SECCA
Sustainable Energy Connectivity in Central Asia

Funded by the European Union

REGIONAL TRAINING ON MODEL-BASED INTEGRATED ENERGY AND CLIMATE ANALYSES

Almaty, 28-31 January 2025

IMPLEMENTING LITHUANIAN NECP: FROM TARGETS TO RESULTS

Mindaugas Stonkus
Expert in Integrated energy and climate planning, SECCA

Stantec | intec | ACTED | European University Institute | Robert Schuman Centre for Advanced Studies | FSR Energy | Florence School of Regulation

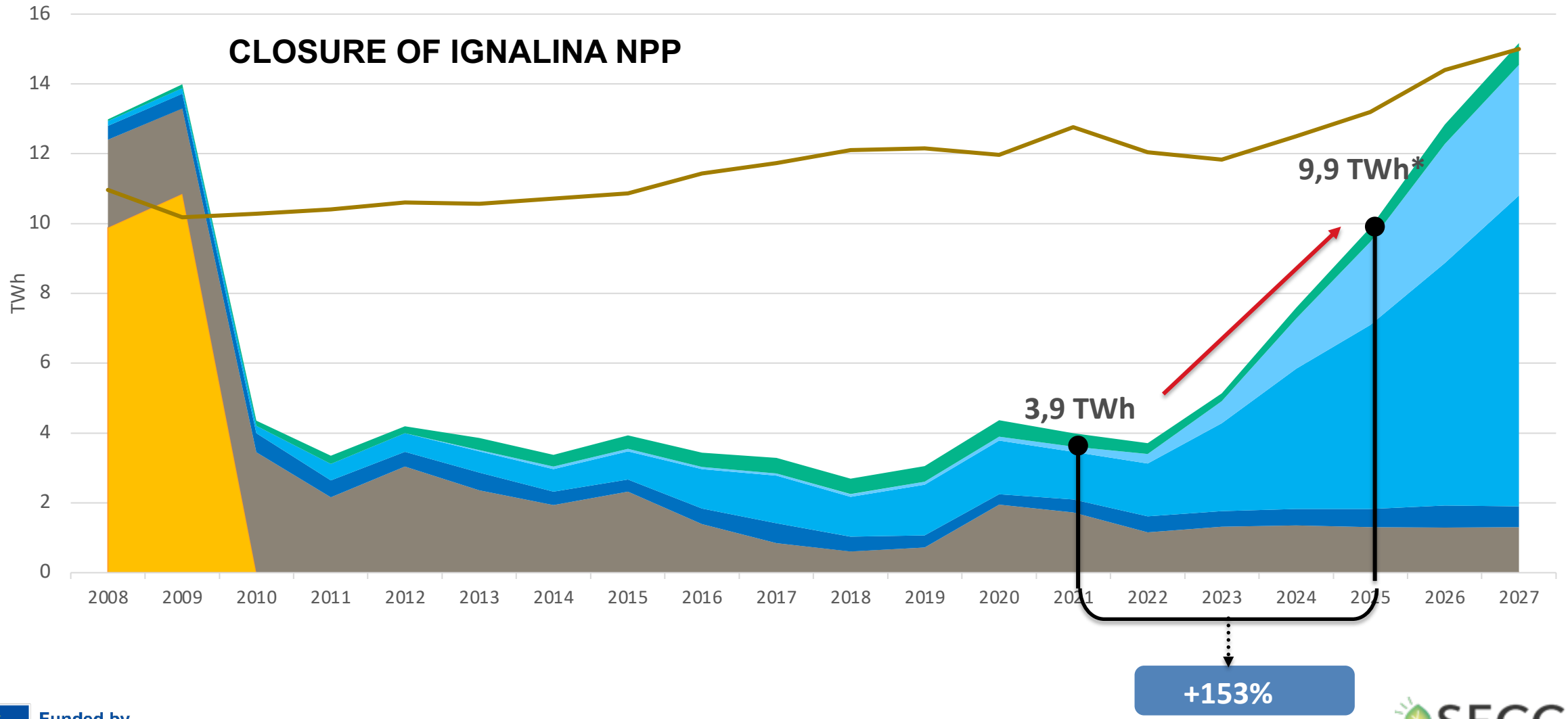
LITHUANIA'S ENERGY SECTOR TARGETS FOR 2050

Energy independence	Self-generate all the necessary amount of energy and ensure the safety of infrastructure
100% climate-neutral energy	A full transition to climate-neutral energy
Becoming an energy exporter	Export of energy and high-value energy products
Industrial development	To promote the development of existing industry and the attraction of new ones, taking advantage of the opportunities offered by energy change
Availability of energy prices	Ensure that energy change reaches all consumers

Funded by the European Union

SECCA
Sustainable Energy Connectivity in Central Asia

ELECTRICITY PRODUCTION IN LITHUANIA 2008-2027



Funded by
the European Union

SECCA
Sustainable Energy Connectivity in Central Asia

STRENGTHENING THE LITHUANIAN ENERGY SYSTEM

Būdingės Oil Terminal

Klaipėda LNG terminal

Electrical and gas connections

Increasing biomass in the heat sector

Funded by
the European Union

SECCA
Sustainable Energy Connectivity in Central Asia

RES TARGETS IN THE FIRST NECP

	2020	2022	2025	2027	2030
Renewable contribution as a share of energy from renewable sources in gross final consumption of energy in 2030 and indicative trajectory	25	32,7	36,45	39,75	**45**
RES - H&C share*	50,9	53,9	63,1	66,9	**67,2**
RES - E share	21,29	25,55	31,48	36,70	**45**
RES - T share	4,7	6,69	9,23	11,46	**15**
RES - T share as contribution to overall target	17,32	20,46	25,32	28,83	**33,33**

