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Visaginas Nuclear Power Plant – still high-risk investment

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The Lithuanian Seimas approved the government-sponsored proposal for the construction of a new nuclear power plant outside the Lithuanian city of Visaginas on 21 June. MPs cleared the government to sign the concession agreement (initialled 30 March 2012) with Japan's Hitachi Ltd. Under this deal Hitachi becomes the strategic investor in the project and will provide a 1350-megawatt reactor for the plant. Despite its original plans, the Lithuanian government was unsuccessful in securing a Western investor who would be willing to take on a 51% stake in the project. According to Lithuania's deal with Hitachi, the Japanese company will receive just 20% of the shares in the future NPP, whose total cost has been estimated at 5 billion euros. Although Hitachi's investment is going to be significantly lower than initially expected, the company's decision to back the project and supply it with a modern reactor can be seen as a guarantee that the implementation of the project is financially viable. The majority of the risk however will be shouldered by the Lithuanian state, which will retain a 38% stake in the plant. In addition, the government is currently trying to secure additional investors for the project from across the Baltic Sea region. Estonia has already shown interest in buying a 22% stake in the company, while Latvia might finance another 20% of the project.

The parliament's approval for the government's plans to construct the plant and its deal with Hitachi do not however seal the future of the project. The final decision is not expected until 2015; this gives opponents of the project plenty of time to bring a halt to the deal. On 14 July, for instance, Lithuania's opposition MPs succeeded in passing a proposal under which Lithuanians will be able to vote on the future of the planned nuclear power plant in Visaginas in a special consultative referendum, which is to be held together with the country's parliamentary elections on 14 October. Although the referendum will not be legally binding, it may – together with other future initiatives launched by opponents of the plant – significantly reduce the likelihood that the project will in fact be implemented.

The political risk of the Visaginas project

The vote in the Seimas on the concession agreement clearly showed that there is little political consensus on the Visaginas project, which is being backed mostly by the Lithuanian conservatives. During the vote, the Hitachi deal (see Appendix 1) was supported by: Homeland Union/Lithuanian Christian Democrats led by Lithuania's Prime Minister,

and by two members of the current coalition government: the Liberal and Centre Union, and the Liberal Movement. Partial support for the project was also given by MPs from the opposition Labour Party of Lithuania; this was enough to secure the required majority. The deal has also been endorsed by Lithuania's president Dalia Grybauskaite. The plans proposed by the conservative government have been rejected predominantly by the Lithuanian opposition – the populists and the Social Democrats, who decided to ignore the vote altogether.

The parliament's decision to approve the proposed business plan and the deal with Hitachi does not necessarily mean that the project will be implemented. The government's adoption of a series of laws which are crucial to the success of the project comes ahead of significant changes on the Lithuanian political scene due to the parliamentary elections scheduled for 14 October[1].

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As the Visaginas project gets pulled into the upcoming election campaign, both Hitachi and other potential investors must realise that the already visible attempts to scupper the project could in fact be successful. Informal groups and official organisations actively opposing the construction of the power plant, and particularly the Lithuanian Green Policy Institute[2], have been questioning the government's claims that the majority of people in Lithuania support a return to nuclear power. On 14 July, opposition MPs (backed by the required number of support signatures from the Lithuanian people) succeeded in passing a proposal to hold a non-binding consultative referendum[3] on the Visaginas project together with the country's upcoming parliamentary elections. In response to the growing opposition to the plant, the Japanese investor has been acting increasingly cautiously. Despite the Lithuanian's parliament's approval of the concession agreement, the document was not officially signed on 28 June as planned by Prime Minister Andrius Kubilius. The deadline for the agreement to be signed – and thus the official launch of the project – has been pushed back to the end of 2012. The Japanese's investor's hesitance is a response to the problems with securing other investors for the project – from Latvia and Estonia – and a lack of progress in negotiations with potential investors from Poland (see Appendix 2).

Investment decision in 2015 – high costs and potential losses from today

The final investment decision, detailing the legal and financial commitments of the individual investors, is to be taken by 31 March 2015. By 31 July 2015 the partners are to secure planning permission, and the construction work is expected to begin by 31 July 2016. The opening of the plant has been scheduled for 31 December 2022.

