Kaliningrad's Energy Self-sufficiency: Potentials and Opportunities

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Given its peculiar geographical position as a Russian exclave on the Baltic Sea Coast lodged between Poland and Lithuania, the Kaliningrad region has always been dependent on the transit through its neighbours–Lithuania–for energy supply. Within this context, the recent climaxed struggle between the European Union and Russia has brought into the spotlight new controversial issues concerning their energy relations, notably with respect to Kaliningrad's energy security. In this instance, the reliability, continuity and sustainability of its energy supply are becoming priority tasks for ensuring the livelihood of the region. Against this background, my study intends to explore Kaliningrad's potential to become an energy independent player by scrutinizing its current energy-efficiency policies, the main hindering factors, as well as forecasting opportunities in the development of the demand for electricity and gas supply. To this end, particular attention is devoted to evaluating the possible expenses of Kaliningrad's energy self-sufficiency both for the European Union (EU) and Russia. This is done with a view to identifying the best cost-efficient strategies to be adopted as per either becoming an "energy island" or being integrated within the wider western energy system.

Analytical background: IPS/UPS de-synchronization

In line with the EU's purpose of promoting interconnectivity and constructing a single energy market throughout Europe by 2025, the three Baltic States (Estonia, Latvia and Lithuania) are undertaking policies aimed at unplugging from the Russian-centrally controlled IPS/UPS synchronous transmission grid, which was set up under the BRELL[1] agreement in 2001, and integrating into the Western European Energy System (UCTE). From this perspective, in order to achieve a closer integration with the UCTE, two key conditions are to be met: first, the modernization and enhancement of existing transmission capacities within the three Baltic countries; second, the construction of new interconnected and synchronized links with the rest of the EU network, all of which requires a considerable amount of investments in new baseload generating capacity. Moreover, in case of de-synchronization, there would be the necessity to have converters on the borders between Russia and the Baltic States so as to ensure a constant flow of electricity across the region despite a change in the system (Gurzu 2015).

If on the one hand, it is true that larger synchronized electricity grids provide greater economic advantages–fluctuations can be more easily managed than do isolated networks, on the other hand, we should not overlook possible hazards–even of technical nature such as blackouts. After all, in large synchronized grids, problems occurring in a region can be quickly felt in another as a result of easy spreading through interconnections (Bulakh et al. 2017). An efficacious solution to tackle this problem could be that of upgrading grid controls as well as constructing new (or reinforcing the existing) power lines in the region, which, in any case, comes at a substantial cost. Within this framework, not only would an eventual "BRELL-exit" require meeting investment expenses in new infrastructures, but also it would imply addressing two areas of concern: political volatility–e.g. unpredictable energy policies by the left-out Russia and Belarus–and geostrategic threats. In this sense, the political domain proves to be the most challenging dimension of the de-synchronization process.

Reflections on Kaliningrad's energy policies: challenges and opportunities for energy independence.

With regard to BRELL-exit, the main problem for Kaliningrad's energy security derives from a lack of trust in EU-Russia relations, which makes the Russian exclave a potential energy hostage (Kharin and Usanov 2014). For its part, Russia's response to the Baltic leadership-initiated de-synchronization policies has been focused on guaranteeing the stability[2] of electricity supply to Kaliningrad, as well as minimizing the risks of possible escalating tensions in the region's energy sector. From the perspective of Moscow, the major challenge that a BRELL-exit brings with it is to ensure Kaliningrad's energy self-sufficiency in the aftermath of the Baltic de-synchronization process. To take account of this, even before the de-synchronization emerged as a policy issue, from 2005 to 2010 the Russian government had already commissioned the construction of the gas-fuelled Kaliningradskaya thermal power station (TEC-2). Yet, as Bulahk et al. (2017) argue, this single- source plant proved to be insufficient. As a response, Russian state-owned corporation Rosatom began to build the Baltiyskaya nuclear power plant (NPP), which was intended to integrate the thermal power station as well as to make it possible for Kaliningrad to export electricity to neighbouring EU countries. In light of new EU-Russia confrontations triggered by the Ukrainian crisis, the Ministry of Energy decided to temporarily suspend[3] the construction and, as an alternative, to develop Kaliningrad's energy independence on the basis of a gas-coal scenario. It was planned to build three new thermal gas-powered stations– one of 440 megawatts (MW) in Kaliningrad (Pregoslky) and two of 156MW in Gusev and Sovetsk (Mayakosvkaya and Talakhovskaya respectively)–as well as a coal-powered plant (Primorsky) to function as a backup. As the new facilities became operational, the power generation capacity in Kaliningrad doubled, providing not only stable energy supply, but also reserve-capacities to face possible technological difficulties or periods of stand-alone mode.

Other initiatives designed to guarantee the region's energy self-sufficiency fall within the field of liquefied natural gas (LNG). In particular, following Putin's intention to push for Kaliningrad's gas independence, from 2013 the Russian state-backed gas company Gazprom has been engaged in the construction of an LNG terminal, which links to a gas pipeline via a local underground storage facility, thus allowing deliveries of supply to local communities. This new terminal is intended to unbundle the region from the pipelines passing through neighbouring countries, such as the Minsk-Kaunas-Kaliningrad channel, which Gazprom CEO Alexei Miller has announced to shut down[4] (Karpov 2019). Also, on January 8 this year, Gazprom put into operation an offshore gas-receiving terminal as well as a floating storage regasification unit (FSRU), the Marshal Vasilevsky, whose capacity of 2.8 billion cubic meters (bcm) will be enough to satisfy Kaliningrad's annual gas demand–2.4 bcm in 2017, 2.6 bcm in 2018 (Tomberg 2019). If on the one hand, the FSRU solution appears to be politically effective, on the other hand, it comes with substantial economic costs. These derive from the fact that Russian LNG export-facilities localized in the Far North, the maritime transport from and to Kaliningrad will be uneconomical and time-consuming. "LNG imported to Kaliningrad via shipment is 4.5 times as more expensive as the price of gas pumped through Belarus and Lithuania" (Warsaw Institute 2019). Additionally, a related political problem arises from this, namely that LNG export facilities are property of Novatek (the second largest Russian natural gas producer), which means that Gazprom will not be able to pump gas through the terminal and, as a consequence, it could slow down if not halt the implementation of the project. In this regard, as to not incur future escalating tensions, a form of cooperation between Novatek and Gazprom would be, if possible, recommended.

