

Policy Note 2019.4 – Electricity Market Reform

AFTER two years of preparations, Ukraine is supposed to open its electricity wholesale market in July 2019. That is, traders, suppliers and large consumers will be able to buy electricity freely from different generators. But there remain some important implementation challenges which in our view suggest that central coordination of the implementation should be revitalised and it might be better to phase-in the market more slowly.

Wholesale market is important for renewables and efficiency

A functioning wholesale market makes sure that the cheapest available power sources are used to meet the demand – and that prices reflect the true cost of production. This encourages cost-optimal dispatch of the system, cost reductions at power plants and economical usage of electricity. For example, increasing prices in times of high demand and low solar generation might encourage consumers to reduce power consumption, hence avoiding the need to switch on additional coal units. Furthermore, a functioning wholesale market is needed to ensure the profitability of Energoatom – the company whose profits are supposed to cover the cost of feed-in tariffs. Finally, more cost-recovering wholesale prices can reduce the subsidies needed for renewables – possibly making them cost-competitive on the open market¹.

Market design is a complex task

Electricity wholesale market opening is not an easy exercise. Flows of data, money and electricity between generators, consumers, traders, system and market operators must run smoothly in real time. This will require more than 100 pieces of secondary legislation that clearly define the responsibilities of the individual players, data-exchange protocols and software need to be rolled-out and people need to be trained for the new system.

The wholesale electricity market is not just one market – but a sequence of markets to ensure that all actors have the best market-signal for their operation. Based on the price-signal in *longer term markets* (e.g., a year or a month ahead of delivery), power plant operators can plan their maintenance schedules and fuel purchases. Based on the price on the *day ahead market*, power plant operators can decide on whether they will run their plant (starting up is more costly than running a plant). Based on the *intraday market* price plant operators can decide to adjust their planned production. And based on the *balancing market* price very flexible units such as pump-storages can decide whether to produce and hereby ensure that demand and supply are equal. Finally, in the ancillary service market, the system operator procures a couple of services important for the stability of the network from market participants – such as reactive power or very quickly activatable reserves.

In the design it is important that the responsibilities of each actor in each market are very clearly defined, that each actor has a strong incentive to deliver what he/she promised and that the system can even survive the failures of individual actors. This is not impossible but it requires thorough preparation. In the EU, corresponding markets are working seamlessly and are

even integrated across borders – which multiplies the complexity.

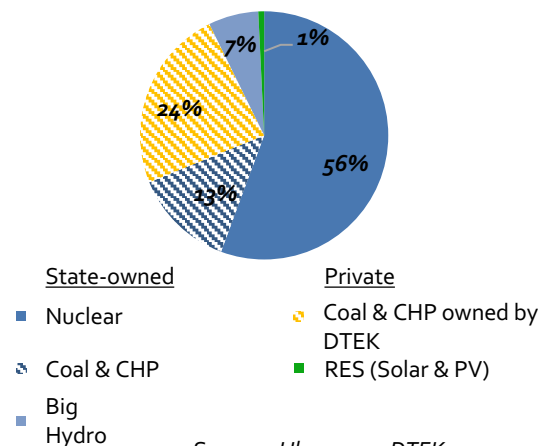
Preparation behind schedule

In Ukraine, the preparation of the introduction of the electricity wholesale market currently runs behind schedule. Important software to link the system operator, the market operator and market participants has not yet been successfully tested. Several market participants are not certified – so we cannot be sure whether they will be able to fulfil their assigned role. Important parts of the complex rulebook have not been prepared/approved. There is no mechanism in place to monitor and quickly sanction abusive behaviour – such as capacity withholding or excessive pricing - of individual market players. There are no template contracts between market participants. The rules of financial guarantees seem not to ensure that only financially viable companies can participate in the market.

Market power remains an issue

Markets only provide efficient results if there is competition – otherwise dominant players will deliver suboptimal services at too high prices – irrespective of the market design. Currently it appears conceivable that most of the electricity generation from Energoatom and Ukhydroenergo will be dedicated to regulated supplies to vulnerable customers – while electricity imports remain blocked. If this should materialise almost only DTEK and Centrenergo will compete for the market. Hence, the temptation to increase prices beyond cost will be high.

