris Agreement, a 30 percent emission reduction from 2005 to 2030. The Canadian government points to the additional reduction potential of its investment measures, additional measures to be implemented by provinces and territories and carbon sinks (including forests) (GoC 2017). However, this potential remains uncertain and likely insufficient.



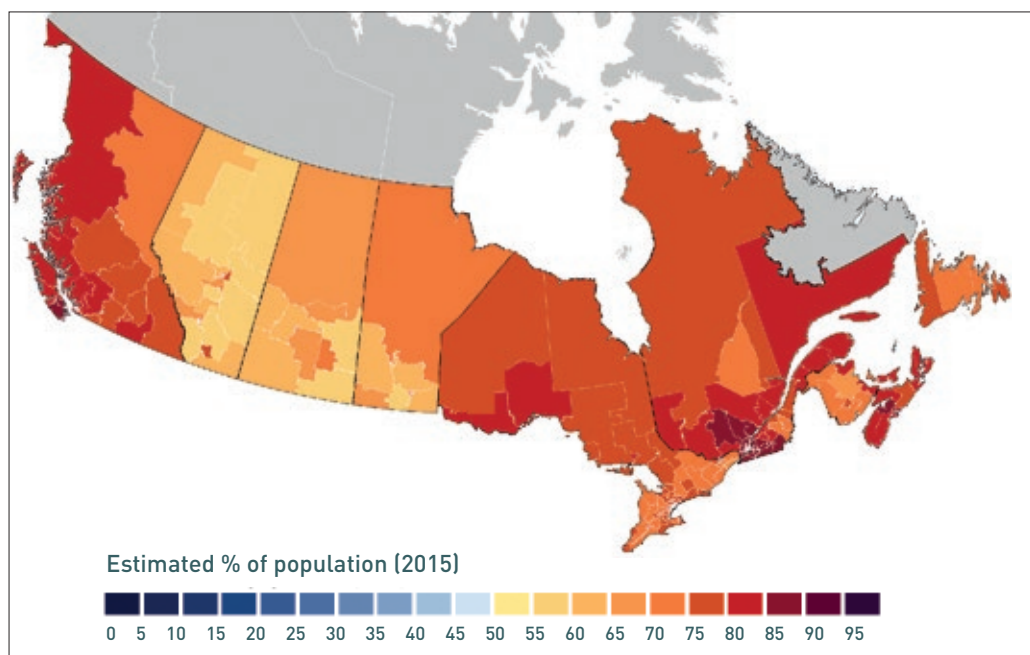
### 3.4 CLIMATE POLITICS

Climate change and climate policy is a very partisan issue in Canadian politics. As a result, Canada has not been able to maintain a stable trajectory in its climate policy over the years, with changes of government between liberal and conservative resulting in major shifts in climate policy. Whereas liberal governments have tried to advance Canadian climate policy, conservative governments have stalled progress and have at times actively undermined climate action. The liberal government of the 1990s signed and ratified the Kyoto Protocol, which saw a commitment to reduce emissions by 6 percent from 1990 levels between 2008-2012 (but failed to introduce a GHG reduction plan). The subsequent government of Conservative Prime Minister Stephen Harper, in power from 2006 to 2015 abandoned Canada’s commitment and instead advanced policies that made emissions rise to a new all-time high of 748 Mt CO<sub>2eq</sub> (CBC News 2007). In 2011, Canada became the first party to withdraw from the Kyoto Protocol. The pendulum swung back with the change of government to liberal Prime Minister Justin Trudeau in 2015. Action on climate change had been a prominent part of his election platform, which was followed up most notably by the establishing and implementing the aforementioned Pan-Canadian Framework. Nonetheless, Trudeau has also maintained firm support for oil pipelines and the creation of a liquified fracked gas export industry, despite opposition from environmental groups and sections of the public. The liberal Canadian government furthermore established a Just Transition Task Force in 2018 to consider and mitigate negative impacts of the energy transition on workers and affected communities with participation of stakeholders (IISD 2018b).

As mentioned above, provinces and territories enjoy significant room for political manoeuvre in the Canadian federal system, including on climate policy. Some provinces have advanced more ambitious climate policies than the federal government. For instance, Alberta is planning to phase-out coal electricity by 2030 and cap overall oil sands emissions, while Quebec and British Columbia (BC) have already enacted policy instruments including phasing out coal, implementing a carbon tax, and working with California on a regional cap and trade system (GoC 2016a). As at the federal level, climate policy is frequently advanced under liberal provincial governments, while at times being turned back under conservative leadership (see on Ontario above).

**Figure 3: Map of public opinion in Canada about “belief that the Earth is getting warmer”**

(Mildenberger et al. 2016.)



Public opinion in Canada displays awareness of climate change, but remains somewhat divided when it comes to acknowledging that this change is caused by humans and with respect to climate policy. Overall, it favours climate action despite the significant energy resources that the country owns. According to a public survey conducted by Yale University's Programme on Climate Change Communication (dataset of more than 5,000 individuals and collected since 2011), 79 percent of Canadians believe that the Earth is getting warmer, 61 percent that the Earth is getting warmer partly or mostly (44 percent) due to human activities. 66 percent of Canadians interviewed are in favour of a cap and trade system and 49 percent believe that taxes on carbon-based fuels should be increased. As Figure 2 indicates, significant differences exist between different provinces, with belief in climate change clearly less in Alberta, Saskatchewan and Manitoba (Mildenberger et al. 2016).

## 4 TRENDS AND POTENTIAL

Canada possesses most of the means required to wean itself off fossil fuels. It has a developed educational system and a strong human capital resource base. It also possesses a developed economy with an evolving services sector and a strong innovation potential. And its natural resource endowments include plentiful renewable energy resources that should enable the decarbonisation of the Canadian economy and provide strong opportunities for exporting renewable energy, especially to north-eastern US states.

### 4.1 EDUCATION AND KNOWLEDGE-BASED ECONOMY

Canada ranks high on education and skills. According to the World Bank's Human Capital Index, the current level of education and healthcare would allow the average child born in Canada today to achieve around 80 percent of its potential, clearly above the worldwide average and ranking tenth out of 157 countries (World Bank 2018d). Canada spends more on education as a percentage of GDP than the OECD average, has the second highest (after South Korea) share amongst OECD countries of 25-34 year olds who have a tertiary qualification (up from 85 percent in 2005 to 91 percent in 2016) and has one of the lowest unemployment rates in the OECD. At the same time, the share of Canadians between 25-34 years who had completed a master's or doctoral degree is below the OECD average while in terms of adult skills, Canada ranks average. There is therefore also room for further improvement (OECD 2018).

### 4.2 GROWING SERVICES SECTOR

The Canadian services sector is well developed, accounting for 70 percent of the Canadian GDP and employing three quarters of the Canadian working population. Amongst the services sector, the retail sector employs the largest percentage of Canadians (12 percent) followed by business services (which include financial services, real estate, and communications industries), and the health and education sectors (both largely under the influence of the government). Canada also has a significant high-tech industry, and a burgeoning film, television, and entertainment industry, in addition to a growing tourism industry. Canada also ranks high in terms of innovation. The Global Innovation Index ranks Canada 18<sup>th</sup> globally and the top innovation region in the world along with the US (Cornell University, INSEAD, and WIPO 2018).



**Figure 4: Service-sector versus goods-sector job growth**  
(Kirby 2017)

In the 2010s, the services sector overtook the manufacturing and energy sector as the engine of development and job creation (Kirby 2017). Since 2013, the vast majority of jobs have been created in the services sector, while there have been fewer jobs in the oil and gas sectors. The case is the same in energy-rich provinces like Ontario and Alberta. In 2016, the goods sector in Ontario generated 5,000 jobs as compared to 75,000 in the services sector, while in Alberta, the services sector added 34,000 jobs as opposed to a loss of 53,000 jobs in the manufacturing sector (Kirby 2017). Overall, the Canadian economy therefore has well-developed potential to transition away from the production of fossil fuels and towards a low-carbon economy. In this context, it should be highlighted that the “old” fossil fuel-based industries are concentrated in a few provinces and regions, and that these should therefore receive particular attention when devising accompanying measures to smooth the transition. Existing fossil fuel subsidies could be redirected for this purpose.

### 4.3 RENEWABLE ENERGY AND CLEAN ENERGY

Canada also possesses considerable potential to further develop the use of renewable energy, especially in the power sector. As mentioned before, about two-thirds of Canada’s power generation already comes from renewable sources, particularly hydropower that alone accounts for around 60 percent. The country has very significant potential to further develop renewable power generation, including in the provinces that currently rely more heavily on fossil fuels (such as Alberta and Saskatchewan). According to Canada’s Mid-Century Long-Term Low-Greenhouse Gas Development Strategy, electricity generation should rise from 17 percent of delivered energy in 2016 to 33–65 percent in 2050 (Hughes 2018). This increase could be supplied through increases in renewable energy, including further hydropower and a strong increase in the use of wind and solar energy as well as biomass. Accordingly, the National Energy Board of Canada projected in 2017 that Canada’s renewable capacity could grow rapidly by 2040, with wind power doubling or even tripling and solar power potentially increasing more than tenfold (NEB 2017). The 2050 strategy foresees even higher potential for increases, including in biomass and hydropower, which will require very significant investments (Hughes 2018). In this context, the very large availability of hydropower resources in Canada, seems ideal for the decarbonisation of the power system in a mix with more intermittent renewable energy sources such as wind and solar.

The considerable renewables potential in Canada also creates opportunities for related exports, especially to the north-eastern states of the US. Greater exports of zero-carbon electricity to the north-eastern US would require the construction of long-distance transmission lines to US markets. As a result, Canada could also provide its hydroelectric reservoirs as enormous energy storage services. Such an arrangement could reduce the cost of decarbonisation in the US’ northeast making both the US and Canada more energy competitive (Sachs 2018). This could help balance future declines of fossil fuel exports to the US.

## 5 COOPERATION WITH THE EU

EU-Canada relations have been close and dense for several decades, as evidenced by the conclusion of the Comprehensive Economic and Trade Agreement (CETA) in 2016, as well as long-established close cooperation in a multitude of settings and areas. Trade and investment as well as energy (both fossil fuels and renewables) are important and evolving areas, with significant potential to integrate decarbonisation. Overall, there is a firm basis to further advance EU-Canada relations independently from fossil fuels grounded in shared values.

