



**SAINT PETERSBURG
STATE UNIVERSITY
OF ECONOMICS**

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Working Committee «Ecology and Healthcare»*

Energy business in the framework of low carbon transition

**Iana Klementovichus, PhD
Vice-Rector for CPE of UNECON
Director of Higher Economic School
of UNECON**

Research project of «Sustainable development scenarios for Gazprom through 2050 given the low-carbon trend in the global economy»

Stage 1.

01.10.2020–30.04.2021

Analysing long-term projections and economic and political governance in a low-carbon economy through 2050

Analysing national policies for the low-carbon transition across natural gas exporting and importing countries.
Assessing the role and potential of natural gas in low-carbon strategies.

Stage 2.

01.05.2021–31.08.2021

Analysing strategies of global energy companies in the LCT context

Benchmarking climate strategies of energy companies and analysing the effectiveness of measures to adapt to the low-carbon trend (LCT).

Stage 3.

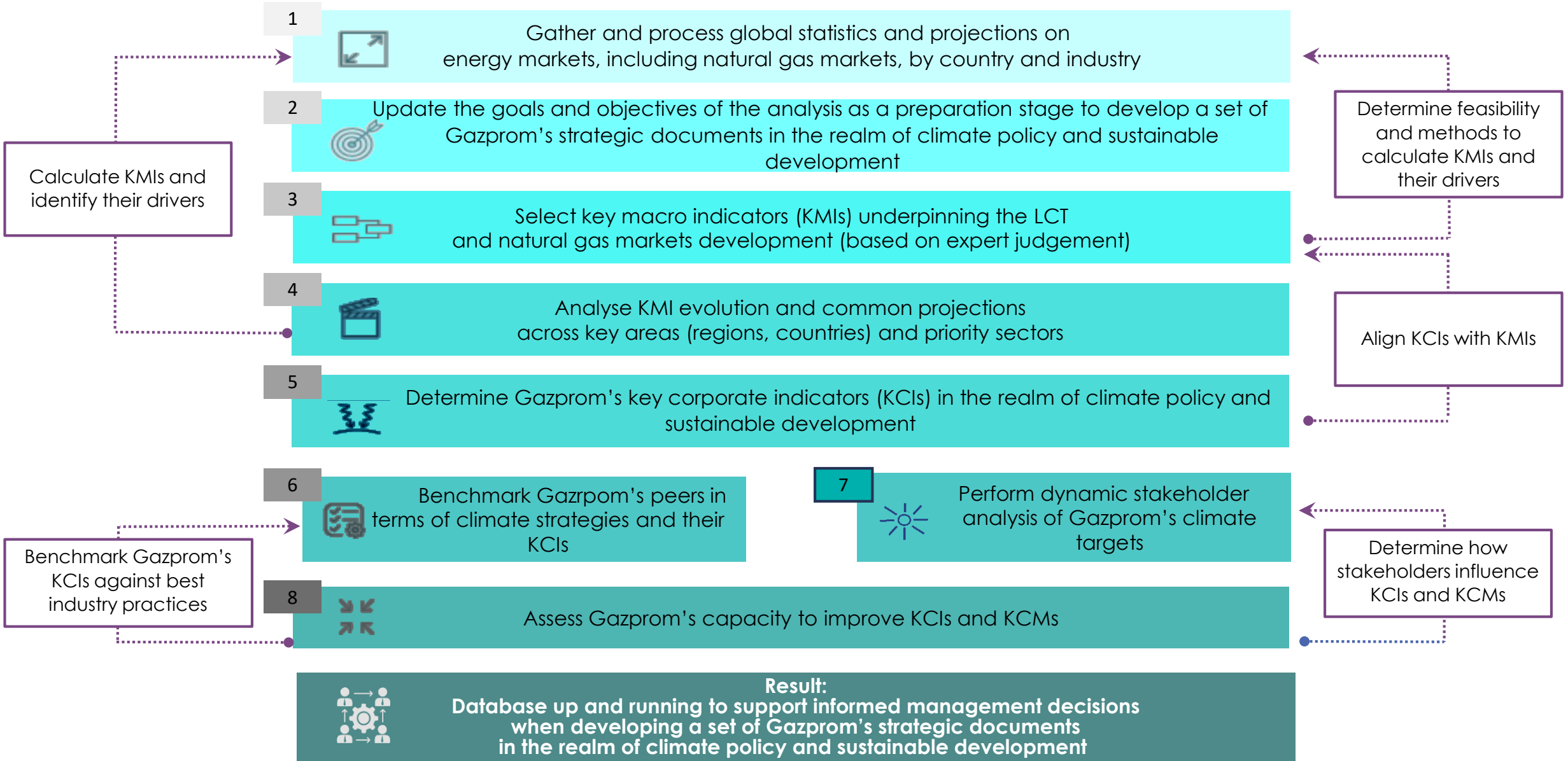
01.09.2021–31.05.2022

Building a scenario analysis for natural gas markets and preparing Gazprom's climate strategy through 2050 given the low-carbon trend in the global economy

Building a sustainable development scenario and drafting a climate strategy, policy and roadmap.



Methodology for stakeholder analysis and impact assessment of the low-carbon trend on natural gas markets



Fundamental macro analysis and key takeaways

- **LCT is an essential element of the global agenda strongly supported by the UN and international associations of OECD and ASEAN countries through 2050 and beyond:**
 - with a target set to keep global warming within 2–1.5 °C by the end of the 21st century;
 - with a focus on reducing emissions from production and consumption (Scopes 1, 2, and 3) on a global scale.
- **New regulatory frameworks are emerging on both a global and national scale:**
 - the climate agenda reflects the conflict of interest over the distribution of natural resource rent and competition, resulting in new rules of the game;