The significant cost of the project is directly linked to the two-year planning stage, which is expected to cost over 309 million euros – of which 115 million euros is to be covered by the Lithuanian state. During this period, the current shareholders will have an opportunity to make additional adjustments to their plans and to implement potential shareholder changes. Under the concession agreement, any of the shareholders, including the Lithuanian state, will have the right to withdraw from the project, and the project will nonetheless be allowed to go ahead as planned. If, however, Lithuania decides to scrap the project completely, it will have to cover all of the costs incurred during the planning stages. In addition, prior to the final investment decision, Lithuania will have to build a road link between the cities of Klaipeda and Visaginas (another 81 million euros) as there is currently no possibility of

1 The conservatives are likely to lose their current majority in the parliament. Opinion polls are showing a rise in support for the Social Democrats and Lithuania's populist parties, including the Labour Party and Order and Justice. These parties could therefore become the core of the post-election ruling coalition.

2 The Institute is funded by private companies with a vested interest in developing renewable energy sources in Lithuania. The organisation is also backed by the country's largest company Achema – Lithuania's major individual consumer and importer of natural gas from Russia's Gazprom.

3 The voters will have a chance to say 'Yes' or 'No' next to the following statement: 'I accept the construction of a new nuclear power plant in Lithuania'. The referendum, which in essence will be little more than an opinion poll, will increase the cost of the parliamentary elections by over 1 million euros.

transporting the Japanese reactor from the port of Klaipeda to the power plant. The total cost of the first stage of the project has been estimated at around 390 million euros.

The business plan, which constitutes a part of the concession agreement, estimates the cost of the entire project at 5 billion euros. This amount will, however, increase due to additional costs such as interest on the loan, inflation, fluctuations in currency exchange rates, bringing the total to as much as 6.8 billion euros. To finance the project, the investors are planning to borrow around 4 billion euros from banks, with the remaining 2.8 billion euros coming from investors and partners[4]. The starting budget of 5 billion euros is based not on the calculations carried out by the Lithuanian investors but on the figures included in the offer submitted by Hitachi. This was among the factors which consequently helped Hitachi win the position of strategic investor in the face of competition from Westinghouse, whose bid was on a par with the technology proposed by Hitachi[5].

It should be stressed that the risk of difficulties in meeting financial commitments in a 9-year investment project is relatively high. This stems partly from the economic situation in the neighbouring countries, as bank interest rates depend on the credit ratings of the lending countries. This is particularly significant as most of the Visaginas project is to be financed through bank loans. The governments of Japan and the United States, both of which are interested in exporting their technologies abroad, might be willing to use specially established financial institutions to open credit lines for such projects. The Lithuanian government has suggested that preferential loans for the Visaginas power plant could be obtained from Japan's JBIC, the Japanese credit agency NEXI, or the US Ex-Im Bank. The banks have stressed however that the preferential rates would be contingent on Hitachi's continued involvement in the project as a strategic investor.

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Under the current agreement, over the next 9 years the Lithuanian state will need to invest around 2.6 billion euros in Visaginas. This is a particularly large financial commitment for a country whose annual state budget is just 2.5 billion euro. Lithuania will need to borrow between 45% and 55% of that amount, and the loans will have to be guaranteed by the Lithuanian government.

At the current stage of negotiations, Lithuania is represented by VAE-SPB, which is financed by the country's main energy companies: Lesto, Lietuvos Energija and Litgrid. It is also those three companies that will use their dividend revenue to provide Lithuania's funding for the initial stages of the project. Consequently, the financial performance of the companies will determine whether the Visaginas project can be completed under the selected funding model. According to Lithuania's Ministry of Finance, this poses the greatest risk to the success of the project and the future performance of these companies will determine the state's involvement in the construction of the power plant.

In the coming years, Visaginas will not be the only large-scale project implemented by Lithuania. Other planned energy projects, partly financed by the EU, include the construction of electric power transmission lines between Lithuania and Poland and Lithuania and Sweden, as well as the Poland-Lithuania Gas Interconnector. Furthermore, Vilnius is planning to build its own LNG terminal in the near future, and may soon be forced to partly finance the decommissioning of its nuclear power plant in Ignalina.