### 5.1 INSTITUTIONAL FRAMEWORK: COMPREHENSIVE ECONOMIC AND TRADE AGREEMENT AND STRATEGIC PARTNERSHIP AGREEMENT

The EU (then the European Economic Community) concluded a first Framework Commercial and Economic Agreement with Canada in 1976, also opening its overseas diplomatic mission in Ottawa. The Framework Agreement was the first of its kind with an industrialised country. The EU-Canada relationship is based on shared values such as democracy, fundamental human rights, the rule of law, free trade and multilateralism. Cooperation between the likeminded partners has evolved into a firm, strategic partnership with a balanced focus on both socio-economic and politico-security cooperation. Annual high-level bilateral summits bring together the Canadian Prime Minister, the European Council and Commission Presidents, and the High Representative for Foreign Affairs and Security Policy allowing a regular stocktake and reiteration of bilateral ties. Since the early 2000s, Canada has also been acknowledged as one of the EU's ten strategic partner countries (along with the US, Mexico, Brazil, Russia, India, South Africa, China, Japan and South Korea).

In this context, the partners in 2004 adopted an ambitious strategic partnership agenda and agreed on a framework for a new Canada-EU Trade and Investment Enhancement Agreement. The latter evolved into the Comprehensive Economic and Trade Agreement (CETA). CETA negotiations officially began in 2009 and were concluded in August 2014. CETA was signed in 2016 and provisionally applied as of September 2017. It would eliminate 98 percent of tariffs between both parties. Alongside CETA, the EU and Canada launched a Strategic Partnership Agreement (SPA) which sought to deepen and broaden political cooperation on a series of issues like international peace and security, counterterrorism, human rights and nuclear non-proliferation, clean energy and climate change, migration and peaceful pluralism, sustainable development, and innovation. The SPA was signed alongside CETA in 2016 and subsequently provisionally applied from 1 April 2017. Both partners have been active international proponents of free trade and anti-protectionism.

### 5.2 TRADE AND INVESTMENT

Trade relations between the EU and Canada are strong. In 2017, bilateral trade in goods between both partners stood at EUR 69.2 billion. Canada was the EU's tenth top trading partner representing almost 2 percent of total EU external trade, while the EU was Canada's second largest trading partner after the US, accounting for almost a tenth of its global trade. Within the EU 28, Canada traded most with the UK (more than a quarter of the EU total), followed by Germany (nearly one-fifth) (EPRS 2017). EU exports to Canada amounted to EUR 37.7 billion (accounting for about 11.7 percent of Canadian imports – rank 3 after the US and China), while imports from Canada totalled EUR 31.5 billion (accounting for 7.4 percent of Canadian exports – ranked second after the US). This resulted in an EU trade surplus of about EUR 6.3 billion. Bilateral trade in services totaled EUR 30.3 billion in 2016. As in trade, the EU also enjoys a surplus in trade in services with Canada (EUR 6.7 billion in 2016). The stock of foreign direct investments between

the two stood at EUR 514.7 billion with EU 14.5 billion more EU investments in Canada (EC 2018). CETA is expected to boost bilateral trade significantly – by as much as 22.9 percent, adding GDP gains for the EU of up to EUR 11.6 billion per year.

Trade in fossil fuels is relatively modest for both sides. In 2015, coal, oil and gas made up 5.5 percent of all EU exports to Canada, while EU imports of the same from Canada were 3.9 percent of the total (EPRS 2017). In 2017, fuels accounted for 7.2 percent of all Canadian exports to the EU, whereas they were 6.3 percent of imports from the EU (EC 2018). As a result, trade in fuels between both partners is in balance. The top three categories of EU exported goods to Canada, were machinery (23.3 percent), transport equipment (18.7 percent) and chemical and pharmaceutical products (17.3 percent). Top import categories were metals (32.7 percent), mineral products (16.4 percent), machinery (12.8 percent) and transport equipment (8.6 percent). Hence, fossil fuels represent a significant share of bilateral trade, but they are not the most important commodity.

### 5.3 CLEAN ENERGY AND CLIMATE CHANGE

Beyond existing relations related to trade and investment (including oil and gas – see above), the potential for cooperation on (renewable and clean) energy remain to be exploited to a larger extent. The EU and Canada established a High-Level Dialogue on Energy in 2007 and further refreshed at the bilateral summit in 2014 (European Commission, n.d.). The dialogue covers areas of energy security, energy efficiency, renewable energy, the safe and responsible exploitation of conventional and unconventional energy resources, LNG trade, and improved market transparency and stability. Specific issues discussed are split almost equally between renewable energy, fossil fuels and international cooperation (international fora, Ukraine, global energy markets).

Both partners discuss renewable energy development domestically as well as the public acceptance of new energy infrastructure. Decarbonisation technologies like CCS and smart grids, are also discussed through the perspective of research and innovation. A significant part of bilateral discussions continues to focus on gas and oil markets in Canada and the EU (including infrastructure, LNG, unconventional resources) and the evolving global LNG market. Bilateral cooperation on renewable energy remains limited to dialogues and workshops and has potential for further substantiation. However, CETA can help facilitate and boost trade in clean technologies given that it eliminates all tariffs on clean technology products traded between them and extends access to public procurement markets that can play a significant role in supporting the EU's and Canada's initiatives towards decarbonisation.

### 5.4 GENERAL GEOPOLITICS AND BROADER COOPERATION AGENDA

Overall and beyond the areas addressed above, the EU and Canada share a very broad agenda and related interests and values that have grown historically. At a very general level, developing relations with the EU are one important way for Canada to balance its dependence on the US and allow its voice to resonate internationally. Conversely, Canada is also an important partner for the EU and its member states in forming international alliances on a par with the US and China.

The EU and Canada therefore cooperate in a variety of international institutions and on a number of foreign policy issues. Canada and the EU share similar positions on a number of critical international issues, including security (with close cooperation long established in NATO), human rights, free trade (also in response to trade sanctions imposed by US President Trump) and others. Both partners collaborate closely within the ambit of organisations like the UN, the G7, the G20, WTO, the OECD, the IAEA and others.





Donald Tusk, former President of the European Council and Mr Justin Trudeau, Canadian Prime Minister at the EU-Canada Summit in Montreal in July 2019.

Climate diplomacy has become an increasingly important facet of EU-Canada relations, especially following the decision by US President Donald Trump to withdraw from the Paris Agreement in 2017. In September 2017, the EU, Canada and China established a Ministerial on Climate Action to fill the void left by the US under President Trump abandoning its convening of the Major Economies Forum on Energy and Climate. The Ministerial on Climate Action has been convened three times: in Ottawa in September 2017 and in Brussels in June 2018 and June 2019. Climate change is also a priority in the Canadian campaign for a seat on the UN Security Council in 2021-22. Furthermore, Canada is a member of the Powering Past Coal Alliance, along with many EU member states.

Science and technology cooperation between the EU and Canada is also well developed and institutionalised. In 1996, both partners signed the bilateral Agreement for Scientific and Technological Cooperation, which is overseen by a Joint Science and Technology Cooperation Committee that meets regularly. The Agreement covers areas such as aeronautics, the bioeconomy, marine and arctic research, research infrastructures, health, nuclear and other areas. In 1998, Canada and Euratom signed an Agreement on cooperation in nuclear research. Canada has also been an active participant in the EU's various research and innovation funding programmes, including the EU framework programmes for research and Marie Skłodowska-Curie Actions.

## 6 CONCLUSIONS

Fossil fuels (oil and gas, to a lesser extent coal) are important sectors of the Canadian economy and provide for a significant share of Canadian exports. Hence, decarbonisation in Europe and the rest of the world requires Canada to adapt significantly, depending especially on developments in the US as the major export market. This constitutes a major challenge for the Canadian economy and its political system. Addressing this challenge requires consistent long-term effort to phase-out fossil fuel production (and consumption), while also nurturing the country's many non-fossil fuel-dependent economic sectors and activities. This challenge is reinforced by the fossil fuel economy being concentrated in just a few provinces (notably, Alberta, Saskatchewan and British Columbia) – provinces that enjoy high levels of authority and independence from the federal government in Canada's federal political system. Achieving significant emissions cuts will therefore depend on astute political decision-making and management to ensure that climate policy also takes into account the just transition to a low-carbon economy in more fossil fuel-dependent regions of Canada.

Fragility risks present are relatively moderate in Canada. Canada is a highly developed country with a stable federal parliamentary democracy. Adverse impacts of climate change are comparatively modest, and Canada possesses sufficient resources to adapt to the impacts of the warming climate. However, northern parts of the country and indigenous peoples are most vulnerable to climate change impacts. With indigenous peoples enjoying particular rights in Canada, they have become increasingly prominent voices in favour of decisive climate action.

EU-Canada relations are not heavily based on fossil fuels and are already broadly anchored and very close. Fossil fuels account for a modest share of the significant trade relationship between the two partners. The EU and Canada already cooperate closely in a wide range of areas, including security and defence (within NATO), science and technology, clean and renewable energy, and climate diplomacy. As partners at a comparable level of development, with close historical ties, and similar political systems and values, both face similar challenges, also with respect to decarbonisation, and have a deeply rooted joint interest in developing the relationship. The EU is an important partner for Canada to balance its dependence on the US, and Canada is important for the EU in its attempts to build international alliances. Cooperating allows both partners to boost their international standing. As such, there is ample scope for EU-Canada relations to flourish as they and the rest of the world decarbonise, and for these relations to actively support the transition to a low-carbon economy in both jurisdictions.

### 6.1 FOCAL POINTS FOR FOREIGN POLICY

Under the current circumstances, EU foreign policy towards Canada does not need to profoundly re-orient under decarbonisation. Given the richness of contemporary EU-Canada relations and the limited role of fossil fuels in the relationship, the global shift towards decarbonisation should focus the EU and Canada's relations on developing areas of cooperation that will help both partners to reduce emissions in their respective jurisdictions. Key priorities in this regard include:



Both the EU and Canada face the challenge of ensuring a **“just transition” for coal/fossil fuel-producing regions**. In Canada, this challenge relates to particular provinces and regions, while in the EU it is particular member states and regions that are affected. Consequently, on both sides of the Atlantic a variety of approaches are currently being tried and tested to manage the transition away from fossil fuel production and generation. Thus there is obvious potential for both partners to enter into a dialogue to identify best practices and further develop them in a mutual learning process. Related efforts could for example also be embedded in broader existing frameworks, such as the Powering Past Coal Alliance.



Beyond a focus on fossil fuel-producing regions, Canada and the EU also face common challenges with regard to **other sectors and aspects of the climate and energy transition**. These include decarbonising the building and transport sectors, as well as energy-intensive industries, and expanding the use of renewable energy sources (including the related challenges of grid management and development). These common challenges provide fertile ground for targeted dialogues and for identifying specific opportunities and projects for cooperation, including joint research and development.



