



COUNTRY REPORT LATVIA

Krista Pētersone

Energy Without Russia

The Consequences of the Ukraine war and the
EU Sanctions on the Energy Sector in Europe

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Krista Pētersone

Energy Without Russia: The Case of Latvia

The Consequences of the Ukraine War and the EU Sanctions
on the Energy Sector in Europe

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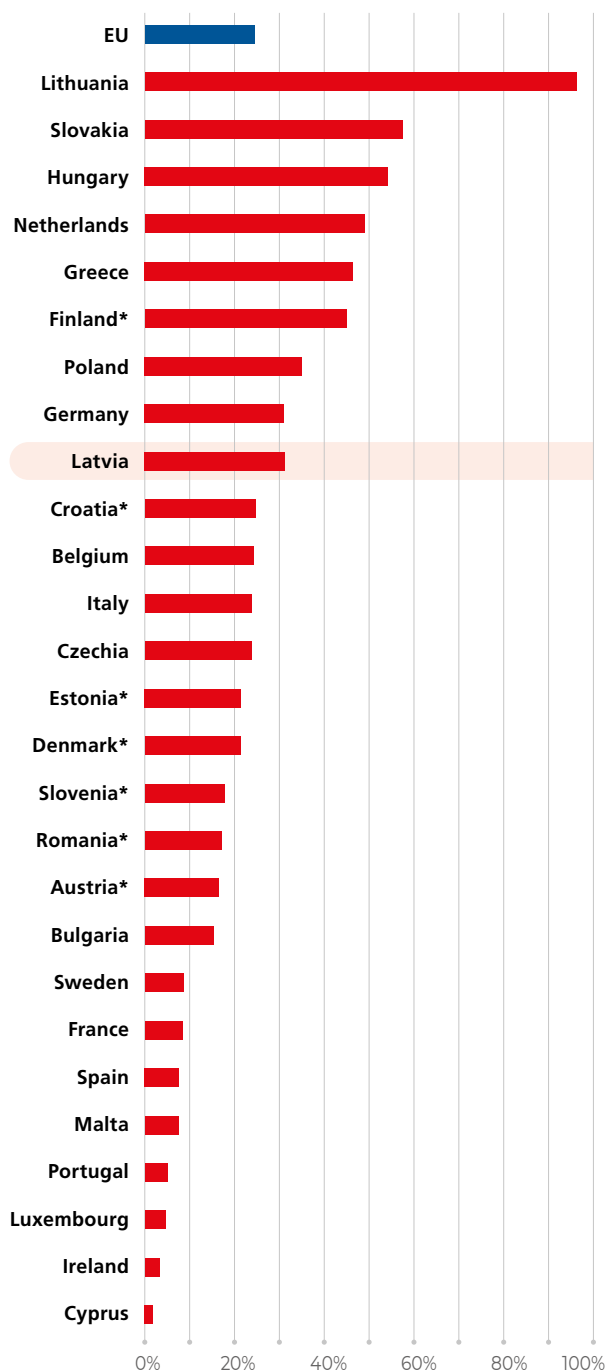
INTRODUCTION

Dependence on monopolised natural gas imports and transition pathways to renewables-based energy systems have been present on Latvia's political agenda for several decades. Latvia's response to Russia's aggression was almost univocal, and included support for EU-wide economic sanctions on energy imports.

On the practical level, the process of substituting fossil fuels, reforming markets, managing imports and exports of forest biomass, and planning for new renewable power capacities has been more intricate. Price signals played a significant role in reducing energy consumption without experiencing any physical supply shortages during the winter.

This paper presents a concise overview of the recent transformations witnessed in energy systems, supported by data from national statistics for the years 2021 and 2022. It explores immediate policy changes as well as the medium- and long-term implications of energy security and self-sufficiency measures and how they refer to decarbonisation and climate policy goals.

Figure 1
Imports from Russia in gross available energy, EU, 2020



Source: Eurostat, Including estimates for non-reported data for countries with*

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LATVIA'S ENERGY SYSTEM BEFORE 2022

ENERGY MIX

With renewable energy sources (RES) accounting for 42% of the gross final energy consumption, Latvia ranked third in the EU.¹ Latvia's high share of RES is based on extensive utilisation of solid biomass and hydropower.² However, Latvia's progress in energy transition over time is relatively modest compared to neighbouring countries.³

In 2021, petroleum products constituted approximately 33% of Latvia's gross energy consumption, with diesel oil being the predominant fuel type at 23%. Natural gas accounted for 21% of the energy consumption, while solid fossil fuels such as coal and peat played a relatively minor role. Since 2012, the proportion of natural gas in the energy mix had decreased by 5.7%. Fuel wood remained as the primary renewable energy source in Latvia, contributing 32% of the overall energy consumption.⁴