Although the European Commission has approved the Lithuanian project, it has stressed that Vilnius would not receive any financial support for the Visaginas plant as the EU does not, on principle, finance commercial projects. Due to the project receiving a positive assessment, though, Lithuania could be eligible for a preferential loan from EURATOM and the

[4] The figures come from a report published by the Lithuanian Ministry of Finance, based on financial records accepted by the government and submitted to the parliament. http://www.balsas.lt/naujiena/597169/visagino-ae-galiatsieiti-23-5-mlrd-litu

[5] Meanwhile, the experience of investors involved in recently completed nuclear projects in France and Finland shows that estimating the budget or the time it will take to complete such a complex project is incredibly difficult. In the case of Finland's Olkiluoto plant, the completion of the project was delayed by four years, while the final cost of the plant more than doubled, from 3.2 to 6.6 billion euros. The Lithuanian government, however, believes that Hitachi's involvement in the Visaginas project will keep it on schedule and on budget. Vilnius stresses that Hitachi has been building reactors since 1970, and all of them have been finished as planned. This was also the case with the latest ABRW reactors.

European Investment Bank. Despite the European Commission's initial refusal to support the project financially, the Lithuanian government will most probably try to convince it that the plant will help implement an important regional project, which will also help meet the objectives set for other infrastructural projects financed from the EU budget.

The Visaginas plant would allow for the consumption of imported fossil fuels (in particular, Russian natural gas) to be reduced in the production of energy in the region and help reduce CO_2 emissions. However, it would also serve as an important link between the energy systems of other Baltic states. In addition, Visaginas would also play a key role in the planned Energy Exchange between the Baltic states and Scandinavia. The Energy Exchange could in future also include parts of continental Europe. By using the plant and a network of cross-border transmission lines, both over land (Poland-Lithuania) and under sea (Estonia-Finland, Lithuania-Sweden), the project would help implement EU plans for a full integration of the Baltic Sea region with the energy systems of other EU member states.

Integration of Visaginas into a pan-European energy system

The construction of a common energy market across the European Union will involve the synchronisation of energy systems in each of the EU member states. At present, the energy systems of Lithuania, Latvia, Estonia and Belarus are synchronised under the Russian IPS/UPS system, and are managed centrally from Moscow.

On 12 June, Lithuania's parliament approved the government's proposal to synchronise the Lithuanian energy network with networks used across the EU by 2020. Under the plan, all power plants currently operating in Lithuania would be modernised to meet the required technical parameters. However, to fully unlink the power grids of the Baltic states and Russia, Lithuania will first have to build links with Poland (LitPol Link – stage one to be completed by 2015, capacity: 500MW; stage two to be completed by 2020, raising total capacity to 1000 MW) as well as Sweden (NordBalt – launch in 2016; capacity: 700 MW). Both of the links have secured funding from the EU Baltic Energy Market Interconnection Plan.

A 1350 MW power plant would require a back-up source of energy to ensure the stability of the grid in the event of technical difficulties or repairs. At the moment, the only countries with the capacity to offer emergency back-up for Visaginas are Russia and Belarus.

Visaginas is therefore seen as a central energy producer for the region, addressing some of the energy deficit affecting the Baltic states (currently, the deficit is highest in Lithuania; with Latvia in third place). The plant would also give the countries energy autonomy and ensure a greater energy balance which, in turn, would facilitate the synchronisation process[6]. It therefore follows that the construction of the power plant and the synchronisation of the individual grids are intrinsically linked. In addition, a 1350 MW power plant would require a back-up source of energy to ensure the stability of the grid in the event of technical difficulties or repairs. At the moment, the only countries with the capacity to offer emergency back-up for Visaginas are Russia and Belarus. On the other hand, if the synchronisation process were to be abandoned, the new power plant would end up operating under a post-Soviet energy system, and would effectively further strengthen this system.