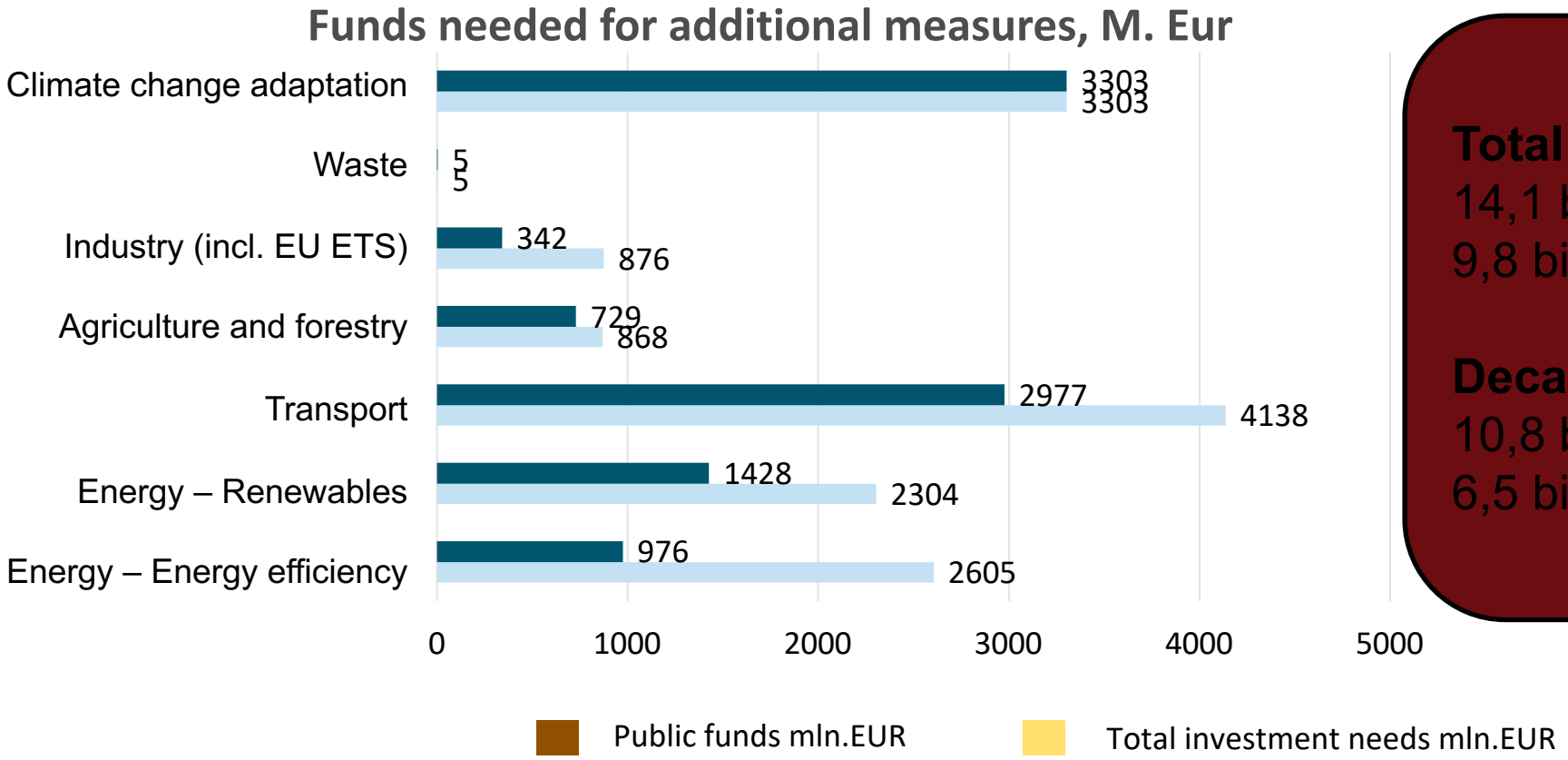
Funded by the European Union

ENERGY EFFICIENCY TARGETS IN THE FIRST NECP

	2018 *	2030	UNITS
National contribution for energy efficiency: - Primary energy consumption in 2030 - Final energy consumption in 2030	 76,6 64,5	 **63,5** **52,6**	 TWh
Cumulative amount of energy savings to be achieved over the period 2021-2030 under Article 7(1)(b) on energy saving obligations of Directive 2012/27/EU	- (2014-2020 period: 7,4)	**27,279**	TWh
Indicative milestones, expected energy savings and contribution to the energy efficiency target of the long-term strategy for the renovation of the national building stock (if available)	2.6	**5,5**	TWh

Funded by the European Union

FUNDS NEEDED FOR NECP



Total investment needs:
14,1 billion EUR, from which
9,8 billion EUR of public funds

Decarbonization measures:
10,8 billion EUR, from which
6,5 billion EUR of public funds

Funded by
the European Union

SECCA
Sustainable Energy Connectivity in Central Asia

PROMOTION OF SOLAR PARKS AND PROSUMERS

Lithuania's largest solar park — located in the Molėtai area — was inaugurated recently.

This solar park boasts a capacity of 100MW, thereby making it the country's largest operational solar project. The Ministry estimates that it will supply electricity to approximately 28,000 homes annually.

150,00020 Photovoltaic Modules Installed on a 150-hectare Land.

The Danish company Nordic Solar invested in the solar power project.

With 150,000 photovoltaic modules and a 150-hectare footprint, the solar park can generate 100MW of electricity.

Funded by the European Union

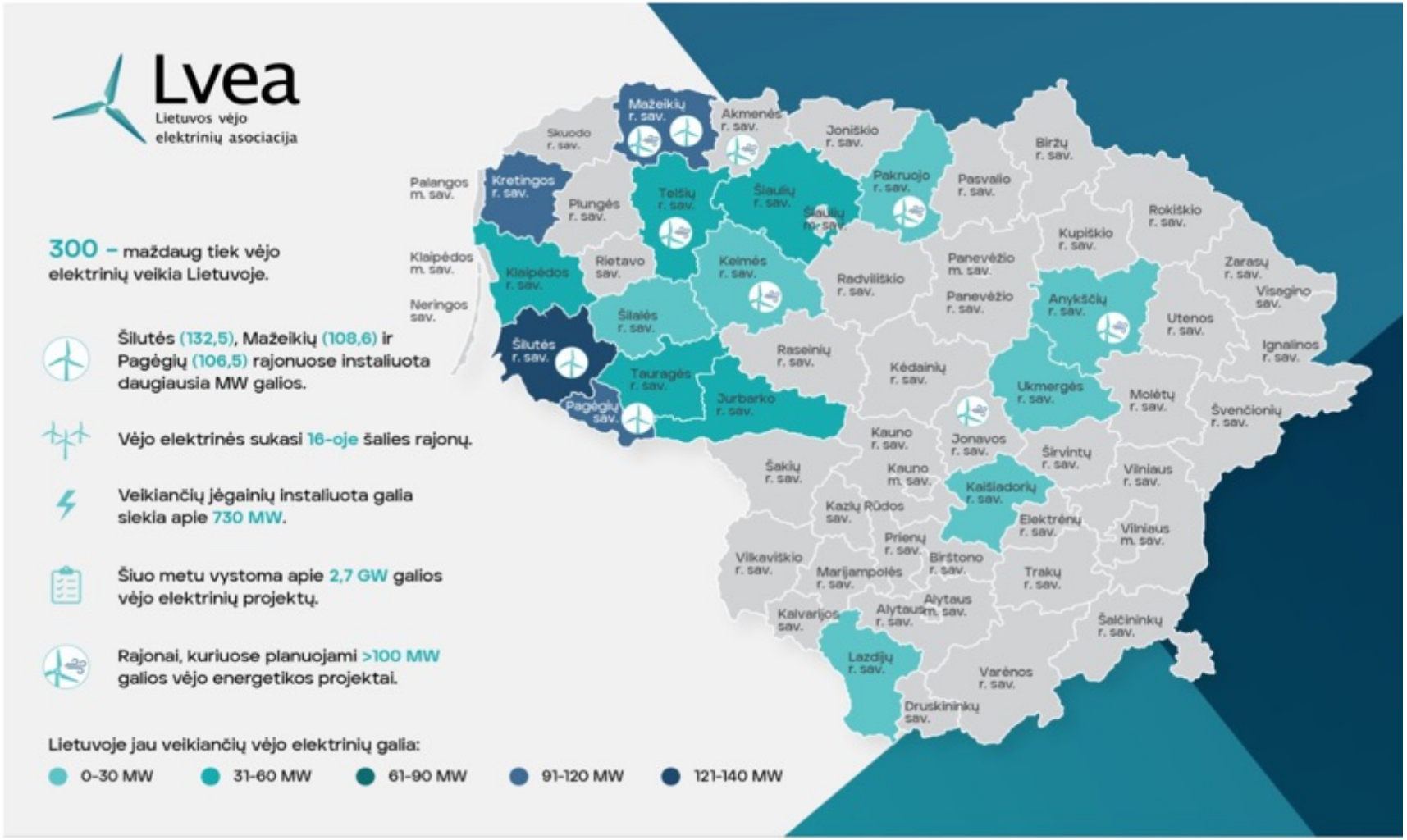
SECCA
Sustainable Energy Connectivity in Central Asia