1 Share of energy from renewable sources [NRG_IND_REN]

2 In 2021 consumption of renewables 3% higher than a year ago. Press release. Central Statistical Bureau (CSB). 6 September 2022. <https://stat.gov.lv/en/statistics-themes/business-sectors/energy/press-releases/8732-consumption-renewable-energy>

3 Share of energy consumption from renewable sources in Europe. EEA.

2 June 2023. <https://www.eea.europa.eu/ims/share-of-energy-consumption-from>

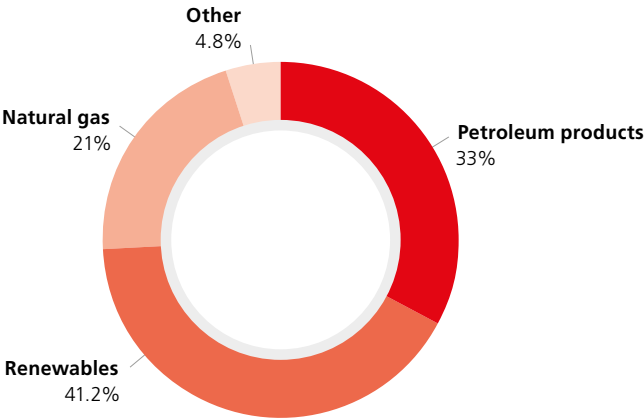
4 Environment of Latvia in Figures 2021. CSB. <https://stat.gov.lv/en/statistics-themes/environment/weather-conditions/publications-and-infographics/11014-environment?themeCode=EN>

Table 1
Share of renewable energy in different sectors 2017–2021, %

Share of RES, %	2017	2018	2019	2020	2021
Gross final energy consumption	39.01	40.02	40.93	42.13	42.11
Electricity	54.35	53.50	53.42	53.36	51.40
Heating and cooling	54.58	55.41	57.75	57.09	57.38
Transport	2.27	4.73	4.55	6.73	6.44

Source: Data on RES share in Latvia. CSB. <https://data.stat.gov.lv:443/sq/17184>

Figure 2
Structure of Latvia's gross energy consumption by resource type, %



Source: Energy consumption in transport up by 5.3% last year. Press release. CSB. 28 June 2022. <https://stat.gov.lv/en/statistics-themes/business-sectors/energy/press-releases/8685-energy-consumption-2021?themeCode=EN>

The role of forest biomass in Latvia's energy production and import-export balances is notably complex. In 2021, Latvia ranked as the world's third largest exporter of wood pellets.⁵ But Latvia also imports fuelwood for domestic consumption, especially wood wastes and chips.⁶

The largest shares in Latvia's final energy consumption were held by the household sector at 29% and the transport sector at 28% (see Figure 3). Following closely, the industry sector takes third place with a share of 24%, while the commercial and public sectors combined consume approximately 14% of the energy. Within Latvia's industry, wood processing stands as the sector with the highest energy consumption.⁷ Lastly, the energy consumption of the agriculture, forestry, and fishing sectors represents 5% of the total.

A detailed review of Latvia's electricity market is provided by the transmission system operator Augstsprieguma tīkls.⁸ In 2021, the largest electricity producers were the gas CHP plants in Riga, followed by the hydropower plants on the Daugava. Electricity exports exceeded imports in spring due

to a higher share of hydropower. The largest amount of electricity was imported from July to October.⁹

In the power sector, the main renewable source is hydropower, followed by biomass. Until 2022, deployment of wind and solar energy was very low. The total share of RES in final electricity consumption was above 50% (see Table 1).

Significant developments occurred in the solar energy sector, as the number of household prosumers doubled and reached 2,000 in that year. Since 2021, the main leap took place in small-scale solar generation (up to 11.1 kW). According to national energy statistics, the capacity of wind parks had remained unchanged since 2015 (see Table 2).

In Latvia, household electricity consumption is lower than the EU average of 1.6 MWh.¹⁰ As of 2020, only three countries, namely Romania, Poland, and Latvia, have per capita electricity consumption below 1 MWh. Latvia also has the second lowest motorisation rate in the EU – 404 passenger cars per 1000 inhabitants (EU average is 567 cars). The car fleet is dominated by older diesel vehicles.¹¹

⁵ Country data on wood pellets exports in 2021. Statista. Accessed on 15 June 2023. <https://www.statista.com/statistics/477086/exports-of-wood-pellets-volume-by-key-country/>

⁶ Production, imports, exports, and consumption of fuelwood. CSB. <https://data.stat.gov.lv:443/sq/17185>

⁷ Latvia's energy consumption up nearly 5% in 2021. LSM. 28 June 2022. <https://eng.lsm.lv/article/economy/economy/latvias-energy-consumption-up-nearly-5-in-2021.a463099/#>

