

Governance Regulation of the Energy Union and Climate Action - common framework for energy and climate policies in the European Union and its Member States.

„NECP (National Energy and Climate Plan) – N. Macedonia“

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Governance regulation

CHAPTER 2

Integrated national energy and climate plans

ANNEX I

GENERAL FRAMEWORK FOR INTEGRATED NATIONAL ENERGY AND CLIMATE PLANS

Part 1

General framework

REGULATION

on the Governance of the Energy Union
No 663/2009 and
94/22/EC, 98/71/EC
European Parliament
repealing

SECTION A: NATIONAL PLAN

1. OVERVIEW AND PROCESS FOR ESTABLISHING THE PLAN

1.1. Executive summary

- i. Political, economic, environmental, and social context of the plan
 - ii. Strategy relating to the five dimensions of the Energy Union
 - iii. Overview table with key objectives, policies and measures of the plan
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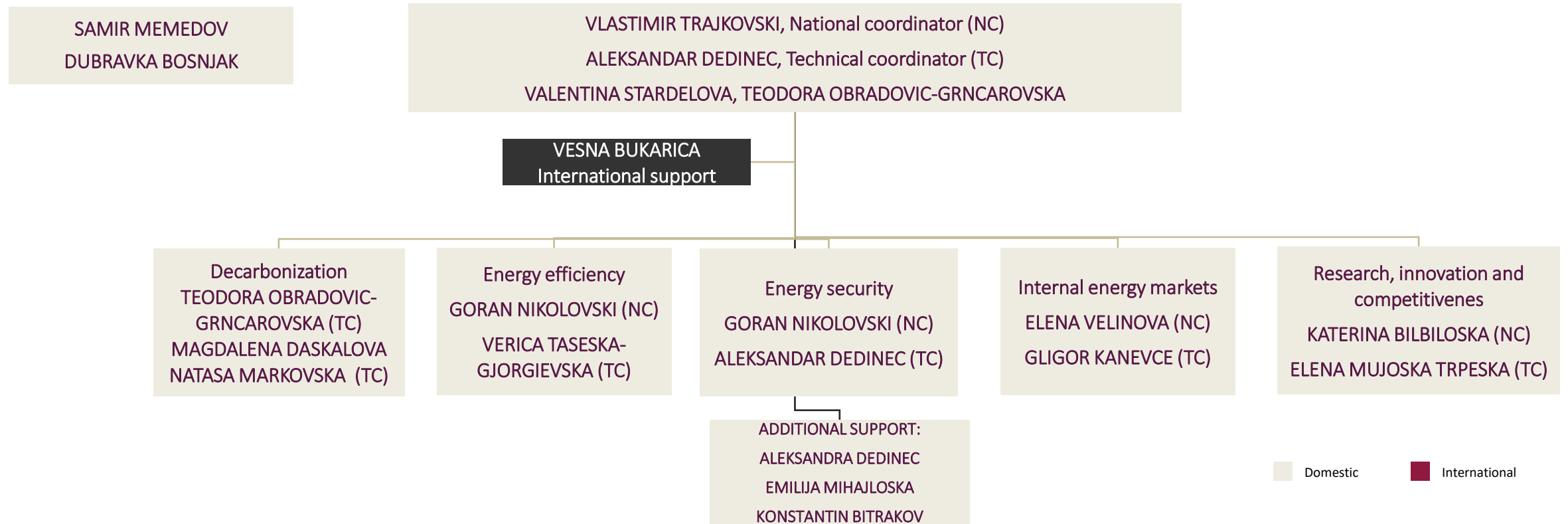
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From Paris to now



Integration of energy and climate
Five dimensions

NECP Team



Supervisor of the process
Energy community

Deputy Prime Minister for
Economic Affairs

Ministry of Economy
Ministry of Environment and Physical Planning

NECP working group

Dimension:
Decarbonisation

Governmental institutions:
MAFWE, MTC, MoF, MoH

State institutions:
EA, ERC, Local self-
government, ZELS

State companies:
ESM, MEPSO

Private companies:
EVN, BEG, TE-TO...

Dimension:
Energy Efficiency

Governmental institutions:
MoF, MTC

State institutions:
EA, Local self-
government, ZELS

State companies:
ESM, MEPSO

Private companies:
EVN, BEG, TE-TO...

Dimension:
Energy Security

Governmental institutions:
MTC, MoF

State institutions:
EA, ERC

State companies:
ESM, MEPSO

Private companies:
EVN, BEG, TE-TO...

Dimension:
Internal Energy Market

Governmental institutions:
MTC, MoF

State institutions:
ERC

State companies:
MEPSO, ESM

Private companies:
EVN, BEG, TE-TO...

Dimension:
**Research, Innovation
and Competitiveness**

Governmental institutions:
MES, MoF, MISA

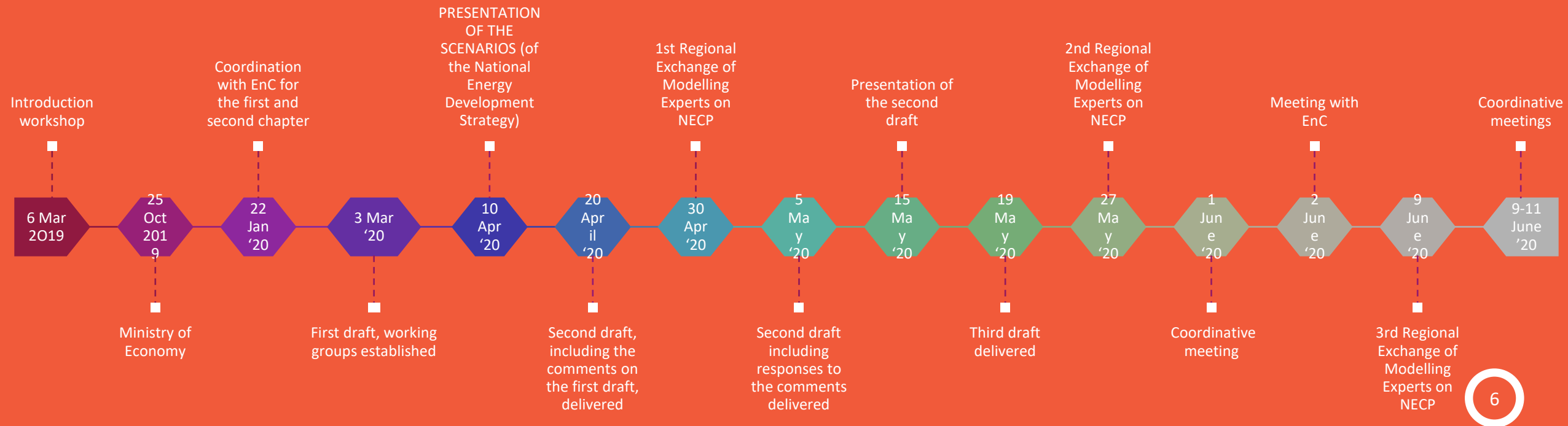
State institutions:
FiD

State companies:
MEPSO, ESM

Private companies:
EVN, BEG, TE-TO...

