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Procurement strategies and margin obligations in energy sales: An analysis from the energy crisis to today

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In 2022, energy producers and distributors ran into financial difficulties due to the exploding electricity and gas prices (Focus online, 2022). To mitigate price and volume risks, energy companies enter into long and short positions on the futures market (Wawer, 2022, p. 196). Margins must be deposited on the exchanges to hedge the default risk vis-à-vis the clearing house (ECC, 2022, p. 4f). While the associated liquidity risk was rather insignificant in phases of horizontal price movements, it gained focus from the second half of 2021 due to sharply rising prices.

The development of the variation margin (VM) of German energy producers for 2022 was already examined (Lehrbass et al., 2023, p. 3). In contrast, the potential impact of increased margin obligations on energy distributors remains largely unanalyzed. To quantify this, a new developed simulation model estimates daily and cumulative liquidity requirements based on futures prices and procurement strategies.

Framework assumptions of the simulation

- Period under review: 2018 to 2024
- Procurement takes place via long positions on the futures market; start at the earliest three years before the delivery year, annual volumes: 1 TWh natural gas and 0.5 TWh electricity, distributed over monthly tranches
- Procurement occurs via exchange or OTC, assuming full collateralization
- Purchase of calendar year products (EEX German Base Power and TTF Natural Gas Futures; data source: Montel, 2024)
- Calculation of the daily variation margin (VM):

VMt= Vt*(Pt-Pt-1) (Gabler, 2020; ECC, o.J.).

- It is approximated that the daily VMs are directly relevant for payment, without considering the initial margin.
- The cumulative VM since the start of the transaction determines the minimum liquidity requirement.

Procurement strategies examined

The choice of procurement strategy depends on the customer portfolio and the contract structures. Based on the composition of the customer portfolio in terms of customer loyalty and willingness to switch, three different procurement strategies were modeled (Tab. 1).

Discussion of the results

Fig. 1 illustrates an example of the volume development of a delivery year in the LaFri strategy. The procurement path is divided into three sub-portfolios according to the customer segments (Fig. 1, left). When procurement is completed and the delivery year begins, the contracts are successively closed and the customers are supplied, resulting in a typical sawtooth pattern (Fig. 1, right). The maximum procurement position and the average volume of procured futures contracts in the portfolio depends on the strategy.

The cumulative VM reflects the balance of the settlement account with the clearinghouse. The procurement of 0.5 TWh electricity while pursuing the LaFri strategy resulted in a maximum positive cumulative VM of around EUR 526 million. Simultaneous procurement of electricity (0.5 TWh) and gas (1 TWh) with the same strategy would have resulted in a positive VM of around EUR 900 million (Fig. 2, table below).

Negative cumulative VMs only occurred sporadically in gas procurement, while pandemic-related price declines in early and mid-2020 led to isolated liquidity outflows. Overall, the simulation shows that energy

distribution companies did not experience any liquidity bottlenecks due to margin obligations during the crisis. On the contrary, long-term strategies led to high credit balances due to the long contracts in the portfolio with lower purchase prices. In contrast, energy producers that had sold electricity on the futures market had significant liquidity requirements due to the drastic rise in wholesale prices, as shown by Lehrbass (Lehrbass et al., 2023).

Development of average procurement costs

In addition to the expected cumulative VM, the average procurement costs per delivery year were determined (Fig. 3). The procurement of futures market contracts for the demand expected in the delivery year is completed at the beginning of the delivery year.

Until 2021, costs were similar across all strategies. In 2022, they doubled due to higher wholesale prices in 2021.

In terms of average procurement costs, the delivery year 2023 represents the extreme case. Due to the exploding wholesale prices in 2022, this particularly affected short-term procurement, resulting in the highest procurement costs for the delivery year 2023. This situation is also one reason for the drastic fall in tariffs for households and the insolvency of energy discounters, which mainly procured at short notice and were unable to pass on the extreme rise in costs to their customers (Focus online, 2022; Bundesjustizministerium, 2022).

Due to the decline in wholesale prices during the calendar year 2023, procurement costs for the delivery years 2024 and 2025 will also fall. For 2025 in particular, short-term procurement (KuFri) is the most cost-effective alternative, as companies with a longer-term procurement strategy still have tranches with higher procurement costs from 2022 and 2023 in their portfolio.

At the same time, it can be observed that the number of energy sales companies active on the market is increasing again. In addition, the rate at which households switched suppliers for gas and electricity rose again significantly in 2023 after a decline in 2022 (Bundesnetzagentur 2023, 2024).

Summary and conclusion

The analysis shows that, in contrast to energy producers, distribution companies had hardly any negative impact on liquidity during the energy crisis due to margin calls. Rather, there were financial hurdles due to the limited pass-through of the extremely high wholesale prices. Due to the drop in prices from 2023, it can currently be observed that energy discounters in particular (with short-term procurement) are increasingly active on the market and can pass on lower procurement costs to customers, while energy suppliers with long-term strategies still have procured shares with higher average prices.

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