 - each country sets its own targets that add up to the global target.
- **The pathway to keep global warming within 2–1.5 °C by the end of the 21st century drives innovation and sets a trajectory for transition to a new technological paradigm:**
 - giving rise to new technological chains, business models, and consumption patterns;
 - changing the pace and scope of energy transition.
- **Green growth is gaining momentum across national economies:**
 - the low-carbon trends (LCT) are becoming more important as a result of massive government investment in green projects.
- **Pressure on energy markets is increasing, which also affects natural gas markets:**
 - natural gas is likely to enjoy a window of opportunity, but much depends on climate policies of gas importing countries;
 - low- and zero-carbon solutions will support sustainable development of the gas business through 2050 and beyond.
- **Businesses are taking a proactive stance and adapting to the LCT:**
 - shaping a new desired vision for a sustainable business through 2050 and overhauling their business models;
 - increasingly focusing on non-financial (ESG) indicators, including climate metrics;
 - integrating principles of responsible investment, including climate related criteria, in their investment decision-making.

II. Institutional initiatives

Scientific initiatives



Investor's initiatives



Ratings



I. Global initiatives



International unions and associations



Industry associations



III. Industry initiatives

Review of the existing GHG emission reduction targets and policies

GHG emission reduction targets

Existing national policies

- a) target shares of renewables in power generation mix;
- b) targets for fuel efficiency improvement and use of alternative technologies in transport;
- c) GHG emission reduction / carbon intensity targets;
- d) sectoral energy consumption limits;
- e) environmental standards for new generating capacities.

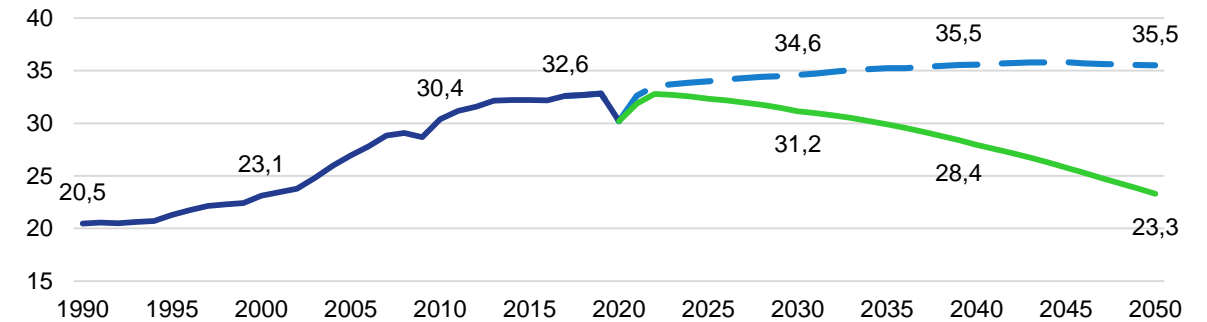
Nationally determined contributions (NDCs) to the Paris Agreement:

- a) reduce emissions by X% vs the base year;
- b) cut the emissions intensity of GDP by X% vs the base year;
- c) reduce emissions by X% relative to the Business as Usual scenario.

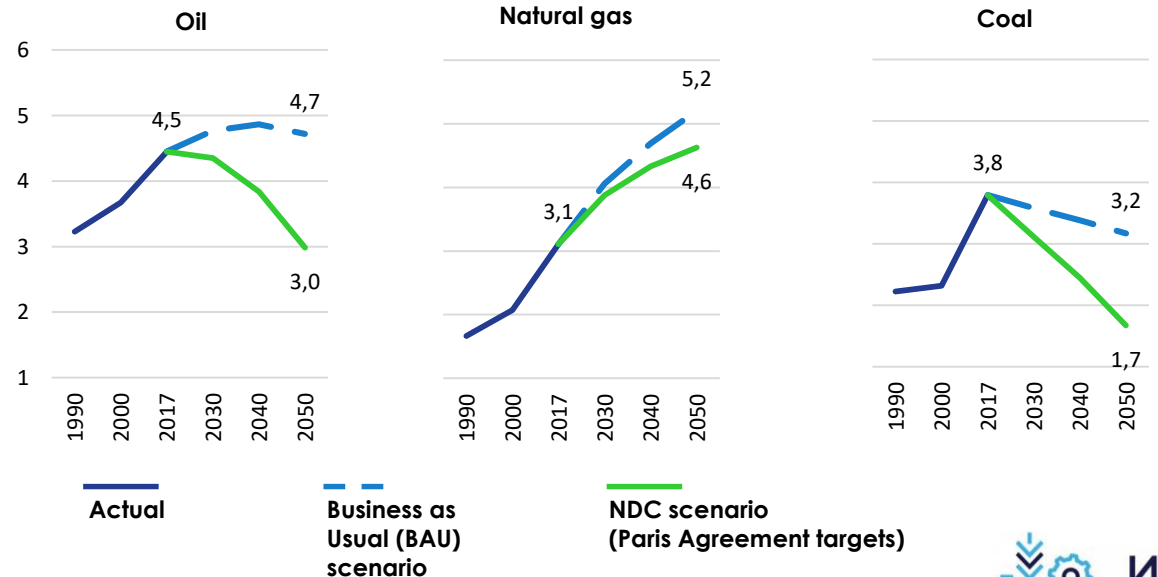
National strategies (adopted by 28 countries):

- 2 countries to achieve the peaking of emissions.
- 9 countries to become carbon neutral.
- 6 countries to become climate neutral.
- 11 countries to achieve emission reduction targets ranging from 16% to 95%.