Identification of the responsible
institution for the realization of
the NECP

NECP process



NECP -= targets and objectives

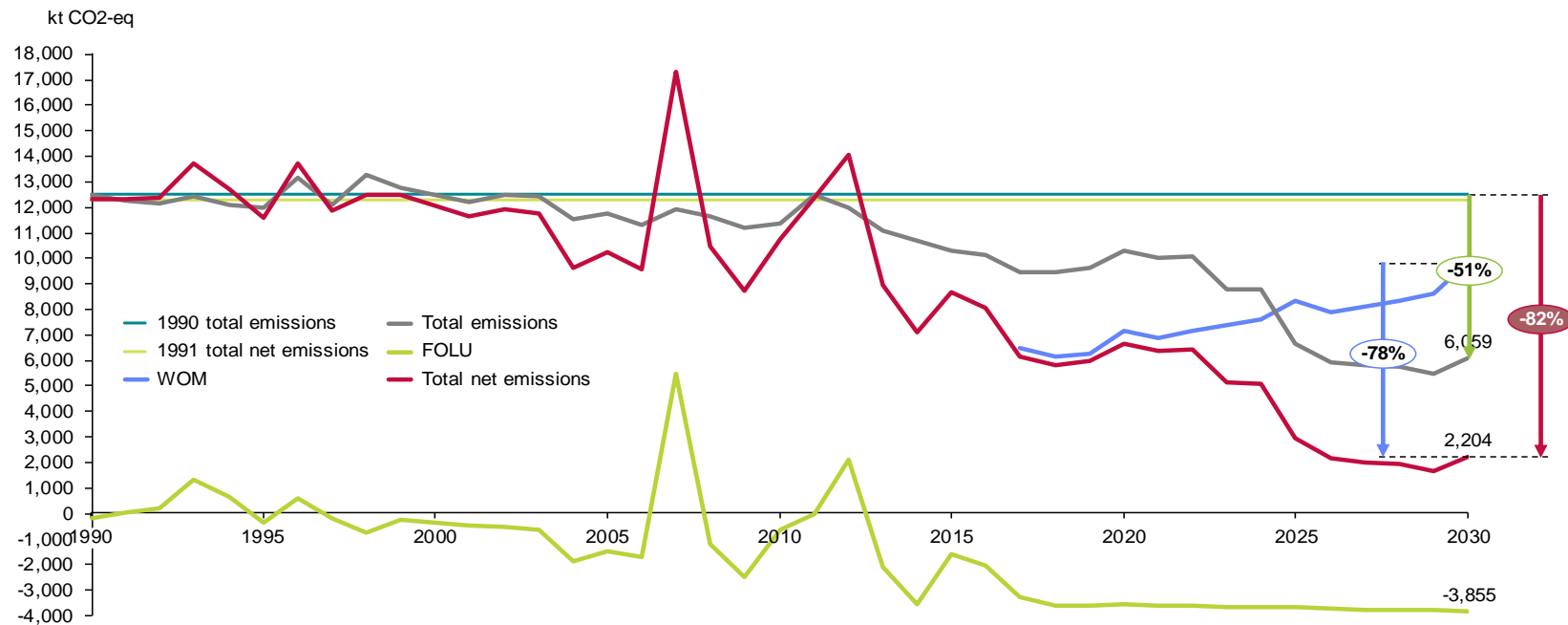
Two scenarios covered – WEM and WAM

- Decarbonization
- Energy efficiency
- Security of supply
- Internal energy markets
- Research, Innovation and Competitiveness

Targets and objectives - Sectoral targets

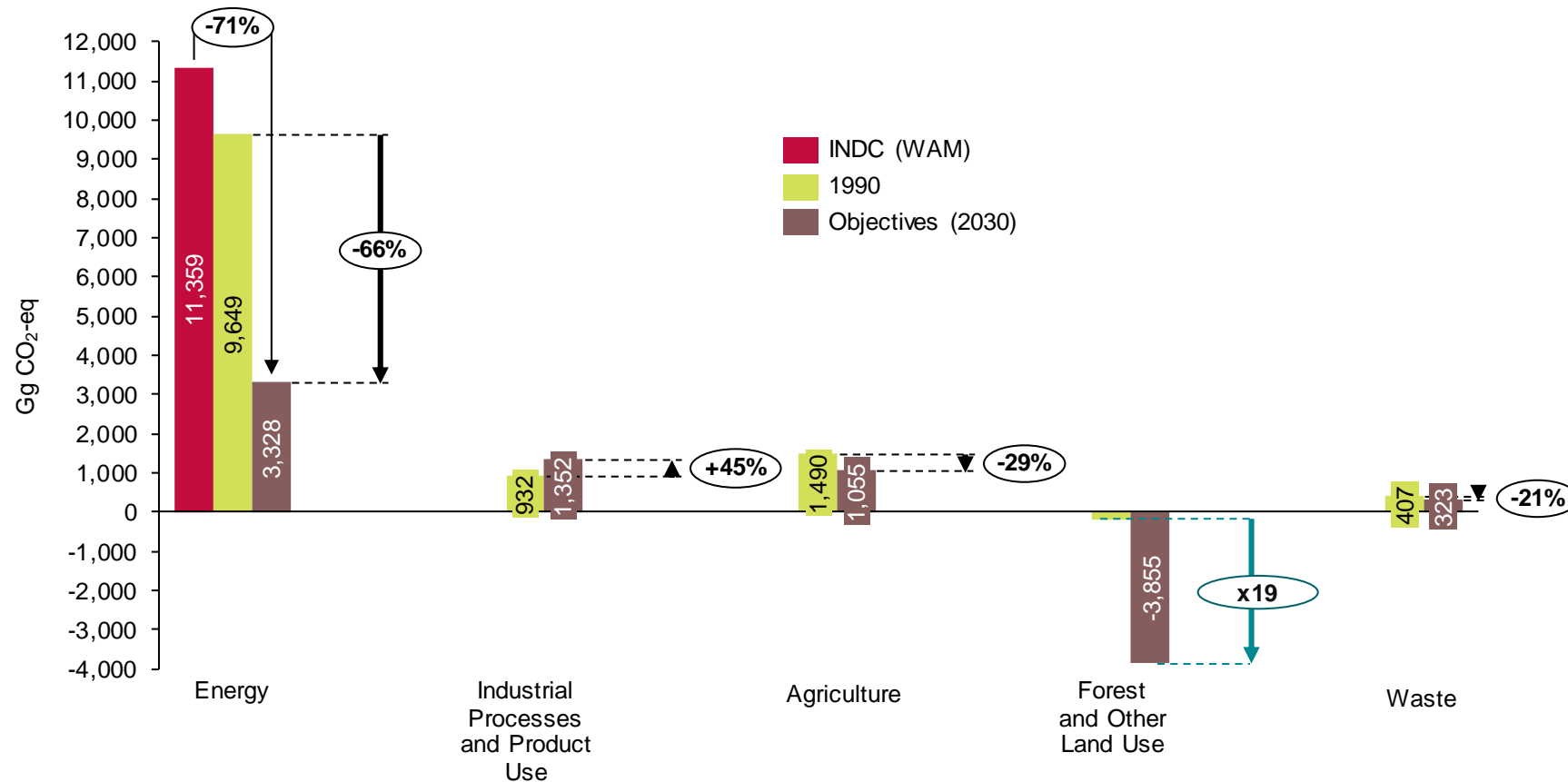
The **targets** are expressed in relation to 1990, as a base year and are:

- **51% GHG emissions reduction**
- **82% net GHG emissions reduction**



Targets and objectives - Sectoral targets

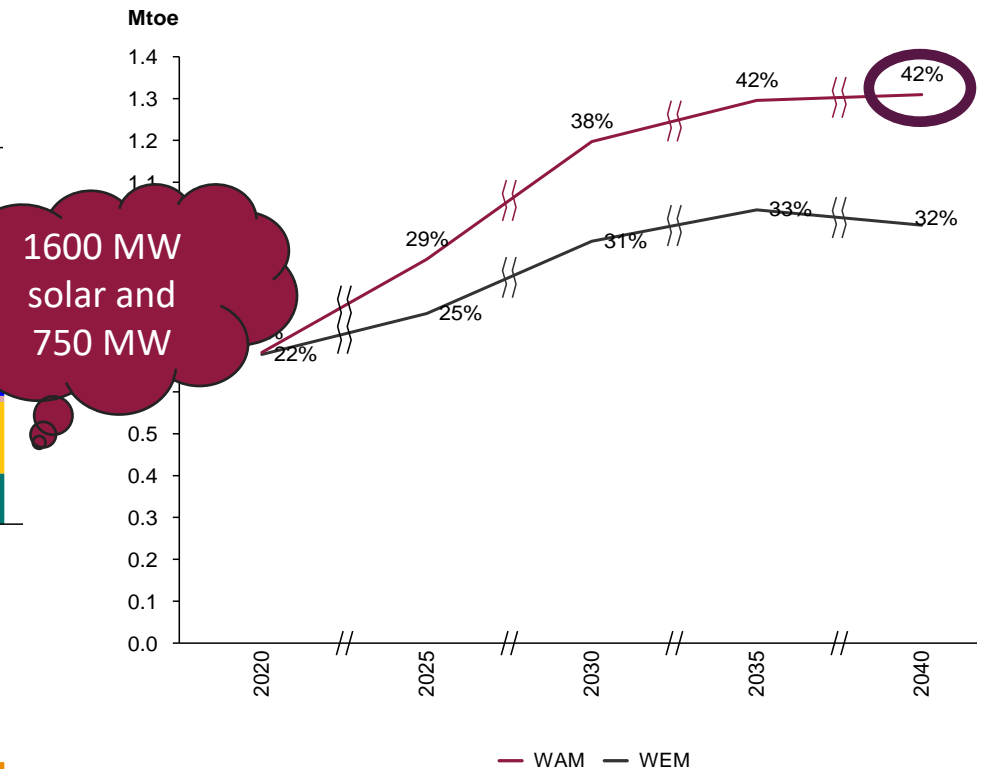
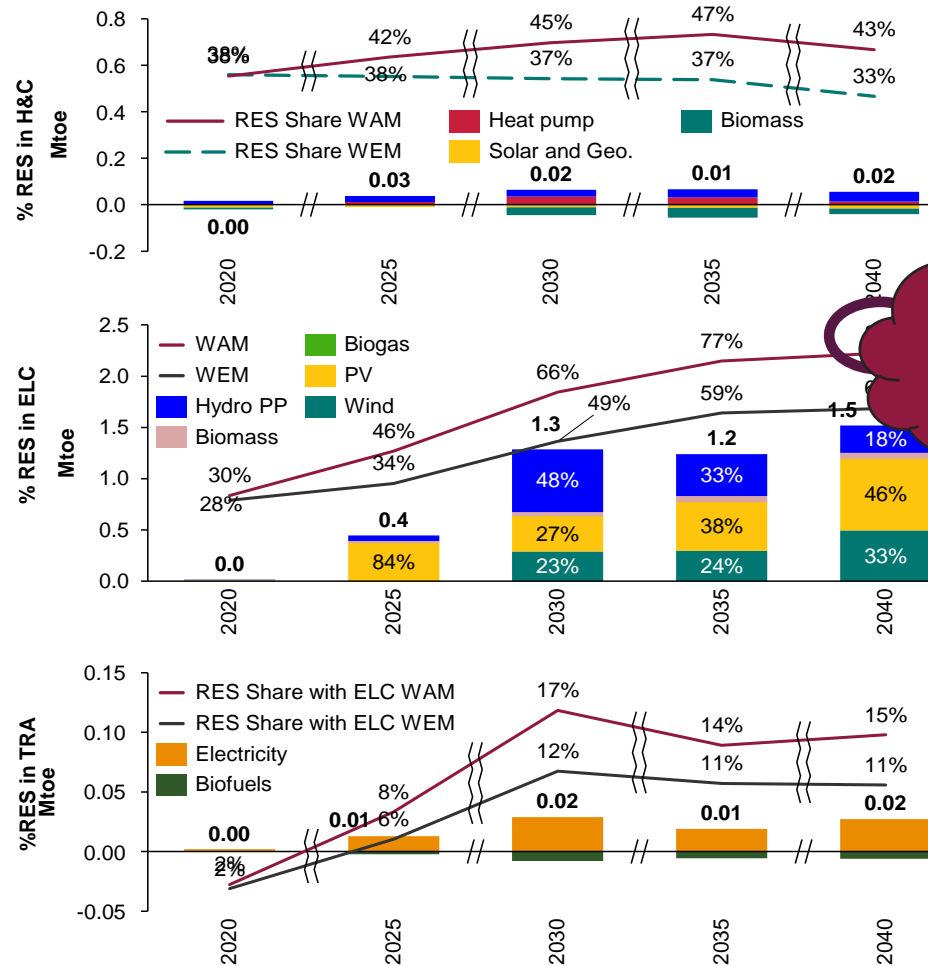
- Feed-in premium (on state and private land ~60 MW)
- 10 MW under construction (at least 30MW more)
- 80-100 MW Solar PP with PPP (ongoing tender), Just transition
- Hydro pump storage (ongoing prequalification tender)



Targets and objectives

Difference between WEM and WAM in indicative projections of **RES share in gross final energy consumption** and in different sectors (heating and cooling, electricity and transport) as well as per technology in each of these sectors

