

Subject: FEBEG reaction to CREG study (F)2336 of 01/02/2022: profitability of gas power plants

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## Introduction

On the 1<sup>st</sup> of February, 2022 CREG published its study (F)2336 on the consequences of the persistently high wholesale market prices for gas and electricity. In its study CREG analyzes three aspects:

- financial difficulties with which suppliers are confronted in a context of high wholesale market prices for gas and electricity;
- which market players benefit from the current level of wholesale market prices for gas and electricity;
- reduction of the cost of support for offshore wind energy due to the current increase of the electricity prices on the wholesale markets.

With this study CREG is answering to the questions of the Minister of Energy formulated in a letter of the 17<sup>th</sup> of January, 2022.

## Executive summary

The CREG study on the profitability of CCGTs gives a biased view of reality. Both the model and the assumptions used by the CREG are incorrect or incomplete. It is regrettable that the CREG did not take the time to discuss this with the sector and the gas plant operators.

The CREG establishes an approximate valuation of the profitability of the existing gas assets without specifying either the methodology nor the assumptions used and which we do not corroborate. The profitability of gas units is determined by the 'clean spark spread': the difference between revenues (electricity market) and variable production costs (gas & CO<sub>2</sub> market). We wish to remind that even if electricity prices were higher in 2021, the production costs of the gas-fired power plants were strongly influenced by the increase in gas prices and also in the price of CO<sub>2</sub>.

CREG study also suggests that a large part of the production has been sold on the short-term market. This does not correspond to producers reality.

Moreover, since the liberalization of the market and until 2025, the gas power plants are remunerated on the basis of an energy market (in the absence of a capacity market). The annual profitability of a gas power plant is determined by the evolution of the clean spark spread (price indicator) and the volumes (volume of produced electricity). The gas power plants are therefore subject in the short and long term to strong variations in commodity prices, including periods of low clean spark spread. The investment cycle for a thermal generation fleet is long term: the lifetime of a plant is about 25 years and capital intensive maintenance is required every 5 years.

Therefore, one cannot look at a single year to draw conclusions on the profitability of this technology. Let's recall that gas power plants suffered important impairment in the years 2010 due to a very difficult economic context combined with the development of renewable capacities in Europe.

### The CREG study provides a partial and unbalanced view

Notwithstanding CREG had only limited time and limited resources to prepare this study to answer to the questions of the Minister of Energy, it is very unfortunate that the **study provides a partial and unbalanced view of the financial situation of several actors** active on the Belgian energy market:

- for some aspects CREG prefers to provide a more detailed analysis, e.g. profits of gas-fired power plants – the latter even based on a theoretical model – while for other aspects CREG suffices with a qualitative statement, e.g. increasing balancing costs, financial losses for suppliers (fixed contracts, termination of contracts, ...), ... while figures are easily available;
- for some elements CREG suffices with the statement that there are probably no excess profits – an understatement – as more detailed analyses would demonstrate losses, e.g. buyers of a PPA of an offshore wind park.
- other aspects are simply not analyzed while they would have demonstrated the difficult situation of certain actors on the Belgian energy market, e.g. buyers of PPA's of onshore wind parks.

As a consequence of this approach, CREG is drawing attention to alleged excess profits for some activities while costs or financial losses are minimized. The resulting view is therefore partial and unbalanced, and not reflecting reality at all. In reality, the profits of some activities are largely outweighed by the costs (balancing costs, ...) and losses for certain activities (supply business, ...): **in these difficult and exceptional market circumstances utilities are not making profits, but are literally “bleeding” and facing increasingly liquidity issues**. In this context, it should be reminded that some suppliers already went bankrupt.

This paper aims at tackling the important limits of the statement of the CREG that CCGTs have increased their operating profit due to the strong increase in gas prices on the short-term markets.

In light of the ongoing energy debate and the implementation of the CRM in Belgium, it is crucial **to avoid any misunderstanding or misinterpretation** which would be very unfortunate should concrete measures be decided based on the conclusions of this report. Therefore, some background, context and comments are provided in this note.