SUCCESS STORY WITH SOLAR PANELS

Up to 10 kW
Compensation 323 EUR-1kW
3000 applications in first day

- Registration at the start of the call
- Approval by Agency
- Implementation of the project
- Request for compensation
- Compensation paid by Agency

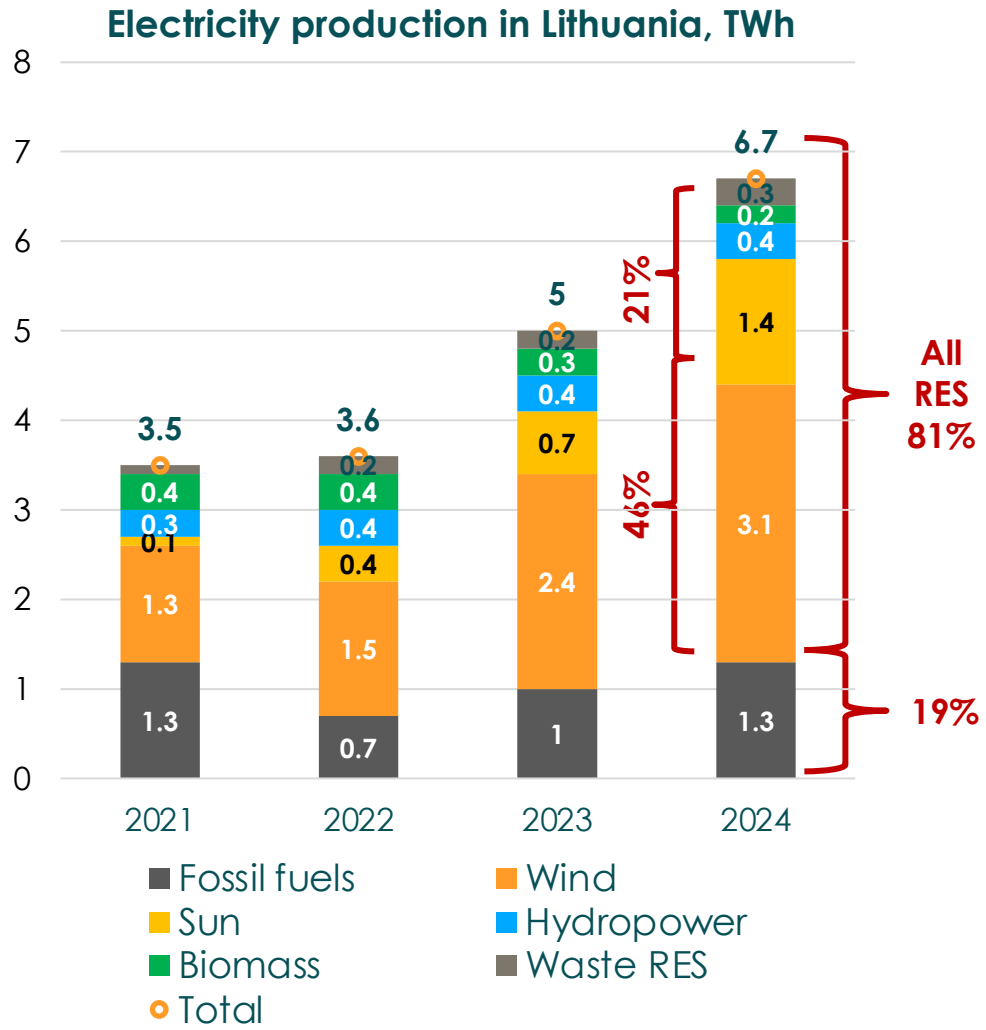
PROMOTION OF WIND PARKS



Funded by the European Union

SECCA
Sustainable Energy Connectivity in Central Asia

81% OF LITHUANIA'S ELECTRICITY WAS GENERATED USING RES



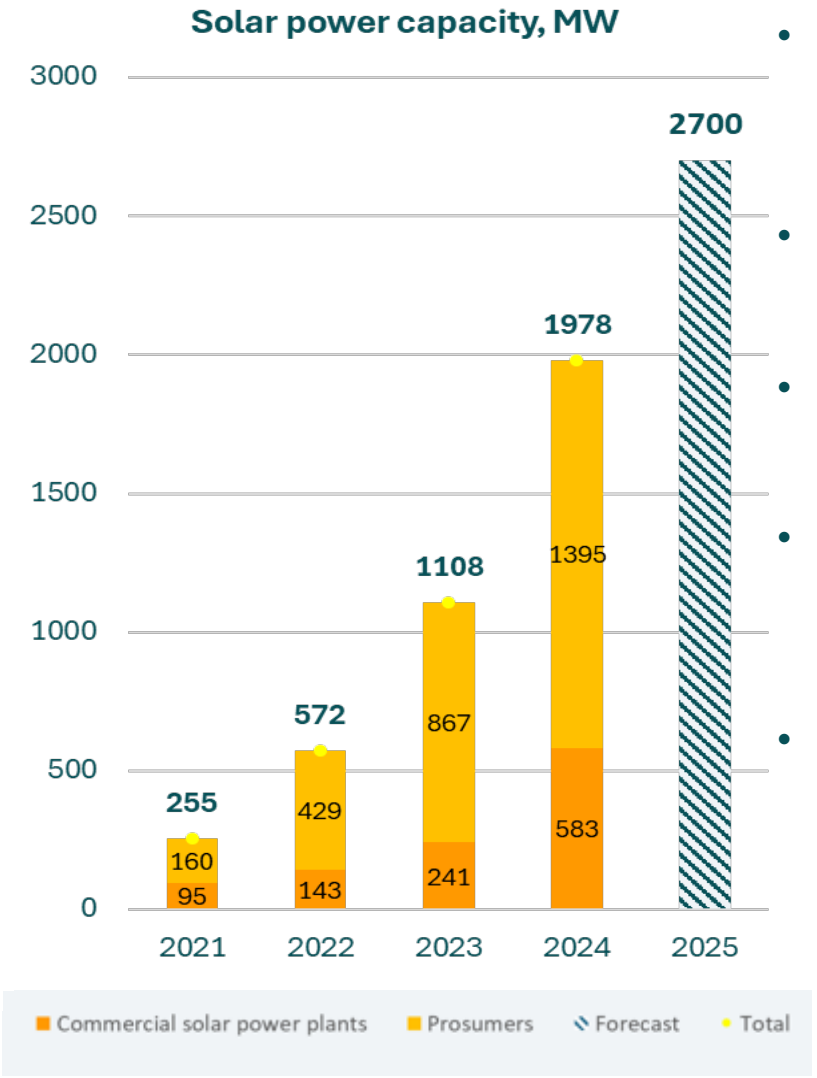
- **In 2024 Lithuania generated around 6,7 TWh of electricity** - 35% more than in 2023 (around 4,9 TWh of generation)
- 5,4 TWh, or 81% of total generated electricity came from RES and 1,3 TWh, or 19%, from fossil fuels
- **Wind power plants accounted for the largest share of electricity production – 46%** (3,1 TWh) or 27% of total electricity consumption (11,6 TWh)
- **Solar power plants produced 21%** (1,4 TWh) of electricity, or 12% of total consumption
- This has contributed to lower electricity prices
- Solar and wind power plants have a capacity of 3 700 MW, which is higher than the capacity of the two units of the Ignalina Nuclear Power Plant that were closed in 2009 (3 000 MW)
