



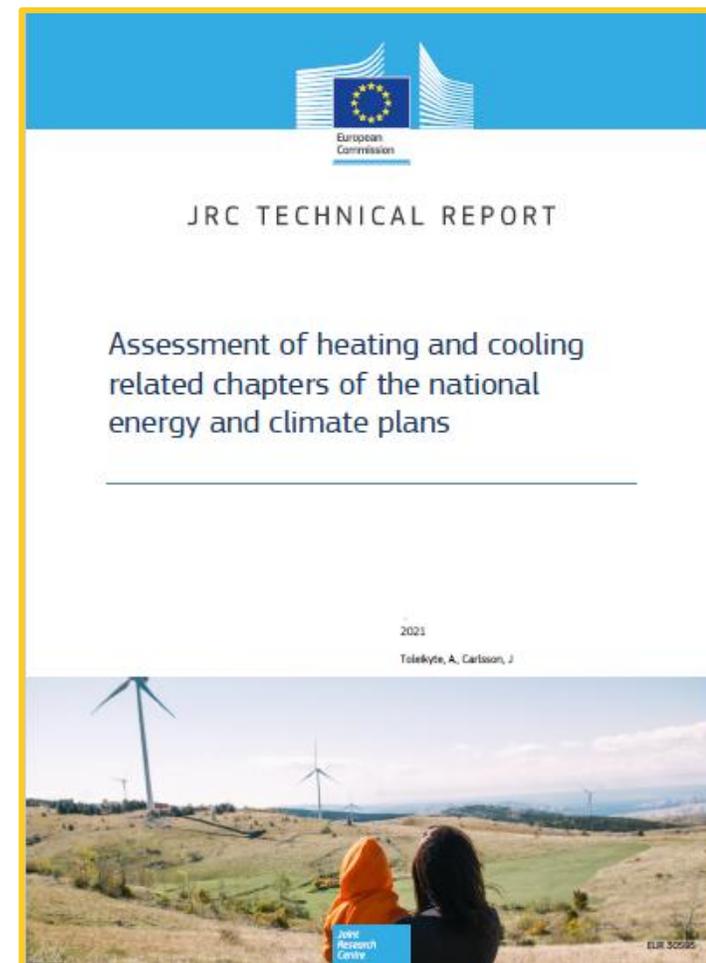
# National energy and climate plans

Assessment of heating and cooling related chapters

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*Concerted Actions on EED, March 24, 2021*

- Joint Research Centre: science and knowledge service of the European Commission
- H & C team supports DG ENER with scientific analysis
  - Evaluation of Member States' comprehensive assessment, preparation of guidelines on how to define and account for waste heat, and efficient district heating and cooling, and etc.
- Report on assessment of heating and cooling related chapters of the NECPs
  - Available soon on the Commission's website (JRC124024)
  - Another report assessing the energy efficiency dimension of the NECPs by JRC Ispra (JRC122862)



# Contents

- Policy context
- Projections (energy demand in the H & C sector and RES share)
- The role of co-generation of heat and power
- Policies and measures
- Recommendations and conclusions