- Electrification of the heating and cooling sector

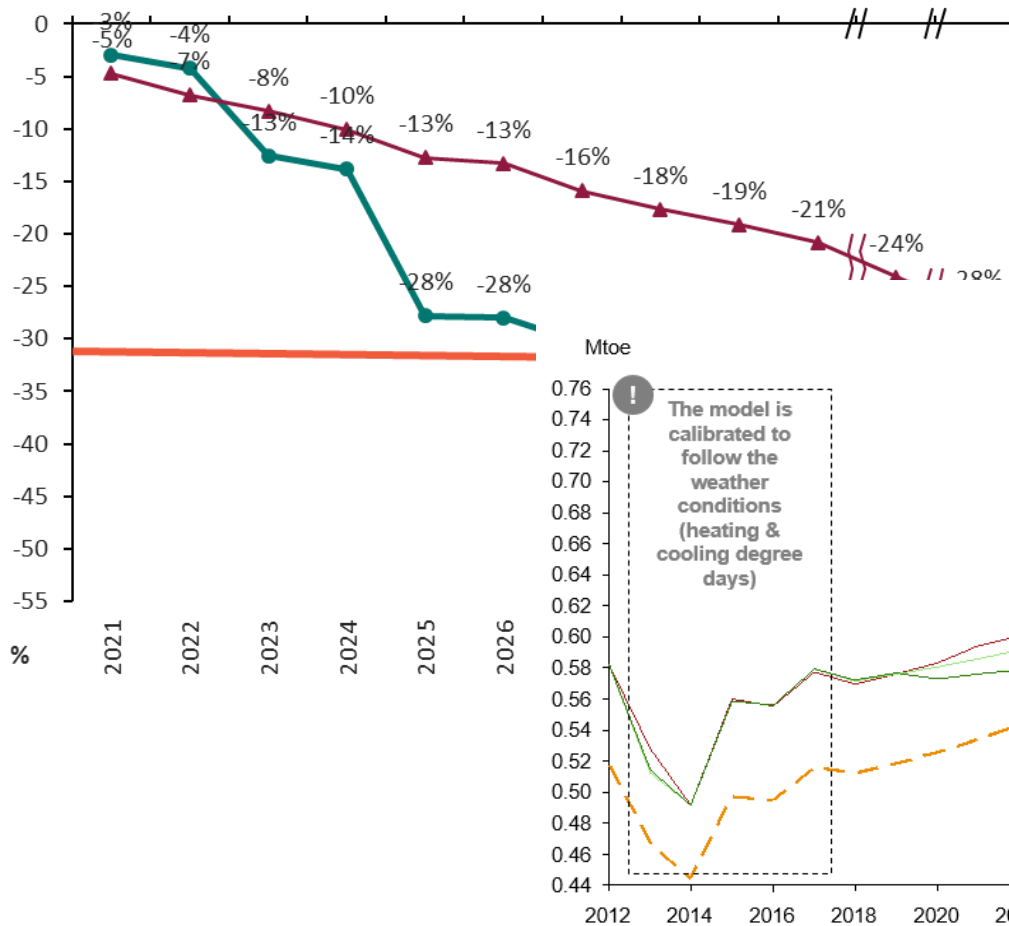


- Electrification of the transport sector

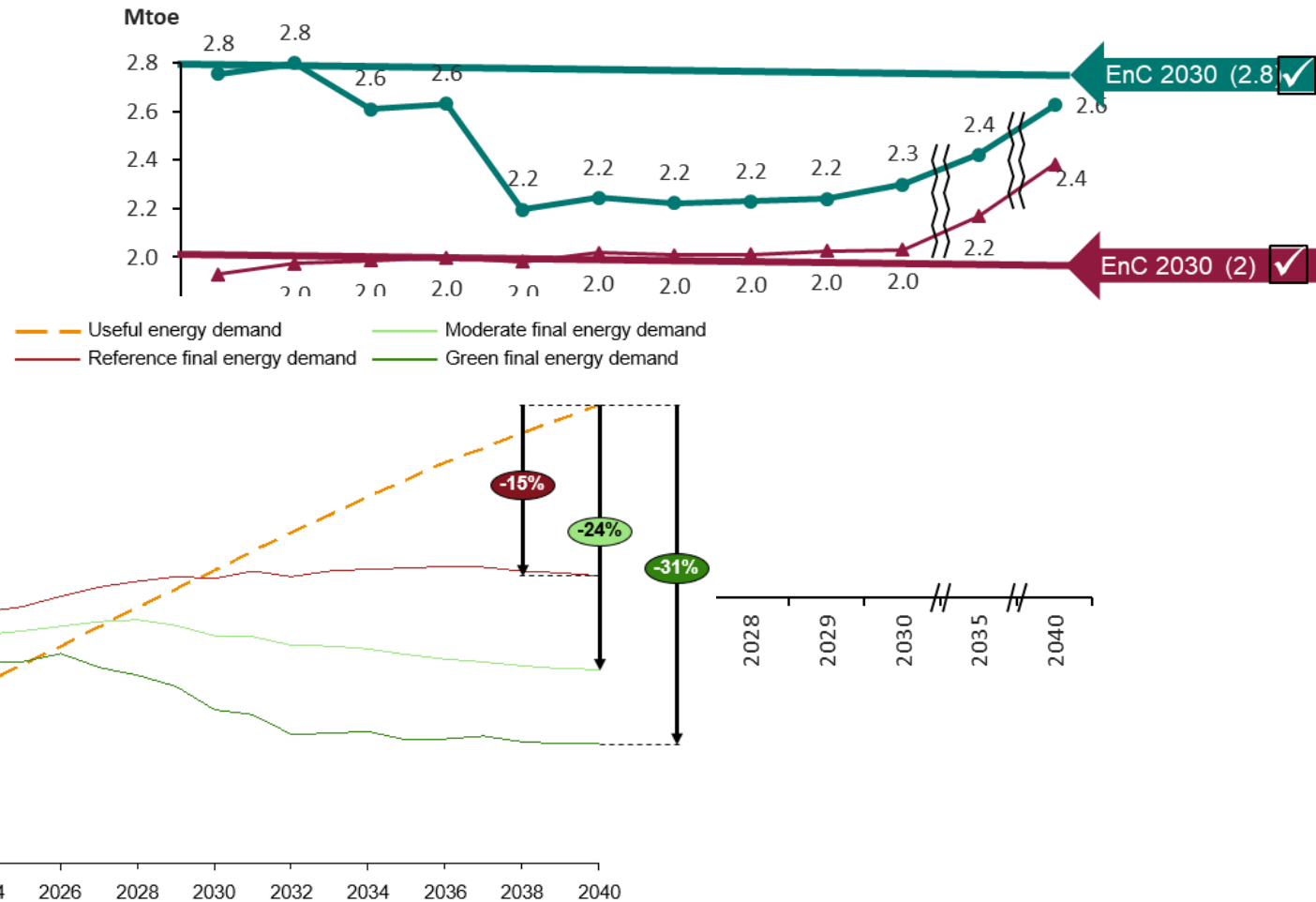
Targets and objectives – energy efficiency