- In 2025, even higher domestic electricity generation from renewable energy sources is expected

Funded by the European Union

Data sources: 2024 12 13, Litgrid, EnergyCharts, LEA

SECCA
Sustainable Energy Connectivity in Central Asia

870 MW OF NEW SOLAR POWER PLANTS IN A YEAR



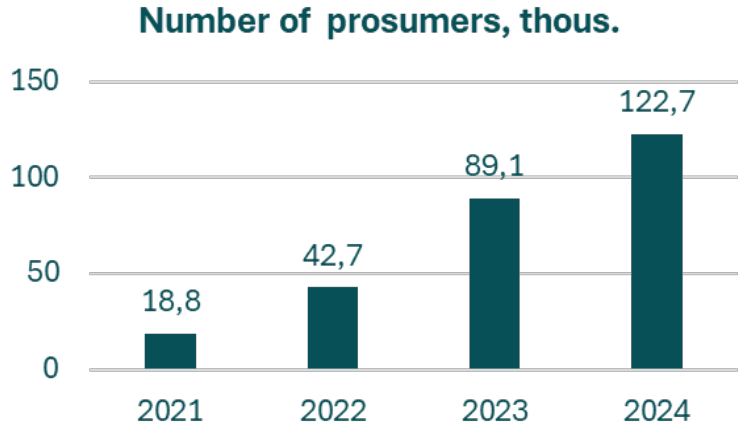
- **Solar power plants are expected to be the fastest-growing electricity producers in 2024. The largest increase to date—78% more than in 2023—has been recorded**
- **The growth in solar power capacity in 2024 is primarily driven by prosumers, who account for 60% of the newly installed solar power capacity this year**
- The share of commercial solar parks in the total solar power capacity increased to 30% in 2024, compared to approximately 22% in 2023
- Based on the number of prepared technical projects and issued permits for solar power development, the total capacity of all solar power plants is projected to reach 2 700 MW by 2025
- The National Energy Independence Strategy sets a target of 4 100 MW of solar power capacity by 2030. Currently, 1 978 MW of solar power capacity has already been installed—48% of the target has been achieved

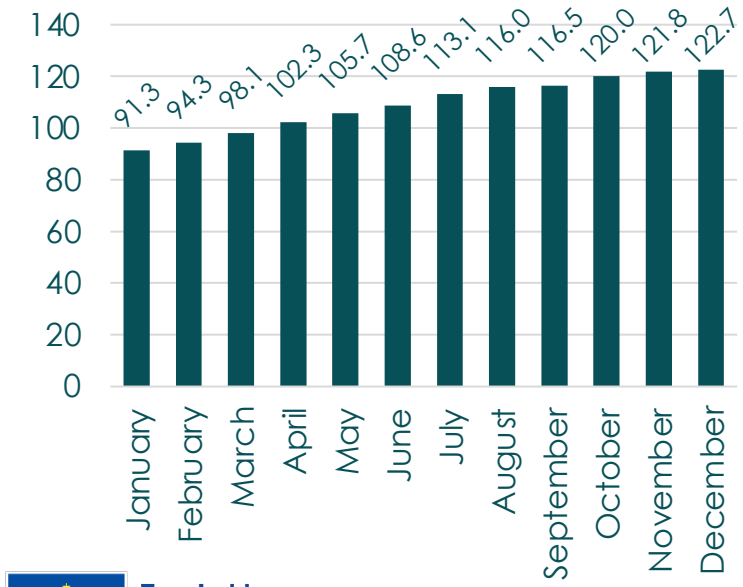
Solar Power Target for 2030	Solar Power Capacity in 2024,
4 100 MW	1 978 MW