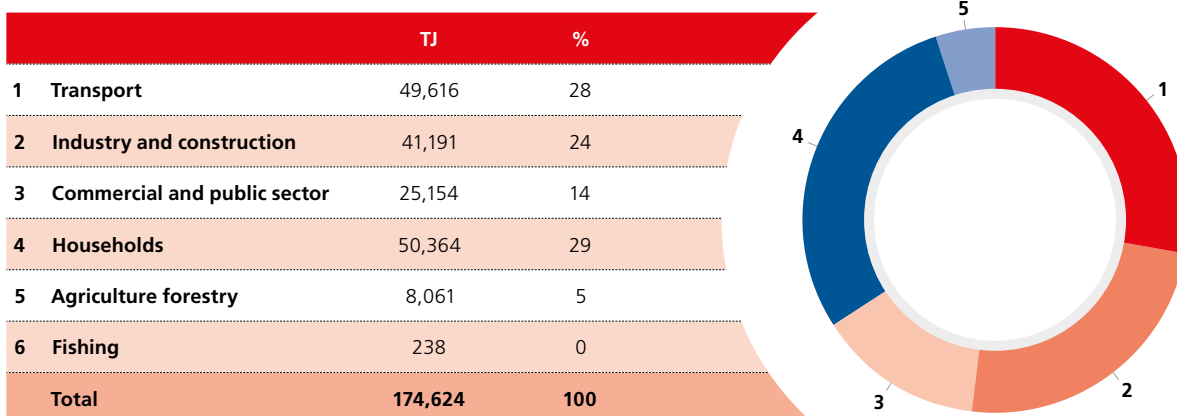
⁸ Electricity Market Review, TSO Augstsprieguma tīkls. <https://www.ast.lv/en/electricity-market-review?year=2021&month=13>

⁹ Geographic distribution of Latvia's power system, infographics. CSB. <https://stat.gov.lv/en/statistics-themes/business-sectors/energy/publications-and-infographics/12557-produced-electricity?themeCode=EN>

¹⁰ Household consumption of electricity per capita in MWh, 2020. Eurostat. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_and_heat_statistics#Consumption_of_electricity_per_capita_in_the_households_sector

¹¹ Motorisation rate in EU. Eurostat. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Motorisation_rate,_2021_v2.png

Figure 3
Latvia's final energy consumption in 2021, TJ.



Source: Central Statistical Bureau

Note: Latvia's energy consumption up nearly 5% in 2021. LSM. 28 June 2022. <https://eng.lsm.lv/article/economy/economy/latvias-energy-consumption-up-nearly-5-in-2021.a463099/#>

Table 2
Installed capacity of wind and solar stations in Latvia, MW

	2018	2019	2020	2021
Wind power stations	78	78	78	77
Solar micro-generators and power plants	2	3	5	7

Source: Renewable energy resources. Statistical database. CSB. https://data.stat.gov.lv/pxweb/en/OSP_PUB/START__NOZ__EN__ENA/?Tablelist=true

Table 3

Gross electricity production from renewables, GWh

	2018	2019	2020	2021
Hydroelectric plants	2,432	2,108	2,603	2,708
Wind power stations	122	154	177	141
Solar micro-generators and power plants	1	3	5	7
Biomass CHP plants and power plants	570	575	520	570
Biogas CHP plants, total	374	353	345	292
Total	3,499	3,193	3,650	3,718

Source: Renewable energy resources. Statistical database. CSB. https://data.stat.gov.lv/pxweb/en/OSP_PUB/START__NOZ__EN__ENA/?Tablelist=true

DEPENDENCE ON ENERGY IMPORTS

Latvia's dependence on natural gas imports from Russia was above 90% in 2021.¹² For diesel as the main fuel used in road transport, the main importer was Lithuania, followed by Russia in third place after Finland.¹³ Yet in total, Latvia's energy dependence was below the EU average, and it fell from 52% in 2015 to 39% in 2021.¹⁴

In the past decade, the dependence on fossil gas has mainly decreased due to EU-funded investments in biomass CHP plants and boiler houses for decarbonisation of district heating systems. However, the regional differences among municipalities in share of renewables for heating are significant.¹⁵ Belarus and Russia have also been significant trading partners for forest biomass, especially pellets, chips, and wood wastes. In 2021, almost half of the funds paid for fuel wood imports went to Belarus.¹⁶

Around 3/4 of the electricity consumed in Latvia was covered by local generation; the largest share of electricity was generated at the Daugava hydro and thermal plants. Less than 1/3 of electricity imports took place through the Latvian-Russian interconnection, while imports from other EU countries (Finland, Sweden, Poland) constituted the rest.¹⁷

¹² Share of gas supply from Russia in Europe in 2021, by selected country. Statista. Accessed on 30 June 2023. <https://www.statista.com/statistics/1201743/russian-gas-dependence-in-europe-by-country/>

¹³ Data on diesel oil imports. CSB. https://eksports.csb.gov.lv/en/years/products-selected/import/2005-2023-2021/sp_16/TOTAL

