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## Article

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Alari Paulus and Karsten Staehr

## The Energy Crisis in the Baltic States: Causes, Challenges, and Policies<sup>\*</sup>

### KEY MESSAGES

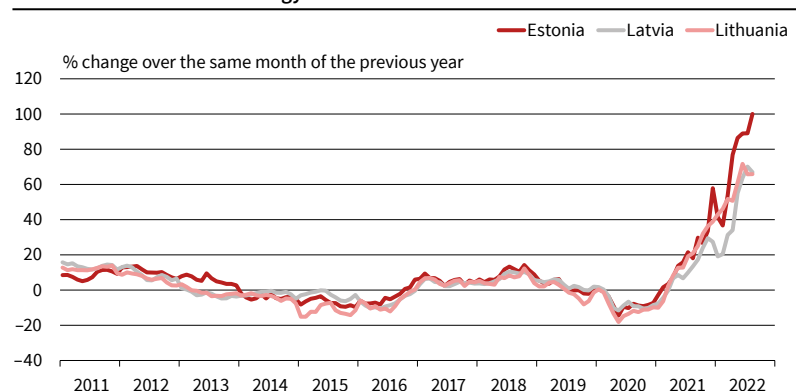
- The energy crisis has meant dramatically higher prices on energy in the Baltic states, and led to very high inflation and lower growth
- Short-term measures must cap extreme energy prices, monetary policy must avoid deepening the living cost crisis
- Policies to diversify energy supplies are needed in the short and medium term
- Energy conservation and a switch to sustainable and independent energy sources will be pivotal in the longer term

The Russian military build-up and subsequent invasion of Ukraine in February 2022 led to sudden and large increases in energy prices, pronounced uncertainty about the availability of gas and electricity, and a more pessimistic sentiment among households and businesses.

At the time of writing in October 2022, the energy crisis had already exerted severe economic consequences that may well prove long-lasting. This was indeed the pattern after the oil price shocks of the 1970s, which resulted in prolonged periods of stagflation, characterized by low GDP growth and high inflation (Kilian 2008). Few studies have at this stage

<sup>\*</sup> We gratefully acknowledge helpful comments by Olavi Miller, Kaspar Oja and Mari Pärnamäe. The views expressed are those of the authors and not necessarily those of the Bank of Estonia or other parts of the Eurosystem.

Figure 1  
HICP Consumer Price for Energy



Source: Eurostat.

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considered the economic consequences of the Russian invasion and the related energy crisis for countries in Europe (Hutter and Weber 2022; McWilliams et al. 2022).

It is pertinent to consider the consequences of the energy crisis in the three Baltic states. They are the only EU countries to have been part of the Soviet Union, until they regained their independence in 1991. The countries were closely integrated in the Soviet energy systems and Russia was an important source of energy before the invasion of Ukraine. The Baltic economies are, moreover, small and energy-intensive, which makes them vulnerable to hikes in energy prices or disruptions to supply.

We consider the economic aspects of the energy crisis in the Baltic states, link the developments to key features of the energy markets in the region, and provide some policy perspectives. The paper should be seen as a primer to the complex nexus of economics, social policy and energy planning in the Baltic states that has been exposed by the energy crisis.

### THE ENERGY CRISIS – AND THE ECONOMIC CRISIS

The most direct, and arguably the most visible, impact of the energy crisis in the Baltic states has been the much higher prices for energy, particularly electricity and gas. The higher prices affect households and firms in numerous ways. Figure 1 shows the annual price increases for the energy component of the Harmonized Index of Consumer Prices (HICP) up to August 2022. The striking rise in prices began in the second half of 2021 but accelerated rapidly during 2022.<sup>1</sup>

Energy accounts for a relatively large part of consumer spending in the Baltic states. As well as energy being relatively expensive, demand is high as the climate is cold and energy efficiency is low in the transport sector and in the housing stock inherited from the Soviet Union. The higher energy prices, combined with higher prices for food, have caused overall consumer price inflation to increase dramatically in 2022. Figure 2 shows overall consumer price inflation as measured by the Harmonized Index of Consumer Prices (HICP).