CO₂ emissions due to global energy consumption of hydrocarbons, bt



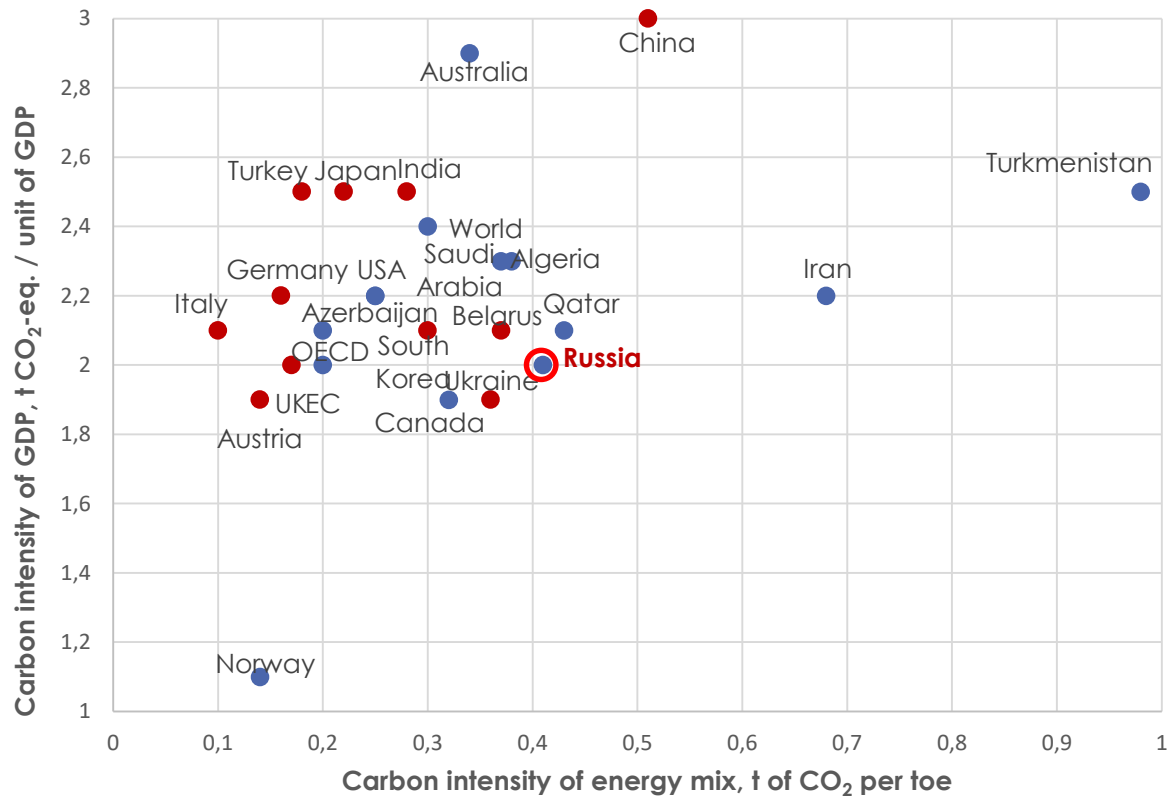
Global demand for hydrocarbons, btoe



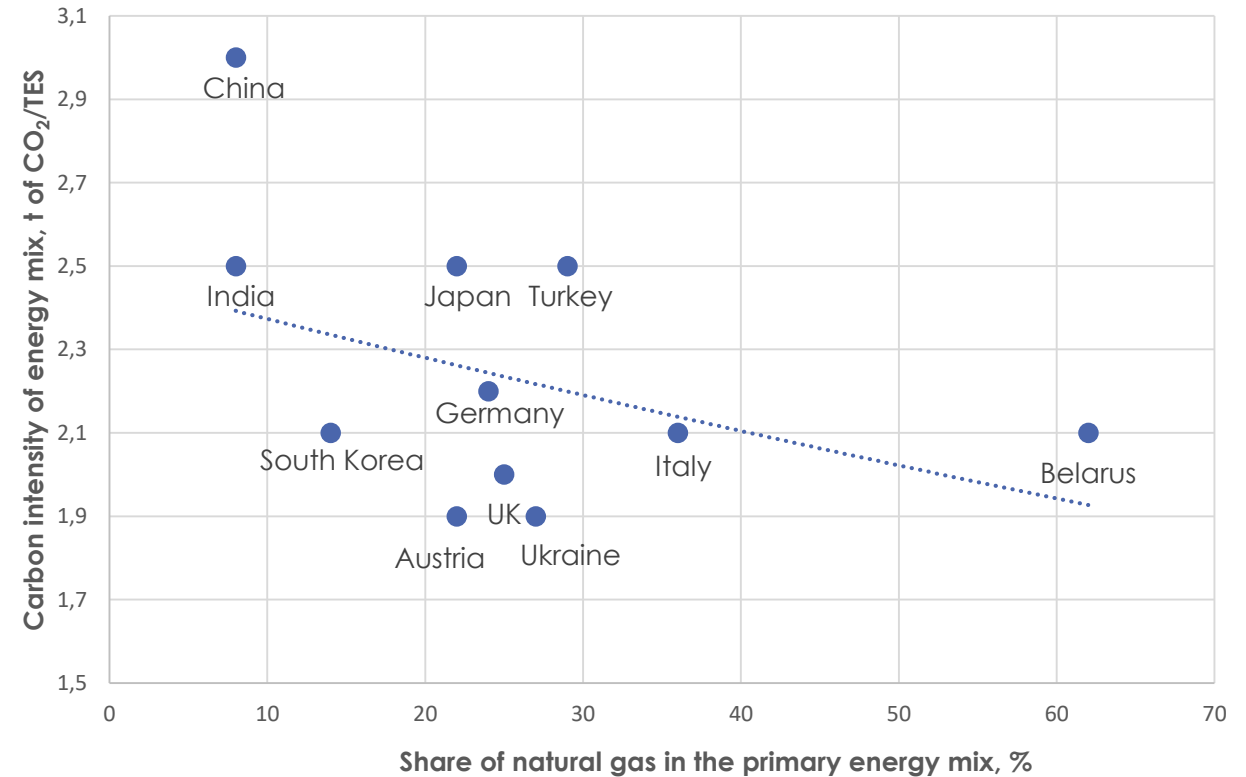
Source: analysis by the Institute of Economic Forecasting of the Russian Academy of Sciences

Benchmarking countries by carbon intensity and energy mix

Comparative carbon intensity of gas exporting countries used as reference benchmarks for Russia (blue for gas exporting countries, red for gas importing countries)



Comparative carbon intensity of gas importing countries



The Russian Federation is in intermediate position in terms of carbon intensity of GDP and carbon intensity of energy mix

Increase in the share of gas leads to a substantial decrease in the carbon intensity of the economy

Review of low-emission strategies across the globe

Over 30 countries quantified their GHG emission reduction targets.

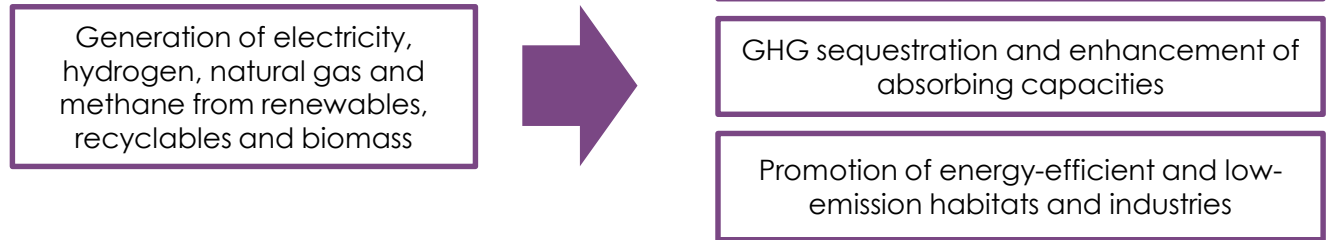
Over 15 countries articulated their carbon neutrality strategies.



Based on a more detailed analysis, gas exporting and importing countries were divided as follows:

LCT approach	Net exporters	Net importers
LCT initiators	Netherlands, Norway	Austria, UK, Germany, Italy, EU, China, South Korea, Japan
LCT adapters	Australia, Canada, Qatar, USA, Saudi Arabia, Russia	India Ukraine
LCT outsiders	Azerbaijan, Algeria, Iran, Turkmenistan	Belarus, Turkey

Target low-carbon economic model (as exemplified by the UK)



Countries by type	Role of natural gas in energy transition
Developed	Natural gas as a transitional fuel for sustained decarbonisation of the economy. Increased reliance on natural gas in hardest-to-abate sectors, such as freight transportation by road and sea. Gradual decarbonisation of natural gas through increased reliance on renewable-based synthetic fuels
Developing	Increased reliance on natural gas in power generation and transport to reduce GHG and other pollutant emissions
Emerging demographics	Unspecified, depends on the availability of technology and capital

Corporate climate benchmarking methodology



Benchmarking: a complex low-carbon adaptation detailed strategic corporate analysis.