In addition, Canada and the EU have considerable scope to further coordinate their **international policies** to support and raise ambition for decarbonisation. Both partners share important international objectives, including supporting the implementation and development of the Paris Agreement and a related international trade agenda. They can build on and further expand existing cooperation in this field (for example, in convening the Ministerial on Climate Action, MoCA) to jointly build broader international alliances.

Overall, there is already ample scope for EU-Canada relations to develop fruitfully under decarbonisation. A joint climate agenda has the potential to advance the relationship in a targeted way, helping both partners to more effectively address the common challenges they face in the climate and energy transition, both domestically and at international level. Decarbonisation therefore does not call for the EU and Canada to drastically recalibrate their relations; rather it provides a strong rationale for focusing their attention on the common challenges they face in transitioning to a low-carbon economy and on deepening cooperation accordingly. Given the partisan nature of climate policy in Canada, developments in domestic Canadian politics will be a major factor influencing the prospects for deepening this cooperation in future. The outcome of the federal elections in October 2019 should therefore provide a fruitful basis for further advancing EU-Canada cooperation in this area over the coming years.

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## **PART THREE: CONCLUSIONS**

**An analysis of our findings from the case studies, with both case-specific and general insights into how EU external relations can take into account potential negative and positive effects of decarbonisation.**



## 1 CONCLUSIONS

This study investigated the implications that the phase-out of fossil fuel use and broader decarbonisation processes may have for the EU's foreign policy toward and external relations with fossil fuel exporters. As trade in oil, gas and coal – and other high-carbon products such as palm oil – accounts for a sizeable proportion of EU trade with many of these countries, the decarbonisation of the European economy (and eventually the world economy) is set to have important repercussions for bilateral relations. Our study has examined these repercussions in more detail with respect to a cross-section of six fossil fuel-exporting countries from different world regions covering different resource endowments and stages of development, beyond the “usual suspects” like Russia, Norway and Algeria. The case studies hence addressed Azerbaijan, Canada, Colombia, Indonesia, Nigeria and Qatar. Beyond assessing the importance of fossil fuels and their export for these countries, the study paid particular attention to the potential of the countries investigated and their bilateral relations with the EU to productively move beyond fossil fuels. In this respect, it in particular also tried to identify how EU foreign policy could help develop the relations with these countries beyond fossil fuels.

This concluding chapter synthesises the main findings of the country studies. While our country selection does not necessarily ensure full representativeness, the countries offer insights into a considerable range of different conditions. In the following, we highlight common features across the countries as well as the range that exists within our sample. We identify five key findings that relate to: **(1)** the political and economic challenge of decarbonisation for the studied fossil fuel exporters, **(2)** the fragility and security context of these countries, **(3)** their climate policies and politics, **(4)** existing cooperative arrangements with the EU, and, last but not least, **(5)** the scope and starting points for the EU to fruitfully develop relations with these six countries under decarbonisation. The chapter concludes with a brief discussion of future research and policymaking prospects. As the case study analysis for this report was concluded before the COVID-19 pandemic began, in this final section we also briefly discuss our findings in light of current developments.



## 1.1 KEY FINDING I: DECARBONISATION CAN CONSTITUTE A KEY POLITICAL AND ECONOMIC CHALLENGE FOR FOSSIL FUEL EXPORTERS

The case studies demonstrate that the decarbonisation imperative constitutes a key political and economic challenge for exporters of fossil fuels and other carbon-intensive products. The economies and government budgets of these countries are, with some variations, highly dependent on the production and export of fossil fuels (and other carbon-intensive goods). As a result, and again to varying degrees, they are also exposed to fluctuations in the price of fossil fuels, and continuing investments in related infrastructure carry a high risk of creating stranded assets.

### 1.1.1 High dependence on fossil fuel production and export

The case studies illustrate that the economies and government budgets of a number of fossil fuel-exporting countries are highly dependent on the production and export of oil, gas, coal and/or other carbon-intensive goods.

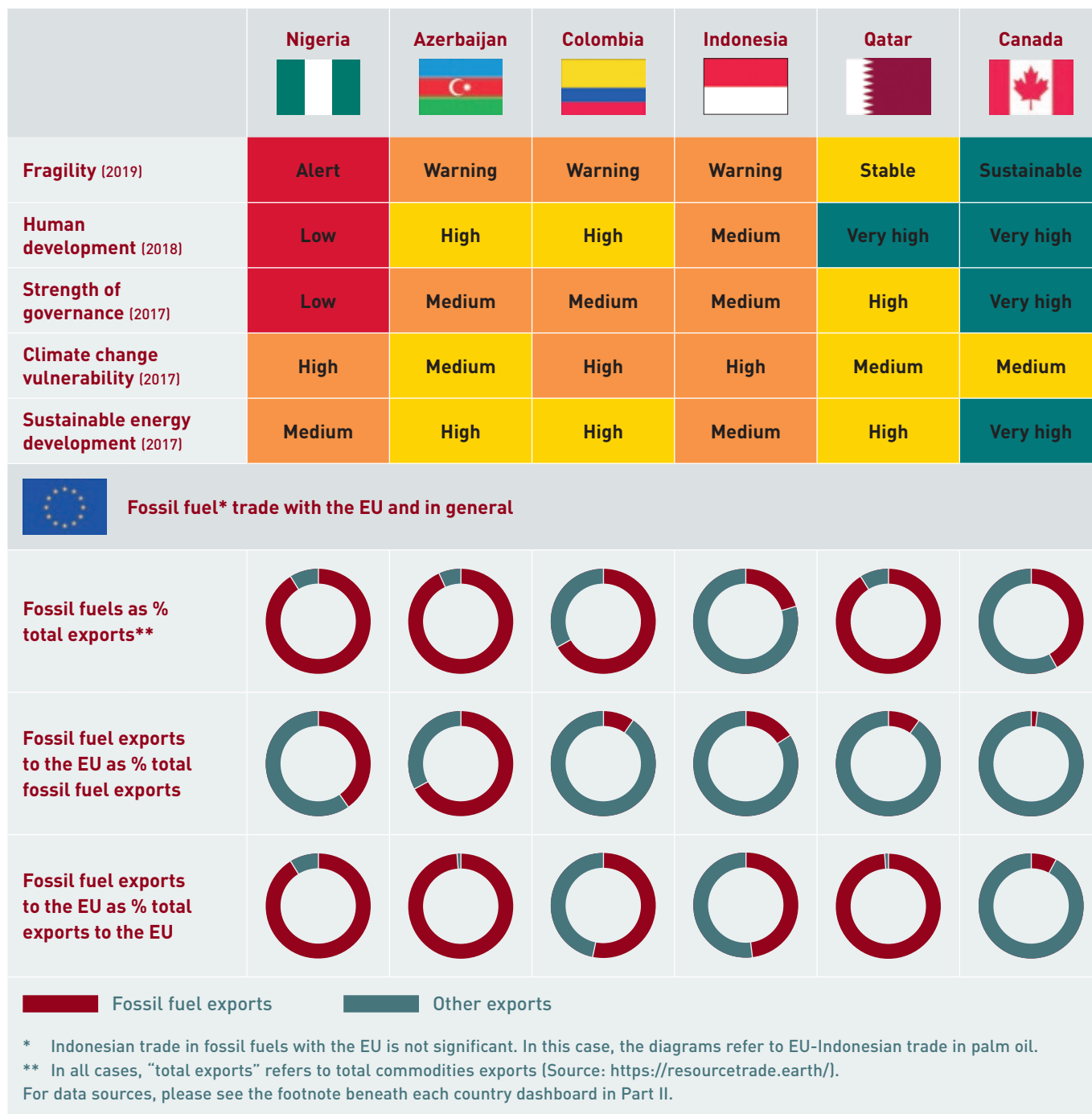
Fossil fuel production and export account for significant shares of these countries' economies, ranging from less than 10 percent to about half of GDP. In Azerbaijan, the oil and gas sectors have generally accounted for around half of the GDP, while in Qatar these sectors contributed one fifth of GDP in 2016. While the share tends to be smaller in bigger countries and economies, it is still significant with more than 10 percent in Nigeria and close to 10 percent in Canada (including all energy sources). Colombia's fossil fuel sector is relatively limited but sizeable at about 6 percent of GDP. In the case of Indonesia, carbon-intensive palm oil production is relevant as well, bringing the total contribution of fossil fuels and palm oil to well above 10 percent of GDP. Palm oil generates 4.5 percent of its GDP.

Fossil fuels account for even bigger shares of these countries' exports (see Figure 1 below). For Azerbaijan, Nigeria and Qatar, these shares are even higher than 90 percent, illustrating extremely high levels of export earnings from fossil fuels and the significance of these goods for trade relations in general. More than two thirds of Colombian export earnings in 2018 can be attributed to fossil fuels. In Indonesia, fossil fuels and agricultural products (including palm oil) each provided around 40 percent of Indonesia's foreign exchange earnings in 2017. That same year, palm oil was Indonesia's second most valuable export commodity accounting for just over 20 percent of foreign exchange earnings from merchandise trade. In 2017, fossil fuels accounted for over 40 percent of Canadian goods exports.

Fossil fuels and fossil fuel exports, accordingly, also make major contributions to government budgets. These contributions may come from direct foreign exchange earnings, royalties and taxes. The oil and gas industries have consistently accounted for more than 50 percent of Qatar's state budget and for about 50 percent for Azerbaijan and Nigeria (fluctuating somewhat with the oil price). Fossil fuels contribute less than 10 percent to government budgets in Canada and Indonesia.

Overall, these countries' economies and state budgets are either highly or still significantly dependent on fossil fuels and fossil fuel exports. While for all of them fossil fuels (and, in the case of Indonesia, carbon-intensive palm oil) are a very significant part of their economy, for some of them they are the main and even all-dominant sector. The selected countries also finance their public budgets to very significant extents from fossil fuel revenues, with some of them overwhelmingly dependent on related income.

Figure 1: Overview of selected key characteristics of the case study countries



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### 1.1.2 Exposure to price fluctuations

Fluctuations in the price of fossil fuels in international markets illustrate the high dependence on fossil fuel production and export, as could be seen in the fall of the international oil price between 2014 and 2016 (and is confirmed by the dramatic falls resulting from the COVID-19 pandemic in 2020). This fall had a major impact on the economic development and public budgets of the six countries studied, in some cases causing recessions. Although decarbonisation has not been a major driver of international fossil fuel markets to date, it could reinforce downward pressure on fossil fuel prices in future.



