

A large, light blue, stylized flame graphic on the left side of the slide, composed of several curved, overlapping shapes that suggest the movement of fire.

How to Promote Gas in the EU Power Generation?

Sergei Komlev

Head of Contract Structuring and Price Formation
Directorate
Gazprom Export*

Approaches to meet the goals of the Paris Agreement

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**Views expressed in this presentation are the author's sole responsibility and do not necessarily represent that of Gazprom Export*

What Should Be Done to Secure Place of Natural Gas in the EU Energy Mix?

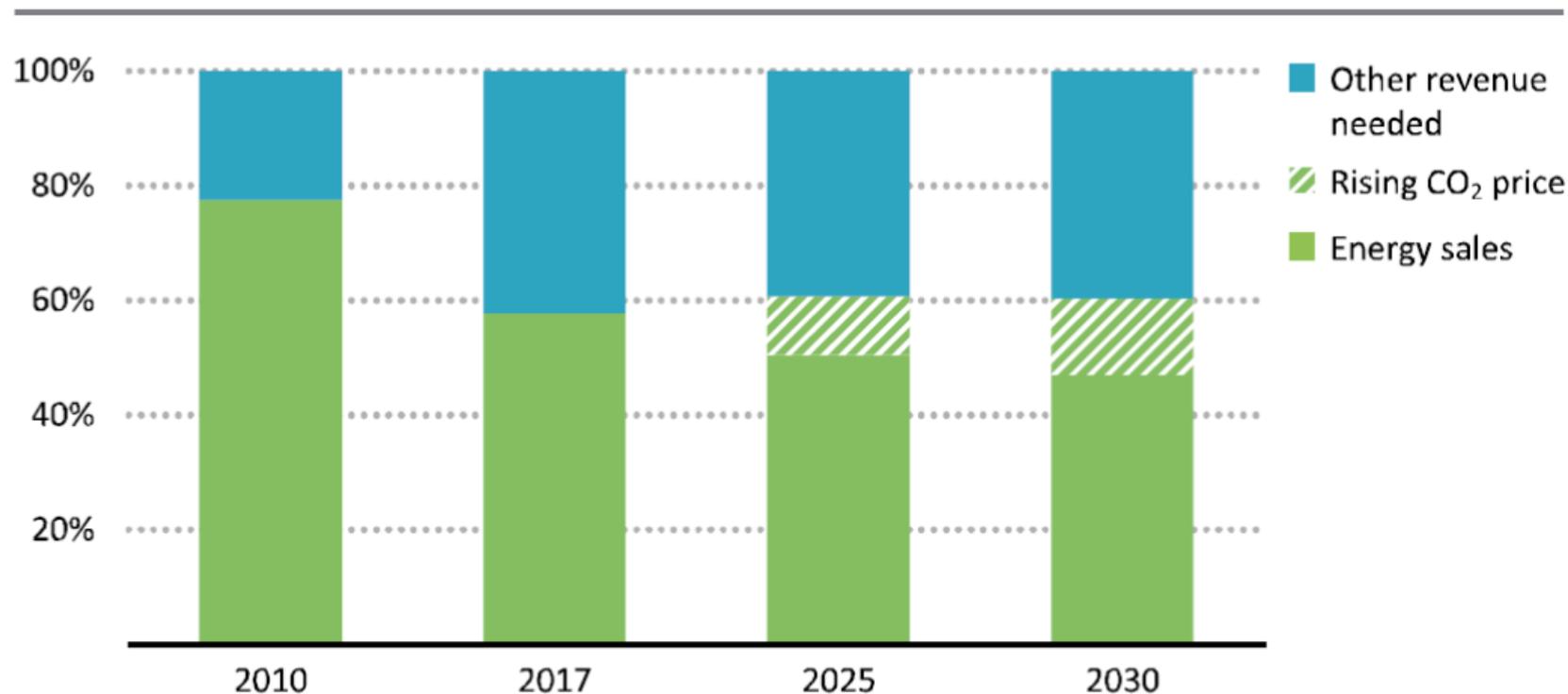
- **On April 9, 2019, Peter Altmaier, Federal Minister for Economic Affairs and Energy, claimed that he sees replacement of 40 gWh of coal capacity in Germany by the efficient gas-powered plants as one of the major mid-term aims of the government.**
- **Although long-term fortune of coal is already decided by 14 EU countries, it still has price advantages over gas in terms of short-run costs and could stay in power generation as long as possible. That makes incentives for gas in power generation a necessity.**
- **Merit order reform (“green” and/or “full cost” dispatching) in the most efficient way for gas to secure its deserved place in the energy mix without hurting much the already distorted by subsidies EU power market.**