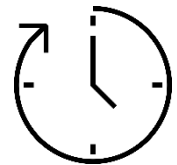
Methods: comprehensive data analytics, including comparative corporate analysis, media analysis, context analysis, capitalization, carbon advocacy, IFRS comparative analysis.

Scope: 36 largest global energy companies, including Gazprom.

Research period: 2015–2021.

Data: official reports, scenarios.

Result: up-to-date enhanced data base of corporate climate strategies of the largest energy companies.



Energy transition matrix



Corporate climate visions and actions

Sustainable energy company

Sustainable E&P

Natural gas – energy transition resource

Diversification

Global and national energy transition leaders

Circular energy

Zero carbon

Hydrogen and RES majors

CCUS leaders

Key adaptation corporate actions:



- Corporate governance – enhanced environmental management.
- Low-carbon projects.
- CO₂ emission reduction.
- Climate initiative.
- Marketing and promotion.
- Personnel.

Corporate climate ambitions vs. goals

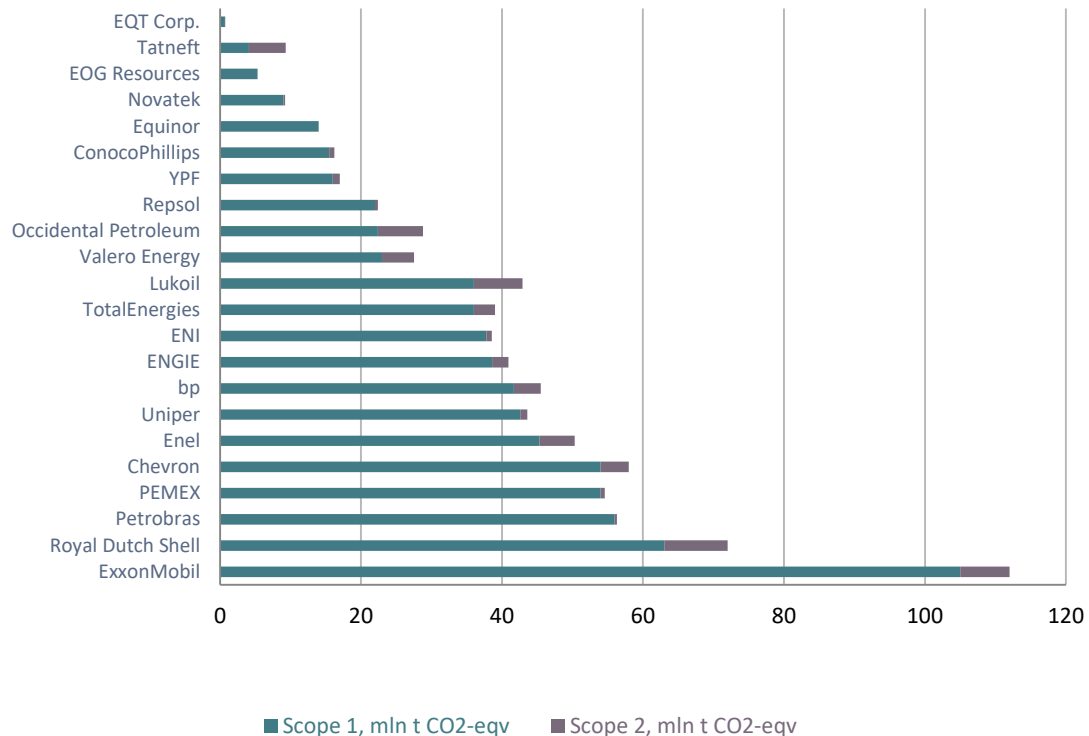
Ambitions & goals	Scopes	Companies (horizons)
Carbon neutrality	1–3	bp (2050), Equinor (2050), Enel (2050), Engie (2045), Eni (2050), Lukoil (2050), Occidental Petroleum (2050), Rosneft (2050), Repsol (2050), Shell (2050), Sinopec (2050), Tatneft (2050), TotalEnergies (2050), Uniper (2050)
Net zero	1–2	Chesapeake Energy (2035), ConocoPhillips (2050), EQT (2025), Occidental Petroleum (2035), Valero Energy (2035)
Leading lowest carbon intensity	1–2	ExxonMobil (2030)
Moderate CO ₂ emission reduction	–	Chevron, CNOOC, ConocoPhillips, Gazprom, Novatek, Pertamina, Phillips 66, PTT, YPF, Surgutneftegas