The three Baltic states have experienced larger rises in consumer prices than the rest of the EU countries in the first nine months of 2022, with annual

<sup>1</sup> The somewhat different dynamics of energy price inflation may reflect the different composition of energy consumption in the three Baltic states, but the differences in the energy price inflation in 2022 appear to be very large.

rates reaching above 20 percent in the autumn of 2022 and climbing a little higher in Estonia than in Latvia and Lithuania.

While wage growth has been substantial in 2021 and 2022, average wages have still trailed consumer prices, leading to a cost-of-living crisis as many households have seen their purchasing power plummet. The cost-of-living crisis has affected households very differently, depending on how much energy they consume: households living in dwellings that are heated by gas, electricity, or firewood have been severely affected. It is notable in this context that the Baltic states have inequalities of income and wealth that are wider than those in the nearby Nordic EU countries.

While the direct effects of the energy crisis are severe enough, the effects over time on economic development may be just as serious. Figure 3 shows GDP growth in 2020 and 2021 and the forecasts for 2022 and 2023 from the October 2022 forecasts of the International Monetary Fund. The forecast projects a steep decline in growth from 2021 to 2022 and 2023.<sup>2</sup> The markedly lower growth rates that may result from the energy crisis will over time lead to lower employment, and eventually to higher unemployment and economic hardship for those who lose their job.

The decline in GDP growth in the Baltic states has been caused by several factors. The higher prices for energy and other inputs hurt firms and may result in cuts in production or closures. The extensive use of energy in the Baltic states makes them vulnerable to high energy prices. Other factors have also made the business climate worse. Exports to Russia and Belarus have declined because of the disruptions caused by the war in Ukraine and the various sanctions imposed by the EU since 2014 and tightened after the invasion of Ukraine. Demand may also have been held back by souring sentiment among households and in the business sector. Businesses face increasing uncertainty about future energy prices and possible supply disruptions.

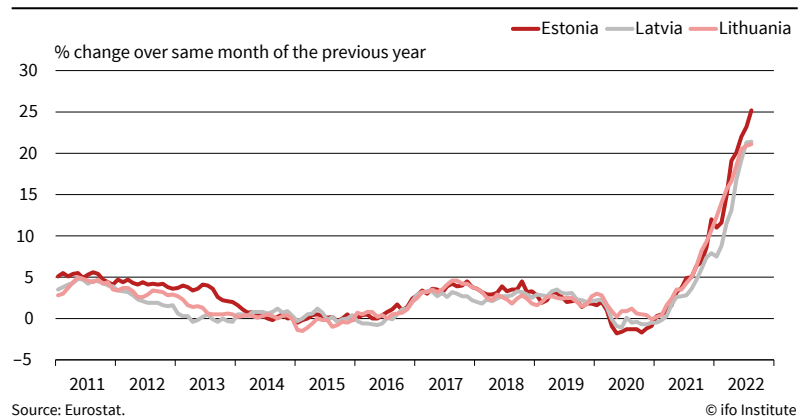
This brief description underscores that the Baltic states face many challenges from the disruption of energy supplies from Russia and the resulting jumps in prices. The governments in all three Baltic states have taken a number of measures since late 2021, several of which have resulted in additional government spending and lower tax revenues. The energy crisis is therefore likely to strain public finances in the three countries.

## ENERGY IN THE BALTIC STATES

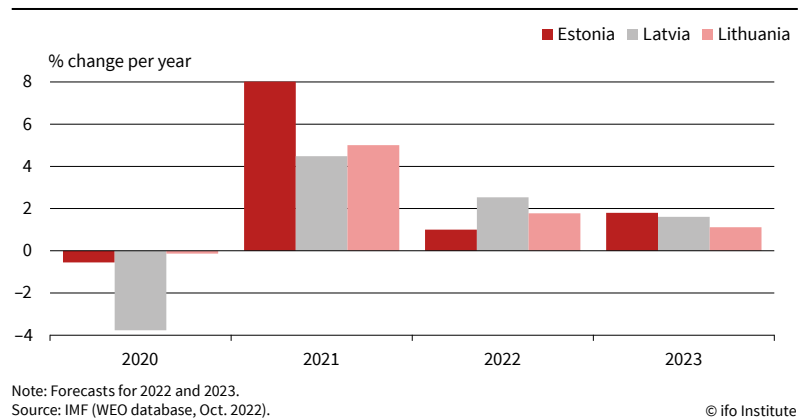
At its core, the energy crisis is a negative supply shock that has led to increases in energy

<sup>2</sup> The forecasts for 2022 and 2023 have been revised downwards by 2–3 percentage points since the October 2021 forecasts of the Fund.

