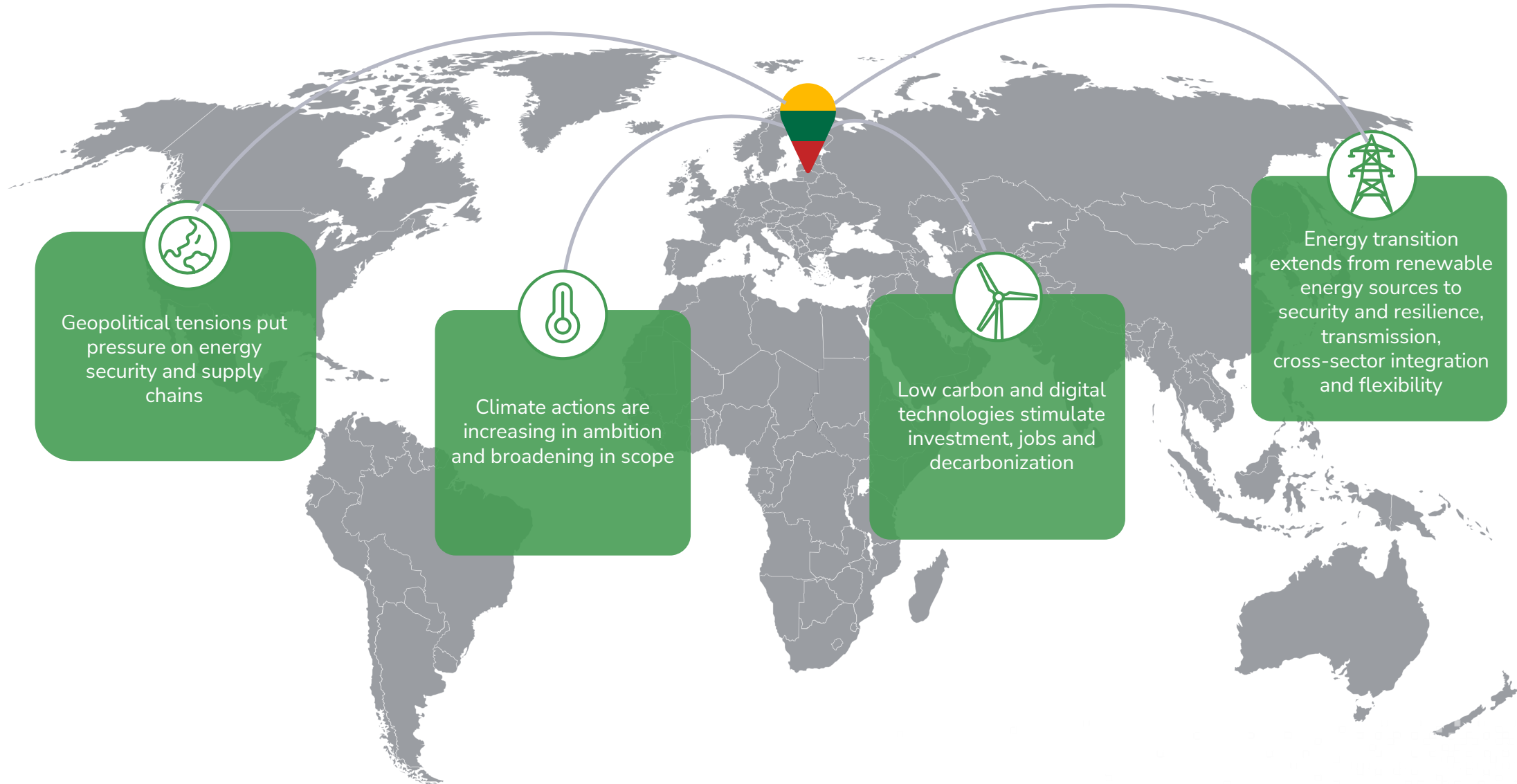


# The role of the Transmission System Operator in strengthening the security and reliability of the future energy sector

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# Complex global dynamics are shaping our environment



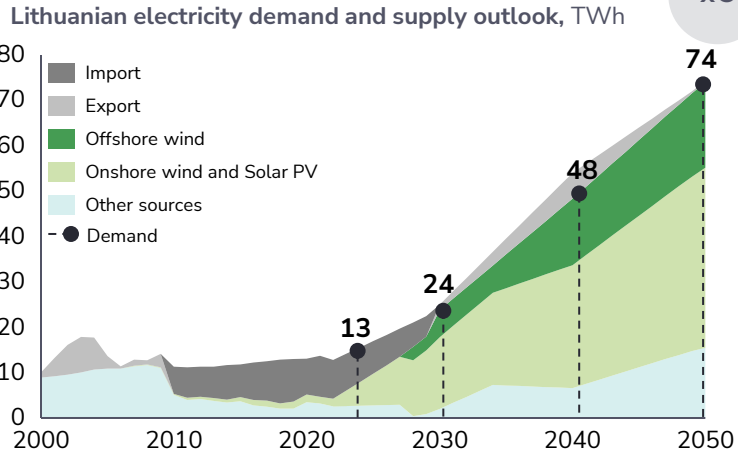
# Strong national ambition

to maintain the speed of RES deployment, whilst ensuring credible offtake strategies, social acceptance and finance ability