Energy efficiency first

Energy efficiency trajectory primary energy savings compared to BAU scenario

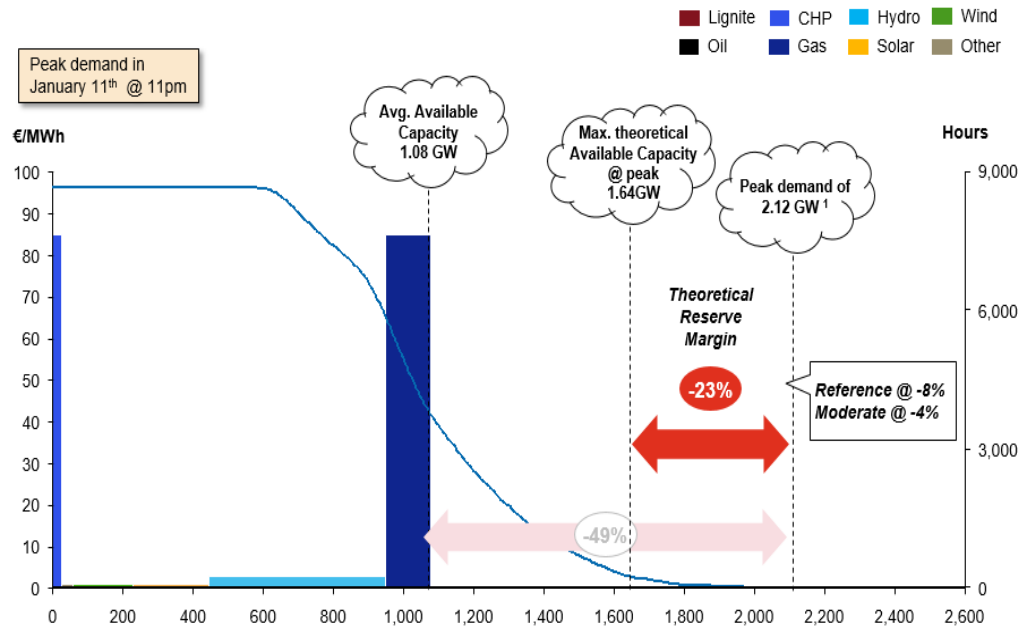


Energy efficiency trajectory final energy savings compared to BAU scenario



Energy security potential problems

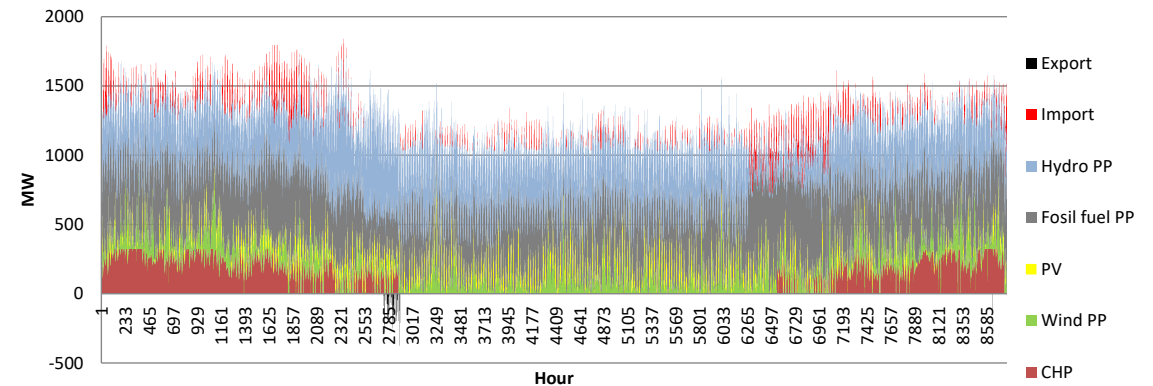
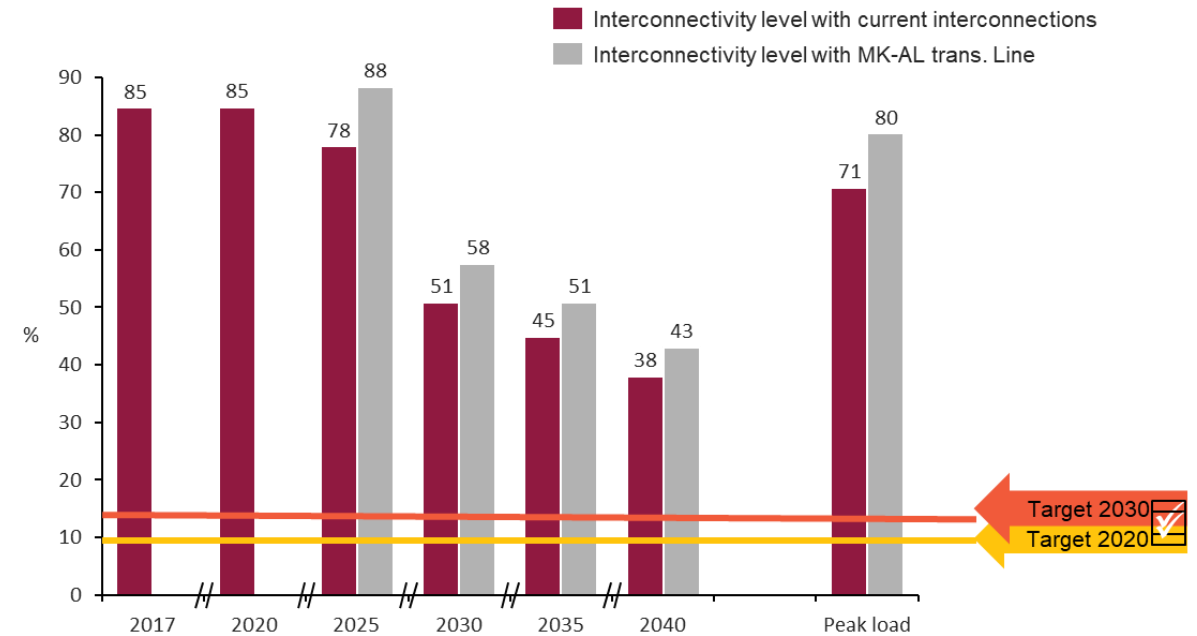
Capacity



increasing the flexibility of the national energy system

- The next short-term steps are to implement a balancing;
- Construction of hydro-pumped storage power plants (Cebren), but also the storage hydro power plants (Gradec, Veles, Globocica 2 and tunnel Tenovo - Kozjak), or gas fired power plants (including CHP);
- Construction of 15 MW of biomass and 23 MW of additional biogas plants;
- Implementation of viable demand response options, including vehicle-to-grid, power-to-heat and battery storage.

Interconnectivity















Policies and measures

PM_D23: Solar rooftop power plants

Main objective: Increase of the domestic generation capacity from renewable energy sources

Description: Construction of solar rooftop power plants, on private as well as public buildings, either prosumers or systems from which the overall produced electricity will be used for own purposes or will be stored. One of the possibilities for increasing the installed capacity of solar roof-top systems is through renewable energy communities.

	Timeframe	2020– 2040						
	Type	Technical, regulatory						
	Sector	Household, commercial and industry sector						
	Relevant planning documents, legal and regulatory acts	<ul style="list-style-type: none"> • Strategy for Energy Development of Macedonia up to 2040 • Law on Energy • Bylaws on renewable energy 						
	Assumptions	400 MW solar capacities are envisioned to be constructed by 2040.						
	Status of implementation	<ul style="list-style-type: none"> • Rulebook on renewable energy sources adopted. • Distribution grid code 						
	Results to be achieved	<table> <tr> <td>Primary energy savings:</td><td>Additional benefit - decrease of net import:</td><td>GHG savings:</td></tr> <tr> <td> <ul style="list-style-type: none"> • 0.0 ktOE in 2020 • 29.9 ktOE in 2030 • 311.1 ktOE in 2040 </td><td> <ul style="list-style-type: none"> • 0.0 ktOE in 2020 • 57.7 ktOE in 2030 • 356.8 ktOE in 2040 </td><td> <ul style="list-style-type: none"> • 3.2 Gg CO₂-eq in 2020 • 164.3 Gg CO₂-eq in 2030 • 627.2 Gg CO₂-eq in 2040 </td></tr> </table>	Primary energy savings:	Additional benefit - decrease of net import:	GHG savings:	<ul style="list-style-type: none"> • 0.0 ktOE in 2020 • 29.9 ktOE in 2030 • 311.1 ktOE in 2040 	<ul style="list-style-type: none"> • 0.0 ktOE in 2020 • 57.7 ktOE in 2030 • 356.8 ktOE in 2040 	<ul style="list-style-type: none"> • 3.2 Gg CO₂-eq in 2020 • 164.3 Gg CO₂-eq in 2030 • 627.2 Gg CO₂-eq in 2040
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	Finance							
	Budget	263.4 M€						
	Source of finance	Private, donors, subsidies from national and local budget, EE fund						
	Implementing entity	<ul style="list-style-type: none"> • Government of the Republic of North Macedonia • Energy Regulatory Commission • Ministry of Economy, Energy Agency • Elektrodistribucija Skopje • Suppliers of electricity • End-users of electricity 						
	Monitoring entity	Ministry of Economy, Energy Agency						
	Progress indicators	<ul style="list-style-type: none"> • Increase in installed capacity (MW) • Increase in electricity generation (GWh) • Emissions reductions (Gg CO₂-eq) 						
	Relation with other dimensions	Energy security, Internal energy market, Research, innovation and competitiveness (research)						