Funded by the European Union

Data sources: EPSOG, Litgrid, ESO, LEA

ALREADY 41% OF THE TARGETED 300 000 PROSUMER FOR 2030 HAVE BEEN REACHED





- In 2024, 33,6 thousand new prosumer were added
- Currently, there are approximately 123 000 prosumers (6,2% of all electricity consumers), who have installed around 1 395 MW of solar power capacity and produced approximately 0,94 TWh of electricity (about 8% of the total electricity consumed in the country)
- The number of prosumer increased by about 33,000 this year. A similar increase in prosumer is expected in 2025
- The main reason for the growth in the number of prosumers is the volatility of electricity prices – residents seek lower and more stable electricity costs. Solar power systems, supported by government subsidies, provide this stability
- The National Energy Independence Strategy has set a goal of reaching 300 000 prosumers and active electricity consumers by 2030. Currently, there are 122 700 of them

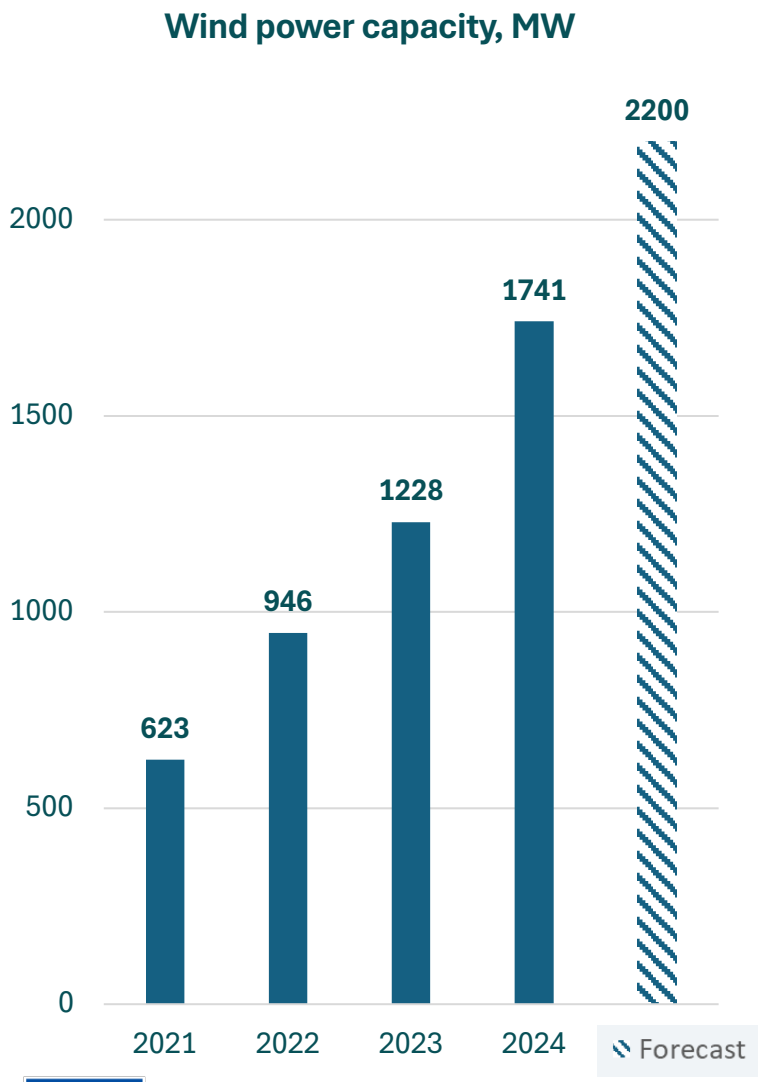
Target Number of Prosumers for 2030	Number of Prosumers in 2024
300 000	122 700

Funded by the European Union

Data sources: EPSOG, Litgrid, ESO, LEA

SECCA
Sustainable Energy Connectivity in Central Asia

NEW RECORD: 513 MW OF NEW WIND POWER PLANTS IN A YEAR



- **In 2024, 82% more new wind power plants (231 MW) were installed compared to 2023**

- The reason for this growth is the large-scale commercial wind farms. This September, the most powerful wind farm to date, with a capacity of 105,4 MW, started generating electricity in the Kelmė district. In October, an 85 MW wind farm began operations in Jurbarkas district, followed by another 79,8 MW wind farm in Kelmė district in December.
- The total capacity of wind turbines owned by individual producers is only about 11,4 MW, which accounts for just 0,7% of the total wind power capacity
- Lithuania now has approximately 1 740 MW of wind power capacity—nearly three times more than Latvia and Estonia combined
- Considering the technical projects prepared for wind power plants, issued permits for capacity expansion, and signed letters of intent, it is expected that by 2025 the total capacity of all wind power plants will reach 2 200 MW.

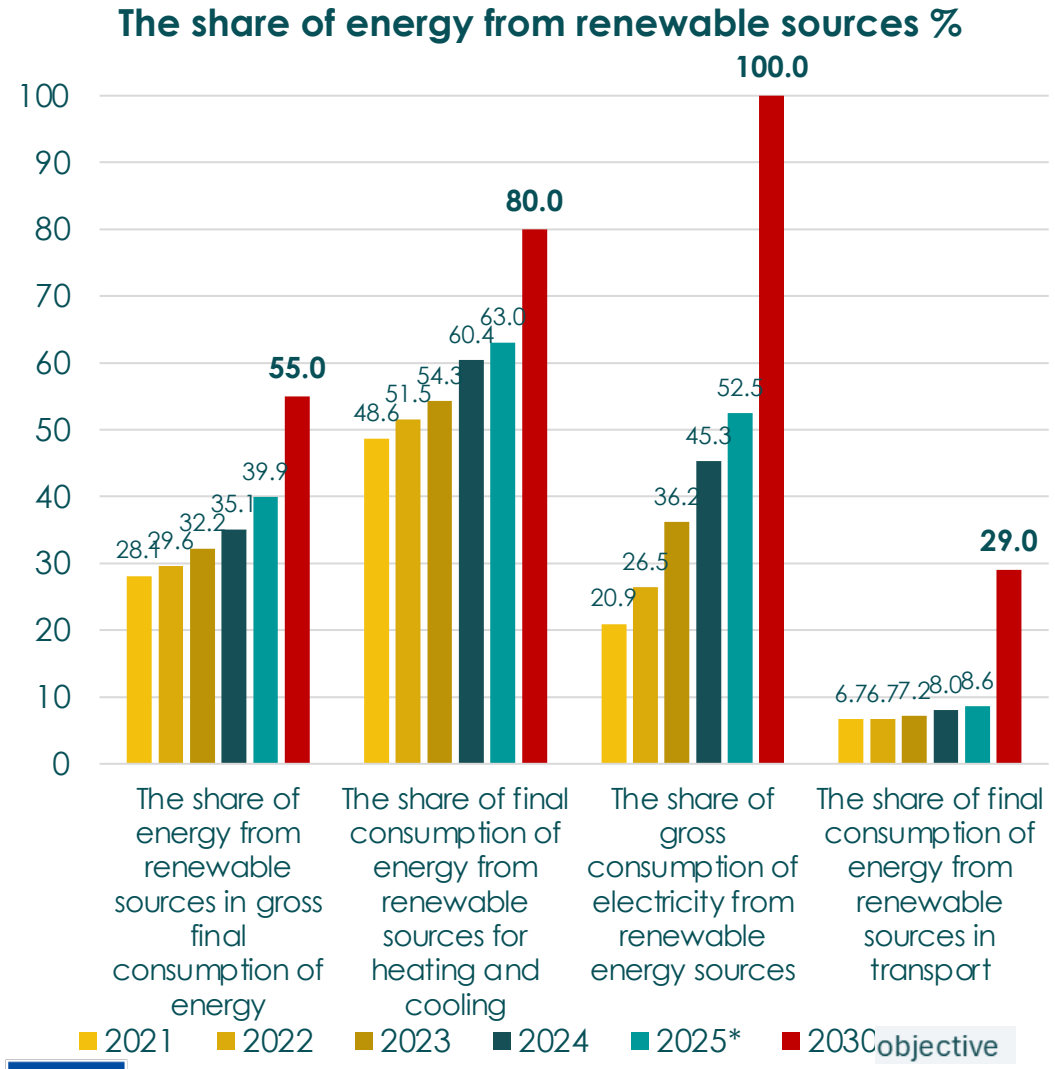
Wind power plants capacity target for 2030, MW	Wind power plants capacity in 2024, MW
5 900	1 741