The drop in international oil and coal prices from 2014 to 2016 left a clear mark on the economies of the fossil fuel exporters investigated, in some cases leading to economic crises. For example, Nigeria experienced its first full year of recession in 25 years in 2015, with real GDP contracting 1.5 percent. In Azerbaijan and Qatar, the fall in oil prices from 2014 to 2016 also left a clear mark on economic development. In Azerbaijan GDP declined sharply from US\$ 75.2 billion in 2014 to US\$ 37.9 billion in 2016, and in Qatar from US\$ 206 billion in 2014 to US\$ 152.5 billion in 2016 (all in current US\$). In Colombia, GDP growth fell from 4.9 percent in 2013 to 2.0 percent in 2016 and the contribution of fuel exports to GDP decreased from 11 percent in 2013 to 6 percent in 2016. Canada also experienced a decline of the growth rate from 2.9 percent in 2014 to 1 percent in 2015. In Indonesia, the economic impact was somewhat balanced by a decrease of fossil fuel subsidies that were facilitated by the price drop.

The price drop also had major knock-on effects for public budgets. While crude oil had generated 58 percent of government revenues in Nigeria in 2014, this figure fell to 42 percent in 2017. Public debt rose from 12 percent of GDP in 2013 to 21 percent in 2017. Azerbaijan and Qatar experienced even greater increases in public debt between 2014 and 2016, from little more than 14 percent to more than 50 percent and from around 32 percent to over 56 percent, respectively. Colombia saw a decrease of the extractives sector's contribution to national fiscal income from 19 percent in 2013 to 5 percent in 2016. Canada saw its public debt ratio increase from 85.7 percent of GDP in 2014 to nearly 92 percent in 2016.

Although the economies and public budgets of fossil fuel exporters were all hit by the fall of fossil fuel prices (depending on the overall dependence on fossil fuel exports), the effects also depended on the instruments available to cushion the impacts. For example, the State Oil Fund of Azerbaijan was created to support the development of the country's non-oil sectors, but has in reality served to balance price and resulting revenue fluctuations. In a more ad-hoc fashion, the Indonesian government has managed the effects of price decreases to some extent by reducing fossil fuel subsidies. Canada has generally been less vulnerable to price fluctuations due to the advanced diversification and development of its overall economy, including non-oil sectors.

### 1.1.3 High risk of stranded assets and insufficient diversification

The countries investigated have continued to invest heavily in fossil fuels and related high-carbon infrastructure, entailing a high risk of stranded assets under decarbonisation. This has contrasted with lower investment in non-fossil fuel sectors, and at times even undermined progress towards economic diversification.

Fossil fuel assets at risk from stranding range from as yet untapped hydrocarbons reserves to fossil fuel sector infrastructure. Fossil fuel assets at risk from stranding range from as yet untapped hydrocarbons reserves to fossil-fuel sector infrastructure. In all the countries studied, proven reserves could support fossil fuel production well beyond 2050. For example, proven reserves could support current Nigerian oil production for another 50 years and current Indonesian gas and coal production for up to 30 and 60 years, respectively. Azerbaijan's oil reserves are forecast to last for another 20 to 30 years, and the country could maintain current levels of gas production until 2090. Colombia could maintain current levels of coal production yet longer until the end of the century, and in Canada and Qatar existing reserves would support production of oil and coal, and gas respectively for more than 100 years. Other important carbon-intensive infrastructure highlighted in the case studies includes oil and gas extraction facilities, networks of pipelines and other fossil fuel transport infrastructure (especially in Qatar, Azerbaijan, Canada) and fossil fuel-based power stations (especially coal, Indonesia). Major investment in fracking and oil exploration is also looking more likely in Colombia. In Qatar, US\$ 12 billion in investments in the oil and gas sectors were announced in 2018, out of a total of new investments of US\$ 85 billion in different sectors. Canada is also continuing to make considerable investments into fossil fuels (especially oil sands). In 2014, total Canadian energy assets amounted to CAN\$ 543.9 billion. The major share of a total of foreign direct investment of nearly US\$ 15 billion in Azerbaijan in 2017 went to oil and gas.



Progress toward economic diversification has been varied but has generally remained insufficient/slow, also as a result of a continuing focus on fossil fuels. The aforementioned State Oil Fund of Azerbaijan has aimed to support economic diversification – with very limited results. The Qatar Investment Authority set up in 2005 has a similar purpose, but has in fact diversified to some extent the fossil fuel sector itself (from oil to gas) and has still left the overall economy hugely dependent on oil and gas. Efforts at economic diversification in Nigeria have also faced major obstacles, including the so-called ‘Dutch disease’: an appreciating exchange rate due to the oil-based foreign currency earnings that hinders the development of other sectors. Other key economic sectors, most importantly agriculture, had been neglected for decades. Industry and services also remain highly dependent on imports of inputs and raw materials, so that the oil price collapse in 2014-16 had serious knock-on effects on these sectors.

The Canadian and Colombian economies are more diversified, making diversification somewhat less of an issue at a national level. However, particular regions within these countries are heavily dependent on fossil fuel production and face particular challenges in transitioning towards decarbonisation. In Colombia, the Departments of Cesar and La Guajira would be most vulnerable, as they produce and export 90 percent of Colombian coal production. In 2015, coal accounted for around 40 percent of GDP and 30,000 direct jobs in these two departments. In Canada, while overall the fossil fuel industry only accounts for a smaller part of the economy, it is of greater importance for the provinces of Alberta, Saskatchewan and, partially, British Columbia.

## 1.2 KEY FINDING II: THE DECARBONISATION CHALLENGE CAN INTERSECT WITH VARIOUS OTHER FRAGILITY AND SECURITY RISKS

The decarbonisation challenge in fossil fuel-exporting countries frequently intersects with other fragility and security risks. Such risks and their severity vary across countries. They include conflicts at national and regional level, weak and fragile governance arrangements, and the impacts of climate change. These risks can exacerbate the difficulty of moving away from fossil fuels and decarbonisation could in turn enhance these risks if not addressed adequately. While such risks are negligible in Canada, they are particularly grave in countries whose political settlement to a large extent depends on income from fossil fuel exports (Azerbaijan, Qatar, Nigeria).

### 1.2.1 National and regional security risks

Our case studies illustrate that fossil fuel-exporting countries frequently face significant national and/or regional security risks. Indeed, all our case study countries except Canada face significant or even serious security challenges; these take different forms and are highly specific to the respective contexts.

For Colombia and Indonesia, the main security challenges are domestic. Indonesia has a long history of separatist movements and clashes between divergent ethnic and religious groups (as well as discontent over unequal treatment of indigenous groups). In addition, terrorism remains a palpable threat to security. Colombia has faced long-standing internal conflicts with insurgent groups, in particular the FARC. Although the conflict with the latter was in principle settled with the 2016 peace agreement, the situation remains fragile and the country is in the midst of complex peacebuilding and post-conflict development processes. In addition, the Venezuelan political crisis that escalated in 2018-9 has affected Colombia, which hosts more than 1 million Venezuelan refugees.

In the cases of Qatar and Azerbaijan, security risks relate in particular to the regional context. Being located in the Middle East and the Gulf region, Qatar is part of a sensitive and challenging security environment, including the rivalry between Iran and Saudi Arabia for regional dominance and the involvement of various external actors (the US, Russia, and Turkey in particular). In this context, deteriorating relations with Saudi Arabia and other Gulf countries in the 2010s culminated in them launching an embargo against Qatar in 2017 – which has also left the Gulf Cooperation Council in paralysis. With regard to Azerbaijan, the country is in a “frozen” conflict with Armenia over the exclave of Nagorno-Karabakh, which is entirely situated in Azerbaijan but has an Armenian ethnic majority. After the outbreak of war over the issue in 1988, a precarious ceasefire has remained in place since 1994.

Nigeria faces both serious internal and regional security threats, which pose a risk to political and economic stability. The security challenges include long-standing secessionist sentiments and movements in the South East (in the wake of the secessionist Biafran War from 1967-1970) and militant groups in the Niger Delta seeking control and revenues from the oil industry. Further to the North, the insurgency of the Islamist sect Boko Haram has constituted a serious security risk since 2012. It also connects to the broader and growing security threat posed by Islamist extremists across several countries in the Sahel region (including Mali, Niger and others). Many of the security challenges have their roots in acute socio-economic inequality and conflicts, for example intensifying competition for fertile land and control over oil resources.

Under these circumstances, decarbonisation can particularly hamper efforts to alleviate domestic conflict, while also creating opportunities. In particular, declining fossil fuel exports could threaten economic stability and government spending commitments essential for conflict management and post-conflict development. In Colombia, for example, the long-term success of the peace agreement with the FARC will rely on the government honouring its commitments under the agreement to major investments and reform in rural areas. The resulting significant budgetary pressures Colombia has faced in recent years have already been aggravated by fluctuations in its key commodity markets – and demonstrate the challenge arising from decarbonisation. As another example, volatility in oil markets may place further strain on Nigeria's economy and exacerbate other interrelated fragility risks, such as major gaps in public infrastructure, high inequality, rapid population growth and urbanisation, and growing insecurity of rural livelihoods in its Middle Belt and Northern states. Having said that, advancing decarbonisation policies can also create opportunities that provide leeway to counter negative effects (e.g. through the expansion of renewable energies).

### 1.2.2 Fragile governance contexts

Most of the fossil fuel-exporting countries also face governance challenges at the national level, although their significance varies (see also Figure 1). These seriously curtail the respective governments' capacities to effectively address dependence on fossil fuel export and, more generally, to implement targeted policies to foster low-carbon development. The main exception is Canada, which is a developed and mature parliamentary democracy (with long-standing tensions between its French-speaking and English-speaking regions having been successfully managed in the 21<sup>st</sup> century).

Nigeria stands out as being particularly debilitated in this respect. While characterised by increasing inequality and significant demographic pressures, Nigeria also suffers from high levels of corruption and weak governance. The ability of the state to collect taxes and control its external borders (and internal territory) is therefore seriously curtailed. Key indexes point to low levels of human development and poor governance, while the Fragile State Index places Nigeria in the "alert" category (see Figure 1).