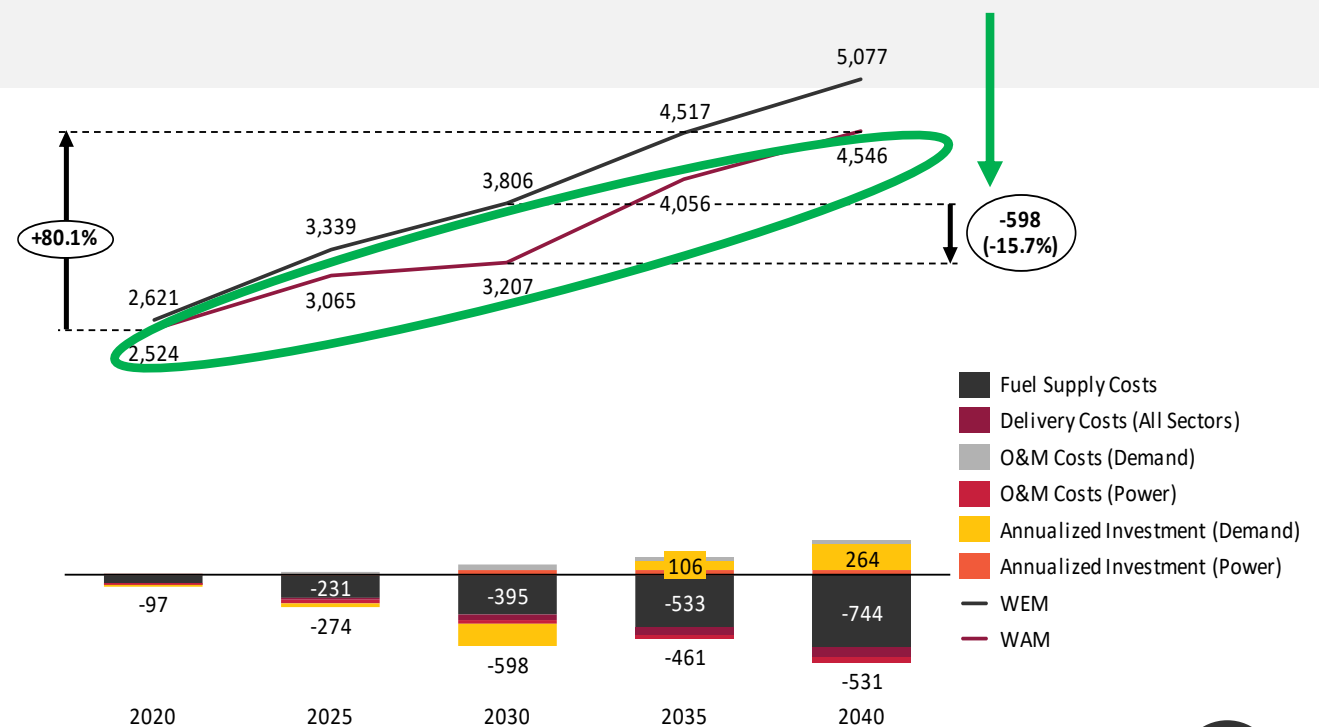
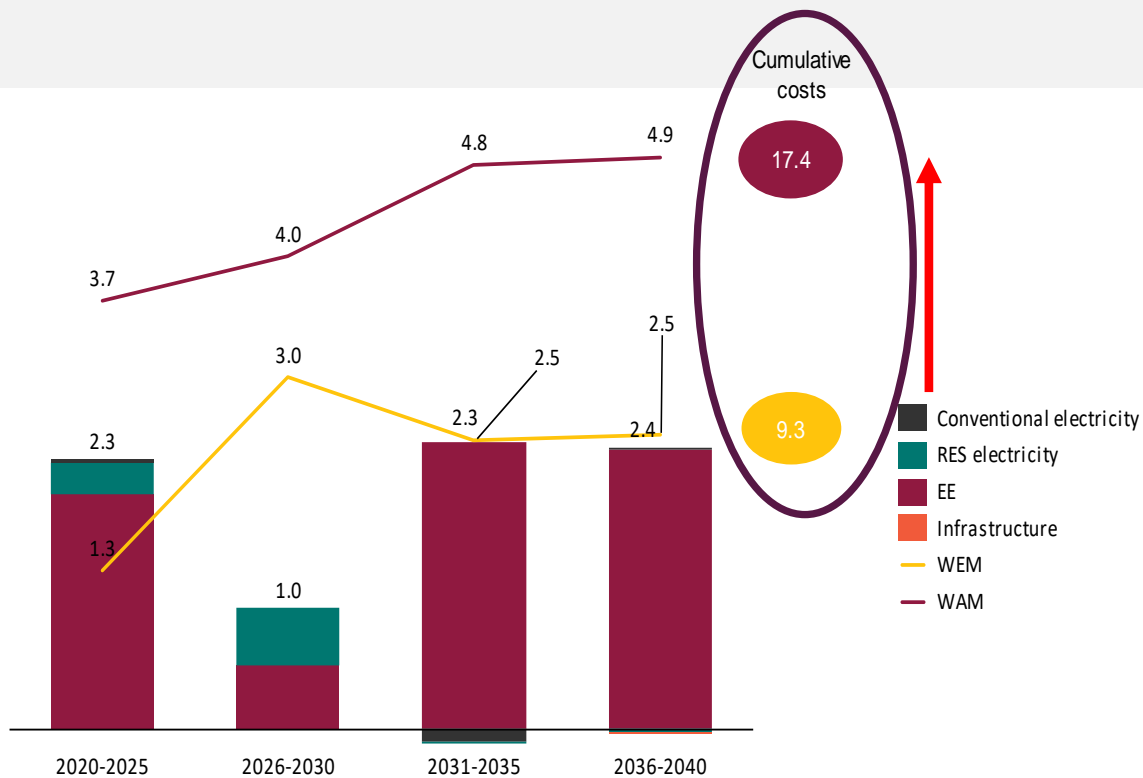
63 climate change mitigation measures/policies are considered

- 32 in the Energy sector,
- 11 in AFOLU (4-Agriculture, 2- Forestry, 5- Land use change),
- 4 in Waste
- 16 additional PAMs which are enablers of mitigation actions.

63 policy and measures

- Decarbonization - 26
- Energy efficiency - 25
- Energy Security, covered by 8- Decarbonisation, 1- Internal Energy Market, 24- Energy efficiency
- Internal Energy Market -8
- Research, innovation and competitiveness - 4

