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Moldova faces much higher electricity costs this winter

Moldova is currently facing the worst energy crisis in its history, with high rates of uncertainty regarding the country's electricity costs and ability to meet demand during this winter period. The German Economic Team modelled the Moldovan electricity system and assessed four scenarios to forecast the total electricity costs in the six months between November 2022 and April 2023. Under the status quo, additional electricity costs compared to the same period last year could exceed EUR 349 m or 3.0% of GDP. While this represents the worst-case scenario, improvements in key variables can substantially decrease costs. Striking a supply deal with MGRES reduces costs over the period to EUR 186 m. In addition, securing of additional preferential capacity from Romania decreases them to EUR 114 m, while convincing left bank Moldova to also decrease consumption can lead to "only" EUR 68 m in additional costs vis-à-vis last year.

Introduction and rationale

Moldova's energy and electricity systems rely heavily on natural gas. Since 2021 the country has faced significant challenges with natural gas imports driven by high prices and contractual disputes with Gazprom. This situation deteriorated in October 2022 as the MGRES power plant in left bank Moldova (which normally supplies over 70% of right bank electricity demand) drastically cut electricity flows following significant reductions of natural gas flows by Gazprom. MGRES stopped sending electricity to right bank Moldova in early November, with the government scrambling to secure additional electricity supplies from other domestic sources and neighbouring countries. Some imports at preferential prices were secured with Romanian providers, although Moldova is still facing the need to import large quantities at expensive market prices. The situation is further exacerbated by uncertainties and possible spillovers from the war in Ukraine. In response, international partners and donors have agreed to provide Moldova with grants and loans to help the country survive the winter. Within the context of this emergency, the German Economic Team modelled and analysed the possible costs which right bank Moldova could be facing in the period between November 2022 and April 2023. The analysis introduced four scenarios to demonstrate the potential impact of and cost burden under different variables.

Methodology and fixed assumptions

The analysis was conducted using a custom-built scenario-based techno-economic power system model, which optimizes electricity dispatch and derives costs for every hour between November 2022 and April 2023. Hourly demand was taken from the corresponding period last year and decreased by a factor of 16% to account for electricity saving measures already implemented in the residential, public and industrial sectors in right bank Moldova. The analysis assumed that combined heat and power stations ("CHPs") continue operating at rates similar to last year, taking into account that current logistical bottlenecks and uncertainties in fuel oil supplies could constrain any further ramp up. Finally, in all scenarios MGRES operates sufficiently to cover demand in left bank Moldova, as a full shutdown would introduce catastrophic consequences that this analysis cannot adequately tackle.

Variables of analysis and scenarios

The analysis identified several key variables which have a significant impact on the overall electricity system and associated costs, and which were thereafter used in the scenario modelling analysis:

- » **MGRES deal reached:** given the possibility of a deal being reached between right bank Moldova and MGRES, some scenarios assume a resumption of electricity flows, albeit at reduced levels (32% of demand, similar to mid-October levels)
- » **Securing additional favourable Romanian imports:** while 85 MW were already secured at preferential prices, this could go up to 180 MW
- » **Left bank reduced consumption and burden sharing:** assumption provides that left bank authorities reduce consumption allowing for the excess to flow to right bank MDA

These variables were used in four modelled scenarios, ordered from worst- to best-case. The worst-case scenario assumes none of the three variables are implemented, representing the current status quo and the costliest option. Progressively, improvements in the variables are added until the best-case scenario, where all three are present, and exert positive effects on the electricity costs. The scenarios are elaborated below:

- » **S1 - No MGRES deal, no additional Romanian subsidized imports, no left bank demand reduction**
- » **S2 - MGRES sends some electricity to right bank, no additional Romanian subsidized imports, no left bank demand reduction**

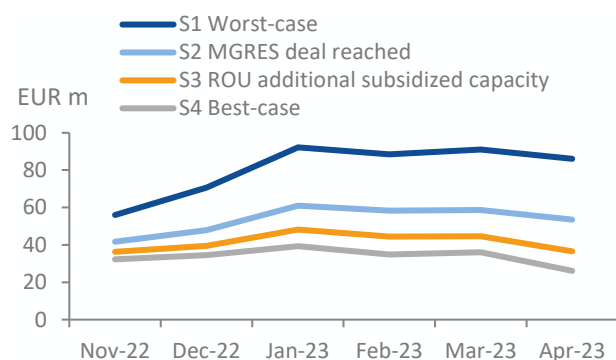
- » **S3 - MGRES sends some electricity to right bank, 180 MW of Romanian subsidized imports, no left bank demand reduction**
- » **S4 - MGRES sends some electricity to right bank, 180 MW of Romanian subsidized imports, significant left bank demand reduction**

Results and expected costs

Under the worst-case scenario (S1), overall costs for the period between Nov-22 and Apr-23 reach an additional EUR 349 m vis-à-vis the corresponding period last year, representing 3.0% of GDP.

Reaching a deal with MGRES (S2), albeit with lower capacities compared to previous years and increased prices, dramatically decreases costs to EUR 186 m, a 47% reduction of additional costs vis-à-vis the worst-case scenario.

Monthly electricity costs under modelled scenarios



Source: Own modelling results and calculations

If a deal with MGRES is reached and Romanian subsidized imports are increased to 180 MW (S3), the additional cost drops to EUR 114 m or 1.0% of GDP, stemming from lower dependence on costly imports based on market rates.

Finally, if the MGRES deal is reached, additional Romanian subsidized imports are contracted and left bank Moldova cuts its own consumption and sends the excess to right bank Moldova (S4), costs drop to “only” an additional EUR 68 m. This represents the best-case scenario and an active target for the government to aim for.

Electricity cost under the modelled scenarios

EUR m	S1	S2	S3	S4
Nov22-Apr23	484	321	250	203
Additional cost vs Nov21-Apr22	349	186	114	68
Additional cost, % of GDP	3.0%	1.6%	1.0%	0.6%

Source: Own modelling results and calculations

Conclusions and policy recommendations

The conducted analysis demonstrates the significant differences in possible incurred costs under the assessed scenarios, with key policy priorities emerging. Firstly, Moldova must aim to reduce its electricity consumption and incentivize both residential consumers and industry to do as much as possible this winter. Secondly, the MGRES power plant and the resumption of electricity supply to right bank Moldova are key, as agreeing a deal (albeit at lower supply levels than historically) can cut the additional cost vis-à-vis last year by 47%. This may also entail sending gas or coal to MGRES to ensure operations. Thirdly, securing additional supply at preferential prices from Romania can also significantly decrease costs as this reduces the need to import expensive electricity on the day ahead market. Finally, in the best possible case, working with representatives from left bank Moldova and incentivizing a reduction in electricity and gas consumption there can help bring the costs down even further.

This Newsletter is based on the [Policy Paper: Forecasting Moldova's electricity costs between November 2022 and April 2023: A scenario analysis](#)

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 *Advisory activities in Belarus are currently suspended.