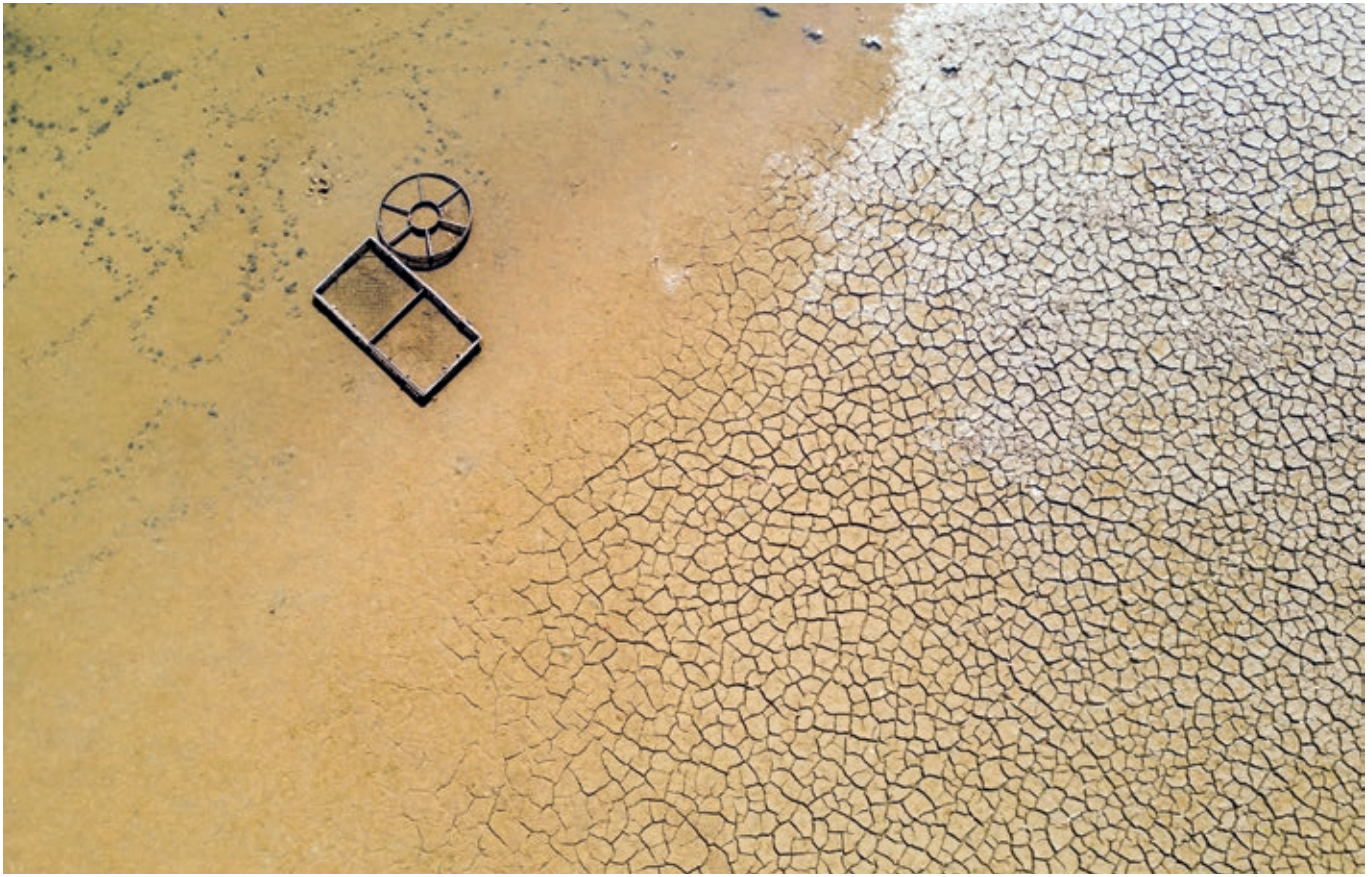
Indonesia and Azerbaijan also face significant challenges. As well as grappling with high levels of inequality, Indonesia faces issues regarding discrimination and state capacity. While strength of governance is rated as medium, with state legitimacy and public services in particular seeing strong improvements, the Fragile State Index remains at "warning" level. Azerbaijan is characterised by serious issues of corruption and political freedom. The 2018 Freedom House Index categorises Azerbaijan as "not free" and state legitimacy, the repression of civil liberties and press freedom are identified as shortcomings.

Qatar and Colombia face far fewer governance challenges. Qatar has low levels of corruption or repression, but faces challenges with respect to democracy and political rights (general freedom, civil liberties, political participation). A particular issue is the problematic situation concerning around two million expatriate workers, mainly low-skilled Asian construction workers. Qatar has been criticised for their exploitation and for a lack of integration. In reverse, Colombia has developed relatively strong democratic institutions and has improved on the rule of law, although corruption continues to constitute a central challenge (along with high levels of inequality). Overall, governance challenges present less of an impediment to addressing fossil fuel dependency.

### 1.2.3 Climate change impacts

Climate change is predicted to have a medium to high impact on the countries studied. These impacts could strengthen support for engaging in climate policy and related cooperation. However, the concrete impacts might also restrict the capacity to act on fossil fuel dependency, as priority might be given to urgent adaptation measures.





Climate change vulnerability is assessed as medium in Canada, Azerbaijan and Qatar (Figure 1). Temperatures in Canada have already increased more than 1.5°C, approximately double the global average and significant impacts are particularly being felt in coastal and northern parts of the country. At the same time, Canada may also see some positive impacts, such as growth in agricultural food production in northern regions. The country also scores relatively favourably on indexes measuring vulnerability and readiness. Qatar is affected by sea-level rise (with 96 percent of its population living in coastal towns and cities and much of its infrastructure in peril) and the associated risk of groundwater salinisation. Further increases to already high temperatures and aggravated water scarcity also constitute significant challenges, while the country scores relatively high on readiness. In Azerbaijan, rising temperatures constitute a threat for the agricultural sector due to resulting increased evaporation, droughts and water shortages – while the sea-level of the Caspian Sea may in fact fall as a result of increased evaporation. The country scores medium on vulnerability and readiness.

Climate change vulnerability is considered high in Colombia, Indonesia and Nigeria. Colombia is subject to a variety of climate change impacts, including sea-level rise, more frequent and more intense La Nina and El Nino phenomena and decreased rainfall. Higher temperatures and increased water scarcity (due to decreasing run-off from the mountains) are of particular concern in the Andean region, home to 75 percent of the population. With the second longest coastline in the world, Indonesia is particularly impacted by changing rainfall patterns, temperature and sea-level rise, and extreme weather events and natural disasters. Jakarta is already the world's fastest-sinking city, with around 40 percent of the city already below sea-level. Nigeria is already struggling with increasing temperatures, erratic rainfall, desertification, rising sea-levels and drought. This puts further pressure on an agricultural sector that is already struggling to maintain or enhance productivity, as well as urban centres, not least Lagos. Addressing these challenges is also much more difficult in contexts where economic, social and governance readiness are lacking.



### 1.3 KEY FINDING III: CLIMATE POLICY FRAMEWORKS ARE IN URGENT NEED OF FURTHER DEVELOPMENT, BUT AMBITIOUS CLIMATE POLICIES FACE SIGNIFICANT RESISTANCE

While climate policy frameworks are at various stages of development, none of the countries studied have yet developed adequate targets and policies for meeting the goals of the Paris Agreement. Progress in the development of such targets and policies and in the climate transition of these countries is hampered by significant socio-economic barriers, in particular strong opposition from the fossil fuel industry that is frequently closely related to governments.

#### 1.3.1 Climate policy frameworks are at various stages of underdevelopment

The development of climate policy frameworks in the studied fossil fuel-exporting countries ranges from insufficient to grossly inadequate. All six countries are parties to the Paris Agreement and consequently have “Nationally Determined Contributions” (NDCs). Five of the six countries have included economy-wide GHG emission reduction targets for 2030 in their NDCs. As an industrialised country, Canada aims to reduce its emissions 30 percent below 2005 levels, while Azerbaijan’s target of keeping emissions 35 percent below 1990 levels actually implies a slight increase from current levels (around 5 percent). Nigeria, Colombia and Indonesia all aim to reduce emission by 20 percent (Nigeria, Colombia) or 29 percent (Indonesia) compared to projected business-as-usual scenario and establish higher targets on the condition that sufficient international assistance is made available. Qatar’s NDC does not establish any emission target.

While these targets are generally insufficient for achieving the objectives of the Paris Agreement, the development of domestic policy frameworks also raises concerns about the capacity to effectively implement them (and to support any upgrading of these targets in the future). Within the sample, Canada and Colombia are the most advanced in developing their domestic climate policies. Canada has advanced its domestic policy frameworks, especially since the Paris Agreement, with a national carbon pricing mechanism at its core and a number of other measures addressing various sectors. While this framework still needs to be further strengthened to meet Canada’s emission-reduction target and to increase its ambition, its stability is in question given that climate policy has been a highly partisan issue. Changes of government at both federal and provincial level have therefore hindered the development of a consistent trajectory. Colombia has also developed a relatively robust institutional, legal and policy framework for implementing its NDC (that will, however, require further elaboration and strengthening) and advancing both climate mitigation and adaptation. It has actively promoted market mechanisms and introduced a carbon tax in 2017. The country’s first climate change law was passed in 2018.

In contrast, effective climate policy frameworks in Indonesia, Nigeria, Azerbaijan and Qatar are at best at an early development stage. Indonesia has elaborated general action plans on climate change mitigation and adaptation and has implemented a moratorium related to deforestation, its main source of GHG emissions. However, progress on policy measures for addressing GHG emissions in other growing sectors has lagged. Similarly, Nigeria has established general frameworks for addressing mitigation and adaptation, but concrete measures need further elaboration and implementation. While Azerbaijan has reported the adoption of a number of relevant legislative acts and established supporting institutional structures, climate change policy, incentives or regulation has nevertheless been found to be absent. Finally, Qatar does not have a firm framework for its domestic climate policy but appears to focus on developing its economy, reaping co-benefits for GHG mitigation where opportune (e.g. some investments in renewable energy).

### 1.3.2 Significant opposition to transformational climate action

The (under)development of domestic climate policy frameworks in the studied countries correlates with significant politico-economic opposition to transformational climate action. Even in studied countries where fossil fuels have a comparatively modest importance for the national economy – Canada and Colombia – this opposition is significant and strong. In Canada, climate policy has become a very partisan issue, with conservatives opposing and undermining climate action. Opposition is particularly strong in the fossil fuel-rich provinces (Saskatchewan, Alberta and British Columbia), which hold significant political power in the Canadian federal system. As a result, oil and gas pipelines and exploitation of oil sands have also received support from liberal governments. While climate change is less contested as a political issue in Colombia, support for fossil fuel extraction and mining activities, while slowly receding, remains strongly embedded in the politico-institutional system. As in the case of Canada, confronting fossil fuel interests is complicated by strong dependence of particular regions on fossil fuel exploitation. At the same time, support for addressing climate change has also been growing in both Columbia and Canada.