# Policy context (I)

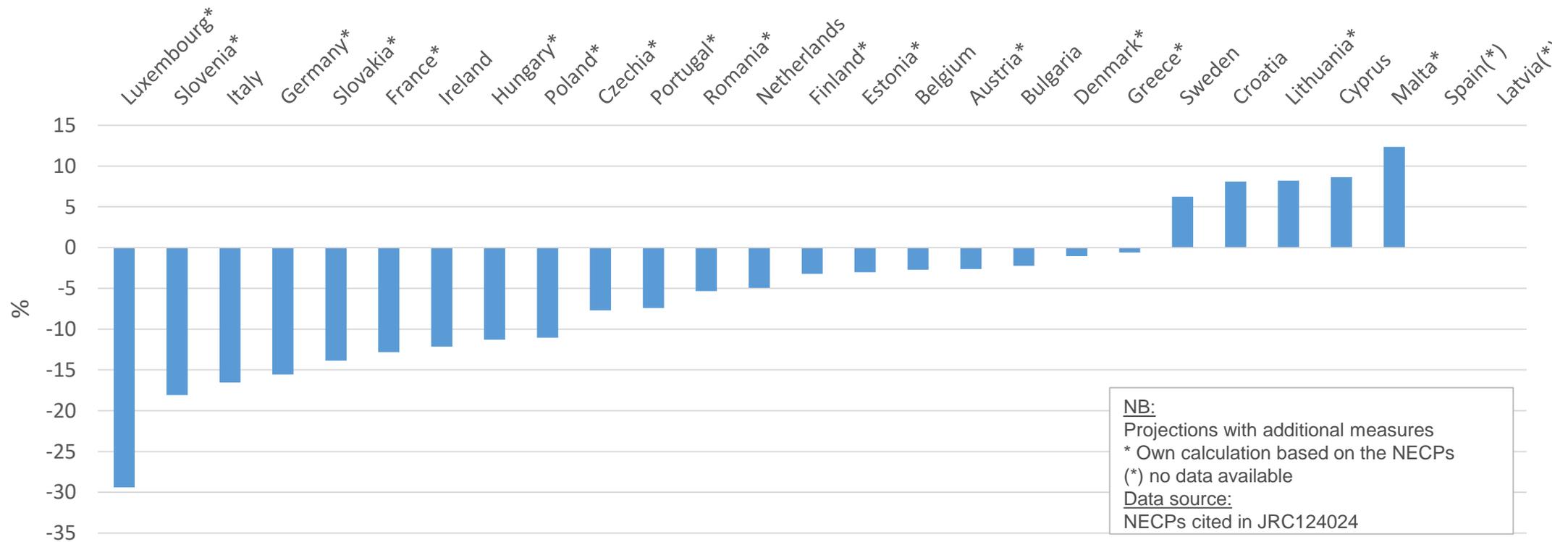
- A part of the “Clean energy for all Europeans”
- Strategies and measures for the period 2021-2030
- Submitted to the Commission by the end of 2019

# Policy context (II)

- Annex I of the Energy Governance clarifies which data the NECPs should provide
  - Projections for the share of renewable energy sources in the H & C sector and the role of waste heat and cold (also compliance with Article 23, RED II)
  - Current potential for the application of high-efficiency co-generation, waste heat and efficient district heating and cooling (DHC) (Article 14, EED)
  - Policies and measures to achieve the trajectories

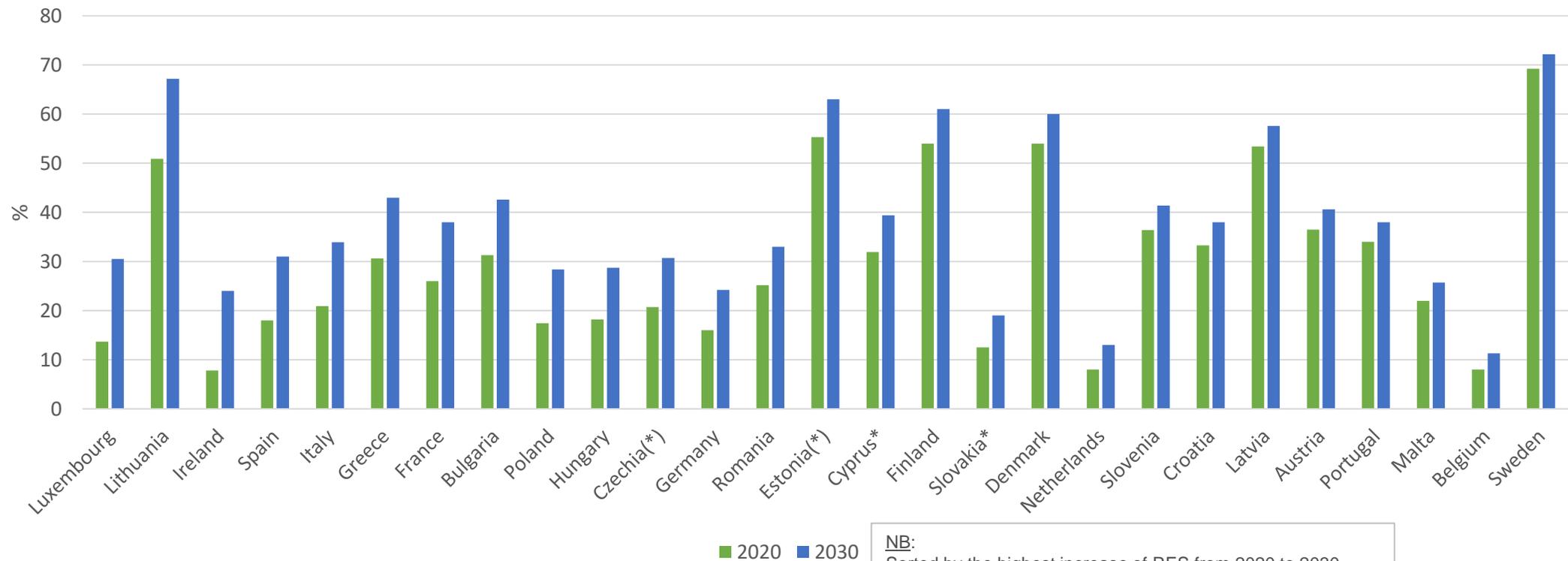
# Energy consumption projections for H & C