**Figure 2**  
HICP Overall Consumer Price



**Figure 3**  
GDP Growth in the Baltic States



prices comparable in magnitude to those after the oil price shocks of the 1970s. This section discusses the factors and developments that have contributed to the supply problems and the very large energy price increases in 2022.

A key trigger was the tightening of gas supplies from Russia preceding the invasion of Ukraine. Gas stored in Gazprom's facilities in Europe had reached historic lows in spring 2021 and Russia started reducing gas deliveries to Europe a few months later (McWilliams et al. 2021). This resulted in notable increases not only in the price of gas but as a spillover effect also in the prices of CO<sub>2</sub> emissions and elec-



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Figure 4

## Energy Dependence

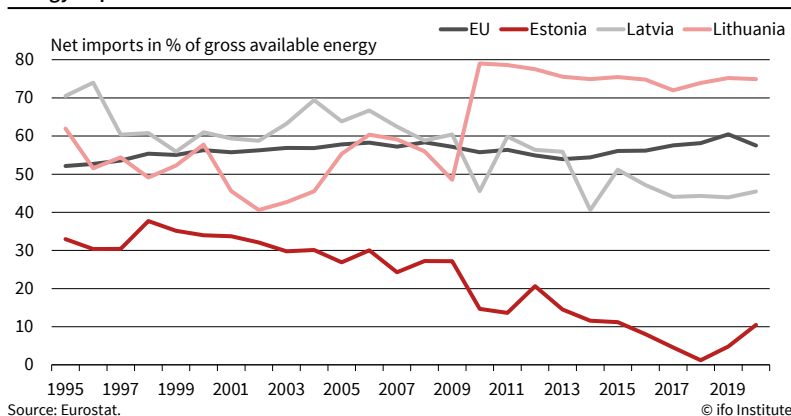
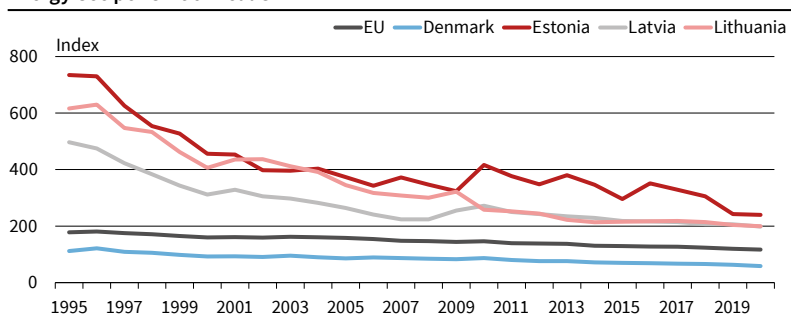


Figure 5

Energy Use per Unit of Real GDP<sup>a</sup>

<sup>a</sup> The figure shows an index of the energy use per unit of real GDP where real GDP is an index with the base year in 2010. The figure is useful for showing developments over time within a country, but energy use may also be compared across countries with the base year 2010, keeping in mind that real GDP is not adjusted for the different levels of purchasing power in the various countries.

tricity. European countries started to divert rapidly away from the energy supplied by Russia, and that drove prices up further as short-term bottlenecks and shortages emerged.