Fossil fuel interests are even more strongly entrenched in the other four countries studied. Most importantly, fossil fuel extraction is either dominated by state-owned companies (Qatar, Azerbaijan) or such enterprises at least play an important role in the sector (Nigeria, Indonesia). As a result, the formal and/or informal links between fossil fuel industries and the government are generally very close, at times also in the context of corruption. At the same time, societal and political support for decisive climate action has remained too weak to balance strong fossil fuel/high-carbon interests across these countries (and at times even close to non-existent). Such support and related interests (e.g. in renewable energy) are in need of careful nurturing.



Opposition to climate action may be particular strong in regions, where the local economy is particularly reliant on the fossil fuel industry as a source of direct and indirect employment.

## 1.4 KEY FINDING IV: EU EXTERNAL RELATIONS CAN BUILD ON PRE-EXISTING COOPERATIVE ARRANGEMENTS OF VARYING STRENGTH AND FORM

Existing cooperative arrangements between the studied fossil fuel exporters and the EU provide a sound basis for “decarbonising” the bilateral relations, i.e. developing them fruitfully beyond high-carbon products. The most important institutional arrangements in this respect include Partnership and Cooperation Agreements and Free Trade Agreements, but cooperation has a varied, more diverse basis, including regional and multilateral forums.

### 1.4.1 Partnership and Cooperation Agreements and high-level political dialogues

The EU’s relations with the studied countries can build on existing Partnership and Cooperation Agreements or other forms of high-level dialogue. Building on decades of close political cooperation and consultation, the EU and Canada launched a Strategic Partnership Agreement, alongside the Comprehensive Economic and Trade Agreement (CETA), in 2016 and they hold annual high-level bilateral summits. The EU and Azerbaijan have cooperated under the umbrella of a Partnership and Cooperation Agreement since 1999 (with an update under negotiation since 2017). EU-Indonesia dialogue has a firm basis in the Partnership and Cooperation Agreement of 2014, and the EU and Qatar have strengthened cooperation under a Cooperation Agreement concluded in 2018. Without a formal overarching agreement, the EU and Colombia are engaged in bilateral and high-level political dialogues and are exploring new mechanisms for “lifting bilateral relations to a new level” (EEAS 2019). While primarily rooted in the Cotonou Agreement with ACP countries, EU-Nigeria relations are also developed under a political framework for dialogue, the “Nigeria-EU Joint Way Forward”.

### 1.4.2 Free Trade Agreements

In several cases, bilateral trade relations find a further firm basis in relevant free trade agreements. Perhaps the best-known among them is the aforementioned CETA between Canada and the EU. Trade between Colombia and the EU is governed by a multi-party free trade agreement formalised in 2013. Negotiations on a Comprehensive Economic Partnership Agreement between the EU and Indonesia have been ongoing since 2016. No free trade agreements are currently in sight with Nigeria (which has rejected joining the Economic Partnership Agreement between the EU and the Economic Community of West African States, ECOWAS), Qatar (with negotiations between the EU and the Gulf Cooperation Council countries suspended in 2008) and Azerbaijan.

Nevertheless, the trade and investment relationship of all studied countries with the EU is very substantial. In 2017, EU exports accounted for more than 35 percent of Qatari and nearly 32 percent of Azeri imports, whereas EU imports made up around 10 percent of Qatar’s overall exports and more than 60 percent for Azerbaijan. Canada is the EU’s tenth top trading partner, representing nearly 2 percent of total EU external trade, while the EU is Canada’s second largest trading partner after the US. The EU is Colombia’s third biggest trading partner after the US and China. Nigeria is the destination for around half of the EU’s export to the West African region and close to 70 percent of the imports. Also, the EU accounted for 3 percent of Indonesian commodities exports. The EU is also the largest investor in Colombia. The stock of EU-Canada direct investments stands at more than EUR 500 billion. Qatar has also become a significant investor in the EU after the financial crisis, with Qatari investments in the EU exceeding EU investments in Qatar by a factor of three. The importance of fossil fuel trade between the studied countries and the EU is clear from Figure 1 above.



The EU and its member states have much to offer in cooperating with fossil fuel exporters to enhance their education and skills development, as well as their research capacities.

### 1.4.3 Other fields and institutions of cooperation

Beyond these formal agreements, the studied fossil fuel exporters and the EU also cooperate within a web of other bilateral, regional, and multilateral fora. How tight this web is, and where its points of focus lie, varies between the countries, but generally these relations provide a solid basis for developing cooperation. This web of cooperation is perhaps closest with Canada, as the EU (and its member states) and Canada actively collaborate in many forums, including NATO, the UN, the G7, the G20, the WTO, the OECD, the IAEA and others. Since 2017, Canada, the EU and China have convened a Ministerial on Climate Action, and Canada and several EU member states are members of the Powering Past Coal Alliance. Bilateral scientific and technological cooperation has been developed under a targeted Agreement for Scientific and Technological Cooperation since 1996.

However, cooperation with the other studied countries also has a much broader basis than fossil fuels, shaped by the particular conditions in each country. The EU and Columbia have cooperated closely to set Columbia on the road to peace and have also sought to collaborate in a number of political and policy consultations. This includes the area of security and defence under a Framework Participation Agreement on the participation of Columbia in EU crisis management operations. Relevant regional fora include the Community of Latin American and Caribbean States (covering various issues, including research and innovation, education, migration, etc.) and regional policy dialogues on economic, social and territorial cohesion. The EU and Columbia have also been close partners in the UNFCCC and international climate policy more generally.

EU-Azerbaijan cooperation finds another firm basis in the European Neighbourhood Policy and the Eastern Partnership. Azerbaijan also is a part of the EU's Erasmus+ programme and there is a bilateral Mobility Partnership (signed in 2013). The EU has also taken, with approval from Azerbaijan, a strong role in managing the conflict with Armenia over Nagorno-Karabakh. With Nigeria, there is established cooperation on security and counterterrorism and related to humanitarian aid, rural and economic development (including investment). The aforementioned Cotonou Agreement provides a strong multilateral basis. EU-Qatar cooperation is strongly embedded in EU cooperation with the Gulf Cooperation Council, and thus has suffered due to increased tensions between GCC states since 2010. The EU has offered to mediate in this conflict and has otherwise focused on developing socio-economic aspects of the relationship. EU-Indonesia relations are embedded in ASEAN. Both sides concluded a Voluntary Partnership Agreement on legal timber exports to the EU in 2013, and the EU and its member states are pro-active in a number of cooperation projects, including some to tackle climate change and deforestation.



## 1.5 KEY FINDING V: THERE IS AMPLE POTENTIAL FOR DEVELOPING EU EXTERNAL RELATIONS WITH FOSSIL FUEL EXPORTERS BEYOND FOSSIL FUELS

Furthermore, our case studies indicate that there is a strong and varied basis for fruitfully developing EU external relations with fossil fuel exporters away from and beyond fossil fuels. We identify five prime areas that deserve particular attention: (1) climate and energy, (2) trade and investment, (3) science and education, (4) finance and development, and (5) security and peace. Whereas these areas' specific potential varies across countries, they can serve to describe and assess the room for advancing decarbonised EU external relations as part of the EU's aspirations for global leadership under the European Green Deal, thereby strengthening the deal's foreign policy dimension.

### 1.5.1 Climate and energy

Low-carbon development, including renewable and clean energy technologies, is a particularly promising field for developing future cooperation. This may not least be due to there being considerable scope for stepping up action worldwide and the EU being relatively advanced in its climate and energy transition by international comparison. With countries such as Canada, Columbia and Indonesia, the EU shares challenges related to a "just transition" for regions particularly dependent on high-carbon assets, including fossil fuel production, and this can provide suitable levers for closer cooperation. In virtually all the studied countries, there was also enormous potential to further intensify cooperation on renewable energy. Developing renewable energy has significant potential to, in a first step, synergise with the exploitation of oil and gas, as it can enhance availability of these fossil fuels for export (especially in Azerbaijan and Qatar). Beyond that, renewable energy has increasing price advantages, is becoming an internationally recognised prime energy resource, and can be linked to established programmes and strategies for economic diversification. Cooperative projects can best take into account country-specific circumstances (e.g. high solar potential in Qatar and Azerbaijan, linkage with climate-smart agriculture and rural electrification in particular in Nigeria, general links with development finance for both Nigeria and Indonesia) and in several cases can put an emphasis on related (higher) education (see also below).

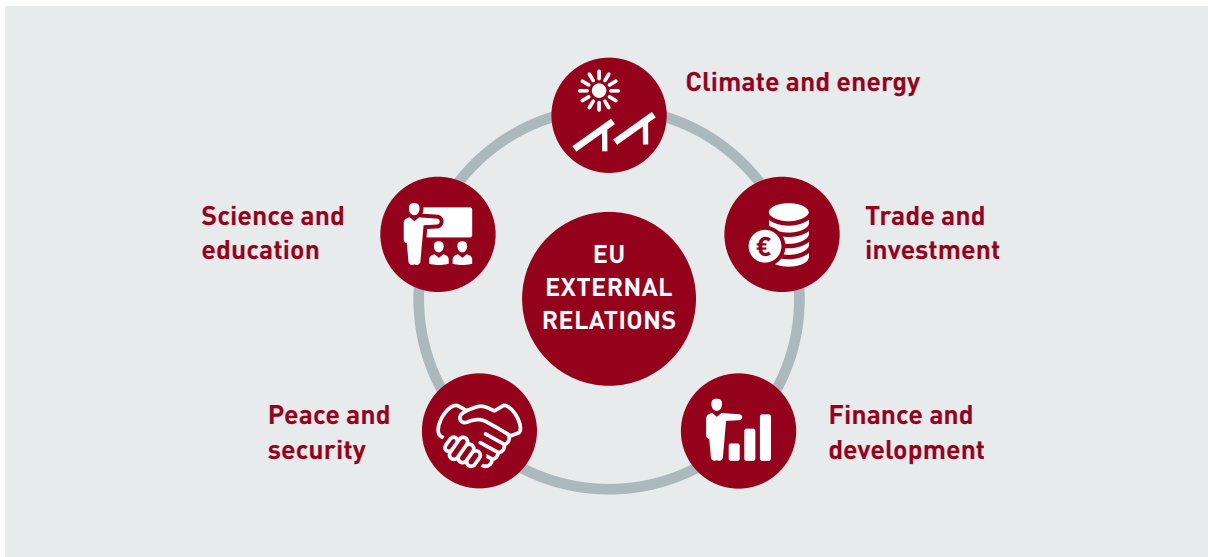
Climate and energy policy also provide a promising field of cooperation beyond renewable energy. Again, entry points vary between different countries in accordance with diverging interests and conditions. Shared interests in the development of climate policy with Canada could usefully include cooperation on buildings, transport and energy-intensive industries. Discussions on the future development of gas extraction and trade in the medium term may be usefully linked to the development of renewable energies and more ambitious climate policy especially regarding Azerbaijan and Qatar. Especially for the more vulnerable countries (Nigeria, Indonesia, Columbia), the exploration of the adaptation-mitigation nexus holds particular promise. And especially with Canada and Columbia, cooperation on international climate policy in the UNFCCC and beyond is already advanced and provides fertile ground for further development. As the interest in effective climate policies and measures continues to grow, targeted dialogues can explore the different aspects of this field.