Construction of Gas Plants is Questionable in the EU due to Lack of Investment Incentives

- **While decision of the investment in power plants (FIDs) is made on a full cost basis, dispatches make their choice on an operational cost basis. That gives advantages to coal plants over gas which is less competitive compared to CCGTs on a full cost basis.**
- **There is a need for a merit order reform in the EU because of the widening gap between total revenue from wholesale electricity sales and total generation cost. In the EU the share of total production costs covered by electricity sales fell from 77% in 2010 to about 60% and is set to come down.**

Merit Order Reform is the Best Solution to Promote Natural Gas in the EU

Figure 10.21 ▷ Share of long-run generation costs covered by energy sales in the European Union, historical and in the New Policies Scenario



The widening gap between the value of electricity sales and total generation costs raises questions about the ability of some competitive markets to attract timely investment

- Capacity Remuneration Mechanism
- Subsidy to keep CCGTs in the grid
- Rising CO2 Price
- Merit Order Revision

Pathways considered to be market-based is capacity market introduction. Three other options (subsidies, carbon tax, and merit order revision) are treated as intervention in the free market works. As EU electricity market is already distorted by subsidies and the obligatory offtake for the RES distinction between market-based and non-market options is irrelevant.

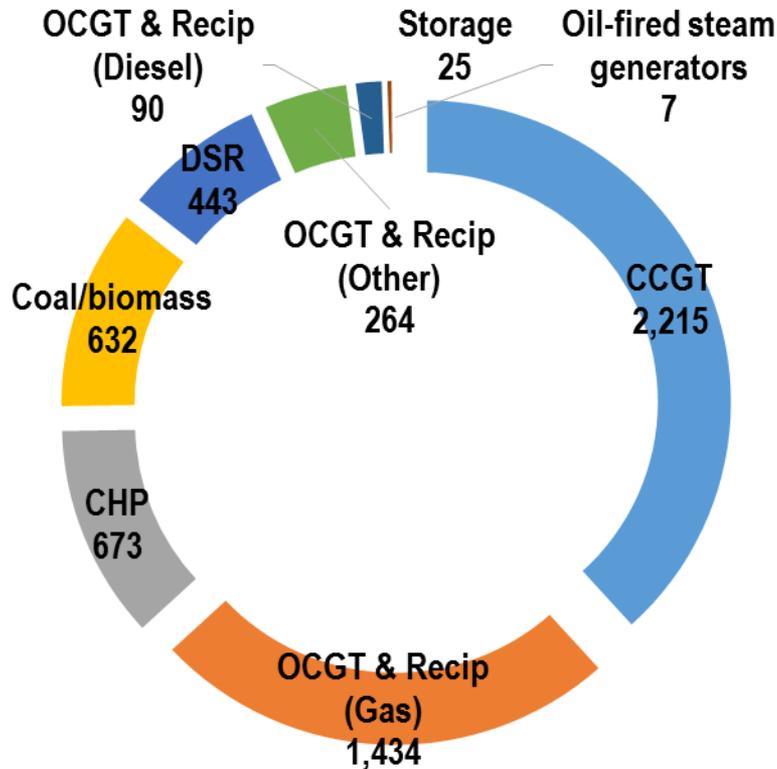
Choice for the best option should be based on:

- minimum additional market distortions
- efficiency judging by results
- ability to avoid EU energy market fragmentation
- support on the national level

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Option 1. Capacity Remuneration Mechanisms (1)

The T-1 Capacity Auction results for delivery in 2018/19

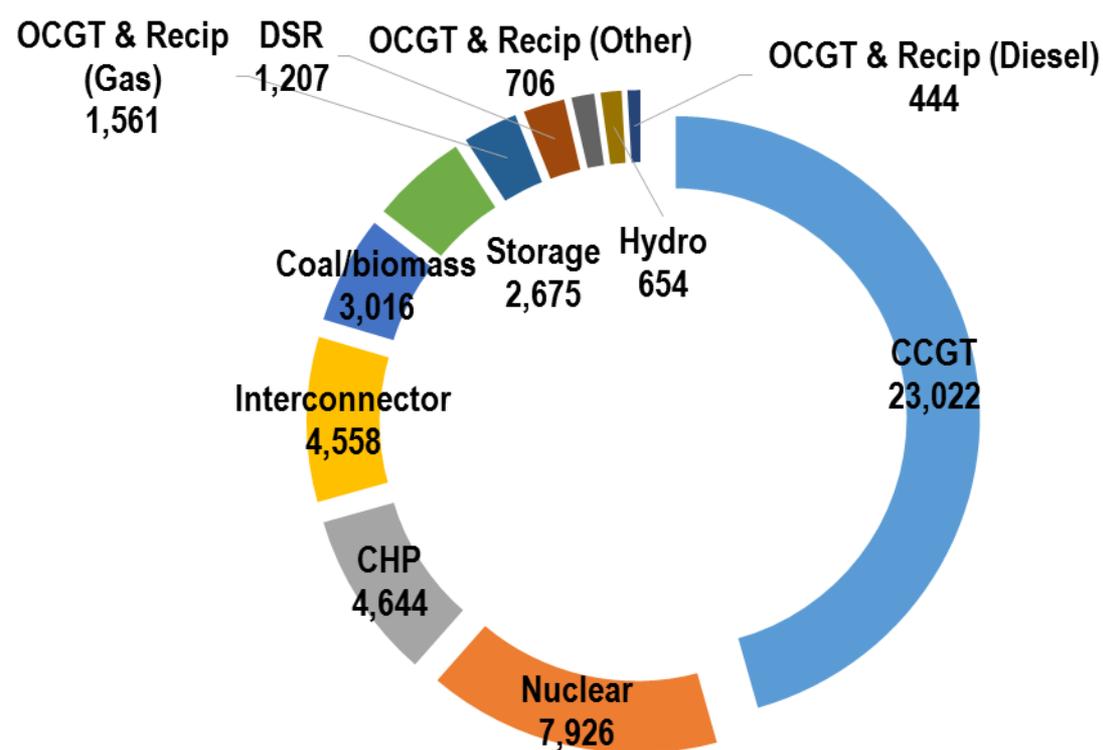


The January 2018 T-1 auction cleared at £6/kW, securing 5.8GW of capacity. The largest share went to CCGT, OCGT and CHP.

As a result the share of gas as a fuel reached more than 75% with coal being on the 2nd place with only less than 8%.

Option 1. Capacity Remuneration Mechanisms (2)

The T-4 Capacity Auction results for delivery by 2021/22



The January 2018 T-4 auction cleared at £8.40/kW, securing 50.41GW of capacity. The largest share went to CCGT, followed by nuclear and CHP. As in the case with T-1 auction for 2018/2019 winter, the share of gas as a fuel was the largest and reached nearly 60% with about 16% and 5% due to nuclear and coal correspondingly. The major disadvantage of capacity enumeration mechanism is that fragments EU common market.

