



The challenges within the European energy union for the integration and development of a sustainable energy system:

A special focus on the upcoming challenges for Belgium

**Belgium House of Representatives - 01/07/2022**

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European Commission, DG Energy

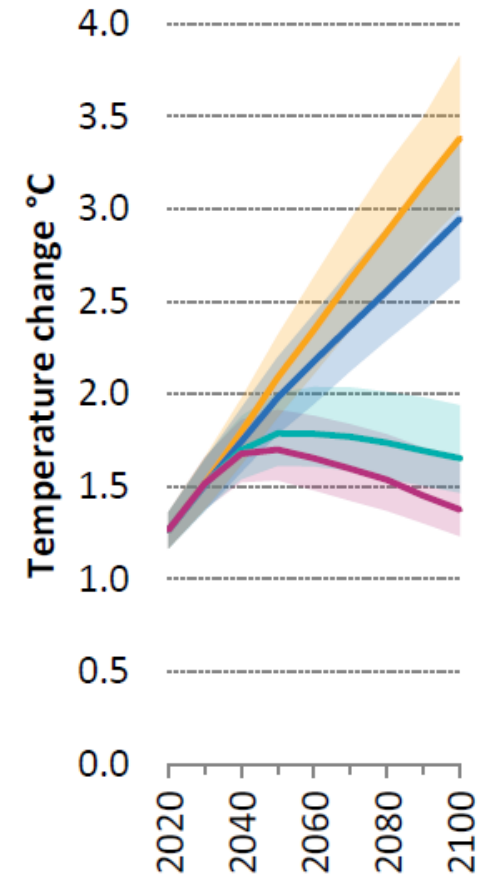
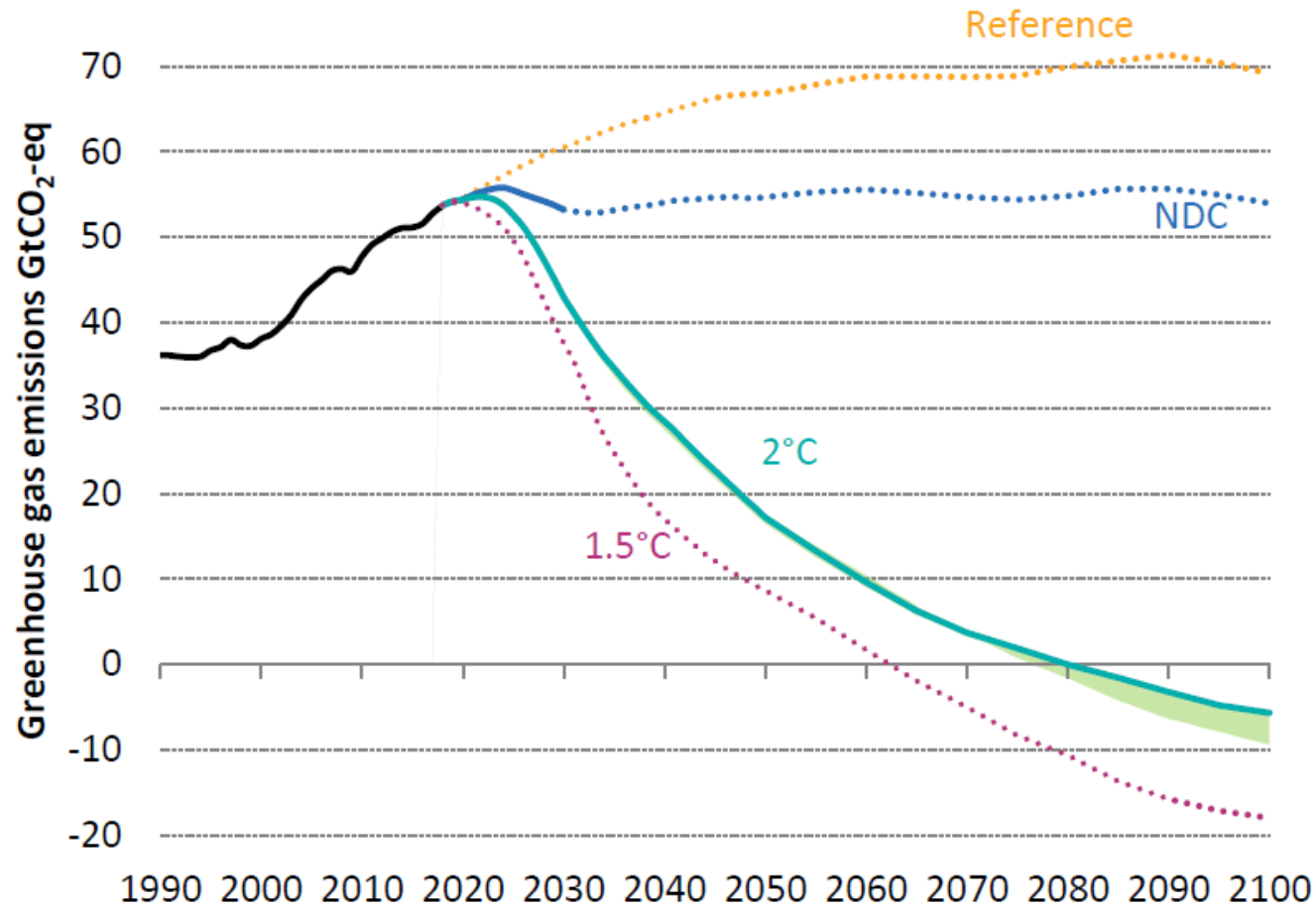
Unit B5 – Innovation, Research, Digitalisation, Competitiveness