¹⁴ Energy dependence is calculated as net imports divided by the sum of gross inland energy consumption plus bunkers. See Environment of Latvia in Figures 2021. CSB. <https://stat.gov.lv/en/statistics-themes/environment/weather-conditions/publications-and-infographics/11014-environment?themeCode=EN>

¹⁵ Generated heat by fuel type in planning regions, municipalities and cities. CSB. <https://data.stat.gov.lv:443/sq/17259>

¹⁶ Fuel wood imports. CSB. https://eksports.csb.gov.lv/en/years/products-selected/import/2005-2023-2021/sp_41/TOTAL

¹⁷ Electricity Market Review. TSO Augstsprieguma tīkls. <https://www.ast.lv/en/electricity-market-review?year=2021&month=13>

2

AD HOC RESPONSES TO RUSSIA'S WAR IN UKRAINE

Since February 2022, the government has been focusing on several new priorities. Firstly, there has been a concerted effort to establish an alternative supply of natural gas by LNG imports. This was prompted by the security of supply concerns and the prohibition of fossil fuel imports from Russia, which came into full effect in January 2023. In the first half of 2022, the state-owned energy company, Latvenergo, secured national gas reserves through the Klaipeda terminal in Lithuania. Subsequently, a long-term contract was signed to ensure yearly reserved capacity.¹⁸

Secondly, ensuring stability in the power supply became another crucial aspect of energy security, especially for the winter season.¹⁹ All Baltic transmission system operators prepared for emergency situations in within the BRELL ring (Belarus, Russia, Estonia, Latvia, and Lithuania) and joined efforts to speed up synchronisation projects with the European Continental Network.

Third, the government also adopted a new package of emergency measures to alleviate the effects of high energy prices for households and larger consumers.²⁰ The price caps were set for electricity, gas, and district heating. Next, extra energy saving measures were put forward. Most of them addressed the need for an adaptive heating regime and supported remote work to optimise the use of heated areas.

As part of the RePowerEU plan's emphasis on achieving energy independence, the government sought ways to support the faster deployment of renewable energy and channel public investments towards new projects in municipalities. The search for solutions for energy security led to significant legislative activity, including amendments to the Energy Law and Electricity Market Law. These amendments encompassed several key initiatives, including (1) mandatory

payments to municipal budgets from new wind parks, (2) the establishment of basic regulations for energy communities and changes to net accounting for prosumers, (3) the introduction of fees for reserving grid capacity, and (4) the streamlining of procedures for obtaining permits for large-scale energy projects, particularly wind parks.

¹⁸ Klaipėdos nafta AB and Latvenergo AS strengthen energy security in the Baltic region. 30 September 2022. <https://latvenergo.lv/en/jaunumi/preses-relizes/relize/klaipedos-nafta-ab-and-latvenergo-strengthen-energy-security-baltic-region>

¹⁹ Power transmission operators in Nordic and Baltic countries warn of challenging winter. 21 October 2022. <https://www.ast.lv/en/events/power-transmission-operators-nordic-and-baltic-countries-warn-challenging-winter>

²⁰ Heating aid system supported by Latvian government. 9 August 2022. <https://eng.lsm.lv/article/economy/economy/heating-aid-system-supported-by-latvian-government.a468657/>

3

SHORT-TERM ECONOMIC IMPACTS AND CONSEQUENCES

INFLATION

In the second half of 2022, the yearly inflation peaked and remained above 20%, mainly due to the prices of food, transport fuel, and energy-related services. The main increase in consumer prices affected food products (29%).²¹ Latvijas Banka estimates that the rise in energy prices for households and businesses cost nearly €1.7 billion in 2022.²² If the government had not extended financial assistance to households, the energy shock would have been even more distressing. Latvijas Banka's calculations indicate that the partial compensation for electricity, gas, and heating prices led to a decrease in inflation of around 2.5 percentage points in 2022 and contributed to a 0.7 percentage point increase in economic activity. The fiscal implications of government support were significant, as nearly €700 million were spent in 2022 to alleviate the impact of the energy crisis.

The highest gas and electrical power prices were observed in autumn. Consumption of natural gas decreased because of energy saving measures and fuel replacement. In the first semester of 2022, natural gas consumption decreased by 38% (4.8 TWh) compared to the previous years.²³ State aid had a positive impact on mitigating the price effects on household and enterprise levels.²⁴ The efficiency of the former state support measures will be assessed by the State Audit Office.

ENERGY IMPORTS

In 2022 Lithuania emerged as the dominant gas importer.²⁵ Meanwhile, Russia maintained its position as the second-largest country of origin, with a particularly high total price paid for its imports. Despite this change, 2022 saw a record year in terms of costs incurred for importing natural gas from Russia. In 2023, gas imports from Russia have completely ceased. As for liquefied natural gas (LNG), most imports now come from Estonia, although the overall volume is relatively small. Russia continues to be the primary importer of liquefied petroleum gas.