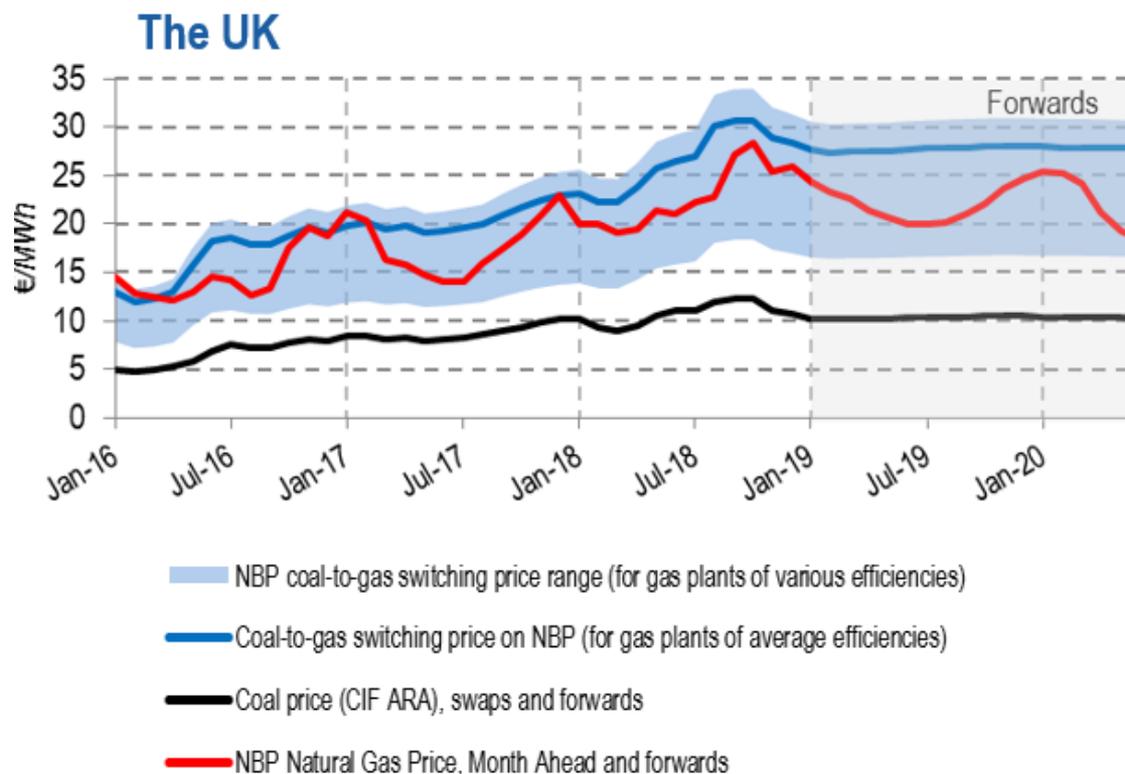
Option 2. Subsidies to System-Relevant CCGTs to Keep them in the Grid

Gas plays big role in balancing the system. But the lower running times make it economically inviable. Several operators have announced plans to put gas-fired generation into hibernation.

Authorities in several EU countries are choosing tighter control mechanisms in a bid to secure uninterrupted electricity supply to consumers. In 2012 Germany amended the country's Energy Act (EnWG) that require operators to announce the shutdown of economic electricity plants 12 month in advance and ban the shutting down of system-relevant plants as a temporary solution until 2017. Later on this decision was softened by a promise of compensation fees for economically inviable plants staying in the grid.

Financial support to operating and new CCGTs proposed could not become a widespread solution because of the policy intent to abandon subsidies.