# Challenges:

Climate change

Dependence on fossil imports

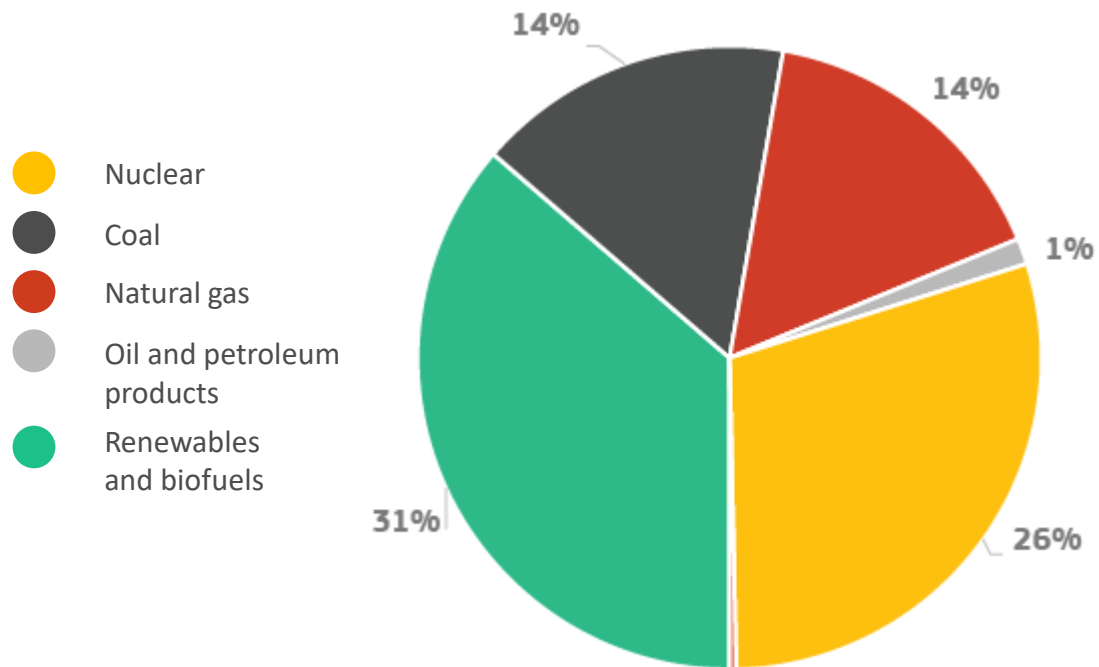
# Key scenarios - Global Annual GHG emissions



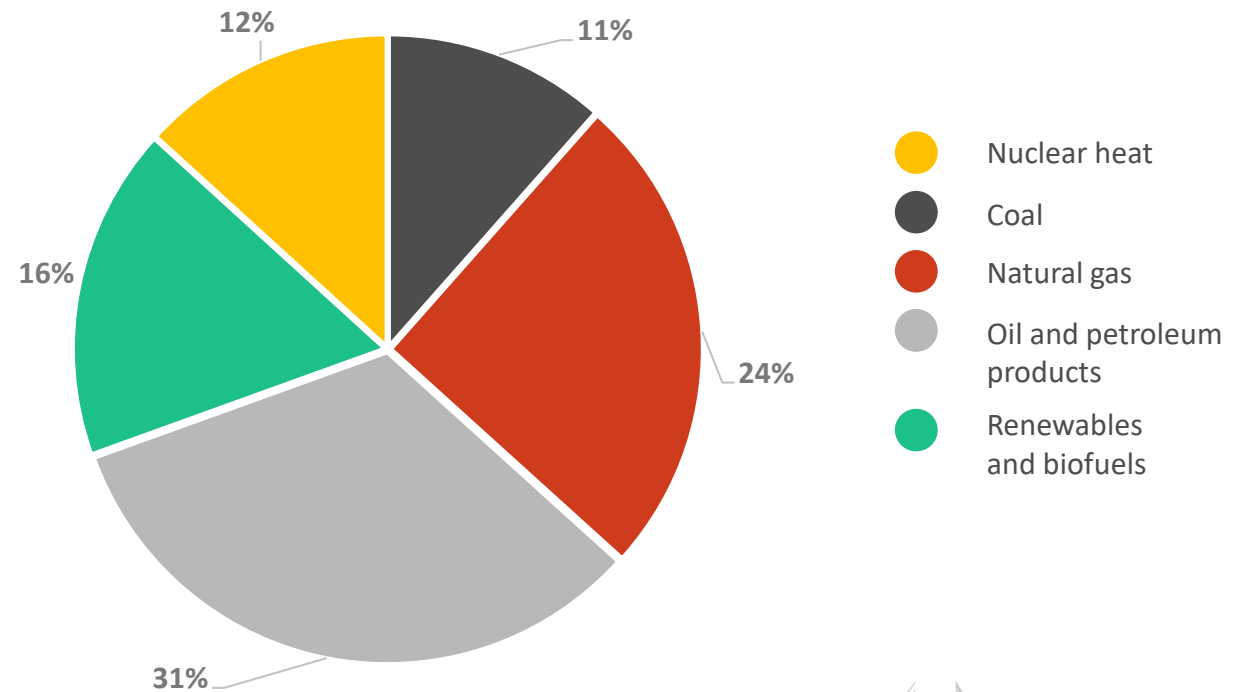
Source: POLES-JRC; <https://ec.europa.eu/jrc/en/geco>