For electricity imports, 2022 was a record year as well.²⁶ Compared to 2021, the costs of imports from Russia increased almost fourfold. In total costs, the largest share of imports belongs to Estonia. Since the Baltic States are integrated in the BRELL system, disconnection depends on completing the synchronisation project with the continental European power grids. The Baltic transmission system operators hope to finalise it before 2025. While direct trade with Russia has stopped, imports take place for balancing purposes.²⁷ In 2022, the share of CHP plants shrank by 33%.²⁸ The main decrease was due to natural gas saving measures. Electricity imports increased by 9%. After hydropower, biomass remained the second largest source of renewable power. In CHP plant operation, biomass surpassed natural gas for the first time. Gas consumption continued to further decrease in 2023 as well.²⁹

²¹ Last year, inflation was influenced by the increase in world energy and food prices, this year the increase in prices will stabilise. Ministry of Economics. 11 January 2023. <https://www.em.gov.lv/ne/article/last-year-inflation-was-influenced-increase-world-energy-and-food-prices-year-increase-prices-will-stabilise>

²² How has Russia's invasion of Ukraine affected Latvia's economy? Latvijas Banka. 16 February 2023. <https://www.macroecomics.lv/how-has-russias-invasion-ukraine-affected-latvias-economy>

²³ Latvia will succeed in cutting gas consumption, experts say. 22 July 2022. <https://eng.lsm.lv/article/economy/economy/latvia-will-succeed-in-cutting-gas-consumption-experts-say.a466415/>

²⁴ Data on electricity and gas prices for consumers in Latvia. CSB. https://data.stat.gov.lv/pxweb/en/OSP_PUB/START__NOZ__EN__ENC/?table-list=true

²⁵ Data on natural gas imports. CSB. https://eksports.csb.gov.lv/en/years/products-selected/import/2005-2023-2022/sp_10/TOTAL

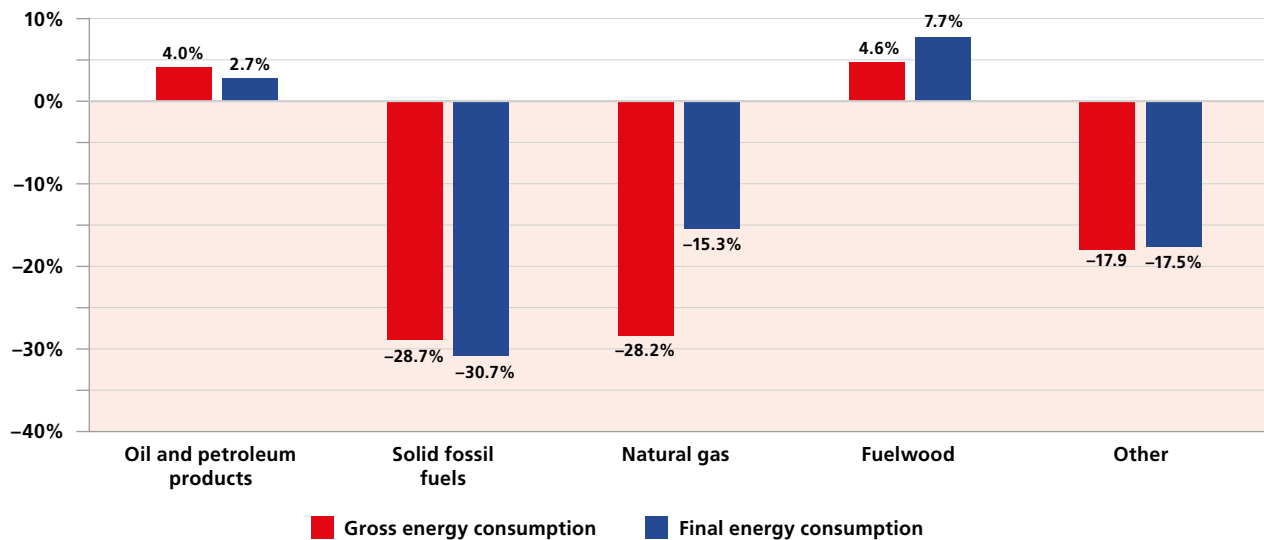
²⁶ Data on electricity import. CSB. https://eksports.csb.gov.lv/en/years/products-selected/import/2005-2023-2022/sp_22/TOTAL

²⁷ Informative report "On Organizing Electricity Trade with Russian Federation and Belarus..." 11 October 2022. https://tapportals.mk.gov.lv/legal_acts/25adb69a-b0f6-4058-b94e-6556b255db61

²⁸ Last year amount of electricity produced in CHP plants fell by 33%, Press release. 5 June 2023. <https://stat.gov.lv/en/statistics-themes/business-sectors/energy/press-releases/12343-activities-chp-plants-2022>

²⁹ Latvian natural gas consumption continues to decline, LETA. 28 June 2023. https://eng.lsm.lv/article/economy/economy/28.06.2023-latvian-natural-gas-consumption-continues-to-decline.a514573/?utm_source=ism&utm_medium=article-bottom&utm_campaign=article