The synchronisation will, however, increase the final cost of the Visaginas plant. Detailed estimates are to be produced by the Baltic states in 2013. Experts have currently put the figure at around 500 million euros, although the construction of an additional link between Lithuania and Poland might raise the final cost to as much as 1.7 billion euros[7]. This will of course need to be reflected in the final budget for Visaginas. The unlinking of the Lithuanian

[6] Although the synchronisation process does facilitate higher energy production, this can be done only with the help of stable energy sources. Wind farms, which are becoming increasingly common in the Baltic Sea region, however are not considered stable.

[7] http://www.technologijos.lt/p/spausdinti?name=S-26098

power grid from the Russian and Belarusian transmission networks will therefore depend on the construction of alternative transmission lines and is seen as a long-term project. Until the process is completed, however, Lithuania will not be able to use the full capacity of the Visaginas reactor, or alternatively, the reactor will need to be temporarily switched off, which will prevent Vilnius from generating the expected levels of profit from the new plant.

Calls for Polish investors to join the Visaginas project continue

Cooperation between Lithuania and Poland has become key for both the construction of the Visaginas NPP and for the synchronisation of the local power grids with the rest of the EU. The success of the Lithuanian plant depends on the timely completion of both stages of the LitPol project by 2020, and access to the interconnector's full capacity of 1000 MW. This will allow the linking of Visaginas with the European Energy Exchange and will strengthen the financial viability of the project. Lithuania continues to urge Polish investors to support the project despite the fact thaton 9 December 2011 the Polish Energy Group (PGE SA) announced that it would be 'suspending its involvement' in the project. The Lithuanian government is hopeful that Poland's Ministry for the Economy will continue to show interest in the Visaginas NPP, also because Poland's own nuclear programme is currently experiencing delays.

At the moment, the business plan is based on preliminary estimates and has no concrete financial evidence. Meanwhile, the continuing integration of energy markets across the European Union is forcing potential investors to make sound financial choices.

Vilnius has proposed three options for PGE Group to return to the project. First, the Polish investor could be offered additional shares – this however would not be a significant change as most shares have already been allocated to individuals investors. Poland could also join the project if one of the current shareholders decided to withdraw, or if Visaginas were to contain two reactors – an option which is already being considered by Lithuania. Increasing the plant's capacity to 2700 MW would raise the construction costs, but the project would gain an additional investor and the production cost of 1 kWh could drop by 20-25%. This in turn would significantly raise the competitiveness of the Visaginas plant in both the Baltic and the European energy markets[8]. This option is further strengthened by the fact that energy produced by one reactor might not be sufficient to meet the energy demands of all four regional partners. The final option would be to sign an agreement on long-term cooperation.

Summary

The major weakness of the Visaginas project lies in the fact that the ruling coalition promoting the project has so far failed to present their partners and public opinion with convincing evidence that the construction of the plant would be financially viable. At the moment, the business plan is based on preliminary estimates and has no concrete financial evidence. Meanwhile, the continuing integration of energy markets across the European Union is forcing potential investors to make sound financial choices rather than simply repeat the argument about the need to ensure the region's energy security.

One example of such an approach has already come from Latvia, where Prime Minister Valdis Dombrovskis sent an official letter to the Lithuania government at the end of June, stating that his country could withdraw from the project if it did not receive assurances of tangible benefits. Similar calls have been coming from Estonia, which is far less reliant on

[8] This option was put forward by Minister Arvydas Sekmokas on his trip to Poland on 3 July 2012 http://verslas.delfi.lt/energetics/asekmokas-lenkija-kvieciama-sugrizti-i-visagino-ae-projekto-darbus.d?id=59051591

energy imports than Lithuania or Latvia (due to its own shale gas deposits). Tallinn has been stressing that it also needs economic incentives which could limit the risk involved in investing in the Visaginas project. Another attempt to include Poland in the project will also require political efforts by Vilnius to rebuild Warsaw's trust in its potential business partner. Another threat to the project could come from outside the EU. Russia, which stands to lose lucrative energy contracts across the Baltic states, has already taken steps to weaken Lithuania's proposals by announcing plans to construct its own nuclear power plant in Kaliningrad and to support a similar project in Belarus.