# Electricity mix / Energy Mix

## EU27 Electricity generation mix (2021)

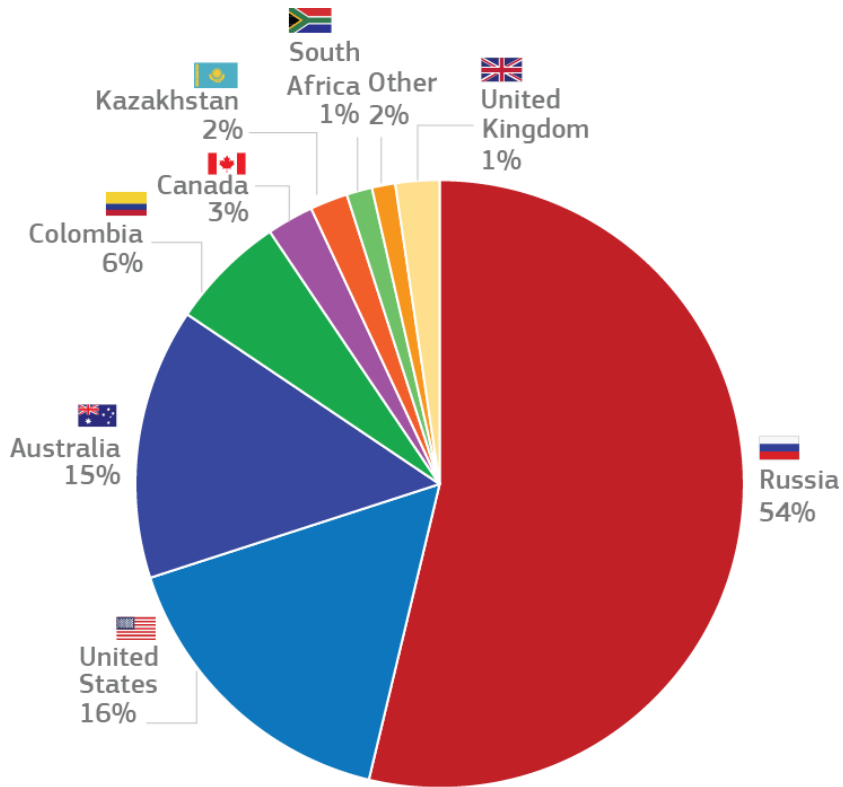


## EU27 Energy generation mix (2021)

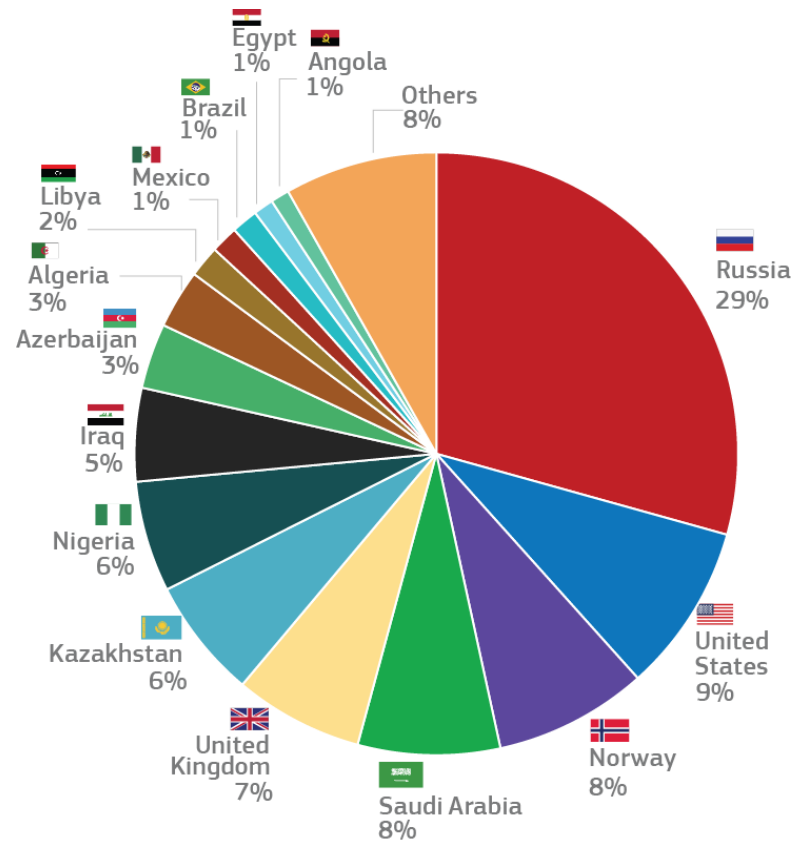


# Depending on Russia

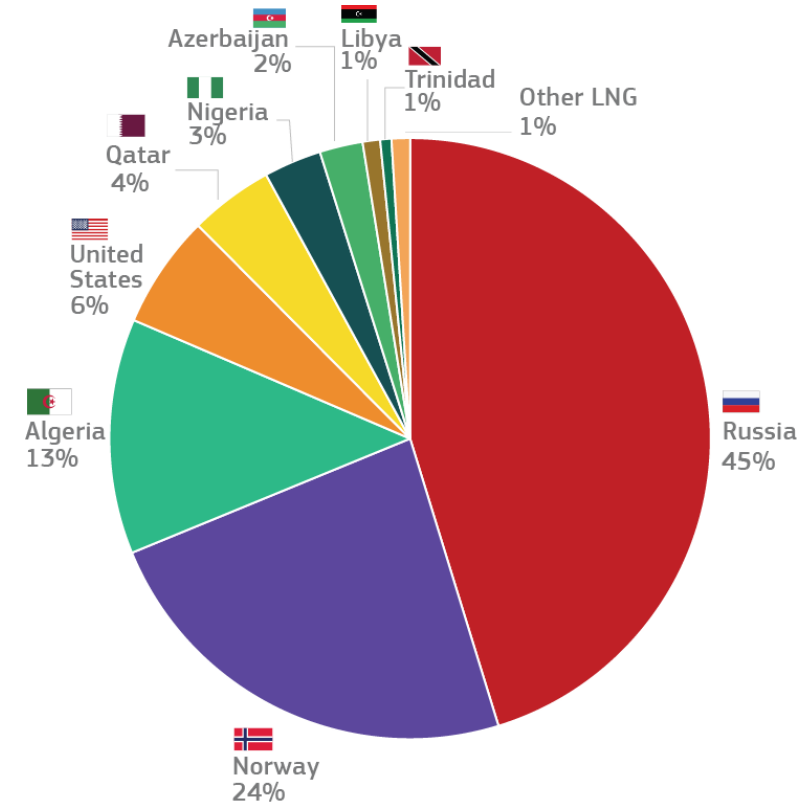
**Coal** import dependency per country (2021)