The effects of the reduction in energy exports from Russia were aggravated by a number of factors within the Baltic states. The first was a failure to diversify energy suppliers sufficiently and so reduce dependence on Russian energy. Several other European countries have long relied on abundant and cheap Russian fossil-fuel energy, but in the Baltic states this interdependence was a direct consequence of the Soviet occupation from 1944 to 1991, which had left the energy systems of the Baltic states more closely integrated into the Soviet systems than most other countries in Europe.<sup>3</sup>

There are important differences between how dependent the three Baltic states are on imports of energy. Figure 4 shows their net energy imports relative to energy consumption and, for comparison, for the EU. Estonia has a broad balance between energy consumed and energy produced because it uses oil shale to produce electricity and some oil products, while Latvia and Lithuania show large production deficits. Energy dependence in Lithuania has exceeded that of

<sup>3</sup> In the past, the Baltic states have also been net exporters of electricity to neighbouring regions in Russia.

the EU since 2010. Lithuania had a Soviet-era nuclear power plant that had enough capacity to cover most of the electricity needs of all three Baltic states, but it was shut down in 2010 for safety concerns as part of the agreement to join the EU (Bompard et al. 2017). No new plant has been built despite extensive discussions between the governments of the Baltic states.

The Baltic states took an important step in 2020 when they decided to stop importing electricity from Belarus and limit electricity imports from Russia. However, insufficient domestic capacity for producing and transmitting electricity left the system vulnerable to external shocks. Electricity imports from Russia to Finland and the Baltic states ceased completely in May 2022.

The transition to cleaner energy sources has also created challenges. The transition has made the supply of electricity in the Baltic states less secure in the short term. An important example is the EU Emissions Trading System (ETS), which could be seen as an effective tool for reducing emissions, but also gave an unfair advantage to imported electricity, primarily from Russia and Belarus, as it did not cover electricity producers outside the EU. This may even have contrarily increased energy dependence on Russia in the Baltic states. In 2019, about 35 per cent of the electricity sold in the region came from Russia and was not subject to the ETS (Konkurentsiamet 2021). Moreover, extensive use of green energy requires managed and flexible production capacity using other sources of energy or large-scale energy storage facilities to smooth out the volatility in production from renewables.

Further aggravating the crisis is that energy is used relatively inefficiently in the Baltic states. Figure 5 shows indexes of the energy use per unit of real GDP for each of the Baltic states, and for comparison for the EU and Denmark, the latter being one of the most energy-efficient countries in Europe; see also the figure note. Energy use per unit of GDP decreased very rapidly in the Baltic states in the 1990s as the economies went through major restructuring, shifting away from energy-intensive sectors such as agriculture and heavy industry, but the pace of decline has slowed considerably since the beginning of the 2000s. It is notable that energy use in the Baltic states is much higher than that in the EU and, particularly, in Denmark.

Finally, while the market mechanisms such as the ETS and Nord Pool, and infrastructure such as gas storage facilities and grids, seem largely adequate for normal conditions, there appear to be limits to how well they can withstand extreme market disruptions. There are indications that the feedback from price effects is too constrained, as forward equilibrium prices are settled on the basis of predicted demand, but if actual demand turns out to be substantially different, then there are no compensating effects for prices. Furthermore, it is not inconceivable that Nord

Pool could be vulnerable to price manipulation under certain circumstances.

## POLICY CONCLUSIONS

The energy crisis followed two years of lockdowns in response to the coronavirus pandemic. The crisis led to large rises in energy prices and uncertainty about the supply of energy, and also to concerns about higher inflation and rising cost of living. These challenges are particularly pronounced for the Baltic states, as they have energy-intensive economies, large reliance on energy imports and limited grid connections.

Many of the challenges facing the Baltic states are common to all or most of the countries in Europe, and it is evident that the EU will play a crucial role in formulating policy to address the energy crisis and its economic fallout.<sup>4</sup> There are nevertheless numerous areas where policymaking remains at the national or regional level.

The energy crisis is in some sense a perfect storm, where several risk scenarios have materialized at the same time and amplified their combined impact. The crisis represents such a large shock to the economies in the Baltic states that economic policies will realistically only be able to reduce the burdens for households and firms, but not to ward them off entirely.

One key constraint on crisis policies is the state of the public finances in the Baltic states. The public debt relative to GDP is low in the Baltic states compared to most other EU countries, but several new spending areas have emerged since the invasion of Ukraine. Measured relative to GDP, the Baltic states have been among the largest donors of military and humanitarian aid to Ukraine; the three countries are expanding and upgrading their military forces; and the many refugees arriving in the Baltic states from Ukraine also call for new government spending. While policymakers in the Baltic states have some fiscal space to address the energy crisis, they will have to exert judicious prudence.