### 1.5.2 Trade and investment

Trade, investment and, more generally, economic cooperation with the studied countries have enormous further potential also beyond fossil fuels and other carbon-intensive products. The aforementioned partnership and cooperation agreements and free-trade agreements (see section 1.4) provide a strong basis for such economic cooperation. Economic relations with Canada already go far beyond fossil fuels that only account for a very limited share (less than 10 percent) of Canadian exports to the EU. Similarly,



**Figure 2: Five key areas for developing EU external relations beyond fossil fuels and other high-carbon commodities**



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EU-Colombia trade already goes much beyond fossil fuels, even if the latter still account for about half of Columbian exports to the EU; economic cooperation can in this case tie in with progressing Columbian plans for economic diversification, including a green growth strategy and the development of creative industries. While half of Indonesian exports to the EU are not related to fossil fuels, a significant share is taken by palm oil and related biofuels. Sustainable biofuels production therefore deserves particular attention in the evolving bilateral cooperation – along with sustainable forest management and sustainable urban development. In the cases of Nigeria, Azerbaijan and Qatar, exports in general and to the EU are dominated by oil and gas. All three countries have long-standing strategies or plans for economic diversification that cooperation with the EU could more strongly build on and connect to (including regarding renewable energy – see above). This should also help enhance these countries’ resilience against stability risks arising from their dependence on oil and gas, in a world that is beginning to move beyond fossil fuels.

**1.5.3 Science and education**

Poorer fossil fuel exporters in particular face significant challenges in developing a knowledge-based economy, which is itself closely linked to aspirations for economic diversification. With considerable variation, education and skills development remains a particular point of attention for most countries. While Canada has a developed educational system, Azerbaijan faces particular challenges in this respect. Significant progress has been made over the past decade (also as part of the Azeri strategy for economic diversification), but the supply of skilled graduates does not suffice to meet the demand and Azerbaijan’s workforce is considered medium qualified. Qatar has invested significantly in education, but still ranked 60<sup>th</sup> out of 72 countries in the 2015 Program for International Student Assessment (PISA). Related challenges in Nigeria are severe regarding primary education as well as university training, with the situation deteriorating in many respects despite targeted government efforts. Colombia has made good progress and aspires to become the most educated country in Latin America. However, access to education varies significantly between socioeconomic groups. Finally, Indonesia has made huge progress in education over the past two decades, but still has some way to go to catch up with neighbouring countries such as Vietnam and Singapore.

Possessing advanced knowledge economies and building on established educational and research programmes, including for international cooperation, the EU and its member states have much to offer in cooperating with fossil fuel exporters to enhance their education and skills development, as well as their research capacities. An obvious entry point is the EU's Erasmus+ programme for educational exchanges and cooperation that several of the investigated countries are already tied in to. Canada has also been an active participant in the EU's framework programmes for research and Marie Skłodowska-Curie Actions, and the EU and Canada have even developed a bilateral Agreement for Scientific and Technological Cooperation. Building on such existing programmes and cooperation, cooperation with fossil fuel exporters on education, research and training can be intensified bilaterally and/or in interregional frameworks. Renewable energy and other aspects of a low-carbon economy hold a particular potential in this respect (e.g., related university partnerships or joint university degrees).

#### 1.5.4 Finance and development

The EU already has strong finance and development cooperation with the developing countries studied. As a part of the European Neighbourhood Policy (ENP), Azerbaijan receives support from and has access to a number of financial and support mechanisms, including the European Neighbourhood Instrument. The EU and its member states are also working with Indonesia on a range of relevant initiatives, including achieving the SDGs and addressing climate change (as well as in the context of ASEAN). Furthermore, development assistance to Nigeria has been significant and has covered energy, low-carbon development and climate change adaptation, in addition to humanitarian aid, health, governance and other areas. The finance and development relationships with Colombia and Qatar (and Canada) are based less on bilateral aid (even though Colombia has received both bilateral and multilateral climate finance support), and rather are characterised by significant investment flows. For example, the EU is the largest investor in Colombia. In the case of Qatar, Qatari investments in the EU exceed EU investments in Qatar by a factor of three.

There remains significant scope for realigning finance and development cooperation to support decarbonisation. This can take inspiration from general debates on green and climate finance within the EU – for example on the EU budget and guidelines of the European Investment Bank (EIB). Accordingly, external finance and development cooperation could aim **(1)** to ensure a significant share of overall finance (at least 25 percent) is reserved for climate and low-carbon development purposes, and **(2)** to phase-out or prohibit finance that is not aligned with low-carbon development objectives. An important element of such a reformed policy on external finance and cooperation would be resources for the support of a just transition that would heed the lessons from EU-internal debates on the need for support for regions particularly dependent on high-carbon industries and activities. For example, the EU could provide technical and where necessary financial assistance to set up just transition task forces to engage directly with stakeholders in affected regions, and mobilise political and financial support for the development of new employment opportunities there. Such approaches have been tried and tested in both the EU and Canada.

#### 1.5.5 Security and peace

The geopolitics of decarbonisation is also closely related to issues of peace and security. As mentioned in section 1.2.1 above, all fossil fuel exporters studied except Canada face serious internal and/or external security challenges. While Nigeria faces both serious internal and regional security threats, the main security challenges are primarily domestic for Colombia and Indonesia. Qatar and Azerbaijan in particular are embedded in precarious regional security contexts. In addition, these countries are – to varying extents – challenged by weaknesses of their governance systems (see section 1.2.2 above) and worsening climate change impacts (see section 1.2.3 above). As these security and other challenges tend to exacerbate efforts at low-carbon development, they provide an important field for the EU and its member states to strengthen cooperation.

To this end, the EU and its member states can build on and intensify cooperation with fossil fuel exporters on these matters. For example, the EU has already offered its services to mediate in the conflict between Qatar and partners in the Gulf Cooperation Council. It has also promoted confidence and peace-building activities in the conflict between Azerbaijan and Armenia, and has supported the rule of law and the fight against corruption in Azerbaijan. It has also actively supported the peace process in Colombia and has closely cooperated with Nigeria on addressing the humanitarian and security crisis, as well as on strengthening good governance, including free and fair elections.

There appears to be scope to further integrate and intensify such efforts by elaborating on long-term engagement strategies to consider interactions between security and governance issues and decarbonisation. Here, it may be important to pay particular attention to strengthening partner countries' resilience to climate change (including to second or third-order effects on food security, trade and migration) and ensuring coherence across different areas of cooperation (including finance and development and investments). Such long-term engagement strategies could provide a suitable tool for an integrated and coherent approach covering the five aforementioned building blocks. As such, they could become an important plank of the external dimension on the European Green Deal pursued by the European Commission.

### 1.5.6 Moving forward: Future prospects

Decarbonisation and the European Green Deal constitute both a challenge and an opportunity, also for EU external relations. This report systematically examined EU external relations with a cross-section of six second-tier fossil fuel-exporting countries. The purpose has been to take concrete cases and investigate what impact European and global decarbonisation could have on these relations. It also considers how the objectives of the climate transition and a fruitful development of bilateral relations can be aligned and synergised, and, more generally, the potential for fruitfully developing external relations under decarbonisation.

The study's findings suggest that there is ample scope for developing EU external relations beyond fossil fuels, even with those countries that may be considered particularly hard cases, namely fossil fuel exporters. Partners highly dependent on the production and export of coal, oil, gas and other high-carbon products also have other significant interests. These therefore provide entry points for developing climate-neutral EU foreign relations, including cooperation on expanding the use of renewable energy and, more generally, developing a more diverse (knowledge) economy. The potentials and conditions for developing relations under decarbonisation are highly specific to each country and need to be appraised on a case by case basis. Importantly, it seems evident that successfully developing relations with these – and other – countries requires the EU to take an active and targeted approach. Fruitful external relations are unlikely to come about by themselves in a decarbonising world; they need to be shaped via an active foreign-relations strategy. While this seems to be acknowledged by the European Green Deal, it remains to be realised in concrete implementing action. This will require coherent follow-up of engagement strategies with individual countries and regions.

This study presents important initial insights to begin to chart the way towards fruitful decarbonised EU external relations. Even though the case studies analyse the situation of individual countries and EU relations with them in some detail, they far from exhaust the field. For example, further potential may exist with respect to developing renewable hydrogen as a source of energy (and potentially exports) for some of them. The case studies also focused on bilateral relations and only embedded these to a limited extent in their regional context and broader inter-regional relations. Similarly, the study focuses on EU relations with partner countries and does not investigate in depth the relations of individual EU member states and their potential (and the benefits of EU coordination), although such an approach might offer considerable added value. There is also scope to further develop the analytical approach presented by considering other groups of countries (including those without significant fossil fuel exports), systematically

distinguishing certain key features of groups of partner countries and embedding the thinking about decarbonised external relations into a broader geopolitical perspective. In short, there is significant potential for advancing the study of EU external relations under decarbonisation.

The COVID-19 virus appeared only after the case study analysis for this report was concluded in November 2019. Although the pandemic's wide-ranging effects have yet to unfold, from where we stand in June 2020 it seems clear that the pandemic marks a major turning point for economies and societies the world over. It is placing huge strains on national, European and international governance structures and generating enormous economic uncertainty. Lockdowns and restrictions on international travel have led to sharp reductions in demand for fossil fuels in Europe and beyond, leading to unprecedented price shocks in international markets for oil, gas and other commodities. In this report, we showed how vulnerable fossil fuel exporters are to a significant fall in demand for fossil fuels, and such a scenario seems to be playing out in fast-forward in the context of the pandemic rather than decarbonisation (although likely with a less lasting effect). Current developments are therefore illustrating and reinforcing the urgency of economic diversification for fossil fuel exporters, while depleting government budgets and institutional capacity to do so. The EU's recovery package in response to the COVID-19 crisis can open up a window of opportunity in this regard.