**Oil** imports dependency per country (2021)

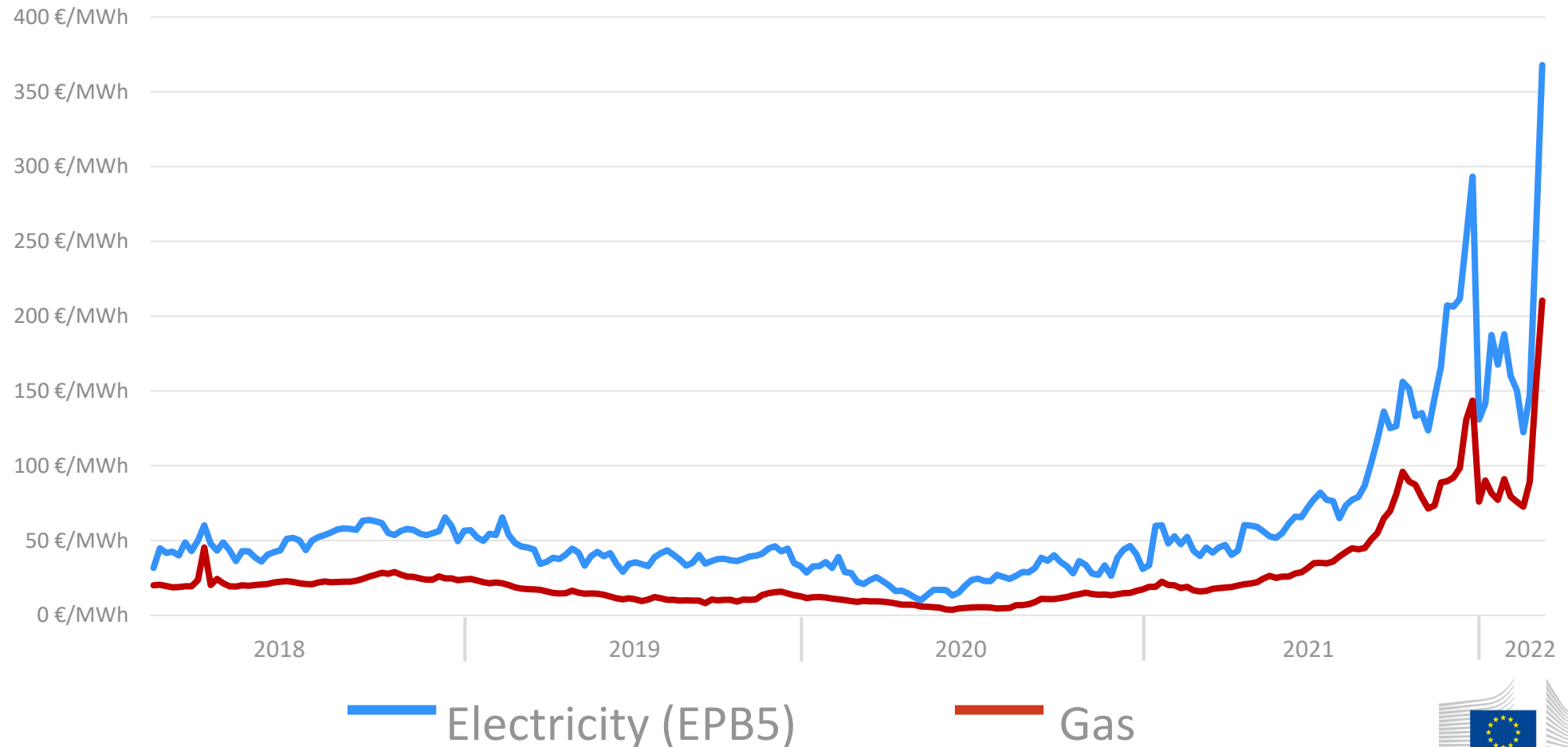


**Gas** imports (pipe and LNG) dependency per country (2021)



# Electricity price / gas price

## Wholesale prices EU27

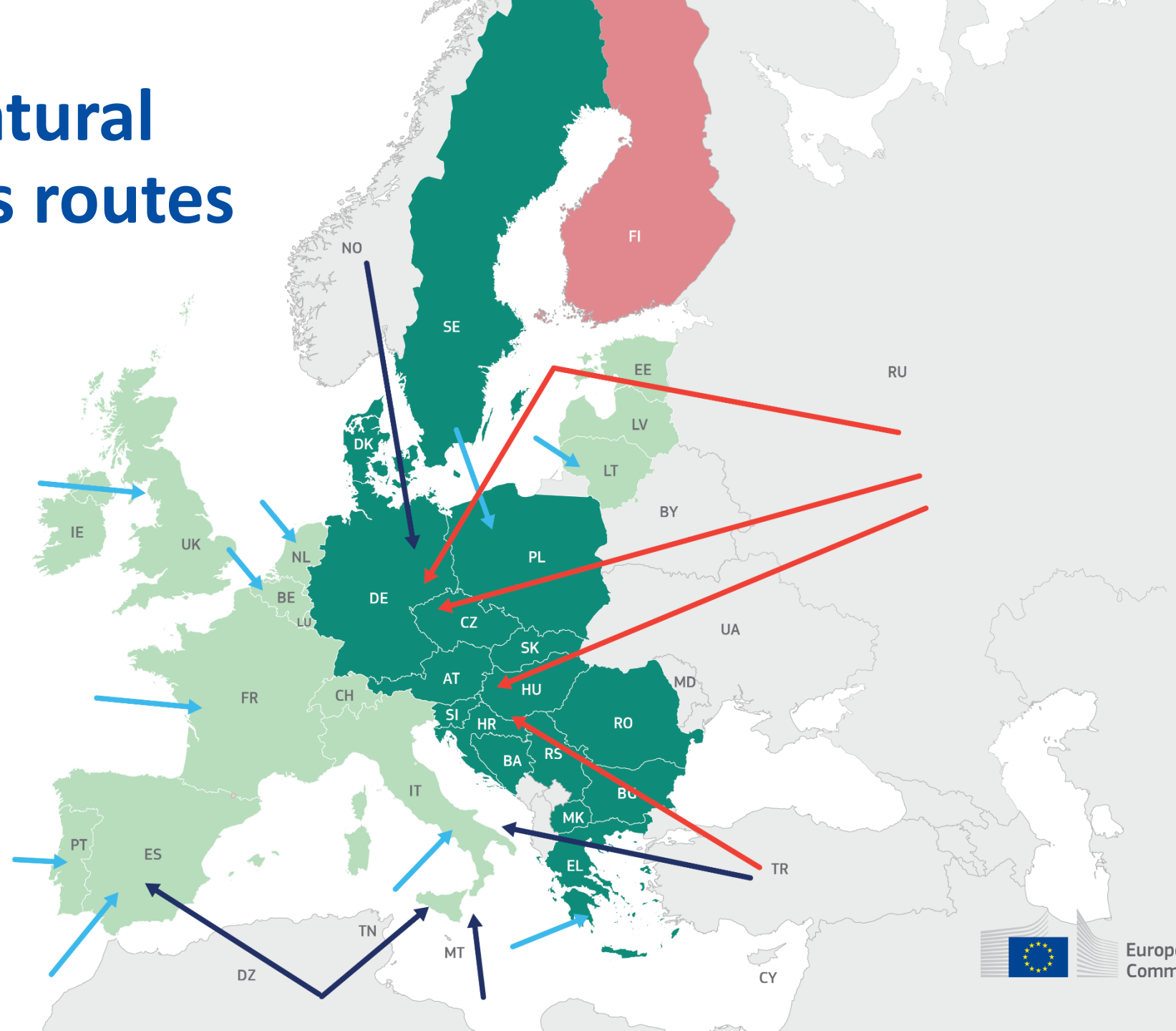