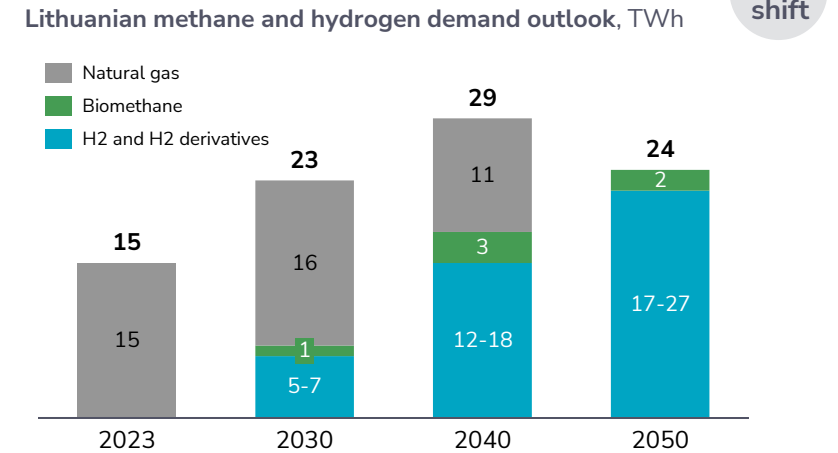
# Lithuania has approved its National Energy Independence Strategy

to be climate neutral, energy independent and a net exporter of power and low carbon energy products by 2050

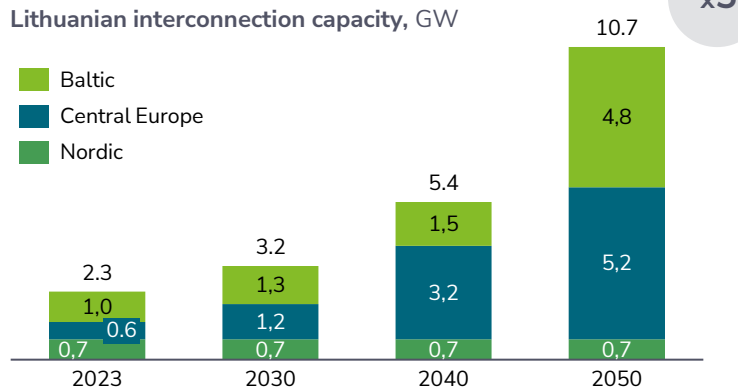
## Significant growth in renewable generation to meet demand growth and create exports...



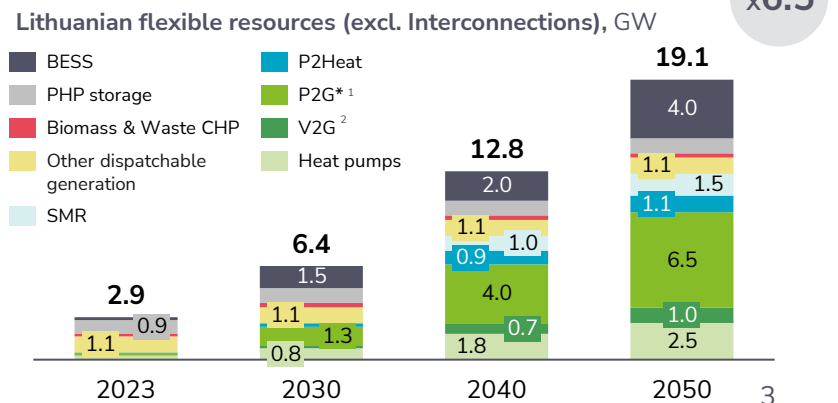
## ... alongside transition away from fossil-based methane to hydrogen



## Growth in renewables requires enhanced system flexibility, through interconnections...



## ...and other cross-sectoral flexible resources



Sources: National Energy Independence Strategy; Amber Grid Ten Year Network Development Plan

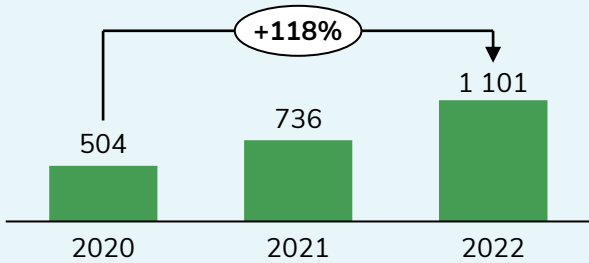
\* excl off-grid/offshore, H<sub>2</sub> electrolyzers

