EUGINE contribution to EIB public consultation

The EIB energy lending policy

EUGINE is the voice of the European engine power plants industry, representing the leading European manufacturers of this flexible, energy-efficient, reliable and environmentally sound technology. Engine power plants are an optimal solution for both backing-up and generating renewable energy (e.g. with biogas), cogeneration applications as well as to ensure security of supply. For more information please see www.eugine.eu

The European Engine Power Plants Association appreciates the opportunity to comment on the future EIB energy lending policy and is pleased to provide answers to the following questions:

Q1: Do paragraphs 15-27 above provide a reasonable characterisation of the long-term energy transformation? Are there additional dimensions that the Bank should consider when reviewing its Energy Lending Policy?

EUGINE believes that paragraphs 15-27 provide in overall an appropriate description of the current energy transition process, except on the following aspects:

Paragraph 21: integration of variable generation will indeed require greater flexibility, but not only "over the short term". As explained in Energy Brainpool's study on 'Flexibility needs and options for Europe's future electricity system', **there are different system flexibility needs, ranging from "short-term flexibility" and "medium-term flexibility" to "long-term flexibility"**[1] (see pages 5-7). The variety of flexibility needs is key, as not all flexibility options are able to ensure security of supply in the different timeframes: gas power plants such as those based on gas engines are "the only upward flexibility option from short- to long-term" (see page 1).

Paragraph 22: The future energy system will be much more decentralised than today with e.g. an increased number of photovoltaic installations and small engine-based cogeneration plants connected to the distribution grid. **Nevertheless, central power generation will continue** with e.g. large offshore wind parks and probably nuclear, biomass or gas plants. Flexible gas power plants of all sizes will play an increasing role in the future.

Paragraph 24: Although electricity could play a greater role in the future, **electrification is not a silver bullet**, as several studies have already shown it[2]. As Mr Klaus-Dieter Borchardt, deputy director general of the European Commission's DG Energy, explains regularly, gas will continue playing an important role in the future: "*Under the current situation, you may get to 50% renewable share in the whole system. How do you fill the rest? For me, that is the role of*

[1] Energy Brainpool: Flexibility needs and options for Europe's future electricity system, 2017

[2] Navigant: Gas for climate – the optimal role for gas in a net-zero emissions energy system, 2019

gas, the future role of gas"[3]. We believe therefore it is necessary that the aforementioned paragraph goes beyond electrification and clarifies the meaning of the following two concepts[4]:

- **'Sector coupling'**: coupling of the gas and electricity sectors, including by developing the power-to-gas technology. In our views, to ensure optimal flexibility on energy supply and demand sides, power-to-gas should be connected to gas-to-power solutions such as highly-flexible and efficient gas engines able to reconvert hydrogen or related synthetic fuels into renewable electricity and heat.

- **'Sector integration'**: integrating the energy system with sectors which need to be decarbonised such as the heating & cooling, transport and industry sectors. Here, for example renewable electricity may help decarbonise cars, while cogeneration plants running on renewable gas and generating both renewable electricity and heat may help decarbonise the heating sector.

Paragraph 25: To ensure **security of supply**, new solutions for mid- to long-term energy storage (e.g. heat-storage to decouple electricity and heat use of cogeneration plants, synthetic fuels from power-to-x) will be necessary.

Q2: As set out in Box 1, the Bank believes it has a robust framework to ensure that energy projects being financed are compatible with long-term climate targets. Do you agree? Are there areas where the Bank can improve?

In a system more and more dominated by variable renewable energy sources (wind & solar), the role of other power generation technologies changes: they will provide two key services to which the EIB Emission Performance Standard (EPS) should give a specific value: **energy efficiency** and **flexibility** (fuel flexibility and operating flexibility).

In line with the European Union's 'energy efficiency first' objective, (engine-based) cogeneration plants will probably play an even more important role in the future, as they can reach 95% efficiency and thus help make a better use of available resources. They will decisively contribute to reaching the EU energy efficiency target of 32,5% by 2030. (e.g. new engine power plant funded by the EIB in Kiel, Germany)

As dispatchable resource, flexible power plants will ensure that demand and supply are met even when wind and solar cannot deliver sufficiently. Their ability to quickly jump in and again stop as soon as not needed anymore will be key in the future, as this enables the integration of a large share of variable renewables. Moreover, fuel flexibility provided by certain power plants may further increase security of supply. (e.g. recent dual-fuel engine power plant for emergency/reserve funded by the EIB in Kiisa, Estonia)

Both highly-efficient (cogeneration) and highly flexible (electricity-only) gas plants should continue benefitting from funding from the EIB. To meet this objective, the parameters of the EPS should be adapted so that highly-flexible power plants remain eligible and may

[3] Florence School of Regulation: All you need to know on the EU energy market in 2018-2019…in one interview, 2018

[4] Florence School of Regulation : Sector coupling and sector integration, 2018

increasingly help the energy system face the looming flexibility challenge. (see question 9 for more details)

Q3: Within the broad areas of renewables, energy efficiency and energy grids, are there particular areas where you feel the Bank could have higher impact?