# Short-term

- Limit electricity prices rise  
(reduced taxes, direct support, tax on windfall profits ...)

# Main EU Natural Gas Imports routes

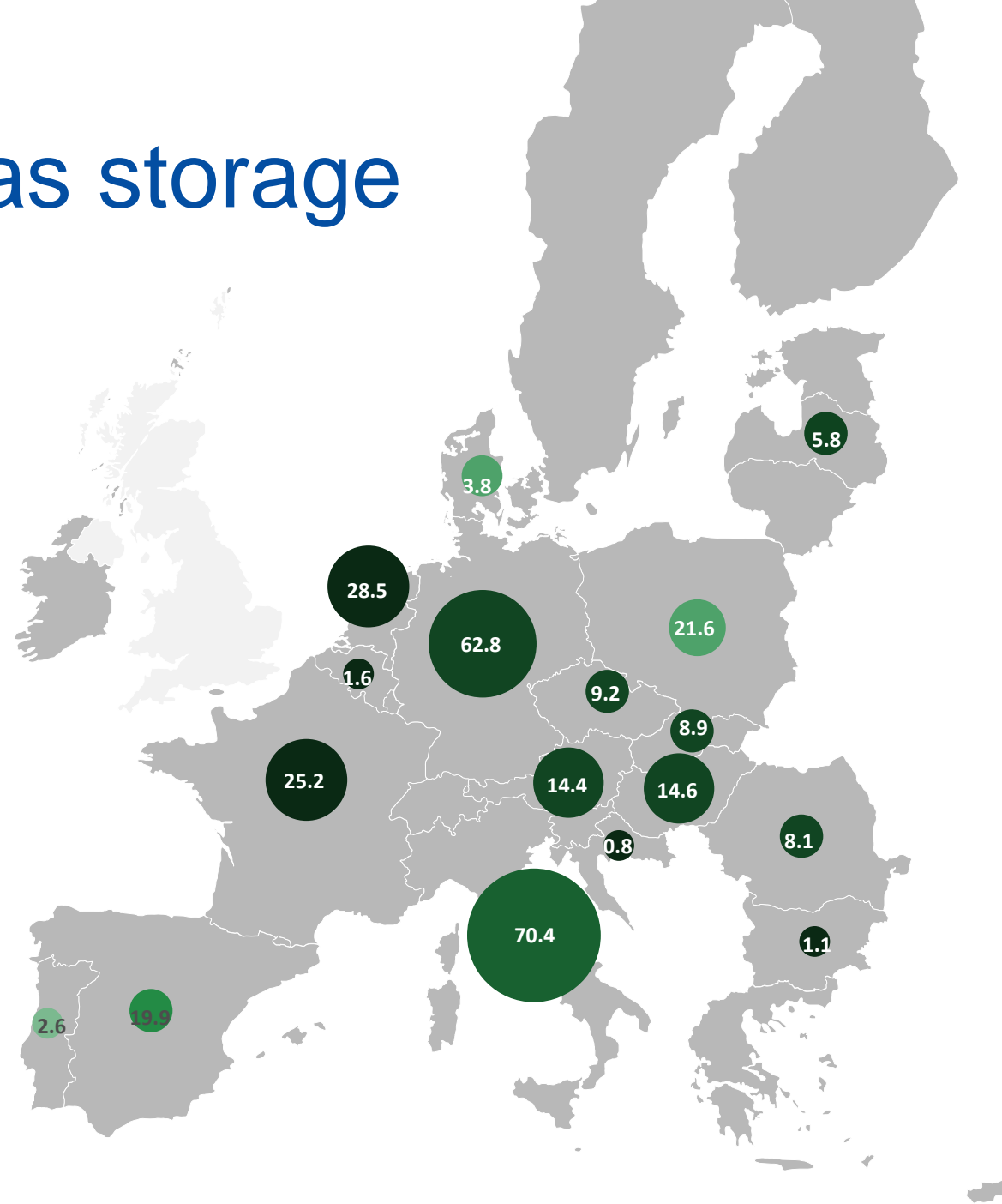
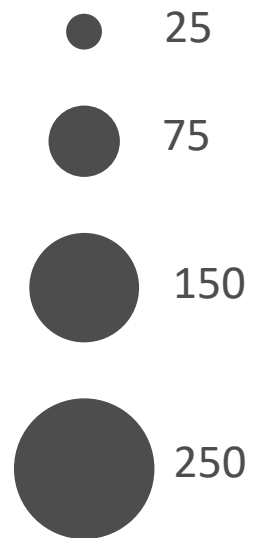
- Gas pipelines
- LNG imports
- Gas pipelines filled with Russian gas