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## First of all, the theoretical evaluation of operational profitability of gas-fired power plants assessed by CREG is not matching reality

The Minister has asked CREG to investigate if there would be excess profits generated by gas-fired power plants. To answer this question, CREG did not perform an in-depth analysis together with the power plant operators but – instead – published **an incorrect valuation of the operational profitability based on a theoretical exercise for a theoretical gas-fired power plant.**

Several comments can be made with regard to this approach:

- Firstly, **operators of power plants were not invited to share information with CREG** during the preparation of this study. Moreover, they were not even invited to provide feedback on the methodology or on the assumptions that were used, let alone that a formal consultation was organized.
- Secondly, **CREG is not transparent – neither on the methodology, nor on the assumptions used to determine the operational profitability of gas-fired power plants** – which makes it extremely difficult for market parties to challenge the approach and to explain why the results of CREG do not match with the revenues they observe in reality. The details of the costs, the calculation of the revenues, the applied operational constraints, etc. are not explained.
- Lastly, and most importantly, it should be emphasized that the back-testing exercise, used by the CREG and which is based on historical data or perfect foresight model is **not matching reality at all. In reality, power plant operators are taking decisions based on market forecasts, analyses of future risks, etc. and are not functioning in a full liquid market and with a fully flexible power plant.** Indeed, we have the impression that operational constraints (start-up time, ramp-up/ramp down, grid constraints, etc.), that are very important factors, are not taken into account. It should also be noted that temporary market circumstances – high electricity prices, unplanned outages of nuclear power plants, ... – highly influence the outcome of such a back-testing exercise.

### In reality a gas power plant is not able to capture all market opportunities

The CREG considers that the gas plant operators apply a double hedging strategy consisting in selling in advance the power (hedging forward) and constantly re-optimizing ('make or buy' or dynamic hedging) according to the daily clean spark spread (the so-called asset-backed trading). So, indeed, prudent power plant operators – acting as a bonus pater familias – will hedge forward and re-optimize, but not in the theoretical way as described by CREG. As a result, they do not realize in reality the revenues as calculated by CREG.

- **Power plant operators may have hedged a different volume than proposed by CREG** as in reality they will hedge based on forward looking models and risk policies that will differ from one operator to the other. It is very likely that power plant operators will have hedged lower volumes than considered by CREG as the clean spark spread in the forward market was rather low before the ongoing energy crisis. How much of a power plant will be hedged depends on how deep the power plant is in the money or, in other words, how high the clean spark spread is.
- Moreover, **most operators will – as part of a sound risk management policy – rather buy back gradually** instead of all volumes at once, in function of certain economic parameters, e.g. decreasing clean spark spread. This means that part of the volumes will already be bought back on the forward market and that, hence, not all volumes are valorized on the day-ahead market.
- CREG seems to ignore the impact of the liquidity on energy markets when computing the revenues. The liquidity is a key element when hedging positions. Indeed, when prices spike, one is usually not able to find large volumes on the market. For this reason, **there is an important overestimation of hedging capacities** by the CREG due to the lack of liquidity on the market.
- Lastly, **it should be emphasized that CCGT's cannot count upon revenues out of the ancillary market**: the ancillary market is an opportunity cost driven market with a lot of competition (cross-border, other technologies, ...). Moreover, without any certainty of having additional revenues out of the ancillary market, power plant operators are confronted with increasing balancing costs.

Due to this more prudent behavior, power plant operators were in reality not able to capture all opportunities and realize the revenues computed by the CREG in its perfect foresight modelling which is clearly overestimating revenues.