Funded by the European Union

Data sources: EPSOG, Litgrid, ESO, LEA

SECCA
Sustainable Energy Connectivity in Central Asia

IN 2023, THE SHARE OF RENEWABLE ENERGY SOURCES (RES) IN ELECTRICITY CONSUMPTION INCREASED BY NEARLY 10%
IN 2024, THIS FIGURE INCREASED BY 9%, REACHING 45,3%



- In the NENS and NEKS Action Plan for 2021–2030 and the Hydrogen Development Guidelines for Lithuania for 2024–2050, the key principles for the future of energy are updated and reinforced: energy independence, the development of local energy production, and lower energy prices for a competitive economy

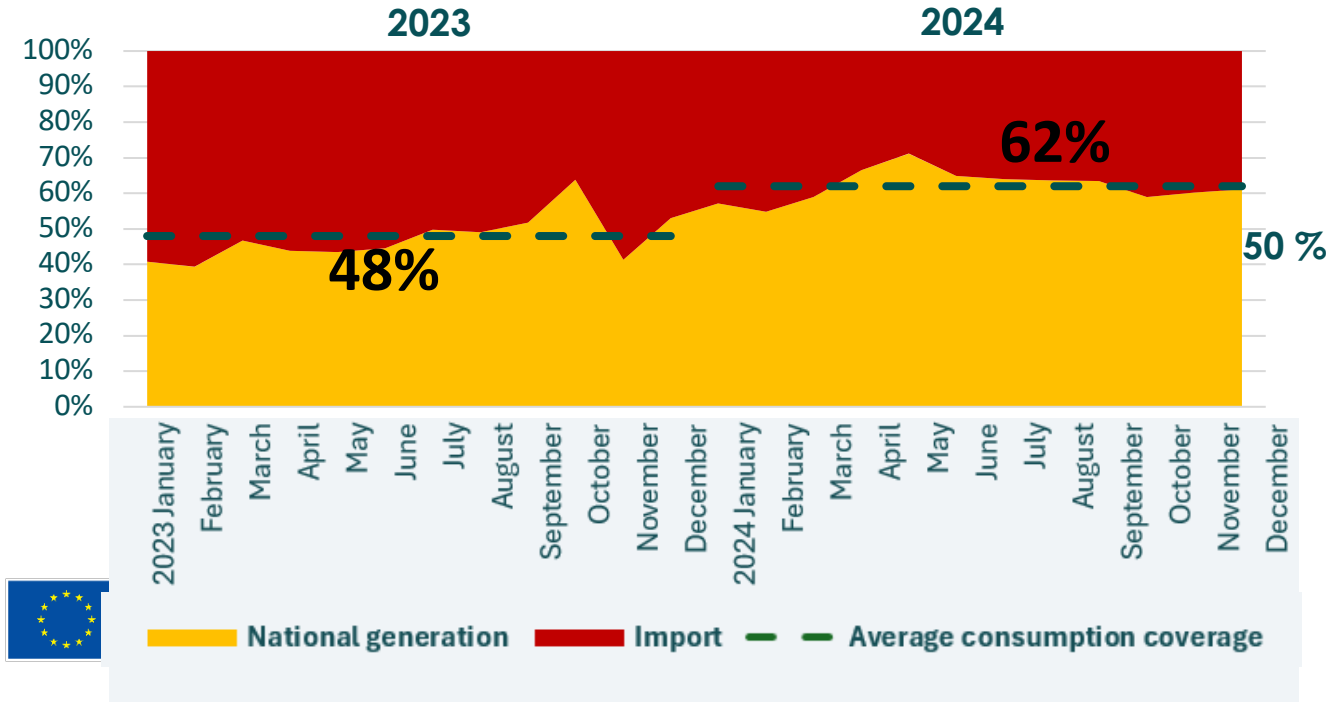
- In addition to other measures, this will be achieved by increasing the share of renewable energy sources:
  for heating and cooling – from 54,3% in 2023 to 80% in 2030
- in total electricity consumption – from 36,2% in 2023 to 100% in 2030
- in final consumption in transport – from 7,2% in 2023 to 29% in 2030

