

Unplugged

by ALEXANDER WELSCHER

Ten years ago, the Ignalina Nuclear Power Plant in Lithuania was shut down forever. The forced phase-out of the only atomic power station in the Baltics led to a fundamental transformation of the energy sector. Further big changes are underway, but by no means completed yet.

in the midst of a scenic forest area nestled in the north-eastern tip of Lithuania, close to both the Belarusian and Latvian borders, the silhouettes of two washed-out red-and-white striped smokestacks poke into the sky. Visible already from afar at the end of a single road, they tower up from hulking structures that were part of the only nuclear power plant in the Baltic states: Ignalina. The huge atomic station was Lithuania's most important power source, but had to be closed for good ten years ago. Fulfilling a commitment that Lithuania gave when it joined the European Union, the plant ultimately went offline at the end of 2009 – long ahead of the date that its builders had envisaged. Since then, the power plant has not generated any more electricity.

Switching off the ageing Soviet-era reactor dramatically changed the power generation landscape in the Baltics, with the region looking for new sources and ways to secure their energy supply ever since. “It had quite a negative impact on our energy balance. Instead of being an exporter, we became an importer. It also brought some negative consequences to the energy price – the average electricity price increased by almost 30%”, Lithuanian President Gintanas Nauseda recalls the implications of

the planned nuclear phase-out for his country. On a positive note, he also referred to the shutdown as “a huge trigger to stimulate the development of our renewable energy”.

Electricity shortfall and energy dependence

Ignalina used to supply 80% of Lithuania's electricity and also exported power to Estonia and Latvia, covering almost 40% of the overall consumption of the Baltic countries. However, as important as the power plant was for the region's energy supplies, its hefty 1,500-megawatt reactors caused safety concerns, especially in Western European countries. Fears centred on the reactor design that was of a similar type to those at the infamous Chernobyl reactor in Ukraine which melted down in 1986, causing the world's worst nuclear accident to date. Brussels thus demanded Ignalina be shut down because it was deemed unsafe. The first reactor was taken offline on December 31, 2004, the second on December 31, 2009.

The end of Ignalina caused mixed emotions. Not least because it meant that the whole region had to rely on alternative sources of energy. Lithuania had to increase the output of its conventional power stations and also raise the amount

of energy it imports from other countries – including Russia. Almost 20 years after breaking away from the Soviet Union, the three Baltic states were again heavily dependent on Moscow due to a lack of other connections and suppliers. The increased reliance on the powerful neighbour as the primary energy supplier left many with a sense of unease – energy policy is still understood as a question of national security in Vilnius. The same is true for Tallinn and Riga where energy issues in the past have also risen to the top of the political agenda and still have a significant impact on bilateral relations.

Going past monopoly and the status as “energy islands”

Lithuania even lobbied for Ignalina to be granted an extension to its lifespan but was rebuffed by

Photo: Alexander Welscher

the European Union. Policymakers in Vilnius thus agreed to shut the plant down – grudgingly and without much preparation. To smooth out the transition and not throw the Baltics into perpetual darkness, Brussels pledged to largely finance the cost of decommissioning. The EU commission promised help with the connection to the European energy networks and came up with the so-called Baltic energy market interconnection plan (BEMIP) that was designed to end the Baltic states' status as “energy islands” within the European Union by building links to other EU members. Interconnections were increased with Estlink 1 and 2 lines between Estonia and Finland, the LitPol Link line between Lithuania and Poland and the Nordbalt line between Sweden and Lithuania. This reduced the dependency on Moscow, which for a long time also used its economic leverage to exert political pressure.

A liquefied gas terminal that went into operation in 2015 in Klaipeda has also shifted the balance of power. The floating storage regasification unit – aptly named “Independence” – broke the monopoly of Russia's state-owned gas company *Gazprom* over gas supplies to the Baltic states. It can serve as an alternative to the natural gas supply by pipeline from Russia. Boasting 4 LNG storage tanks of a total capacity of 170,000 cubic metres, the facility can theoretically cover all of Lithuania's gas needs and help to supply its Baltic neighbours. Initially, it imported mainly Norwegian LNG for mostly domestic consumption, but began to diversify in late 2017 with the import of its first US cargo. Since then, the gas transmission of Lithuania to the Baltic states has increased manifold and, with almost 6 TWh in 2019, reached the highest ever-recorded amount of gas to the Baltic states.



