



The Role of Gases in the Energy Transition: should we consider Europe a special case?

ЦИКЛ СЕМИНАРОВ ДЕПАРТАМЕНТА МИРОВОЙ ЭКОНОМИКИ

Daria Evreeva | April 7, 2021 |

On April 7, 2021 a research seminar “*The Role of Gases in the Energy Transition – should we consider Europe to be a special case?*” took place. The speaker was **Jonathan Stern**, Distinguished Research Fellow at Oxford Institute for Energy Studies. **Leonid Grigoryev**, Academic Supervisor of School of World Economy (HSE), moderated the seminar. The seminar was devoted to the discussion of several topics:

- The consequences of the EU decarbonization policy, especially its goals to achieve major greenhouse gas reductions by 2030 and carbon neutrality (COP21 targets, Net Zero emissions targets) by 2050;
- The role of gases in energy transition and the Europe being a special case in this transition;
- The gas demand changes and projections in major energy markets, and what impact they will have on the future development of pipeline gas and LNG trade;
- The regional and national policies and measures influencing the future of gases.

J. Stern started his presentation with the discussion of European commitments to emission reduction. The focus was on COP21¹ targets and Net Zero² commitments. The EU has announced that it will achieve major greenhouse gas reductions by 2030 and carbon neutrality (Net Zero emissions) by 2050 and this will require major reductions of natural gas usage and increasing volumes of decarbonized gases, especially hydrogen either from renewable energy or fossil fuels. As well as the EU countries, China, Japan, Korea and the USA under Biden administration have signed carbon neutrality commitments up to 2050-2060. Other important energy markets like

¹ The Paris Climate Conference is officially known as the 21st Conference of the Parties (or “COP”) to the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations body which is responsible for climate and based in Bonn, Germany.

² Achieving net-zero emissions means balancing out any remaining human-caused greenhouse gas (GHG) emissions by removing GHGs from the atmosphere in a process known as carbon removal. First and foremost, human-caused emissions — like those from fossil-fueled vehicles and factories — should be reduced as close to zero as possible. Any remaining GHGs would be balanced with an equivalent amount of carbon removal, for example by restoring forests or through direct air capture and storage (DACS) technology. The concept of net-zero emissions is akin to “climate neutrality.” For more details see: <https://www.wri.org/insights/what-does-net-zero-emissions-mean-6-common-questions-answered>

Russia, Brazil, India and Indonesia have commitments to COP21, but it is still not clear whether these countries will increase their commitments to net zero and it is also not clear what actions will be taken to achieve these commitments. Europe at least has a “road map” for how the commitments will be achieved and it is complimented by a substantial financing commitments (till 2027).

Net Zero targets are more advanced in comparison to COP21. For Net Zero the year 2030 is a key date because by this time Europe must achieve at least a 55% reduction of greenhouse gas emissions compared with 1990. By this time obviously the transition pathways should be funded and technologies must advance significantly, otherwise it is impossible for Europe to achieve net zero by 2050. COP21 targets are also ambitious but they allow much more time for full decarbonization (around 2070) and lower costs because of less urgency. Currently Europe is hardly on track to meet 2030 targets (only 40% reduction is expected by 2030). Europe needs to increase investments substantially in areas like transport, power plants efficiency and residential sector to become closer to 2030 targets, but by now it is obvious that Europe will not achieve them.

According to J. Stern, the EU energy transition path and policy should be considered a special case. The reason is that this transition is hugely driven by political agenda and pressure from voters who aim to achieve decarbonization target. There exists huge public pressure on governments from climate activists who are obsessed with decarbonization target. In such a case, in some European countries climate policy even can influence election results. However, in other regions of the world (Eurasia, Latin America, Africa) people and governments are more concerned about other energy issues, like energy affordability, air quality and energy security, which seem to be more important for them than decarbonization. Still Europe stays the biggest regional market for traded gas: it is the leading importer of pipeline gas and the second biggest LNG importer (after Asia). Decarbonization of natural gas will impact countries which export gas, particularly the Russian Federation which is the largest supplier to Europe.

Decarbonization strategy implies choosing among several options and policies, which were mention by J. Stern. Basically governments have to decide on how to phase out coal and oil: whether full electrification or electricity plus gases; use only renewables or also nuclear power to produce electricity etc. Considering Net Zero policies, governments should also decide what path to choose, however in Europe this path has been almost defined. Firstly, the EU transition strategy hugely rely on technology solutions to introduce large scale hydrogen (from electrolysis of natural gas pyrolysis), batteries and *Carbon Capture, Utilization and Storage (CCUS) facilities*. Secondly, rapid and substantial increase in carbon taxes and prices is the essential part of the energy transition strategy.

Further the speaker continued by looking beyond Europe to see how gas demand may evolve in other major energy markets where governments have declared carbon neutrality targets, with others having made COP21 commitments, and how this will impact on the future development of pipeline gas and LNG trade. J. Stern focused on analyzing four scenarios which were introduced by International Energy Agency (IEA) - *IEA Sustainable Development Scenario for Non-European Gas Demand* (2020), and big energy companies - *Shell Sky*, *Equinor Rebalance*, *BP Net Zero*. All mentioned scenarios show that global gas demand will peak around 2030 and decline thereafter (slower or faster depending on the scenario). In relation to projections of future demand volumes of gas up to 2050 in different regions the scenarios noticeably differ and suggest that COP21 and Net Zero global emission targets will be achieved with different demand outcomes for gas and very different impacts on regional gas demand. The projections diverge for big markets, like China, North America, Middle East and Russia, which will have key impacts on pipeline gas and LNG trade. Although scenarios differ in some aspects, they agree that Asia (especially China) will be a major growth region for gas demand at least up to 2040.

Moving to the discussion of the impact of regional gas demand outcomes on global gas and LNG trade, J. Stern considered two cases: *business as usual (BAU)* and COP21 decarbonization scenario. In a BAU projection a big increase in LNG demand is anticipated and about 75% of that will be consumed in Asia up to 2040s (mainly China, India and South-East Asia). Then goes Europe. Under COP21 scenario LNG imports peak around 2035 with India, Japan and Korea growing more strongly with gas displacing coal. By 2050, however, LNG imports are expected to be 40% below the BAU case with China falling sharply after 2040s. If Europe really reduces natural gas demand and imports like it has scheduled, pipeline gas exporters must be aware of two things: 1) supplying natural gas with nature-based offsets; 2) supplying hydrogen either via reformed natural gas with CCUS or pyrolysis.

J. Stern finalized his presentation with the overview of key policy, regulatory, economic and technology assumptions which will determine outcomes for gas. Among them there is the implementation of EU "*Methane Strategy*"³, development of LNG trade concerning carbon neutral cargos, regional and national issues of coal to gas switching processes, availability of renewable gas and its cost as well as national carbon pricing, taxation and carbon border adjustment mechanisms. On the pace and effectiveness of implementing these decisions depends the future of natural gas as the whole. Europe in this sense is really a special case, since if it meets

³ EU Methane Strategy. European Parliament. <https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-methane-strategy>

its decarbonization targets, it will probably become a model for energy transition in other regions, which definitely result in accelerating the transformation of gas markets.