Option 3. Carbon Tax/Floor*



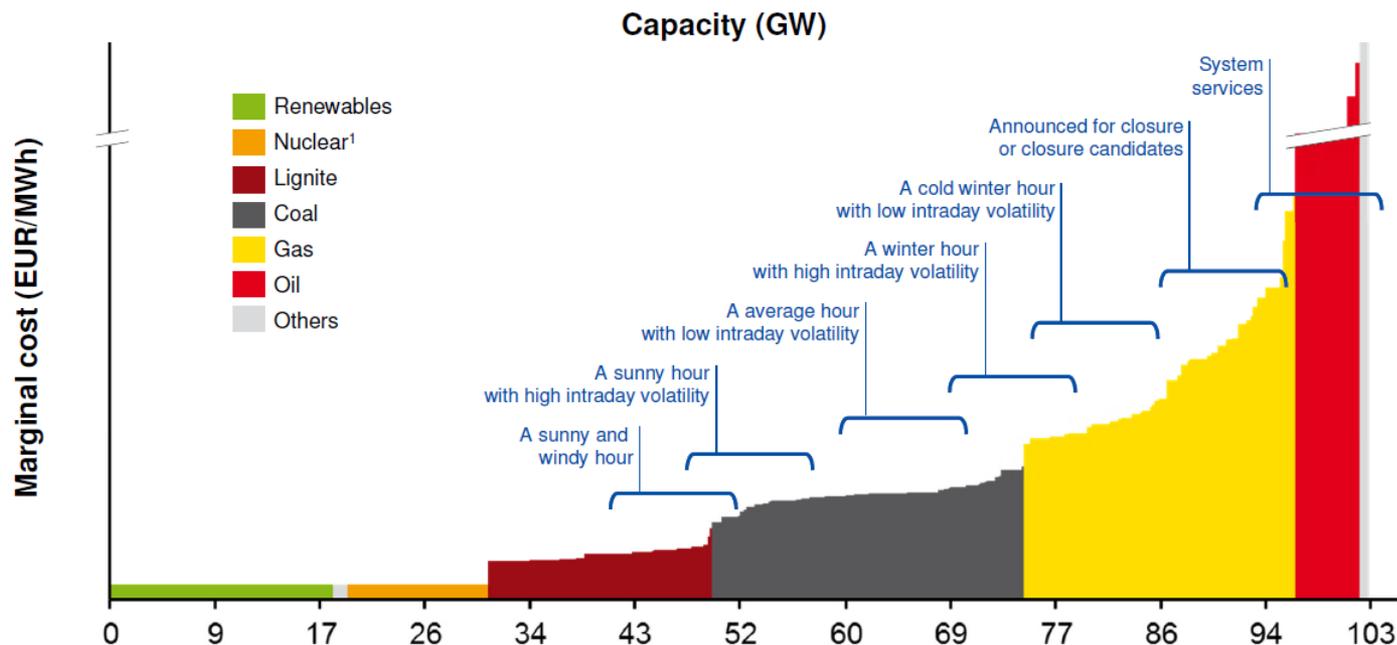
*Taking into account Carbon Price

Heavy taxation of carbon emissions is an effective instrument in support of coal-to-gas switching as the UK experience indicates. Two drawbacks of the carbon tax option are evident. Higher taxes negatively affect end-user electricity prices. There is also lack of agreement among the EU nations over the carbon tax. Germany and France showed their opposition to the idea of carbon tax introduction. Holland postponed its introduction in 2017.

Source: based on Bloomberg, Department of Energy and Climate Change of the UK's Government (DECC)

Option 4. Carbon Multiplier Incorporated in Merit Order Could Change Offtake Priorities in Favor of Natural Gas

Merit order curve in Germany, 2014



Adjustment of merit order or rules of electricity dispatching throughout Europe could be the least damaging to the economy option encouraging gas-to-power comeback. Currently, the dispatching merit order takes electricity produced from gas last, because its marginal costs are higher than those of coal. The use by a dispatcher of a special 'ecological multiplier' for the marginal costs of power plants could give gas a competitive advantage over coal. Changes in offtake preferences would not directly affect the prices of either coal or gas. Emissions reduction targets would be met with a smaller overall cost increase to consumers compared with the introduction of carbon tax.

¹ – without nuclear fuel tax

Source: RWE



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