It is useful to distinguish between short-term and longer-term policy perspectives within the possible policy avenues for addressing the energy crisis. The most pressing short-term policy issue has been securing sufficient energy supplies.<sup>5</sup> The policy responses have been relatively swift, as the Baltic states together with other European countries have turned to new energy suppliers elsewhere in the world, and

Estonia has started construction of a terminal for liquid natural gas (LNG) to supplement the existing one in Lithuania.

Excessively high energy prices hurt businesses and households. A number of relatively broad-based but time-limited subsidy measures were put in place in the Baltic states already from the end of 2021. It is however reasonable to focus on alternative ways to cap extreme energy prices to avoid ballooning public debt and limit moral hazard. This may entail adjustments to how the price of CO<sub>2</sub> emissions is set through the ETS, and the possibility of temporary caps on the price of emissions may need to be considered. There is also room within the Nord Pool electric power exchange for a better coordination of shut-downs of power plants for maintenance and repairs.

Intertwined with the issue of affordability is the problem of rising living costs. Additional support measures for households may be needed to help them withstand the extraordinary energy price shocks, but fiscal considerations suggest that such measures should mainly focus on the most vulnerable households.

The very high inflation rates also represent a serious policy challenge in the Baltic states. As members of the euro area, their monetary policy is directed by the European Central Bank. Tighter monetary policies could dampen inflationary pressures stemming from excess demand, but they will have little direct effect on energy prices and may increase hardship in households with mortgages. The small size of the Baltic states implies that the monetary policies of the European Central Bank will not take great account of developments in these countries.

Although there is scope to alleviate the effects of sudden major shocks with temporary policies such as emergency price or support measures, it is important to maintain the focus on medium-term and longer-term structural imbalances. This concerns energy conservation and improving energy efficiency, speeding up the development of renewable energy, diversifying energy suppliers, and expanding transmission grids.

Energy conservation in the Baltic states needs to be prioritized, particularly in the areas of housing, industry, and transport. Estonia is, for example, the only country in the EU that does not specifically tax the purchase or ownership of cars, and this might hinder the development of alternative and less energy-intensive modes of transport. Similarly, the development of renewable energy sources needs to be strongly prioritized, as progress has been slow in the Baltic states. It requires a systemic approach and needs to overcome ubiquitous not-in-my-backyard attitudes. A greater reliance on renewable energy sources also calls for the development of extensive energy storage capacities, which is currently lagging behind in the Baltic states.

Policies must over time address the shortfalls of energy production in Latvia and Lithuania and the

<sup>4</sup> See von Homeyer et al. (2021) for a discussion of the EU's energy and climate policies before the Russian invasion of Ukraine.

<sup>5</sup> The sanctions on Russia have intensified the immediate energy shortages. There might have been a way to avoid this while still limiting Russian export revenues. Given that Russia has limited influence on the global prices of gas and oil, most of excess profits could in theory have been taxed away in the form of a special levy on energy imports. It is, however, possible that the ultimate outcome would have been the same, with Russia withholding energy exports to the West.

shortfall that may emerge in Estonia once the production of electricity and petroleum products from oil shale is scaled back. The solution is likely to be a combination of measures to ensure the diversification of risk, increased resilience of local energy markets, and better energy security. More extensive transmission links between countries is an important part of that but should complement rather than substitute independent local production capacities.<sup>6</sup>

The challenges stemming from the energy crisis in the Baltic states are substantial and cover economics, social policy, energy systems, infrastructure and foreign policy. In this context, it is important to note that there are likely to be trade-offs between measures seeking to address the energy crisis and measures addressing long-term goals such as global warming. The energy crisis related to the Russian invasion of Ukraine has indeed opened numerous policy challenges in Europe, not least in the Baltic states.

<sup>6</sup> Bompard et al. (2017) discuss the key measures needed to ensure electricity independence in the Baltic States.

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