Funded by the European Union

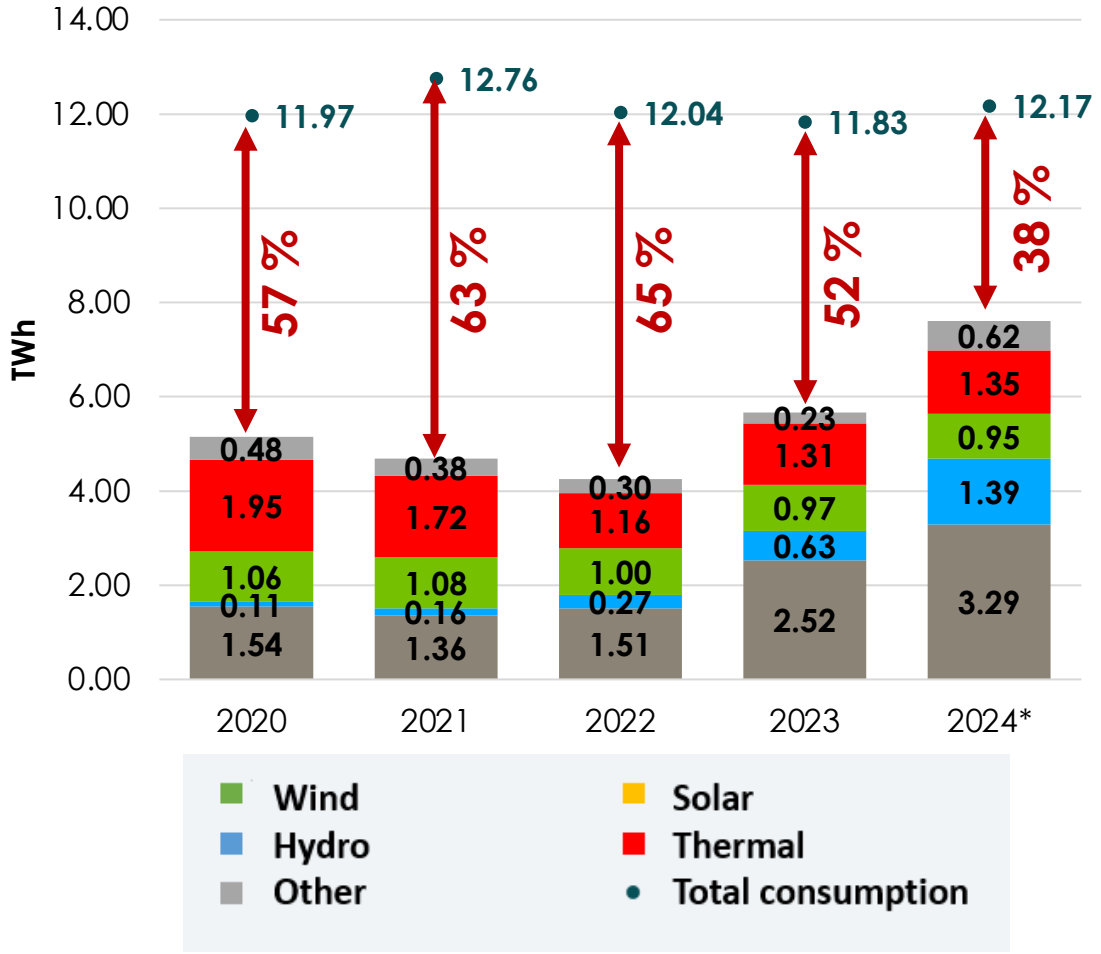
Data sources: LEA, State Data Agency *2025* – projected data*

THE SMALLEST SHARE OF IMPORTED ELECTRICITY SINCE 2009 (38%) ALLOWED LITHUANIA TO SAVE OVER 260 MILLION EUROS

- Lithuania's national electricity generation in 2024 has covered the largest share of electricity consumption (62%) since the shutdown of Ignalina Nuclear Power Plant in 2009. This has allowed Lithuania to import less electricity (38%) from neighboring countries
- Growing installed RES capacity will continue to increase Lithuania's average electricity demand coverage in 2025. In 2025 around 70% of the electricity consumed could be generated. Lithuania will move even closer to its goal of becoming an electricity exporting country

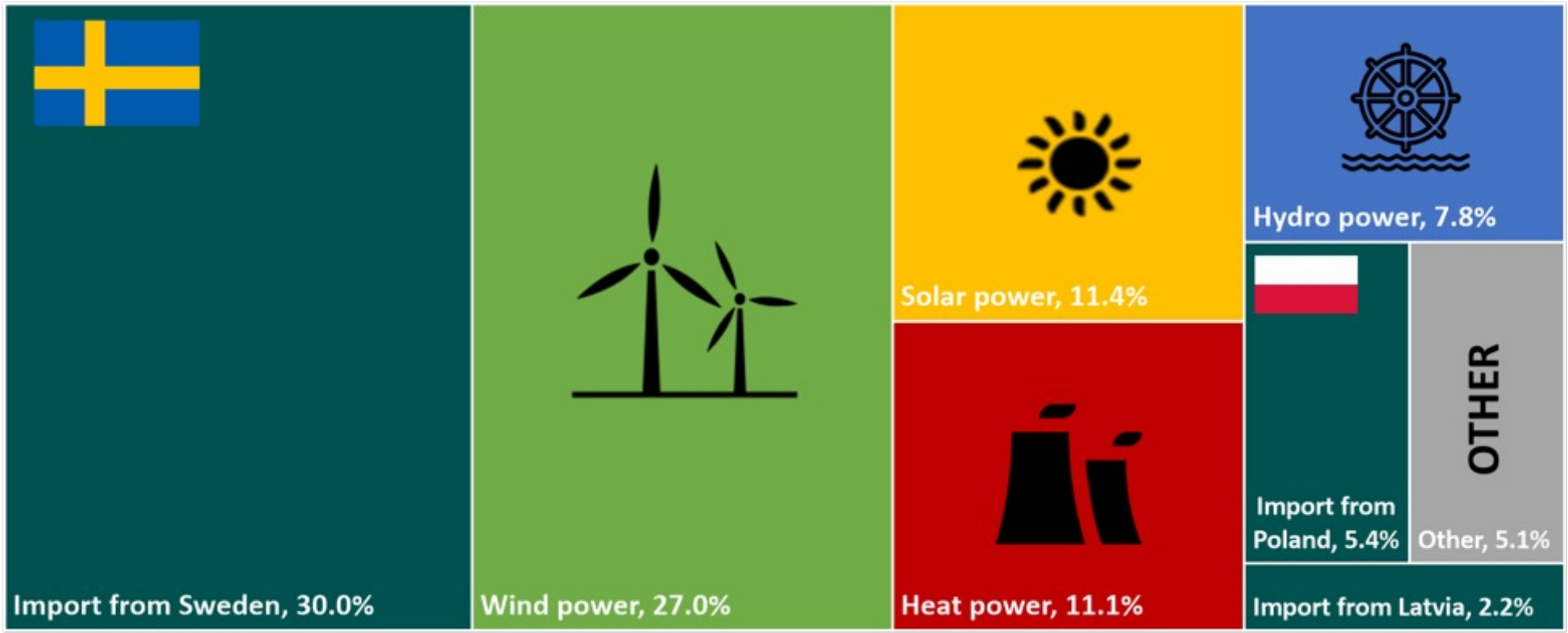


NATIONAL GENERATION AND TOTAL CONSUMPTION OF ELECTRICITY IN 2024



Data sources: ENSO-E, Litgrid

SOLAR ENERGY IS THE SECOND MOST IMPORTANT PRODUCTION TECHNOLOGY IN LITHUANIA FOR THE FIRST TIME



- 2024 was the third year in a row when wind power plants in Lithuania produced the most electricity when comparing different production technologies