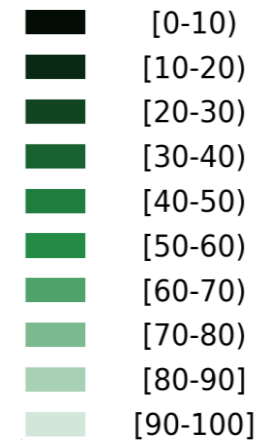


# Replenish gas storage

EU underground gas storage:  
27% (31 bcm) (March 2022), daily  
reduction of 0.21%.

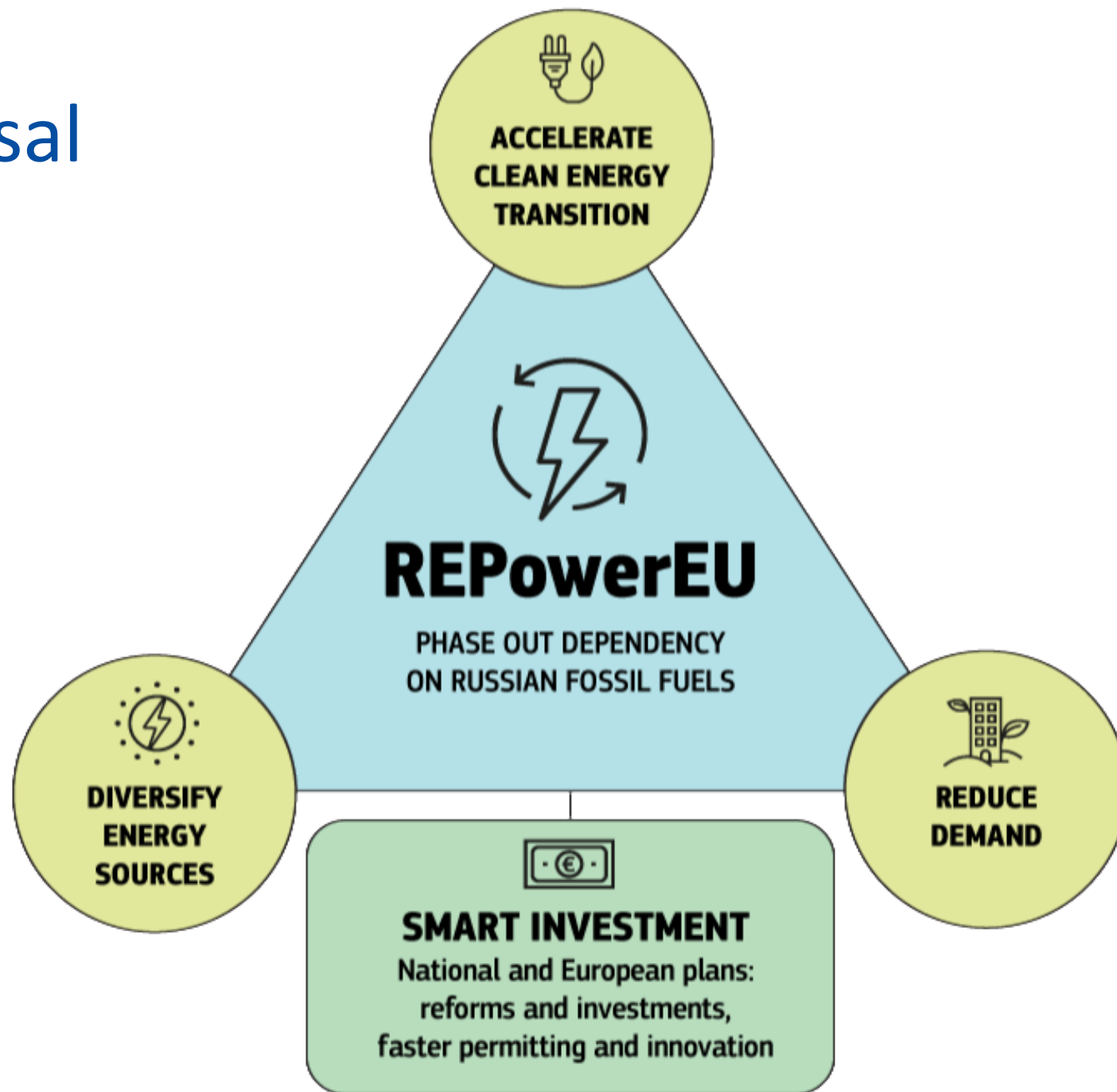


Storage filling level (%)