As stated above, flexibility, efficiency and the combination of both (e.g. engine-based cogeneration for flexibility & district heating) will be key for tomorrow's energy system. The EIB should thus do more to support projects such as 'K.I.E.L coastal power plant'[5]

To decarbonise its valuable flexible & efficient power plants, **Europe needs renewable fuels**, from biogas and biomethane to hydrogen, synthetic methane and bioliquids. The EIB could and should probably do much more to support the upscaling of renewable fuels production and the connection of power-to-gas with gas-to-power projects, providing thus an optimal flexibility solution to the energy system, on both sides:

- when too much electricity is produced by variable renewable energy sources: power-to-gas installations may then convert the renewable electricity into renewable gas
- when too little electricity is produced by variable renewable energy sources: gas-to-power installations such as gas engines may then re-convert the renewable gas into renewable electricity (and heat/cold)

The power-to-x technology needs a strong push to develop sizes and bring down costs. Investment in this technology and related infrastructure should be facilitated by the EIB.

In addition, the EIB should focus more on **heat/cold storage projects** as they typically represent a low investment cost and high roundtrip efficiency solution with systemic advantages.

Q8: Declining costs and competitive auctions are transforming a number of renewable markets (e.g. onshore wind, utility-scale PV). How can the Bank best support these relatively mature technologies? In the context of increasing market integration, is there a need for financial instruments to help attract long-term private finance?

Why should the EIB support mature technologies with declining costs and competitive prices?

Long-term private finance is a bigger challenge for the flexible back-up power (renewable as well as fossil) as this technology will have limited and not very predictable operating hours to recover costs. Making this investment attractive for private finance should be regarded as a target.

[5] EIB: Innovative power plant: heat and light with less CO_2, 2016

Q9: Does the EPS for power generation remain an appropriate safeguard? Do you agree that adjustment should be made to support flexibility and adequacy? In light of recent developments in renewables, the Paris Agreement and the Sustainable Development Goals, would an exemption to the EPS for power plants in least developed countries continue to be justified?

As explained during the public consultation meeting of 25 February 2019 by Vice-President Andrew McDowell, the EIB is 'a policy taker' adjusting its own approach to the policies adopted by the European Union, not a 'policy maker' by itself. In line with this strong commitment, **the EIB should consider adapting its EPS to the EU CO_2 emission limit of 550g CO_2/kWh for new power plants participating in capacity mechanisms** as described in article 18b (new) of the recently informally agreed revised electricity regulation[6]. However, the 350kg CO_2/kW/year should not be taken as a reference since the EIB is only providing loans to new power plants which does not fit at all with the concept for the 350kg threshold. Moreover the 350kg threshold is bad for the environment and flexibility – as it will mainly help totally inflexible coal-fired power plants to remain active in capacity mechanisms. Such funding for old, inflexible, less efficient, more polluting power plants slow down the modernisation of the energy system with new, flexible, efficient power plants which are compatible with renewable gases. Therefore the 350kg approach should not be followed by the EIB.

Adapting the EIB EPS to the EU EPS would mean in particular:

- a fixed maximum threshold of "550 gr CO2 of fossil fuel origin per kWh of electricity"
- no application to power plants running on renewable fuels such as biogas or PtX fuels
- a calculation based on the "design efficiency of the generation unit meaning the net efficiency at nominal capacity under relevant ISO conditions"

Should the EIB finally decide to depart from the described 'policy taker' approach and opt for a 'policy maker' approach, EUGINE strongly recommends the following approach:

- **Stability and transparency on the future EPS threshold**: the value should not be lowered to not exclude flexible gas engines or open cycle gas turbines which will be key in tomorrow's energy system.
- **Support to energy efficiency in energy generation**: cogeneration, based for example on gas engines, is the solution providing by far the highest efficiency. As long as they meet the 'high-efficiency cogeneration' criteria, as defined in article 2 of the energy efficiency directive[7], cogeneration plants should be further supported by the EIB.
- **Support of flexible district heating**: The Kiel project with its large heat storage is the best example of a high efficiency highly flexible cogeneration plant for district heating. The large heat storage tank makes the plant being able to run on the electricity market independently from heat demand. This kind of power plants should be considered as best in class, as they help Europe's energy system meet its energy efficiency and flexibility challenges.