- 2024 is the first year in Lithuanian history when solar power plants rank second in terms of electricity production, thus overtaking the amount of electricity produced in thermal power plants for the first time

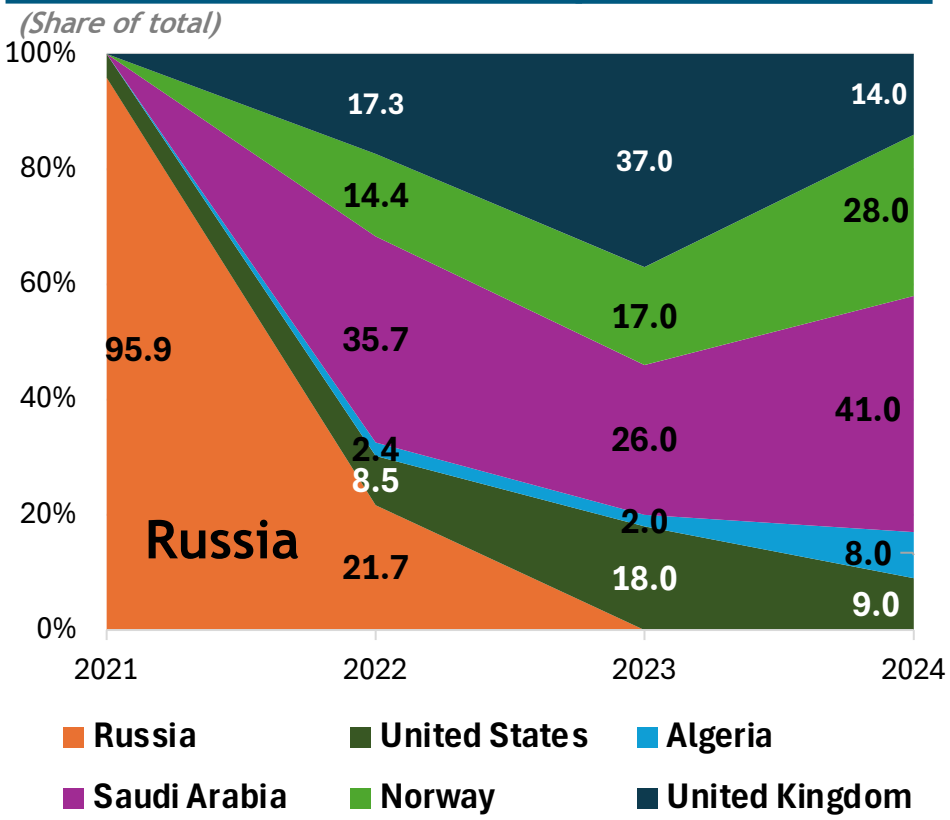
Funded by the European Union

Data sources: Litgrid

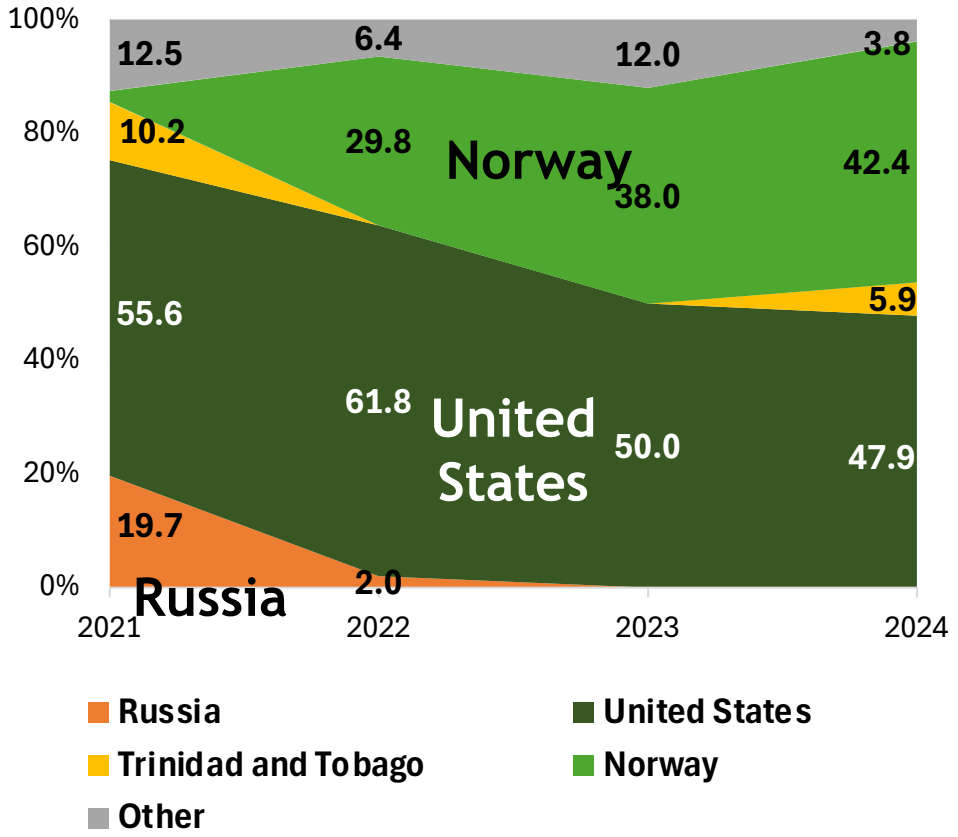
SECCA
Sustainable Energy Connectivity in Central Asia

NATURAL GAS IN LITHUANIA COMES MAINLY FROM THE USA

Crude Oil Imports



LNG Imports



- LNG is mainly imported from the United States and Norway

Funded by the European Union

Data sources: Statistics Lithuania

SECCA
Sustainable Energy Connectivity in Central Asia

LESSONS LEARNED

1. Integrate implementation of NECP into everyday activity for all responsible institutions
2. Be prepared to change the Plan according to the changing situation
3. It is important to plan in advance and ensure adequate financial recourses
4. Dedicate competent people and set motivation system
5. Communicate and share benefits all stakeholders
6. Ensure proper supervision of the implementation of Plan

Funded by
the European Union

SECCA
Sustainable Energy Connectivity in Central Asia

THANK YOU!

Funded by
the European Union

SECCA
Sustainable Energy Connectivity in Central Asia