Change of the final energy consumption for H & C, 2020-2030



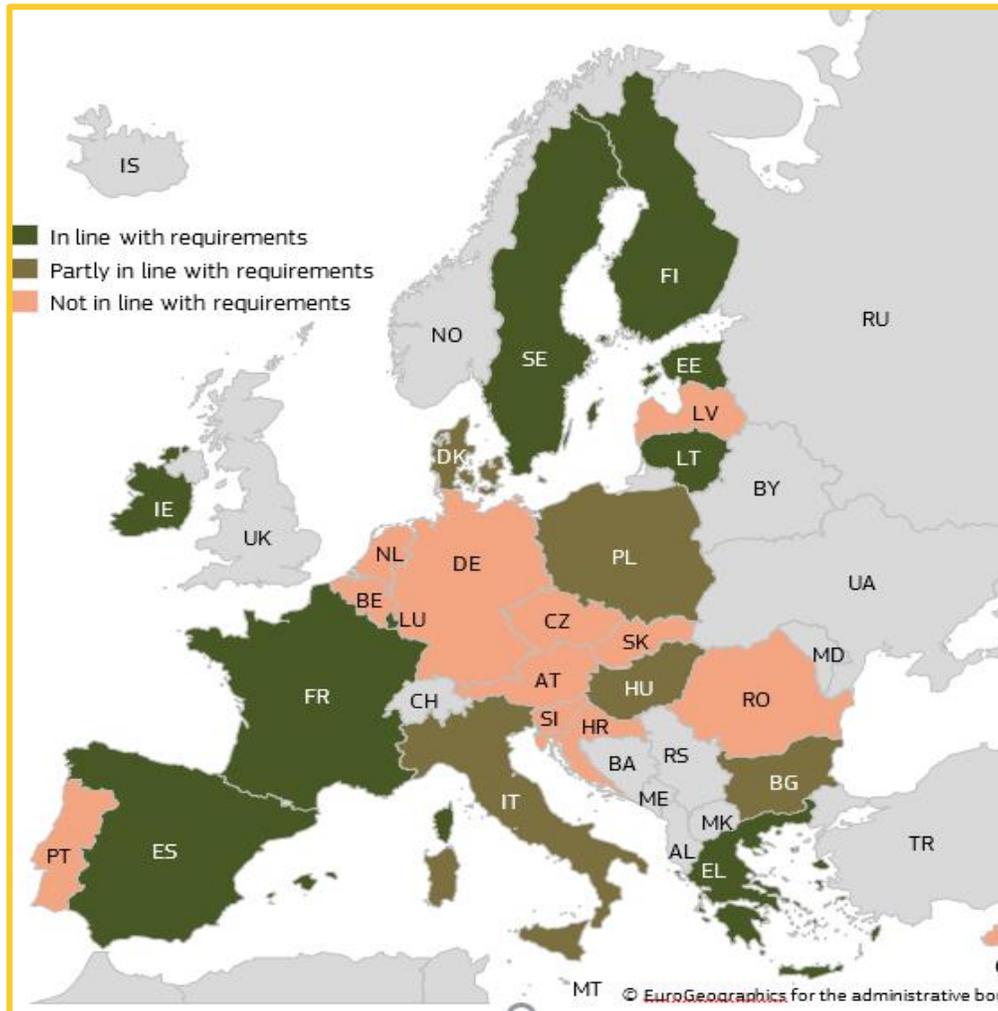
# RES projections in H & C

RES share in the H & C sector in 2020 and 2030



**NB:**  
 Sorted by the highest increase of RES from 2020 to 2030  
 Projections with additional measures (except \*)  
 \* Own calculation based on the NECPs and Eurostat 2018  
 Data source:  
 NECPs cited in JRC124024