The decommissioned Ignalina nuclear power station in Visaginas

Another new zone of competition was enabled by the recent completion of the Estonian-Finnish gas link called *Balticconnector*. The bi-directional pipeline connects both countries' grids and provides Finland with access to Latvia's natural gas storage in Inčukalns, making way for a three-country marketplace for natural gas. The united system encompasses a common tariff zone that allows cross-border trading at a single rate with no extra charges beyond pipeline and storage costs. However, the connection and common market will do little to end Gazprom's prevailing dominance in the region before the Poland-Lithuanian gas link is ready for operation at the end of 2021. Not to mention that the negotiations on the possible accession of Lithuania to its Northern neighbours' joint market are still on-going.

Synchronization of the Baltic power grid with Europe

Similarly, the Baltic power grids are still part of the BRELL ring that operates synchronously with the Russian and Belarusian systems, and remain dependent on the control centre in Moscow. But this will change by 2025 when the Baltic states are to be fully connected to the rest of Europe via Poland and integrated into the continental European network. In mid-2019, the governments of the four countries and the European Commission approved a political roadmap and work schedule for the synchronization. To ensure a smooth disconnection, Brussels will be involved in negotiations with Moscow, which has already expressed its discontent and claimed the move would be very unwise economically and might cost billions. The price tag is indeed high: the total value of the Baltic synchronization project is €1.6 billion, according to the Lithuanian Ministry of Energy

“We will do whatever it takes to make this process smoother and more effective”, Lithuanian President Gitanas Nausėda emphasized after a meeting of the three Baltic heads of state in Riga in mid-December. His colleagues Kersti Kaljulaid (Estonia) and Egils Levits (Latvia) also reaffirmed their support for the technically complex and daunting project which has led to internal disputes on the synchronization scenario in the past. Now, the synchronization should also contribute to green energy policies that drive the three countries towards climate neutrality and become regionally independent electricity producers in a CO2-neutral way, the presidents emphasized.

Nothing was heard anymore by the presidential trio about the construction of an Ignalina replacement facility to serve the whole region. Lithuania, Latvia, Estonia and Poland have long been holding talks about building a new plant together at the site of the previous nuclear station. However, the initiative stalled due to domestic



political disputes in Lithuania and a lack of binding agreements among the potential partners. Blighted by delays and indecision for years, it is more than unclear whether the project – which was also rejected in a non-binding referendum held alongside the parliamentary elections in 2012 – will ever be revived.

Atomic legacy

Meanwhile, work will continue on dismantling Ignalina, which served as a filming location for the highly-rated HBO mini-series *Chernobyl*, a dramatization of the 1986 nuclear disaster. In the episodic TV drama, the defunct plant in

Lithuania stood in for its ‘sister’ in Chernobyl and now has become an off-beat tourist attraction since the show aired last year. Due to the high interest in visiting the plant, Ignalina had to increase its visitor capacity and attract additional tour guides to cope with the demand from Europe and beyond.

Still, most of the 1,800 people working at the power plant are dealing with the dismantling of the reactors – a process expected to take 30 years. Nearly 40% of the clean-up work has been completed. About a third of the nuclear waste held at the facility has been processed and taken away over the last decade, and 70% of spent nuclear fuel has been loaded into special storage. “We are definitely on schedule, ahead of it in some respects”, Energy Minister Žygmantas Vaičiūnas told the Lithuanian public broadcaster LRT at the turn of last year. “The decommissioning will be completed in 2038, when a green meadow will be all that remains in the 80-hectare territory.”

Ignalina’s red-and-white striped smokestacks will then no longer be visible. However, the atomic legacy of the plant will still be there and it appears to be more durable. There still is some controversy on the final destination of the radioactive waste which can only be kept in the interim storage for 50 years.



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Decarbonisation, decentralisation and digitalisation

Photo: Alexander Welscher

Kęstutis Kasakaitis does not have a crystal ball to tell what is ahead of us in the energy sector. Nevertheless, Lithuanian representative of the leading German software company SAP is closely analysing new developments and trends in the energy sector and how they will affect the Baltic markets. In a short interview with Baltic Business Quarterly, Kasakaitis shares his insights.

Which trends do you currently see in the energy sector?