# Mid-term

# REPowerEU proposal



# Repower EU



**Diversify  
gas supply**



- Other suppliers via **LNG** or **pipelines** (joint purchasing mechanism)
- **Hydrogen**
- EU production of **bio methane**

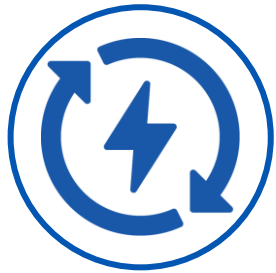


**Increase the  
share of  
renewables  
where gas is  
dominant**



- **Buildings:** solar **rooftops**, **heat pumps**
- **Industry:** **hydrogen**, electrification

# Repower EU



**Accelerate  
renewables  
and energy savings**



- Insulate **homes**
- Speed up **wind** parks and **solar** power plants



**Permitting and  
authorisation**



- Guidance to Member States  
– **overriding public interest**
- Nature restoration plan : fast-track **Go-to areas**

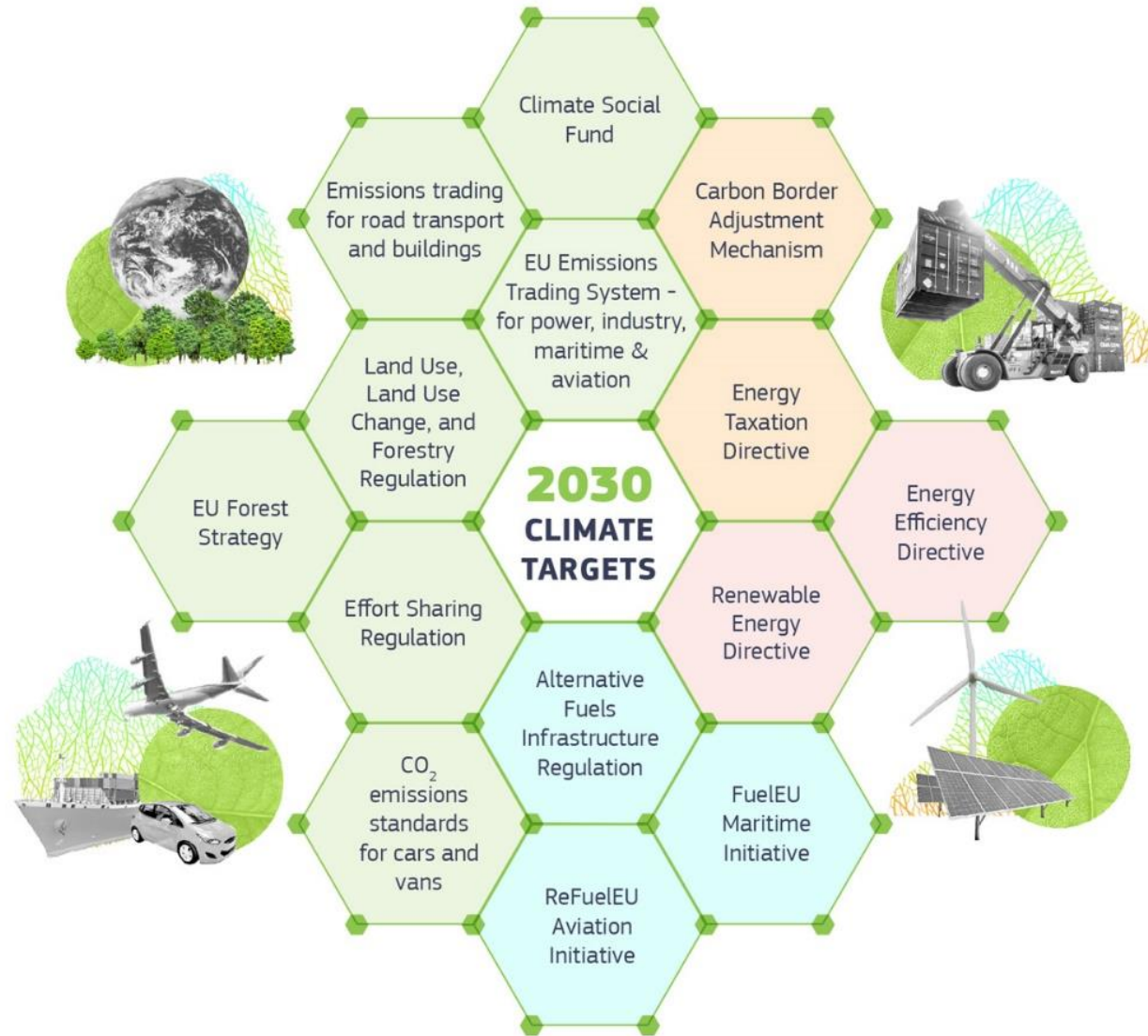


**Interconnections**



- Complete **critical links** (PT-ES-FR, BG-EL)
- Full **synchronization** of power grids (Baltics)

# REPowerEU: accelerating Fit for 55 package



# Revising the Energy Efficiency Directive



- **Binding EU target and indicative Member State contributions**
- **FF55: At least -9%** in energy consumption compared to the **Reference Scenario 2020** projections for **2030**  
*(Equivalent to: -36% for FEC and -39% for PEC compared to Reference Scenario 2007)*
- **REPowerEU: At least -13%** in energy consumption compared to the **Ref. Scenario 2020** projections for **2030**