## Secondly, the CREG only look at the operational profitability, omitting important costs

The study of CREG only focusses on operational profitability of gas-fired power plants, i.e. CREG only checks if the alleged revenues out of the market are sufficient to cover the operational costs only, e.g. gas consumption, costs for CO<sub>2</sub> allowances, costs for personnel as well as for regular maintenance. Doing this, **CREG ignores all other fixed costs, e.g. development costs, project costs, investment costs, overhaul and major maintenance cost, ... that also need to be covered by market revenues.**

In this context it is important to mention that the **existing fleet of gas-fired power plants in Belgium is aging: as a result some assets will be confronted with important capex for maintenance and/or lifetime extension, e.g. major overhaul, repair, upgrade, refurbishment, ....** It should be emphasized that a power plant is not profitable as long as it has all its fixed and capex costs that are not covered by operational revenues. CREG, hence, seems to assume that all other fixed costs are 'sunk costs' which is not acceptable from an investors' perspective. To state the obvious, **an investor will never decide to spend money without having the perspective to be able to recover the investment costs.**

We also notice that other costs have not been reflected correctly in the exercise of the CREG. The fleet management and overhead costs have apparently not be considered by the CREG. Generation facilities are generally part of larger organizations for which overhead costs are shared among business units that benefit from "corporate" services.

Concretely, the CREG only considered fixed annual costs of 7,5M€ for a new CCGT. **FEBEG members can simply not reconcile this cost figure with their own costs.**

## Thirdly, CREG does not assess the profitability over the entire lifetime of the asset

Gas-fired power plants are – since the liberalization of the electricity market and until the entry into force of the capacity market – solely remunerated through revenues out of the electricity market. The profitability of gas units is determined by the 'clean spark spread': the difference between revenues (electricity market) and variable production costs (gas and CO<sub>2</sub> market). As a sidenote: even if electricity prices were higher in 2021, the variable production costs of the Belgian gas-fired power plants were also strongly influenced by the increase in gas prices and also in the price of CO<sub>2</sub>. **The profitability of a power plant is therefore by definition subject – in the short and long term – to strong variations in commodity prices, including periods of low clean spark spread.**

On the other hand, **the investment cycle for a gas-fired power plant is long term:** the lifetime of a plant is about 25 years. Therefore, **one can simply not look at the profitability for one single year to draw conclusions on the profitability of a business case of a gas-fired power**

**plant.** The real profitability is the average return on investment at the end of the lifetime of the asset.

In this context, it is important to remind that the gas-fired power plants (CCGT's, CHP's, ...) – at European level but also in Belgium – have suffered big impairment in the past due to a very difficult economic context combined with the development of renewable capacities in Europe. In the period 2013–2014, all European utilities have announced substantial large write-offs on their thermal – mainly gas – assets.

**Finally, CREG does not state anywhere that past market conditions are no guarantee for the future while investing in flexible and back-up gas-fired power plants remains a must to ensure the security of supply in Belgium**

Even though one cannot deny that the profitability of gas-fired power plants has improved in 2021, **past market conditions are no guarantee for the future.** The fact remains that the existing Belgian gas-fleet is aging and is facing need for investments: an industrial business case cannot be based on short-term positive outlook and should certainly not be based on price spikes due to specific events.

Gas-fired power plants contribute to security of supply but are also **more and more used as flexible and back-up capacity:** as a result, the load factor and the revenues of gas-fired power plants become uncertain. But at the same time, the **availability of gas-fired power plants is estimated at more than 90 %.** This illustrates that gas-fired power plants are essential assets to secure the electricity supply.

### Conclusion:

Because a theoretical model does not reflect the reality, drawing conclusions on excessive profit of the Belgian gas fleet is misleading for the readers and would be very unfortunate in the light of the ongoing energy debate in Belgium . In this context, FEBEG cannot reconcile the figures computed by the CREG and would like to highlight the four main limits of this study:

1. a gas power plant is not able, in the real world, to capture all theoretical market opportunities → revenues are thus overestimated by CREG
2. all costs should be considered when looking at the profitability (including investments) → costs are thus underestimated by CREG
3. profitability of an asset can only be assessed over the lifetime of the asset → a conclusion cannot be drawn on one or two better years
4. exceptional market conditions are no guarantee for future revenues → a CRM remains necessary to unlock long-term investments in flexible and back-up gas-fired power plants, having proven their role in the Security of Supply

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