Having said that, we are hopeful that the present study constitutes a useful beginning for thinking about EU external relations and foreign policy beyond fossil fuels, and thereby stabilising international affairs in these challenging times. To this end, it develops two important lines of enquiry: **(1)** exploring the dependence on high-carbon products in their broader context (trade, security, etc.) and **(2)** systematically taking account of the opportunities and potentials for developing external relations that assist in and synergise with the decarbonisation challenge. A comprehensive approach that takes into account broader relations with the partner countries beyond climate and energy, including trade and investment, science and education, finance and development, and peace and security, should facilitate the development of coherent foreign relation strategies towards a climate-neutral world. While this study could naturally not answer all questions, we hope that it can provide some tentative answers and help identify the questions that need to be asked to align EU external relations with the policy imperatives of the global and European climate transition.

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## ANNEX: KEY INDICATORS USED IN THIS REPORT

The six countries analysed in-depth in this report were chosen on the basis of an initial quantitative analysis of several key indicators. These provided a first indication of exposure to falls in fossil fuel consumption, existing security and fragility risks, and a country's potential to decarbonise. The aim was to arrive at a selection of countries where the export of fossil fuels or other carbon-intensive goods makes an important contribution to the economy, but which represent a broad cross-section in terms of existing security and fragility risks, and potential for adjusting to a decarbonised world, as well as geographic location and level of economic development.

The key indicators used to make this selection are outlined in more detail below, and are also presented in an overview at the beginning of each case study.



### CLIMATE CHANGE VULNERABILITY

The ND-GAIN Country Index is compiled annually by the Notre Dame Global Adaptation Initiative (ND-GAIN), a programme within the Notre Dame Environmental Change Initiative, which aims to help private and public sectors prioritise climate adaptation. The index measures the vulnerability of 182 countries to climate change and other global challenges, and the readiness of 184 countries to improve resilience. For 182 countries, it provides an overall score.

Calculation method: The ND-GAIN Index brings together over 74 variables to form 45 core indicators to measure vulnerability and readiness of 192 UN countries from 1995 to the present. However, fewer countries are included in the index due to data availability. "The ND-GAIN Country Index is composed of two dimensions of adaptation: vulnerability and readiness. Vulnerability measures a country's exposure, sensitivity and capacity to adapt to the negative effects of climate change. ND-GAIN measures overall vulnerability by considering six life-supporting sectors – food, water, health, ecosystem service, human habitat, and infrastructure. Readiness measures a country's ability to leverage investments and convert them to adaptation actions. Thirty-six indicators contribute to ND-GAIN's measure of vulnerability and nine indicators contribute to the measure of readiness:

**(Readiness Indicator – Vulnerability Indicators + 1) × 50 = ND Gain (0-100, higher is better).**

**Link:** <https://gain.nd.edu/our-work/country-index/>



### CO<sub>2</sub> EMISSIONS PER CAPITA

Data for CO<sub>2</sub> emissions per capita, including and excluding land use, land-use change and forestry (LULUCF) are provided by Climate Watch, which provides open data, visualisations and analysis to help policymakers, researchers and other stakeholders gather information on countries' climate progress and compare the Nationally Determined Contributions (NDCs) under the Paris Agreement. ClimateWatch is managed by the World Resources Institute (WRI).

Calculation method: The historical emissions tool allows for easy analysis and visualisation of the latest available international greenhouse gas (GHG) emissions data. It includes emissions and derivative indicators for 186 countries, 50 US states, six gases, multiple economic sectors, and 160 years of carbon dioxide emissions for 1850-2016 and multi-sector GHG emission for 1990-2016. Since it takes at least one to two years for organisations to compile, process and report GHG data, the last year of thorough GHG data will often be two to three years behind the current calendar year.

**Link:** <https://www.climatewatchdata.org/ghg-emissions>



## FOSSIL FUELS AS % OF EXPORTS

Fossil fuels as % of exports data is based on the Chatham House Resource Trade Database (CHRTD), which compiles data related to “bilateral trade in natural resources between more than 200 countries and territories. The database includes the monetary values and masses of trade in over 1,350 different types of natural resources and resource products, including ... fossil fuels and agricultural products. It contains raw materials, intermediate products, and by-products.”

Calculation method: The [resourcetrade.earth](https://resourcetrade.earth) website compiles, filters and visualises data related to bilateral trade in natural resources between countries and regions. “The original data source for the CHRTD is International Merchandise Trade Statistics (IMTS). IMTS data are collected by national customs authorities and compiled into the United Nations Commodity Trade Statistics Database (UN Comtrade) by the United Nations Statistics Division. UN Comtrade utilizes three distinct trade classification systems: the Harmonized Commodity Description and Coding System (HS), the Standard International Trade Classification (SITC), and Broad Economic Categories (BEC), and ... is arguably the most comprehensive source of merchandise trade statistics available.”

**Link:** <https://resourcetrade.earth/data>



## FOSSIL FUELS RENTS AS % OF GDP

Fossil fuel rents as % of GDP was calculated on the basis of data provided annually for all countries and economies by the World Bank’s Development Data Group. The group coordinates statistical and data work and maintains a number of macro, financial and sector databases, and is guided by professional standards in the collection, compilation and dissemination of data and works closely with the Bank’s regions and Global Practices.

Calculation method: The percentage was calculated using 2018 World Bank data. The World Bank development indicators used were the oil rents (% of GDP), coal rents (% of GDP) and natural gas rents (% of GDP). “The estimates of natural resources rents are calculated as the difference between the price of a commodity and the average cost of producing it. This is done by estimating the world price of units of specific commodities and subtracting estimates of average unit costs of extraction or harvesting costs (including a normal return on capital). These unit rents are then multiplied by the physical quantities countries extract or harvest to determine the rents for each commodity as a share of gross domestic product (GDP).”

### Links:

**Oil rents (% of GDP):** <https://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS>

**Coal rents (% of GDP):** <https://data.worldbank.org/indicator/NY.GDP.COAL.RT.ZS>

**Natural gas rents (% of GDP):** <https://data.worldbank.org/indicator/NY.GDP.NGAS.RT.ZS>



## FRAGILITY

The Fragile States Index is produced annually by the Fund for Peace, an independent, non-profit organisation that develops tools and approaches for conflict mitigation. The Index ranks 178 countries across of the risks and vulnerabilities faced by individual nations.

Calculation method: The rank order of the states is based on the total scores of 12 indicators measuring cohesion, economic, political and social factors. For each indicator, the ratings are set on a scale of 0 to 10 and for the total score the sum of the 12 indicators is created and put on a scale of 0-120, with 0 being the lowest intensity (most stable) and 120 being the highest intensity (least stable). The Fragile States Index is produced using a patented Conflict Assessment System Tool (CAST), which is a content analysis software product that offers a conceptual framework and a data gathering technique for determining conflict risk". The index is calculated using data from three main streams – pre-existing quantitative data sets, content analysis, and qualitative expert analysis – which are triangulated and subjected to critical review in order to obtain the final scores for each country.

**Link:** <https://fragilestatesindex.org/country-data/>



## GDP PER CAPITA

GDP per capita is calculated annually for all countries and economies by the World Bank's Development Data Group, which coordinates statistical and data work and maintains a number of macro, financial and sector databases. The group is guided by professional standards in the collection, compilation and dissemination of data and works closely with the Bank's regions and Global Practices.

Calculation method: The data is collected from the World Bank national accounts data and OECD National Accounts data files. World Bank calculates the GDP per capita by dividing gross domestic product by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

**Link:** <https://data.worldbank.org/indicator/ny.gdp.pcap.cd>



## HUMAN DEVELOPMENT

Used to rank countries into four tiers of human development, the Human Development Index is updated annually for almost all countries and is a statistic composite index of life expectancy, education, and per capita income indicators. It is produced by the UN Human Development Report Office (HDRO) for the UN Development Programme (UNDP).

Calculation method: The 2018 Human Development Index covered 189 countries. The HDRO aimed to include as many UN Member States as possible in the HDI. "The cut-off points are HDI of less than 0.550 for low human development, 0.550–0.699 for medium human development, 0.700–0.799 for high human development and 0.800 or greater for very high human development. The HDI is the geometric mean of normalized indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth, the education dimension by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children. The standard of living dimension is measured by gross national income per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three dimension indices are then combined into a composite index using geometric mean."

**Link:** <http://hdr.undp.org/en/data>



## POPULATION

The total population data is the core of the latest Revision of World Population Prospects produced by the UN Population Division, assisting the Department of Economic and Social Affairs (UN DESA) and therefore the UN's estimations and projections of population for all countries of the world.

Calculation method: UN DESA uses the data of the most recent national population censuses and of various specialised population surveys that are conducted around the world. With each successive revision of the World Population Prospects, the Population Division estimates historical demographic trends for the timeframe between 1950 and the present, and also projects future trends up to 2100. The foundation of these estimates are based on all available data on population size as well as levels of fertility, mortality and international migration for 235 distinct countries or areas comprising the total population of the world. The reviews are published every year.

**Link:** <https://population.un.org/wpp/DataQuery/>



## STRENGTH OF GOVERNANCE

The World Wide Governance Indicators (WGI) measure quality of governance in over 200 countries on an annual basis, and cover six dimensions of governance: voice and accountability, political stability and lack of violence, government effectiveness, regulatory quality, rule of law, and control of corruption.

Calculation method: The WGI is calculated by compiling and summarising information from over 30 existing data sets that report the views and experiences of citizens, entrepreneurs, and experts in the public, private and NGO sectors from around the world, on the quality of various aspects of governance. These data are rescaled and combined to create the six aggregate indicators using a statistical methodology known as an unobserved components model. The methodology also generates margins of error for each governance estimate, which need to be taken into account when making comparisons across countries and over time.

**Link:** <https://info.worldbank.org/governance/wgi/Home/Reports>



## SUSTAINABLE ENERGY DEVELOPMENT

The Regulatory Indicators for Sustainable Energy (RISE) is a set of indicators that allow the comparison of national policy and regulatory frameworks for sustainable energy.

Calculation method: RISE uses over 30 indicators covering 133 countries and representing over 97 percent of the world population. The indicators assess countries' policy and regulatory support for each of the three pillars of sustainable energy – access to modern energy, energy efficiency, and renewable energy. It classifies countries into a green zone of strong performers in the top third of the 0-100 score range, a yellow zone of middle third performers, and a red zone of weaker performers in the bottom third. For the calculation, indicators in each pillar are scored between 0 and 100 and are weighted equally to reach a score for the pillar.

**Link:** <https://rise.esmap.org/countries>



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