

# ENERGY TRANSITION PROGRAM



## ABOUT

*The Hague* Centre for Strategic Studies (HCSS), an independent think-tank established in 2007:

- ▶ Seeks to anticipate the challenges of the future in strategic sectors with practical policy solutions and advice;
- ▶ Provides quantitative-driven analysis to policymakers and organizations for optimizing strategic decision-making;
- ▶ Cooperates with a large network of nationally and internationally affiliated experts, including the Netherlands Organisation for Applied Scientific Research (TNO), World Resources Institute, Clingendael Institute, Deltares and the Dutch Ministry of Defence;
- ▶ Clients include the EU, NATO, Greenpeace, and the Dutch Ministries of Economy and Climate, Foreign Affairs, and Security and Justice.

## PRODUCTS & SERVICES

- ▶ Publications include topic reports, security studies, issue briefs, risk assessment, and scenario analyses;
- ▶ Interactive and online tools such as global monitors, predictive models, storyboards and dashboards;
- ▶ Organization of conferences, training and simulation sessions, workshops, expert meetings, and launch-events.

*Analyzes the geopolitical challenges of the multi-speed global energy transition*

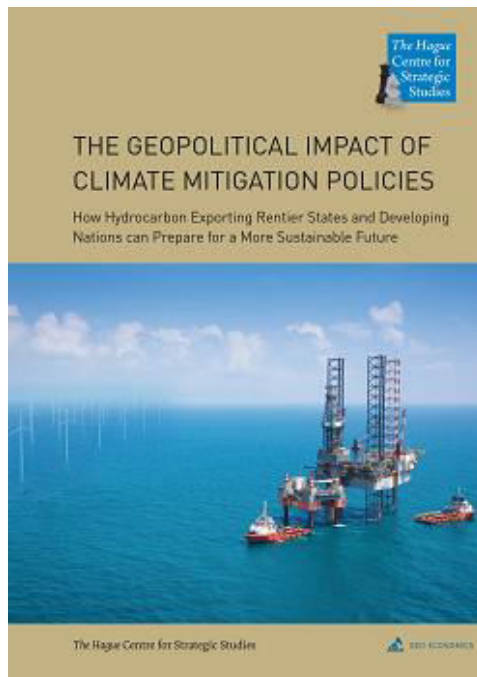
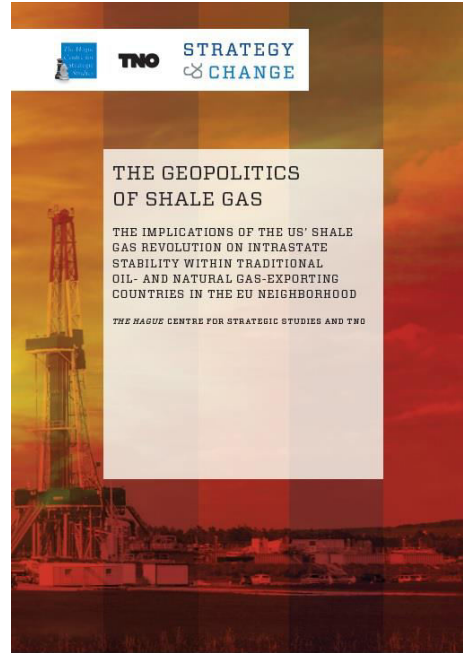
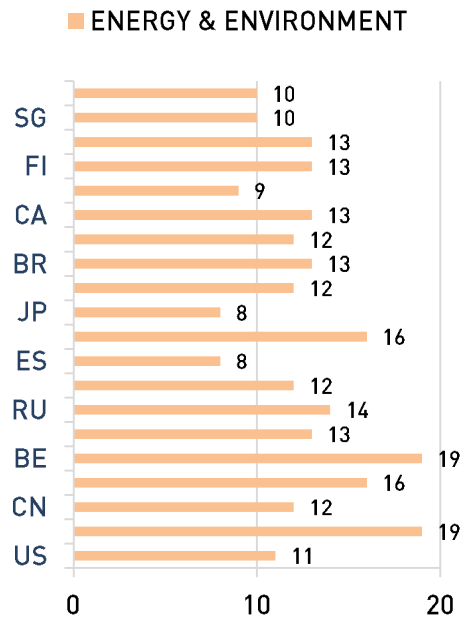
## FOCUS

- ▶ **Explores** the geopolitical consequences of climate change, the socio-economic effects of new energy technologies and business models;
- ▶ **Analyzes** new aspects to the idea of national energy security in terms of greater centralization/decentralization of energy supply and related cyber risks;
- ▶ **Addresses** the reshaping of interstate energy relations in terms of patterns of cooperation and conflict;
- ▶ **Assesses** opportunities in investment and changing patterns of resource trade;
- ▶ **Formulates** strategic recommendations and scenarios regarding climate and energy-related vulnerabilities and dependencies in the global energy transition.