[6] Council of the European Union: informally agreed regulation on the internal market for electricity, 2019
[7] European Union: directive 2012/27/EU on energy efficiency, 2012

- **Eligibility of heat projects** should be limited to energy generation facilities that do not use "solid fossil fuels", as in article 10d on 'modernisation fund" of the recently revised ETS directive[8], to avoid high-emitting investments.
- **Adaptation of the EPS to specific challenges to be faced by the EU energy system by adopting exemptions for**:

    - **Flexibility**: as shown by the Energy Brainpool's study on 'Flexibility needs and options for Europe's future electricity system'[9], Europe should invest in flexibility options to complement variable renewable energy sources (vRES) and ensure security of supply. The funding of reliable flexibility options (esp. gas engines) should be supported and definitely not be endangered by any kind of criteria. **Any peaking plant which is able to provide full output within minutes (max. 5 to 10 minutes) should be considered as an essential asset for tomorrow's energy security of supply and be exempted from the EPS**. Due to their economic characteristics, such peaking plants will anyway have only limited operating hours.

    - **Security of supply for isolated and small islands**: with the development of electricity production from vRES, the role of dispatchable power generation on islands could change, from providing baseload to ensuring back-up power supply. This evolution could have two consequences. On the one hand, it means that engine power plants will remain a key asset for the islands' energy supply. On the other hand, their operating hours and thus emissions and profitability could all be significantly reduced. This pleads for **increased support from the EIB and an exemption from the EPS**. Moreover, the EIB should consider funding innovative projects for a reliable energy supply on islands thanks to dispatchable renewable energy (dRES) based for example on 'biogas + gas engines' or 'power-to-X + engines'.

    - **Modernisation of energy systems of least developed countries**: It will for many years remain important to overcome energy poverty as this is one of the main factors limiting the economic development. To do this in an economic way will often require low-carbon technical solutions such as gas plants. As European modern and sophisticated technology allows to minimise the climate impact, **an exemption for modernisation of energy supply of least developed countries is necessary**.

Finally, EUGINE would like to stress that gas plants by nature are neither fossil nor renewable. It is wrong to describe them as:

- "conventional power plants" as done in point 18 of annex 2
- "natural gas plants" as done in point 19 of annex 2
- bridging technology for the "transformation period" as done in point 19 of annex 2
- or "fossil-fuel power plants" as in point 25 of annex 2.

[8] European Union: Consolidated version of directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union and amending Council directive 96/61/EC, 2018

[9] Energy Brainpool: Flexibility needs and options for Europe's future electricity system, 2017

Gas plants can operate with renewable fuels or fossil fuels. Existing plants can be either switching (there are dual fuel plants operating e.g. with biogas or natural gas) or can be adapted or retrofitted. The challenge today is the limited amount and high cost of renewable fuels. **In many cases, the plants that are built today will operate with natural gas during the first years and switch over to renewable gas as soon as available**. Supporting investments in these types of power plants should be regarded as investments in renewables technology, as they can provide valuable dispatchable renewable energy.

Q10: Are there ways in which the Bank could provide more targeted support to distributed resources (demand response, small-scale generation and storage projects)? Are new business models or technologies emerging in this context, with specific financing needs? Is the Bank's portfolio of financial products and instruments adequate to support this technological transition?

It depends on what is regarded as 'distributed resources'. We would suggest defining it as 'resources connected to the distribution grid'.

An interesting segment rarely considered for demand side management is the use of industrial power generation from cogeneration plants to cover peak demand in the electricity grid. This allows not only to reduce the demand in peak periods, but to also increase grid supply in peak demand periods and by this avoids otherwise necessary investments in pure grid-related power generation. EIB should help to make this an attractive investment for industry.

Moreover, in a decentralised energy system, power generation plants and projects become smaller, so do the project volumes. For that, we see a clear demand to support smaller projects and to reduce bureaucracy for funding and financing issues, so that also customers with low administrative overheads are also able to take that hurdle.

Q11: The Bank has developed a number of products – both financial and advisory - targeted to supporting innovative energy projects. Do you have a view on these instruments? Can the Bank improve or better target the financing needs of the energy demonstration sector?

The EIB should prioritise innovative plants like hybrid plants combining gas engines with other technologies, for example:

- Hybrids such as engine-based cogeneration plants with an integrated RES (e.g. solar thermal) to reduce fuel consumption.
- Hybrids such as gas engine cogeneration plants with a heat pump to increase fuel utilisation well beyond 90 %.
- Hybrids such as gas engine plants with an integrated energy storage solution.

Moreover, as already stated, it would be interesting for the EIB to support the combination of power-to-gas and gas-to-power projects.

Q14: What is your view on the investment needed in gas infrastructure to meet Europe's long-term climate and energy policy goals, while completing the internal energy market and ensuring security of supply? What approach could strike the right balance to prevent the economic risk of stranded assets?

A strong and reliable gas infrastructure is essential for the security of supply. Gas infrastructure needs to be made 'hydrogen-ready' which will require some investments. Green hydrogen from power-to-gas would make both the gas grid and supply renewable and should therefore fit to the climate policy of the EIB. The step is necessary, as in addition to a growing electrification it makes sense to have a second decarbonised grid with large storage options. This is part of the sector-coupling offering to use the best option for each challenge.

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