**17.0-17.4%**

Current energy efficiency savings for primary and final energy consumption (in 2019)

**32.5%**

Current EU 2030 non-binding target (relative to 2007 projections)

**36-39%**

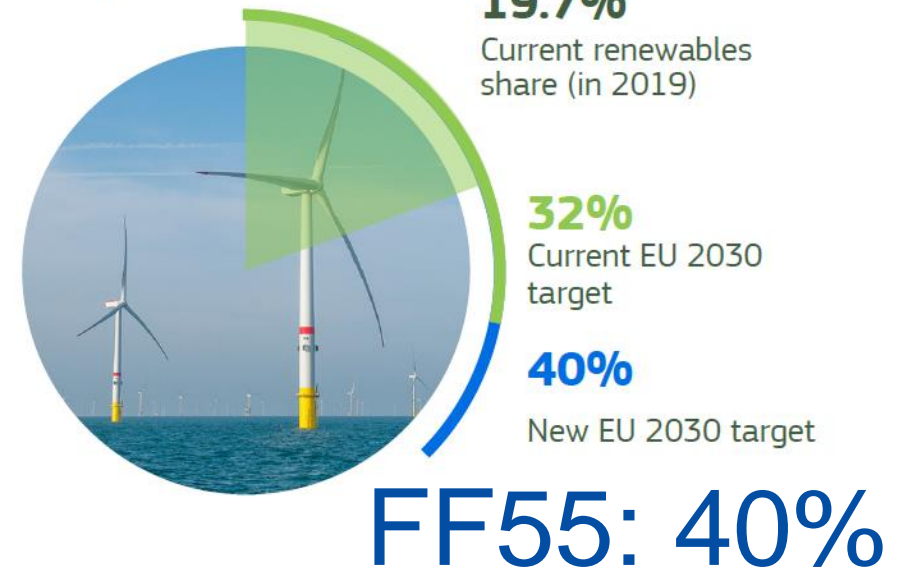
New EU 2030 binding target for final and primary energy consumption

# Revising the Renewable Energy Directive

- **Increased renewables ambition** in key sectors (heating and cooling, transport, industry, buildings)

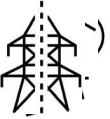


**Renewables** in the EU energy mix


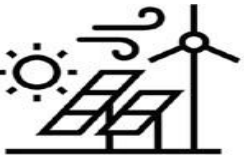

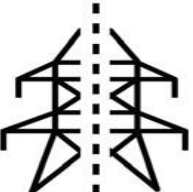


**REPowerEU: 45%**





# National Energy Climate Plan – NECP 2019

	National targets and contributions	Actual 2018	Actual 2019	Actual 2020	BE-NECP 2030	FF55 2030
	GHG compared to 2005 under Effort Sharing Reg (%)		-10%	-17%	-35% (EU -40%)	-47% (EU -55%)
	Renewables in final energy consumption (%)	9%	10%	12% + 1% transfer	17.5% (Contr. BE 25%) (EU 32%)	(EU 40%)
	Primary energy consumption Final energy consumption (Mtoe)	46.5 36.4	48.4 35.8	43.9 33.3	42.7 (-15%) 35.2 (-12%) (EU -32.5%)	(EU -39%) (EU -36%)
	Electricity interconnectivity (%)	24%			33%	(EU 15%)

# National Energy Climate Plan – Next steps

## TIMING

- Monitoring: March 2023
- Revision – draft: June 2023
- Revision – final: June 2024

# Repower EU – COM(2021)231

## – amendment to Recovery Resilience Fund



### Funding



- + € 20 bn from **Emissions Trading Scheme**
- + € 7.5 bn from **Common Agriculture Policy**
- + € 26.9 bn from **Cohesion Funds**

### Art 21c

### REPowerEU Chapter



- Infrastructure for **oil and gas security**
- **energy efficiency** in buildings, decarbonising industry
- **biomethane**, renewable or fossil-free **hydrogen**
- **Renewables**
- Cross-border **transmission**
- zero-emission **transport**
- **Re-skilling** to green technologies,
- support of **value chains** in key materials and technologies

# Other challenges

- **Electricity grid stability**
  - (Partial) phase out of nuclear
  - Increasing share of variable renewables
  - Increasing e-Vehicles, heat pumps
- Flexibility market – dynamic prices
- Smart meters
- Demand response – storage
- Smart chargers (Vehicle to grid)
- Smart heat pumps (thermal storage)
- Coupling with District Heating

# Other challenges

- **Industrial decarbonisation**
  - Electrification
  - Hydrogen – production, import, transmission
  - CO<sub>2</sub> – capture, transport, use or sequestration

# Thank you !

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# BACKUP

# slides

# National Energy Climate Plan

## DIMENSIONS

- GHG
- Renewables
- Energy efficiency
- Energy security
- Internal energy market (incl. infrastructure)
- R&I & Competitiveness

## STRUCTURE

- Context
- Objectives and targets
- Policies and measures
- Current situation and projections
- Impact assessment



# Revising the Renewable Energy Directive



<b>Renewables</b>	<b>Fit-for-55</b>	<b>RePowerEU</b>
<i>Overall RES share</i>	<b>40% in 2030</b>	<b>45% in 2030</b>
<i>Heating &amp; Cooling</i>	<b>+1.5 pp / y</b>	<b>+2.3 pp / y</b>
<i>District Heating &amp; Cooling</i>	<b>+2.1 pp / y</b>	<b>+2.3 pp / y</b>
<i>Buildings RES share</i>	<b>49% in 2030</b>	<b>60% in 2030</b>
<i>Industry</i>	<b>+1.1 pp / y</b>	<b>+1.9 pp / y</b>

pp / y : percentage point per year over 2020-2030