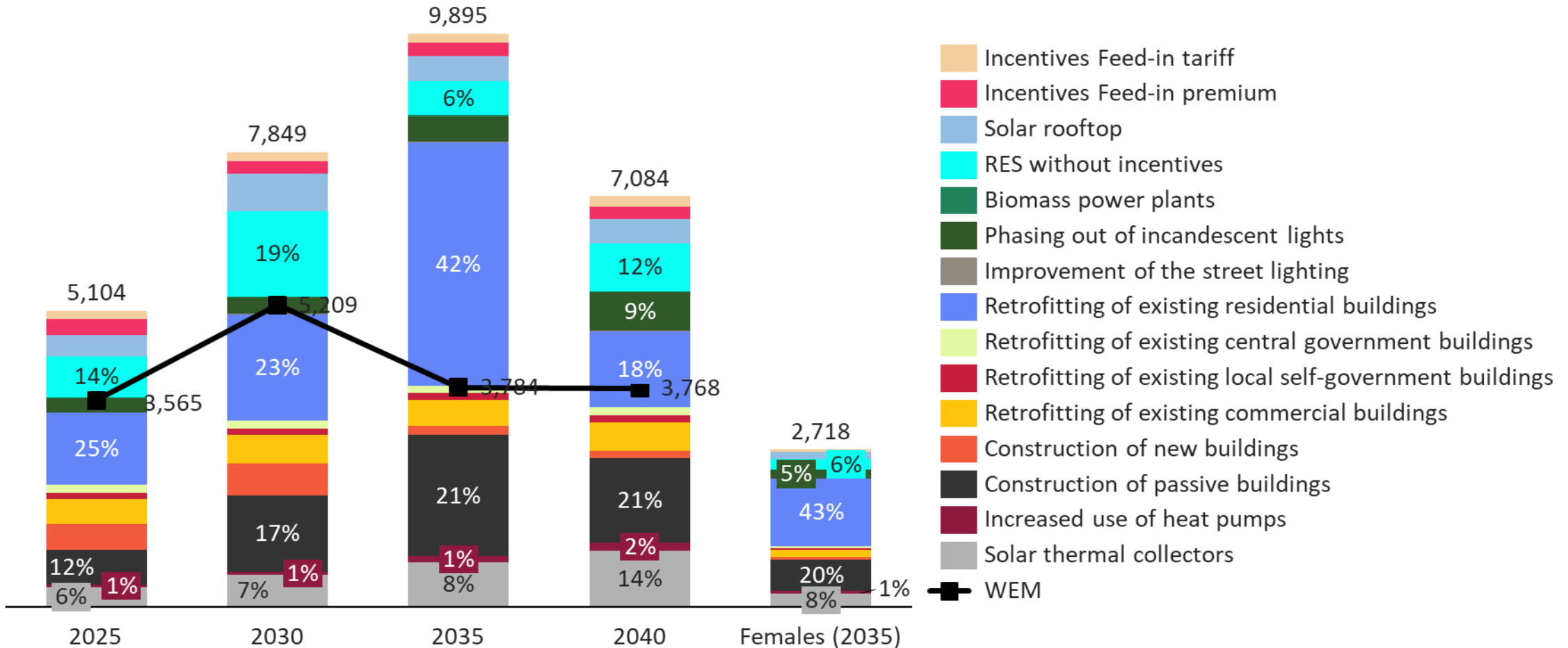
The cost of decarbonization



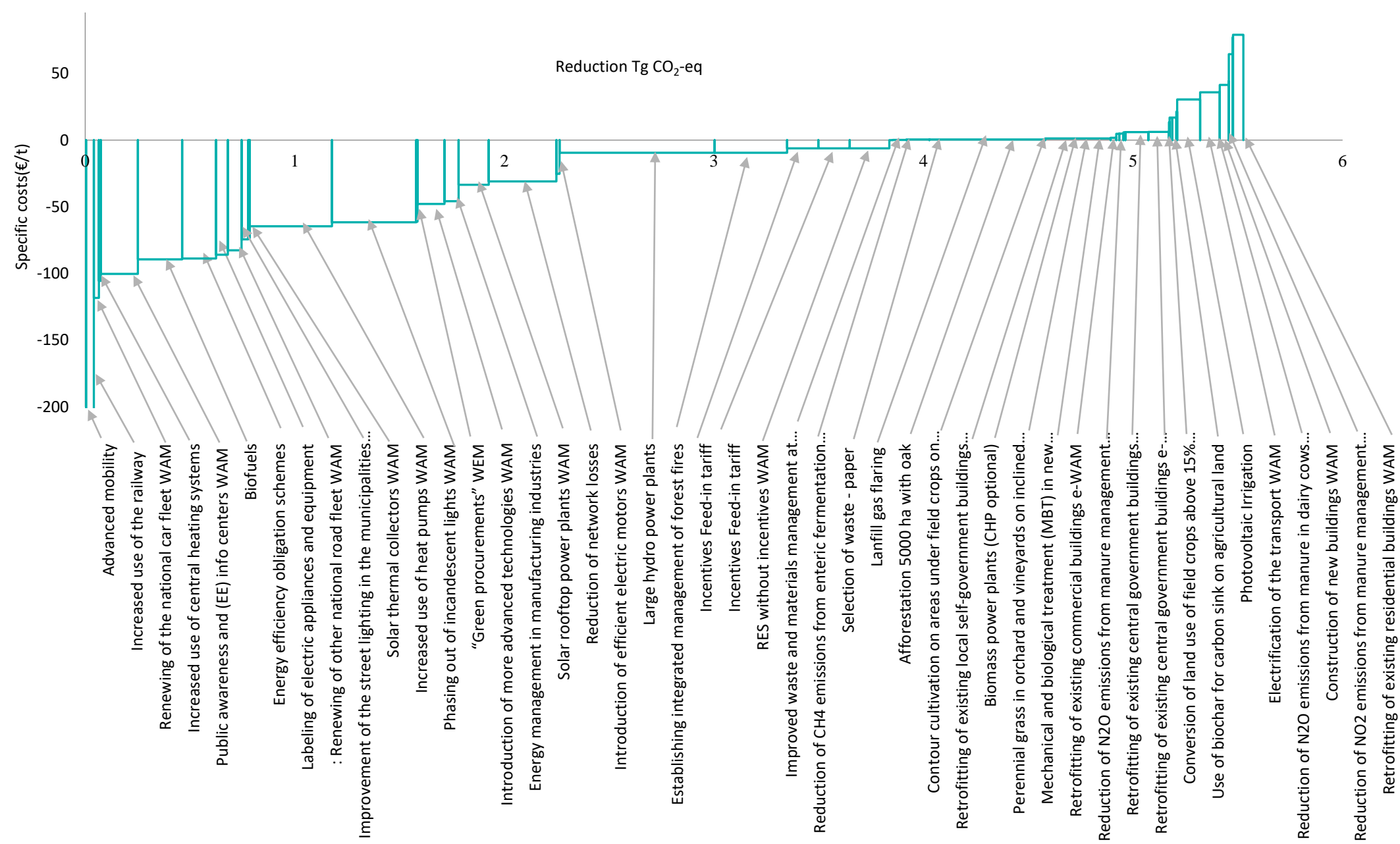
Energy efficiency first implemented (7 from the investments saved)