# Provider of security and reliability

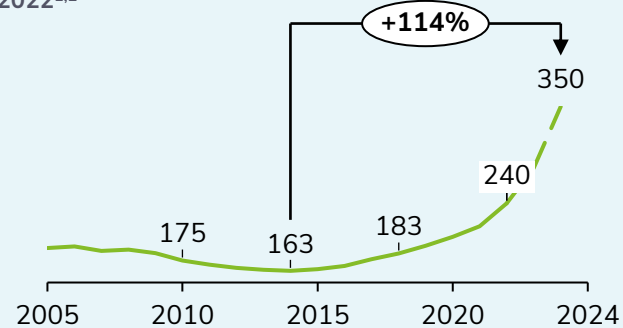
We will deliver a more resilient and flexible system, taking extra steps both within and beyond our current boundaries to support national security

## Recent disruptions and tensions are driving an increased focus on security

Global average number of weekly cyberattacks per organisation in the utility sector (includes critical gas and electricity infrastructure), 2020-22

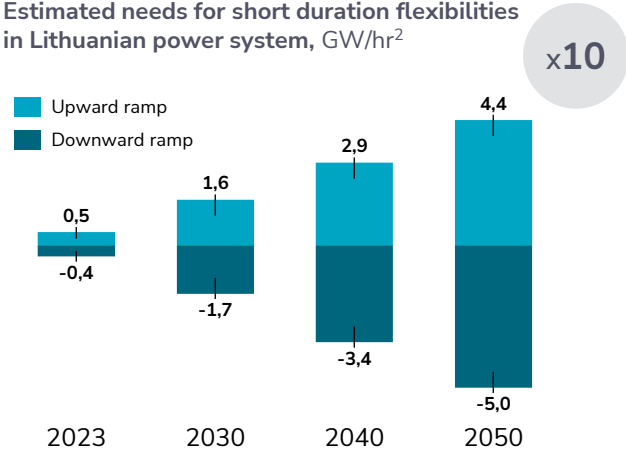


Total defence expenditure in Europe, bn EUR, real, 2022<sup>1,2</sup>

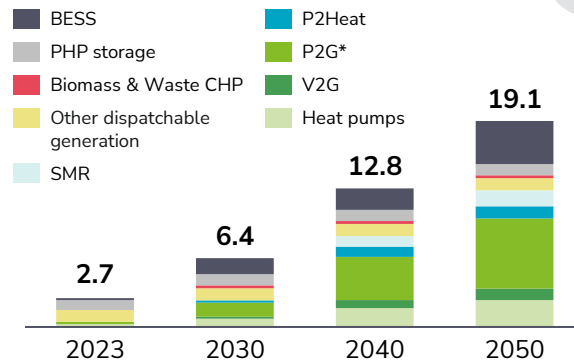


## Development and use of the most efficient flexibility resources

Estimated needs for short duration flexibilities in Lithuanian power system, GW/hr<sup>2</sup>

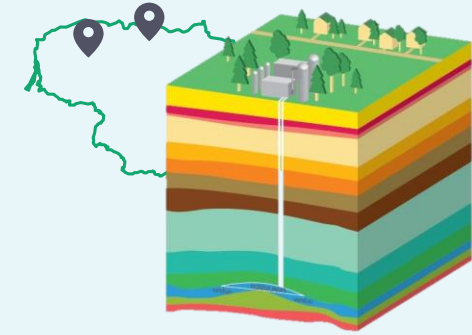


Planned flexible resources in Lithuania (excl. interconnections), GW<sup>1</sup>



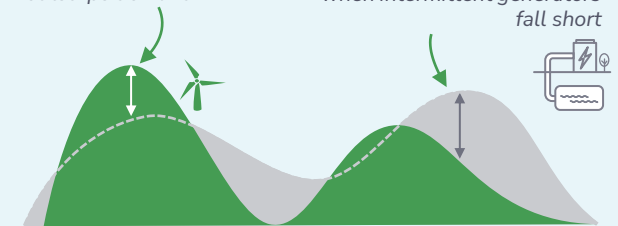
\* excl off-grid/offshore, H<sub>2</sub> electrolyzers

## Developing of long-term energy storage



Generation is curtailed when production outstrips demand

Excess generation from earlier can bridge the demand gap when intermittent generators fall short



### Key stats:

~ 6 TWh

Required seasonal storage capacity (2050)<sup>2</sup>

~0.3-1 TWh

Potential underground Compressed Air Energy Storage capacity (2040)

# Strengthening physical and cyber security

We strengthen the safety of our assets against physical and cyber threats, and act as a strategic partner for national security initiatives