There is no assurance that climate ambitions will be achieved...

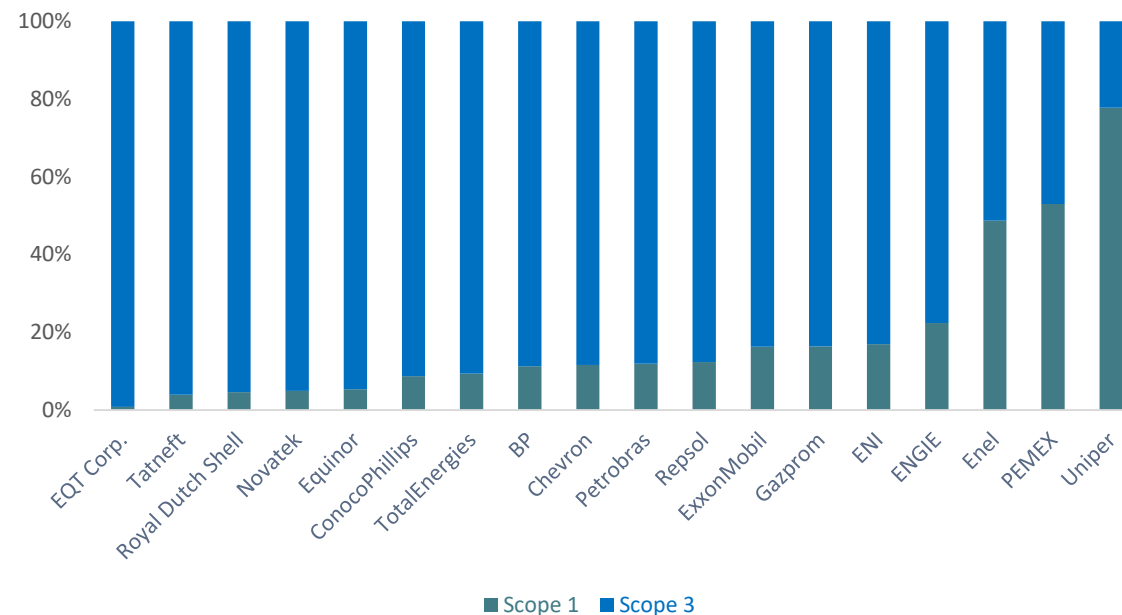
It depends on “societal shifts, consumer demands and technological advancements, each of which are beyond energy companies' control”.

Scoping up climate responsibility

Scope 1&2 ratio



Scope 1&3 ratio



Consensus in Scope 1&2 emission reduction:

Companies admitted the responsibility and defined CO₂ reduction targets.

There is no consensus in Scope 3 emission reduction:

- Whose responsibility?
- What methodology?
- How could the Scope 3 be reduced?

What is the impact of climate change and low carbon trend on energy business?

LCT – is strong, long-term, with climate, economical and political background.

Companies are sensitive to national and investor policies.

Companies' strategies are changing to be less emissive and diversifying to low carbon projects.

Changing environmental management models to be more transparent (ESG, TCFD, SDP, MSCI, Sustainalytics) and to have wider scopes of responsibility.



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