Reliability on Kaliningrad: potential solutions for burden sharing

Considering that the Baltic States and UCTE's electricity grids are linked only through the overland interconnector LitPol, which unites Lithuania and Poland, the latter plays a prominent role for the development of synchronization policies to the EU energy system. Experts (Harper 2019) argue that an additional high-voltage current cable should be built between the two parties, specifically directly under the Baltic Sea, passing around Kaliningrad's territorial waters. On this subject however, Poland seems disinclined to the construction due to high investment costs (ca. 300 million euros), potential price competition that might derive from electricity exports by Lithuania, and environmental impact-related concerns (*ibid.*).

In such a landscape, a possible way to shoulder this financial burden could be that the three Baltic States link up with Baltiyskaya NPP, scheduled to become operational in 2020. Taking into account that its power capacity is supposed to be 1200 MW–as such too large for Kaliningrad itself–most of the energy produced will have to be exported if a balance in the region's power system is to be maintained. For its part, Kaliningrad should synchronize with the wider

EU electricity market as this makes more economic sense for the exclave, which otherwise would remain an energy island with significant overcapacity in power generation. Besides, the synchronization could make Baltiyskaya NPP more attractive to investors. As stressed by Dolzer (2014), "under such scenario, the to-be-completed NPP could provide the additional competitive baseload capacity…required to link and successfully synchronise the Baltic States and the wider European system." Should this solution be agreed on, the construction of the nuclear power plant would have to be made fully compliant with the EU's regulation and standards as well as with the "best practice" guidelines[5] (in terms of corporate governance, information disclosure, and technical and operational factors). In this regard, the plan could only work if energy security issues are properly addressed.

Notwithstanding the aforementioned positives, it seems that the Baltic States are not particularly prone to consider the option as feasible and remain intended to exclude the Russian exclave from the UCTE system. On the other hand, Russia also seems unwilling to consider this option, preferring a self-sufficient Kaliningrad not integrated within the whole EU network. Arguably, these attitudes are justified by the lack of trust in today's EU-Russia relations, which forces both sides to reduce their energy dependence on each other (although this proves to be less cost-effective than a scenario of mutual interrelationship).

Conclusions

Concerning our object of research, namely Kaliningrad's energy sector and its possible (a) self- sufficiency or (b) integration within the whole EU network, EU and Russia's stances fundamentally clash with each other: whereas the EU might have all the potential to integrate Kaliningrad exclave into the Western European Energy System, Russia's *realpolitik* remains centred on preserving its sovereignty, and, ultimately, on setting Kaliningrad's energy independence up as an economic, political, and ideological alternative to the unified EU energy network. This contradictory position, in turn, leaves little room for EU-promoted institutional policies thus inhibiting the creation of a level playing field in energy matters.

In the wider context of international relations (IR), it is possible to address EU-Russia's energy security issues by applying the realist theoretical idea of the security dilemma: "a situation in which 'the self-help attempts of states to look after their [in our case energy] security needs tend, regardless of intention, to lead to rising insecurity for others as each interprets its own measures as defensive and measures of others as potentially threatening" (Herz 1951). Within this framework, and considering the positives deriving from a best-case scenario of mutual cooperation between the two sides, I would recommend EU and Russia's policymakers work closely together towards the creation of a trust-based relationship in which Kaliningrad's region will be an integral part of both the common Baltic and the Western Union's energy systems.

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Notes

[1] Belarus, Russia, Estonia, Latvia, Lithuania (BRELL).

[2] As understood by Gnatyuk et al. (2018), the stability of a region's electricity supply is defined as 'the state of the region that determines its ability to reliably supply the economy's needs with electricity of acceptable quality and affordable price in full volume, the ability at any time to counteract the negative impact of constantly evolving internal and external threats, and the ability of the system to self-development and improvement'.

[3] Upon the construction of the plant it was expected that the power produced would be exported to the neighbouring regions. Yet, in 2013, European states made it clear that they were not intended to buy the surplus of electricity produced. As a consequence, Rosatom suspended the project to review its technical features and started negotiations with European companies on the feasibility of power exports. The project is now being refocused on serving the united grid of the Baltics as well as Northwest Russia (Nuclear Engineering International Magazine 2016).

[4] Gazprom intention is not feasible as it violates a contract that binds Russia and Lithuania on the gas transit to Kaliningrad (up to 2.5 billion cubic meters/year) and that is going to expire in 2025. In this sense, if Gazprom violates the deal or reduces the volume of gas, Lithuania would enjoy the right to bring legal proceedings (Warsaw Institute 2019). It follows that, although the new LNG terminal will provide Kaliningrad with gas self-sufficiency, the region will be dependent on gas flows from Lithuania for the next six years.

[5] European Commission, *2018 Best Practice Guidelines for the EU Code of Conduct on Data Centre Energy Efficiency*, JRC Technical Reports. For further information see: http://publications.jrc.ec.europa.eu/repository/bitstream/JRC110666/kjna29103enn.pdf

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