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## Physical security

Development and installation of walls, barrier and territory protection



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## Anti-drone protection

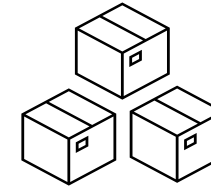
Installation of technical measures to protect against unmanned aerial vehicles



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## Emergency reserve

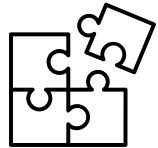
Establishment and storage of the necessary equipment reserve



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## Network operation in critical mode

Development of autonomous system operation measures and backup control and data centers



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## Advanced cybersecurity measures

Up-to-date digital security measures for critical transmission network assets



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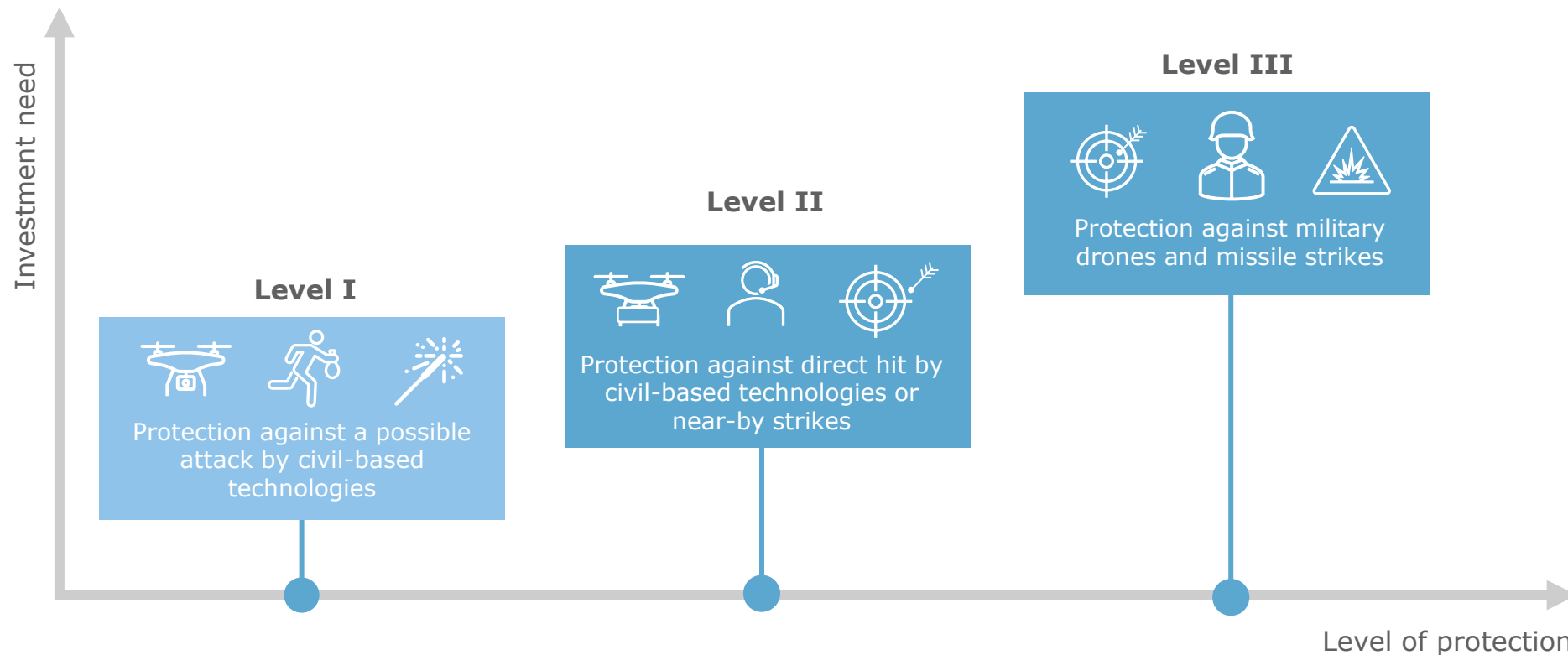
## Personnel

Ensure continues training and availability of employees and partners



# Strengthening physical and cyber security

We strengthen the safety of our assets against physical and cyber threats, and act as a strategic partner for national security initiatives



# Lithuanian Strategic Energy Objectives

Approved in the updated National Energy Independence Strategy

**ENERGY SAFETY  
AND RELIABILITY**



Ensuring a safe and reliable energy supply

**100%  
DECARBONISATION**



100% climate neutral energy for Lithuania and the region

**PURSUE INDUSTRIAL  
GROWTH**



Shift to an electricity and higher value energy industry based economy

**ENERGY  
ACCESSIBILITY**



Ensure energy resource accessibility to consumers