Figure 4
Reduction of natural gas in gross and final energy consumption, 2022
 (change 2022 compared to 2021)



Source: Energy consumption reduced by 2.8% in 2022. Press release. CSB. 28 June 2023. <https://stat.gov.lv/en/statistics-themes/business-sectors/energy/press-releases/12336-energy-consumption-2022?themeCode=EN>

SOLAR AND WIND ENERGY DEVELOPMENTS

The growth rate of household prosumers escalated in 2022. By mid-2023, Sadales tīkls, the distribution system operator, reported that the number of solar PV microgenerators had reached 15,000, with a total capacity of 120 MW.³⁰ In contrast, a notable increase is expected in larger solar power stations in 2023, with up to 900 MW to be connected to the distribution system within a few years. Excess generation is expected to occur when the outputs of solar parks across the distribution and transmission grids are combined (in the summer months the demand side load reaches a maximum of 1,100 MW).

After a pause of several years, a new wind park was opened in autumn 2022: with 14 turbines installed near Ventspils in the Kurzeme region, Targale wind park added 59 MW capacity. In terms of share of wind energy in the electricity mix, Latvia is still in last place among the Baltic countries. However, many new projects are under various stages of development.

³⁰ Number of prosumers reaches 15,000 in Latvia, DSO Sadales tīkls, 26 June 2023. <https://sadalestikls.lv/lv/aktuali/elektribu-pasrazojosu-majsaimniecibu-skaits-latvija-sasniedz-15-000>

4

MEDIUM- AND LONG-TERM ANSWERS

NEW SUPPLY ROUTES FOR NATURAL GAS

In early 2022, there was great uncertainty about securing gas supplies for the winter season. The Ministry of Economics and Latvenergo negotiated deals with Klaipeda LNG Terminal and non-EU gas importers. To provide an alternative LNG delivery route in addition to Klaipeda, the government considered two scenarios: (1) cooperation with Estonia and the Paldiski terminal, and (2) construction of a new LNG terminal in Latvia, either at Skulte or in Riga. In summer 2022, the Cabinet of Ministers decided on Skulte as the priority project and its overriding public interest was recognised in law. However, the negotiations with the project developer ended without success because the government did not agree to provide state guarantees. In early 2023, the situation had already changed, and regional overcapacities of LNG were expected. The Skulte LNG project was put on hold.³¹

ELECTRICITY MARKET

The growth of Latvia's solar prosumer community was further promoted by the state funding schemes for adoption of solar PV, heat pumps, and the replacement of fossil fuel heating systems in private residences. A summary of the implemented projects reveals a notable concentration in suburban areas.³² Furthermore, energy efficiency programmes aimed at enterprises also incorporated support for the installation of RES technologies.

The issue of insufficient solar and wind power capacity was addressed at the political level, but it was primarily driven by economic interests and the emergence of new investment opportunities. This indicates that the total number and scale of planned solar and wind projects could potentially surpass the current consumption levels after the first large-scale projects are successfully completed within this decade. To align with the RES acceleration agenda outlined in the Re-

PowerEU plan, Latvia has allocated additional funding from the Recovery and Resilience Facility intended to facilitate the modernisation of distribution and transmission grids.

The role of state enterprises was further accentuated when Latvenergo and Latvia State Forests established a new initiative, Latvia Wind Parks, for siting wind parks of strategic importance on public forest lands. Also, the site for the joint offshore wind project with Estonia was selected (ELWIND).³³ In 2023, its environmental impact assessment was launched on the Latvian side.

In the power sector, there is a significant surge in the development of solar and wind capacity. While individual solar projects have shorter timelines, there are long-term concerns regarding the intermittent nature of generation, price fluctuations, investment returns, and grid capacity.³⁴ Solar energy currently holds a dominant position in terms of reserved capacity, as wind projects are required to complete an environmental impact assessment before applying for a permit.

TRANSPORTATION DECARBONISATION

The decarbonisation of the transport sector presents significant challenges. Decision makers are aware of the issue, but there is a lack of consensus regarding priorities and the scope of measures to be implemented. Various EU funding programmes have been allocated to promote sustainable mobility. One highly anticipated project is the introduction of new passenger trains, set to commence operations in autumn 2023. The Rail Baltica³⁵ project has also entered the construction phase, but its complexity and rising construction costs pose potential risks of delays.