Electricity generation by sources, 2017



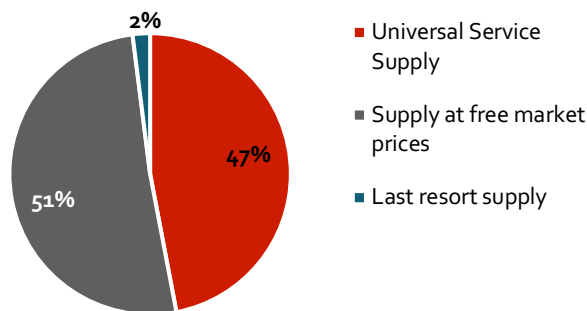
The risk of insufficient liquidity in the new wholesale market

In addition to a potentially strong concentration on the supply side, the risk of too low liquidity poses another threat to a successful new market. As shown in the figure below, half of the power exchange in the current system happens outside the wholesale market under regulated conditions. Smaller consumers (currently all with <150 kW per year) can get regulated tariffs and certain consumers such as water supply enterprises cannot be cut off from power supply for environmental reasons.

¹ At a Rotterdam+ coal price of about 100 USD/t [5200 kcal] and a plant efficiency of 33% the pure fuel cost of a coal plant are on par with the levelised cost of a utility scale solar PV installation [39-63

€/MWh according to "Fraunhofer (2018). Levelised Cost of Electricity Renewable Energy Technologies"].

Segments of Ukraine’s electricity market as of Feb '19



Source: NEURC

Furthermore, some of the consumers that would constitute the free market segment are integrated with generators. About 10% of total electricity in Ukraine is consumed by energy intensive companies (especially metals) belonging to SCM – the parent company of DTEK. They will likely not trade their electricity on the market. In addition to that, DTEK also controls some Oblenergos.

The way in which state-owned generators/aggregators such as the guaranteed buyer of renewable energy, Energoatom and Ukrhydroenergo will release their volumes to the market, will shape the liquidity in the different market segments (term market, day-ahead, intraday, balancing). If, for example, most of this electricity is sold in the form of long-term products (e.g., yearly baseload), strategic players with own generation assets might acquire these volumes and resell them with a profit in the shorter-term markets. Therefore, it is important that these volumes are released in all market segments.

Implementation requires more coordination

As all parts of the system need to work together the implementation of such a complex process requires a lot of coordination. Currently, the individual actors [Ukrenergo, NEURC, Ministry, Energorynok, Oblenergos, generators] are implementing (parts) of their requirements for the new market. But an overall coordination that ensures that the pieces of the puzzle fit together is at best happening informally. Such a voluntary coordination only works as long as there are mutually beneficial solutions that do not create problems in other areas. But important decisions imply shifting cost and benefits between actors. If, for example, Ukrenergo procures a software to communicate in real time with the generators and consumers, but this software is difficult/expensive to implement at for the market participants (and if Ukrenergo constantly changes the data-formats) market participants might delay the process. If Energorynok tries to centralise all the data without proper access for the other actors they might not want to share it. Or if the regulator does not provide legal certainty on important rules in order to avoid mistakes, market participants cannot prepare their parts. Moreover, timing is key. No actor will move ahead with complex and costly reforms when he cannot be sure that the others are doing their part.

Such issues are normal – but they cannot be solved bilaterally, but require politically legitimate coordination. Hence, high-level political coordination is necessary to resolve such thorny issues and make the market opening a success.

A wrong start is worse than a late start

If the market is started before it is ready it might lead to an unmitigated disaster. The 2001 Enron crisis in California shows what political fallout a failed market design could have: Skyrocketing prices and market participants that cannot fulfil their supply obligations even though they were paid ultimately caused rolling blackouts. This had lasting financial consequences for the state. Such a backlash in Ukraine might also be seen as a failure of the European model and hence have wider political consequences. Therefore, it is more important to get the market right, than to risk a failure.

But Ukraine should not lose time by just postponing market opening by some month, hoping that the technical difficulties are sorted out by then. Because they won't. The underlying problems need to be addressed immediately to ensure a success of market opening, eventually. (1) Debts: Metering and rules need to be in place to ensure that anybody that consumes more electricity than contracted is quickly cut from the grid and cannot reconnect unless he pays his debts. (2) Competition: The privatisation of Centrenergo to a non-incumbent player and the enabling of free cross-border electricity trade through Burshtyn island are crucial to have at least some competition. (3) Coordination: High-level political coordination of the market opening process needs to be re-established. It should feature a clear and transparent Action Plan that is overseen by a high-level coordination group that meets more than once a month and can be supported by external experts. Such a process can quickly enable the introduction of a functioning wholesale market that will provide predictable price signals to attract investments into the gear needed to accommodate high shares of renewables such as flexible plants or storage.