From a global perspective there are several main trends – a shift towards renewable energy and transition into low carbon, more sustainable economy. This has and will be further affecting the energy sector with fundamental changes in its markets. However, despite significant challenges a new course of action is being supported by the public opinion as well as political and economic players, and the society itself is becoming more demanding.

renewable energy sources. The Green Deal is yet another strong position and push from the governments. Europe is aiming to become carbon neutral by 2050 – this is an ambitious goal and can only be achieved with a profound investment plan.

In which areas investments are needed?

The energy transition will bring opportunities to further invest into

renewable sources digitalization of energy consumption as well as new business models that will be offered to final consumers who themselves start having a much more active role in the market. We are moving away from the traditional centralized energy production in power stations to decentralized networks with multiple sources of energy that are connected by smart grids and powered by digital solutions. There is a whole business eco-system coming together with this change while the long-standing monopoly model is fading away.

What effect will this have on the markets?

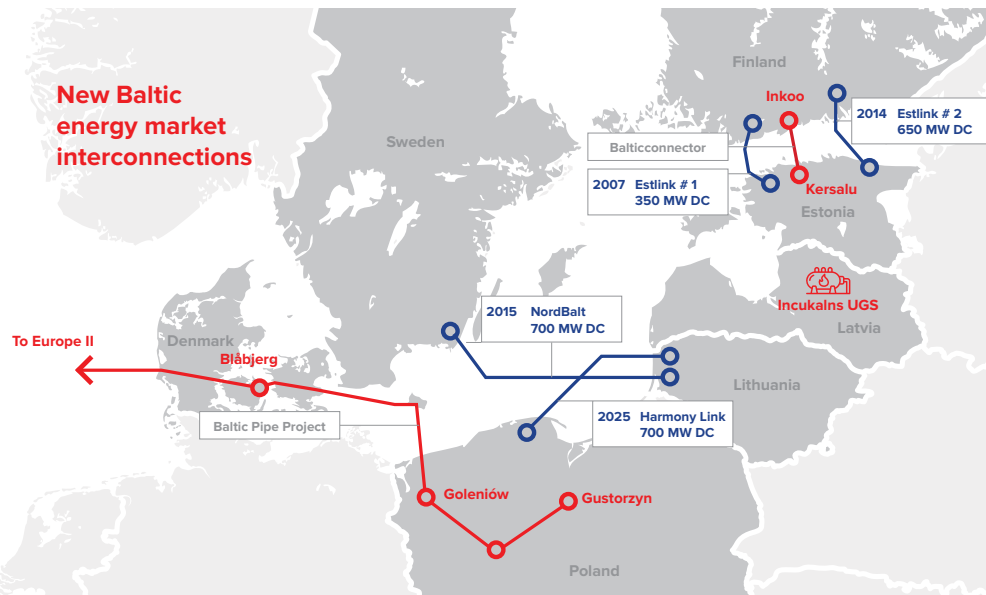
Overall, the energy markets are evolving and becoming much more interconnected. This needs to be orchestrated by an entirely new ecosystem that strongly relies on IT, to make sure that all elements are operational and linked to one big network and no information is lost along the way. Therefore the technological base is becoming critical and cybersecurity is a major aspect of it. The openness, cross-docking and exchanging of energy sources make the grid infrastructure more vulnerable, also due to our increasing dependency on energy data.

Are these topics also on the agenda in the Baltics?

Definitely. The energy transition is now very present in Europe and particularly in the Baltic States. Being smaller countries allows us to adapt even easier and quicker. We are turning fast in those new directions and the speed that the major Baltic energy companies have been demonstrating is impressive.

WHAT SAP IS DOING IN THE ENERGY SECTOR

For decades SAP has been developing the software that helps its customers keep track of their entire business processes and use this data for their decision making process. Applying solutions of the German software leader, electricity and other utility providers around the world are maintaining their grids, monitoring access and consumption data, running the end-to-end business process from a settlement of a new connection to customer care. “In the energy sector, SAP is considered to be the industry standard for utilities. We are not yet very strongly positioned in the Baltics but we want to change this,” says Kestutis Kasakaitis. “We are coming with the knowledge and expertise of serving the 91% of the Top Forbes Global 2000 Utilities that runs SAP solutions in the cloud or on their own premise. Latest SAP solutions enable energy utilities to develop new energy related services based on the data collected from smart home devices, intelligent meters, distributed energy sources, weather maps, as well as consumer behavior.”



• Gas infrastructure in the region • Electricity interconnections