## ADDED VALUE

- ▶ **Carries out** geographically-based reviews on the multi-speed energy transition (country-by-country and/or region-by-region);
- ▶ **Defines** geopolitical sensitivities related to a large-scale shift to renewable energy in terms of:
  - ▶ Governance;
  - ▶ Investment;
  - ▶ Trade surplus/deficit related to hydrocarbons, consumption, and reserves;
  - ▶ Renewable energy resource potential.

HCSS APP: DUTCH FOREIGN RELATIONS INDEX



**POLICY PAPER: ENERGY TRANSITION AND DEMAND FOR RAW MATERIALS**

Energy transition, necessary for the successful implementation of the Paris Agreement and the delivery of the United Nations Sustainable Development Goals, requires development and large-scale deployment of low-carbon technologies. These will increase global demand for different raw materials, which translates in a wide range of adjustments in the global market. The impact on price volatility, supply, storage, recycling, and distribution of raw materials is particularly highlighted.

The research is based on the 2017 Raw Materials Conference on June 27<sup>th</sup> in The Hague and identified 11 raw materials that require large amounts of raw materials and a significant amount of mining activities. Overall, adjustments to be considered for sustainable reasons, and which require further light, the needs of low-carbon, and the economic. It is notable to consider energy needs to produce which is required to implement the technologies identified in the study, but also design materials and processes needed.

The strategic, industrial and socio-economic impact on the global supply chain is outlined on the basis of subjective in-house research, information gathered at the round table and the raw materials conference, and refers to the internal aspects of relevant stakeholders representing the government, or technology and resource providers.

**INTRODUCTION**

The Paris Agreement, adopted by 195 countries in December 2015, sets the ambitious target of limiting global temperature rise to 1.5°C above pre-industrial levels. This will have a significant impact on the industrial energy sector, as a transition towards alternative and more sustainable forms of energy consumption is needed in order to reduce emissions for developed and developing countries alike. In line with the commitments made in Paris, the long-term objective of the European Commission is to transition Europe towards a low-carbon economy by 2050. This objective, outlined in the 2018 framework for Climate and Energy, includes a decrease of total greenhouse gas (GHG) emissions by 40% relative to 1990 levels and a renewable energy target of at least 32% of final energy consumption in the EU as a whole. In the Netherlands, the Energy Agreement (Energieakkoord) signed in 2013 aims to increase the share of renewable energy from 6.6% in 2014 to 14.6% in 2020, and to achieve an average energy efficiency saving of 4.0% annually. These measures are general targets, making a total energy savings objective of 40% equivalent to 2050 and, by extension, towards meeting the goals established in the Energy Efficiency Directive.

However, current activities are insufficient to reach the stated objectives (Figure 1). According to the 2018 National Energy Outlook (NEO), raising the target of 14% renewable energy by 2020 to the target of 32% requires an additional energy saving by 2020 and an additional increase in the share of renewable energy required to reach 11.0% to 11.7% only. The 32% renewable energy target for 2020, however, is still considered to be ambitious. This is largely due to the development of offshore wind, small-scale, renewable energy production, and integrated industrial and energy consumption.

Figure 1: Development of renewable energy share between 1995 and 2018

Figure 2: Development of renewable energy share between 1995 and 2018

Figure 3: Development of renewable energy share between 1995 and 2018

**CONTACT**

Dr Jan Frederik Braun, Strategic Analyst  
 Email: [janfrederikbraun@hcss.nl](mailto:janfrederikbraun@hcss.nl)  
 Mobile: +31 (0) 6 18 59 31 60  
 Telephone: +31 (0) 70 31 84 840  
 Address : Lange Voorhout 1, 2514 EA The Hague

[www.hcss.nl](http://www.hcss.nl)