# Meeting the target of Article 23 of RED II



- Many NECPs do not meet the target specified in Art 23 of RED II
- Waste heat and cold are accounted by 5 countries
- Constraints responsible for not meeting the objectives (which most plans did not provide)
  - Natural gas as alternative to coal
  - Natural gas as the most cost-effective investment
  - Reduction in biomass use due to energy efficiency improvements

8 NB: Own calculation based on criteria from Article 23 (1 and 2) and projections with additional measures from NECPs

# The role of co-generation of heat and power

- Trajectories for heat generation from combined heat and power (CHP) plants
  - 10 NECPs provided data
  - Expected to increase: CZ, EE, LU, PT, SK, SI; decrease: DK, DE, ESP, NL, AT, FI
  - No data in many NECPs but a link to the comprehensive assessment (Art. 14 of EED)
- Reasons for decreased use vary
  - Integration of RES into the power grid (DE, DK), end of lifetime of old CHP plants (ESP), ban on coal (FIN)

# Measures and policies (I)

- Measures addressing CHP
  - Promotion of new HECHP plants and increase in capacity: 8 NECPs
  - Phasing out coal-fired CHP plans: 2 NECPs
  - Supporting renewables: 6 NECPs
  - Supporting energy efficiency measures: 5 NECPs
  - Other: 4 NECPs

# Measures and policies (II)

## *National policies in the RES dimension*

Installation of decentr. RES heating system	New RES based central heating	Shift from fossil to RES	Ban on fossil boilers	RES share in buildings both new & undergoing renovations	Industry	Communities	Cooling
Economic measures			Regulatory measures		Other (other: 16)		
17	15	9	7	10	3	8	7

## *National policies in the EE dimension*

Building thermal renovation	Modern. and/or efficient boiler installation (decentr.)	Modern. and/or efficient boiler installation/network	New buildings and undergoing renovations (nZEB, deep ren.)	Modernisation of centralized heat supply	Industry	Waste heat
Economic measures			Regulatory measures		Other (other: 13)	
21	11	14	16	4	12	7

# Recommendations by authors (I)

- Renewable energy targets
  - Increase the level of ambition given the important role of the H & C sector
- Constraints that caused Member States not to achieve renewable energy targets
  - Provide more information and a detailed plan with measures to close the gap
- RES technologies contributing to the sectorial target achievement
  - Provide trajectories for the main RES technologies contributing to reaching the sectorial target
  - Prepare a template to clarify the technologies (EC)

# Recommendations by authors (II)

- Co-generation of heat and power and efficient DHC
  - Provide current potential and trajectories of HECHP and efficient DHC
  - Facilitate the exchange of experiences and knowledge support (EC)
  - Clarify the contribution of CHP to targets (e.g., co-generated heat from natural gas CHP plants should not be considered waste heat)
- Cooling
  - Address the cooling sector in more detail in the updated NECP
  - Provide a definition for renewable cooling (EC)

# Recommendations by authors (III)

- Waste heat
  - Describe how waste heat will be utilized based on the identified potential
  - Use the framework of the comprehensive assessments in line with Article 14(1) of the EED
  - The usefulness of the next NECPs would increase by incorporating measures to exploit waste heat and cold
- Other
  - A plan for phasing out fossil fuels in the H & C sector as a significant step towards decarbonising the H & C could be provided in the next NECP

# Recommendations by authors (IV)

- General
  - Harmonise the timing of directives serving as input to the NECPs (EC)
  - Provide more details on measures and policies (expected benefits (e.g., energy savings, indicative timeline, budget required and sources)
  - Improve data collection procedures and national and Eurostat statistics including key H & C energy streams, such as waste heat, process heat and heat pumps for cooling
  - Ensure all Member States have the same end year in their analyses

# Conclusions

- NECPs made it possible to assess the status of the European H & C market and its development
- They are important documents providing an opportunity to compare Member States and link the current situation and national targets to policies and measures
- For the next NECPs, several areas could be improved:
  - Increase the level of ambition
  - Better link to the comprehensive assessment of Article 14 of EED
  - Provide details regarding measures

# Thank you



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