As commuting and transit within the Riga agglomeration contribute significantly to car-dependent mobility, the Riga City Council and Riga Planning Region have devised plans to

³¹ Latvia cancels Skulte LNG project, but the Baltic reliance on gas persists, *Emerging Europe*, 19 April 2023. <https://emerging-europe.com/news/as-latvia-cancels-skulte-lng-project-the-baltic-reliance-on-gas-persists/>

³² Data on funding allocated to households with solar PV, Latvian Environmental Investment Fund. Accessed on 1 July 2023. <https://ekii.lv/index.php?page=atbalsts-majsaimniecibam>

³³ ELWIND – joint Latvian and Estonian offshore wind project. Accessed on 15 June 2023. <https://elwindoffshore.eu>

³⁴ Presentation for the Sustainable Development Commission at the Parliament, 14 June 2023. <https://titania.saeima.lv/livs/saeimasnotikumi.nsf/0/948C5732CE5B8C59C22589C80048A6AA?OpenDocument&prevCat=>

³⁵ Website of the Rail Baltica project. Accessed on 15 June 2023. <https://www.railbaltica.org>

encourage a modal shift and implement a low-emission zone by 2027. These measures primarily align with air quality objectives.

ENERGY EFFICIENCY OF BUILDINGS

The rate of renovating the residential buildings remains low – only 10% of Soviet-era multi-flat houses have been renovated. While the main source of funding has been EU programmes, it has proven insufficient. To address this, the state financial institution Altum has expanded its range of financial instruments, offering loans and capital guarantees. Additional renovation programmes are being financed through the Recovery and Resilience facility and the Cohesion programme.³⁶

In addition to financial support, planning bodies and agencies aim to encourage the formation of active owners' associations and facilitate the swift preparation of renovation projects. Even though renewable energy technologies are eligible for funding in EU-funded projects, they are not yet widely implemented in multi-flat apartment buildings. This is primarily due to the lack of comprehensive regulations governing energy sharing mechanisms (collective self-consumption and energy communities).

ENERGY STRATEGY

In 2023, the revised version of the National Energy and Climate Plan (NECP) will be submitted to the European Commission. The ambition of the NECP drafted in 2019 is below the current market trends. In 2019, the estimated capacity for wind power in 2030 was 800 MW. In 2023, the projected capacity includes 2,000 MW from onshore wind and 1,000 MW from offshore wind. The planned energy mix will depend on the modelling results; the energy scenarios and policy options will be published in the summer. The national RES targets will be aligned with the revised version of the Renewable Energy Directive: ~ 62% RES in final consumption with ~70% in the power sector, ~67% in the heating sector, and more ambitious targets for transport, buildings, and industry.³⁷

NUCLEAR ENERGY

During the drafting of the NECP in 2019, nuclear energy was not a topic of discussion. However, in 2021, there was a sudden increase in interest in nuclear energy as a response to the rising prices of fossil fuels. Since then, several government representatives have engaged in interna-

tional exchange visits focusing on the nuclear agenda. Additionally, Latvenergo has initiated collaboration with Fermi Energia in Estonia to explore the potential of a joint nuclear project.

In the summer of 2022, the Parliament introduced an amendment to the Energy Law (Article 72), emphasising the importance of evaluating and reporting on a national nuclear energy programme to enhance Latvia's energy independence. The report is required to be submitted to the Saeima (Parliament) by 31 December 2023, considering factors such as the geopolitical situation, energy resource costs, and availability. Despite the growing attention to nuclear options among policymakers and the public, there is a consensus that the country lacks national scientific and technical expertise in this field.

GREEN HYDROGEN

Several noteworthy developments are taking place in Latvia's hydrogen sector. To foster collaboration among stakeholders interested in building a hydrogen ecosystem in Latvia, a new cooperation platform called the Latvian Hydrogen Alliance has been launched. Firstly, Riga Free Port and the Green Tech Cluster in Liepaja have partnered to participate in the ambitious BalticSeaH₂ Hydrogen Valley project, supported by EU funding. In addition, both Liepaja and Ventspils ports are planning future projects that combine offshore wind energy with hydrogen technologies. Furthermore, Riga Airport has initiated a hydrogen project aimed at local consumption.

According to the EU's latest revision of the Renewable Energy Directive, the goal is for green hydrogen to account for 1% of transport fuels by 2030. In line with this objective, the Vidzeme Planning Region is implementing the first green hydrogen projects in the transportation sector. The first project, H₂Value, involves piloting a hydrogen waste truck in collaboration with the waste management company ZAAO and the Latvian Hydrogen Association. It aims to develop interregional green hydrogen value chains in southern Estonia and north-eastern Latvia. The second project, HyTruck, focuses on establishing the necessary infrastructure for hydrogen refuelling stations dedicated to heavy-duty trucks in the Ten-T network.

POLICIES TO REDUCE DEMAND

Currently, there is a noticeable absence of long-term policies dedicated to demand reduction, except for a general vision for the transformation required in the transportation and building sectors. Conversely, there is an emphasis on the importance of increasing demand in the industry sector as a prerequisite for the stable development of wind and solar-based power systems.

Various coping strategies have been adopted by energy consumers, and further examination of the effects of state support measures will be carried out by the State Audit Office.