It cannot be ruled out that if the Lithuanian parliamentary elections, scheduled for the autumn, are won by politicians who in the past have enjoyed backing from Russian energy companies, the Visaginas project might be abandoned altogether. It is also possible that Russia's Gazprom, which is interested in increasing the demand for gas in the Baltic Sea region, may try to tempt some of the Baltic investors away from the Lithuanian project by, for instance, offering lower gas and energy prices.

Abandoning the Visaginas project and scrapping plans for the synchronisation of the Baltic energy systems with the rest of the European Union, but pressing ahead with the construction of electricity transmission lines into Europe (co-financed by the EU) would create convenient routes for the transmission of Russian and Belarusian electricity into EU markets. This would also increase the financial viability of the Russian nuclear projects which are being carried out near the Russian-Lithuanian border.

APPENDIX

1. Concession Agreement with Hitachi

Hitachi Ltd together with the US-Japanese company, Hitachi-GE Nuclear Energy have offered to supply Lithuania's Visaginas project with the tested 3rd generation nuclear technology. Under the concession agreement, which involves the construction, operation and de-commissioning of the plant, Japan's Hitachi Ltd will deliver to Lithuania a modern 1350 MW advanced boiling water reactor (ABWR) equipped with an active safety system. Four reactors of this type are already operating in Japan, with further reactors being currently constructed in both Taiwan and Japan.
Hitachi's partner in the Lithuanian project is the US-Japanese Hitachi-GE Nuclear Services (a joint venture between Japan's Hitachi and the US General Electric, in which Hitachi holds an 80% stake). The design stage is to be completed by a joint venture established by two shareholders: Lithuania's state-owned VAE-SPF (**Visagino Atomine Elektrine – Specialios Paskirties Bendrove** –"*Visaginas Nuclear Power Plant – Special Purpose Vehicle*") and Japan's Hitachi Visaginas Project Investment (set up by the strategic investor Hitachi Ltd and Hitachi-GE nuclear Services). Lithuania's regional partners – Latvia's state-owned Latvenergo and Estonia's state-owned Eesti Energia – are to join the project at a later stage.

2. No guarantees for the project's financial viability

Lithuania has been coming under increasing pressure from its partners in the Baltic Sea region over its reluctance to present the detailed estimates which the Lithuanian government has been using to claim that Visaginas would produce electricity at a highly competitive price. For Lithuania's partners, this is currently the key determinant of their future involvement in the project. Estonia must decide between purchasing 300 MW from Visaginas and rebuilding an additional block with the same capacity at its shale gas power plant in Narva. Estonia's involvement in the project is made more viable by the fact that it will soon be linked with Finland by a submarine power cable Estlink 2 (due to be completed by 2014). Having increased its capacity for transit, Tallinn is currently seeking a reliable energy producer. Latvia, meanwhile, is predominantly interested in receiving guarantees that the energy generated at Visaginas will be competitively priced since it is going to be sold at a local energy exchange.
Once completed, the Visaginas NPP will need to compete with a large number of energy suppliers active on the future Baltic-Nordic energy market currently being developedpossibly even with Russia (it is possible that Lithuania will have to compete against nuclear energy produced in Kaliningrad and Belarus, where alternative projects have already been launched). Meanwhile, many Lithuanian experts have stressed that the estimated price of electricity generated at the new plant has not been based on concrete financial analyses. The fact that the project will be largely financed through bank loans may mean that the price will not be as low as Vilnius has been suggesting, and could reach 0.30-0.34 Lithuanian LTL/kWh (0.086-0.098 EUR/kWh). The energy from the Baltic Nuclear Power Plant in Kaliningrad could be priced at just 0.044 EUR/kWh, as the project would be financed without loans. Prime Minister Andrius Kubilius has nonetheless been assuring potential investors that despite the need to repay the loans over the next 16-18 years, the energy tariffs set by Visaginas would be competitive, at 0.18-0.22 LTL/kWh (0.052-0.063 EUR/kWh). The price includes the cost of servicing the loans. According to PM Kubilius, once the loans have been fully repaid, the price of electricity from Visaginas could be lowered (http://iq.lt/ekonomika-ir-verslas/a-kubilius-atskleide-planus-del-elektros-kainos-ignalinos-ae/).

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