³⁶ Website of state financial institution Altum. Accessed on 15 June 2023. <https://www.altum.lv/en/services/individuals/energy-efficiency-in-multi-apartment-buildings/>

³⁷ Ministry of Climate and Energy, Presentation for the Sustainable Development Commission at the Parliament, 14 June 2023. <https://titania.saeima.lv/livs/saeimasnotikumi.nsf/0/948C5732CE5B8C59C-22589C80048A6AA?OpenDocument&prevCat=>

LONG-TERM CONSEQUENCES

In contrast to other Baltic States, Latvia's government has not published long-term energy scenarios; a vision on a 100% renewables-based power system or total decarbonisation is still lacking. As a part of preparation for the revision of the NECP, the government has commissioned modelling from several research institutes. The cost optimisation models will be used to design the policies and measures in the NECP.

In May 2023, the Parliament of Latvia came up with an initiative for a long-term energy strategy. The political parties signed a memorandum. Although the NECP is based on mid- and long-term goals, it has not been instrumental enough for use in daily politics. According to the Ministry of Climate and Energy, the strategic directions of long-term energy policy will be: (1) closer cooperation with the EU, (2) effective use of common resources, (3) empowerment of active users, and (4) use of nationally produced resources.

The prospects of natural gas phase-out are unclear. The government has not announced strict decarbonisation plans and rather calls for diversity in the energy mix. Several factors will matter, including (1) the price of natural gas and emissions allowances, (2) the further decarbonisation of district and individual heating systems, (3) biomass sustainability criteria and price, (4) exploitation costs and life span of Latvenergo's TEC plant, and (5) base load provision and the Baltic synchronisation project.

While long-term solar energy developments will need surplus local and regional management strategies, the future of offshore wind energy is associated with energy exports either through new grid interconnections or investments in green hydrogen infrastructure. In summer 2022, the heads of states of the Baltic Sea countries signed the Marienburg declaration to support offshore wind deployment; in spring 2023, the Baltic and German TSOs agreed to work on grid development for offshore wind parks.

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IMPACTS ON NATIONAL CLIMATE POLICY

According to the most recent national inventory report submitted to the UNFCCC, the energy sector is the largest contributor to greenhouse gas (GHG) emissions in Latvia.³⁸

In 2021, it accounted for 65.5% of the total emissions. Within the energy sector, a significant portion of emissions came from the Transport sector (45.9%), Other Sectors (22.5%), and Energy Industries (20.4%).

Comparing the emissions in the energy sector to the base year of 1990, there has been a notable reduction of 64%. However, when compared to the previous year of 2020, there has been a 3.6% increase. These fluctuations in GHG emissions can be attributed to economic trends, changes in the energy supply structure, and variations in climate conditions.

Significant changes in the energy mix have played a crucial role in the reduction of GHG emissions over the years. The use of biomass has more than doubled, while the consumption of fossil fuels has considerably declined. Specifically, there have been substantial decreases in the use of liquid fuel (–57.8%), solid fuel (–97.3%), peat (–97.9%), and natural gas (–59.8%) since 1990. As a result, the share of biomass in the energy mix has increased from 8.6% in 1990 to 40.5% in 2021.³⁹

More than 80% of Latvia's GHG emissions are not covered by the emissions trading system (ETS). Latvia's goal for GHG reductions in the non-ETS between now and 2030 is 17%. According to the latest inventory and projections, Latvia is not on track to reach the climate goals and additional measures will be needed. In addition to transport sector, agriculture, forestry, and land use change are the most problematic areas, especially depletion of natural sinks. Adoption of Latvia's first Climate Law is expected by end of 2023.

³⁸ UNFCCC GHG Inventory Data: https://di.unfccc.int/time_series

³⁹ Latvia's National Inventory Report 2023. <https://unfccc.int/documents/627724>

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CONCLUSION

The urgency to replace energy imports from Russia have exposed vulnerabilities as well as resilience of Latvia's energy sector and transformation potential of its technical, economic, and social systems. The push from geopolitical events and market forces have shifted further development in favour of renewable energy and efficiency measures. In 2022, EU-wide sanctions and the national-level decisions to diminish the role of imported energy resources did not result in the immediate end of established economic transactions with Russia and Belarus. Record prices were paid for electricity and natural gas imports while restructuring was put in place. It is only from 2023, when financial and physical flows of energy have fundamentally been switched away from Russia.

For energy producers, 2022 was a dynamic year marked by record turnovers. Numerous new projects were initiated to approach the future landscape of a climate-neutral energy system. While the energy scenarios have shifted towards more ambitious renewable energy targets in the mid- and long-term, the specific pathways for phasing out fossil fuels and infrastructure requirements remain unclear.

The revised NECP 2030 will anchor further alignment in Latvia's energy policy with the EU's goals. Significant progress is expected in the renewables sector. However, the decarbonisation of transportation and buildings will present substantial challenges, both in terms of financial requirements and the governance of distributed energy

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