Benefits from decarbonization

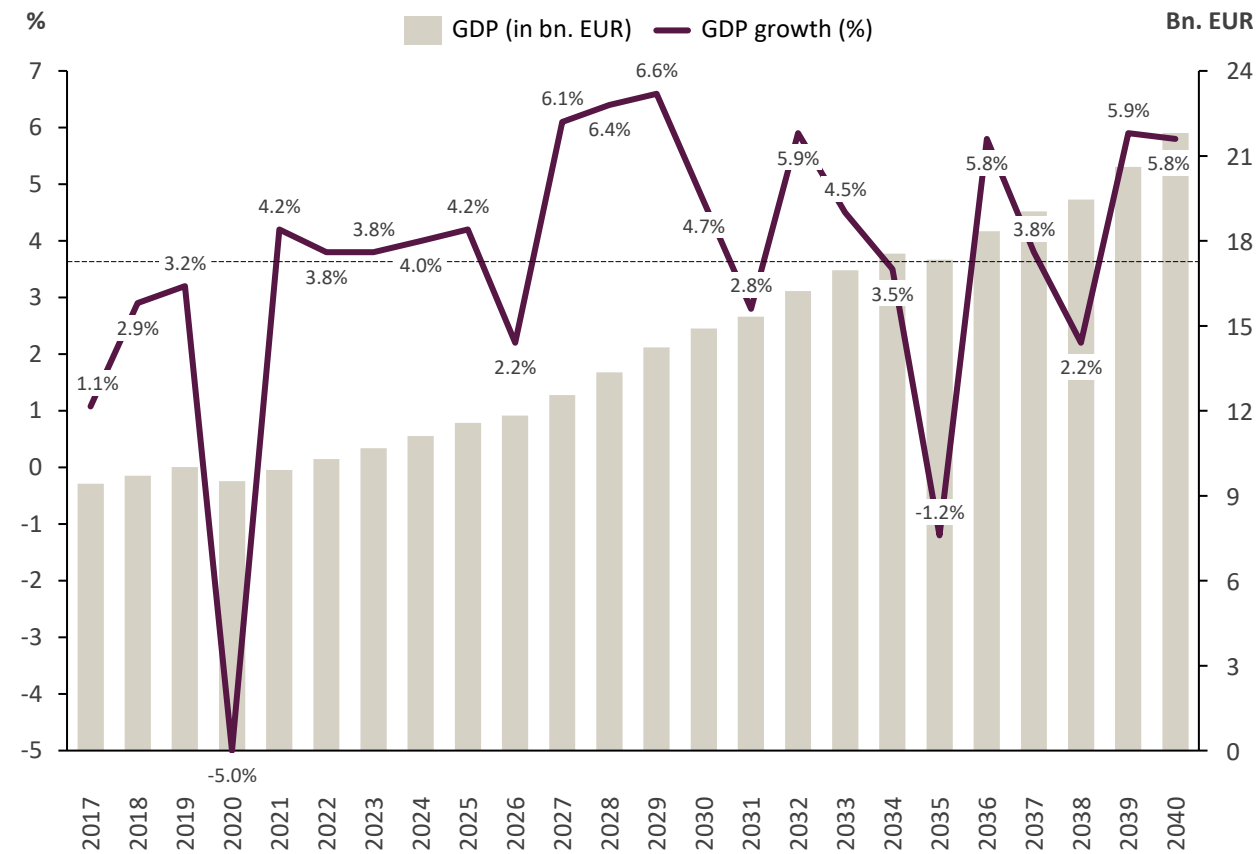
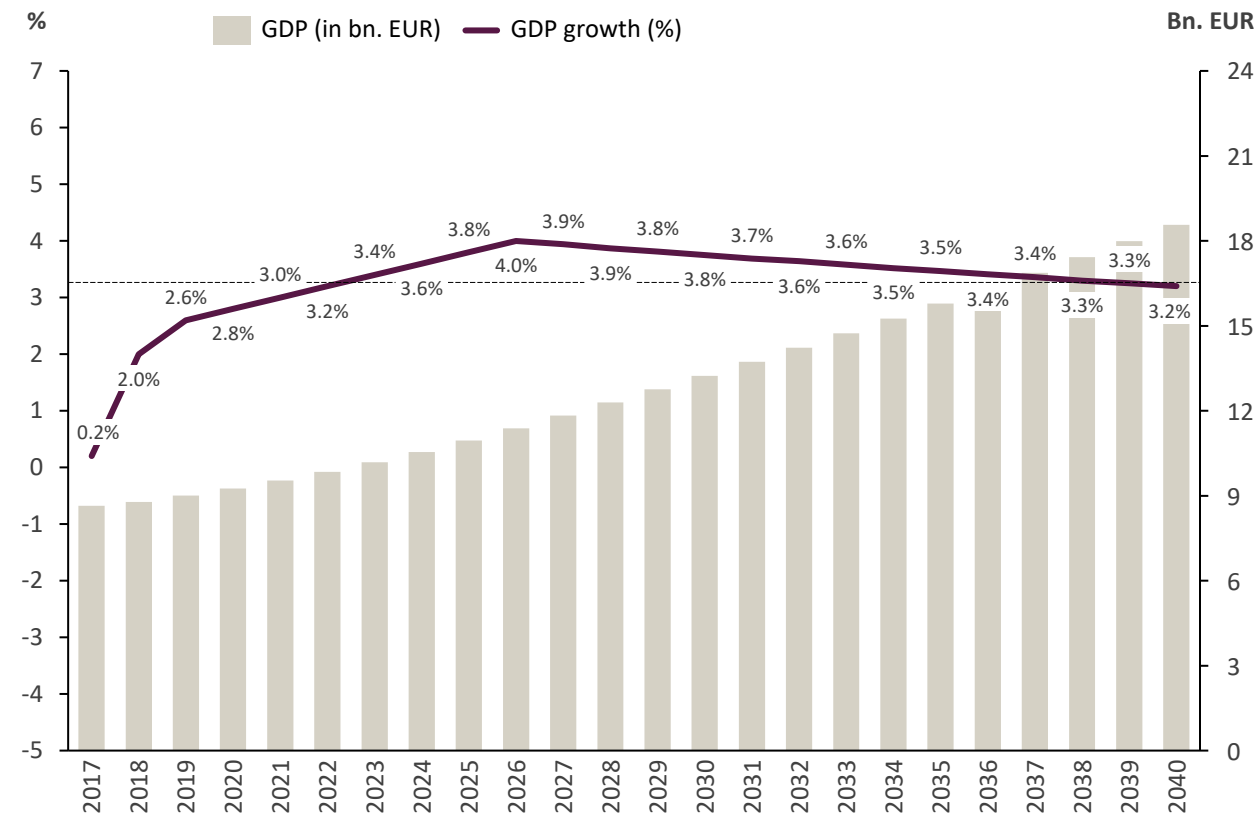
Green jobs



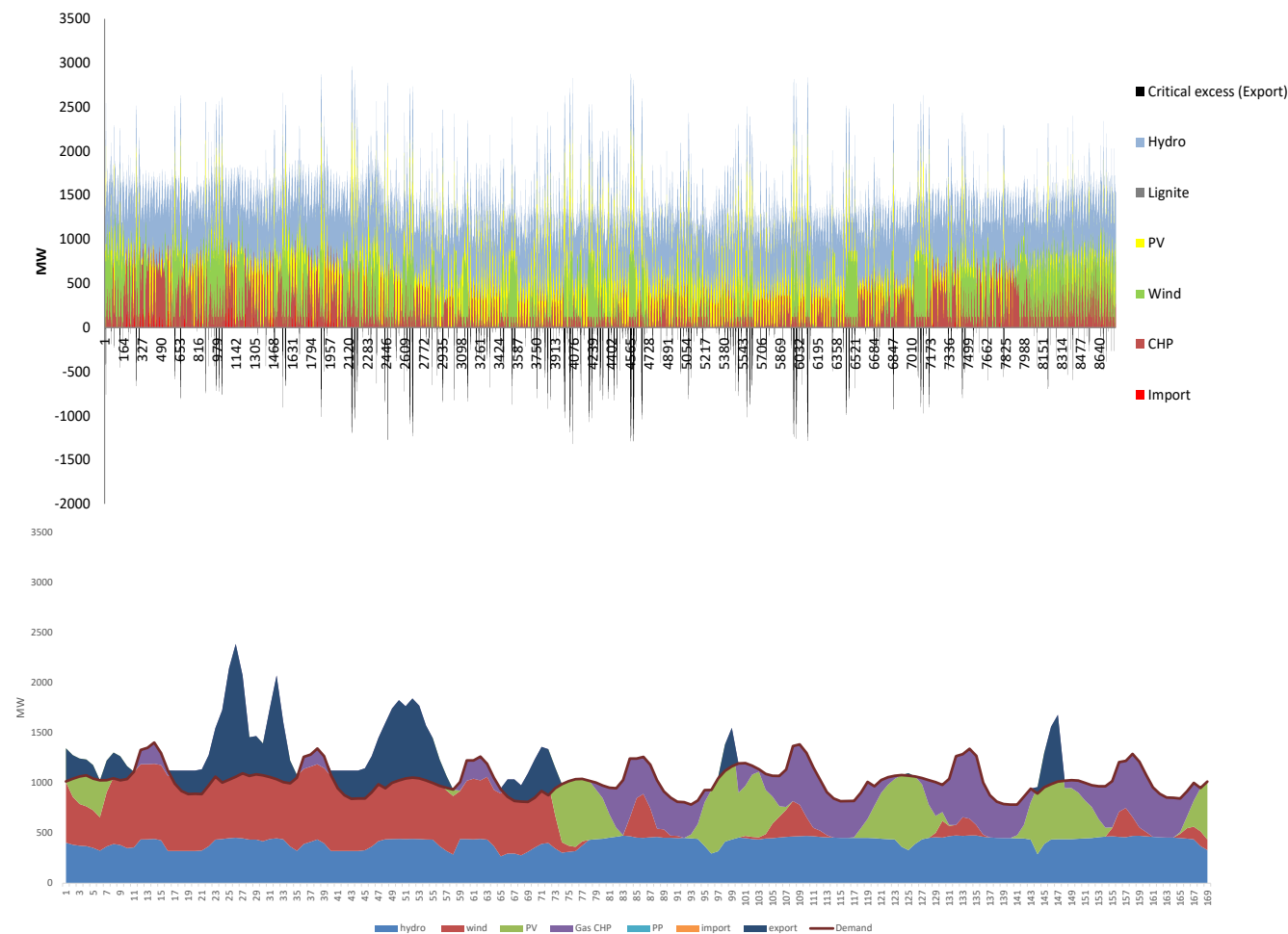
Benefits from decarbonization



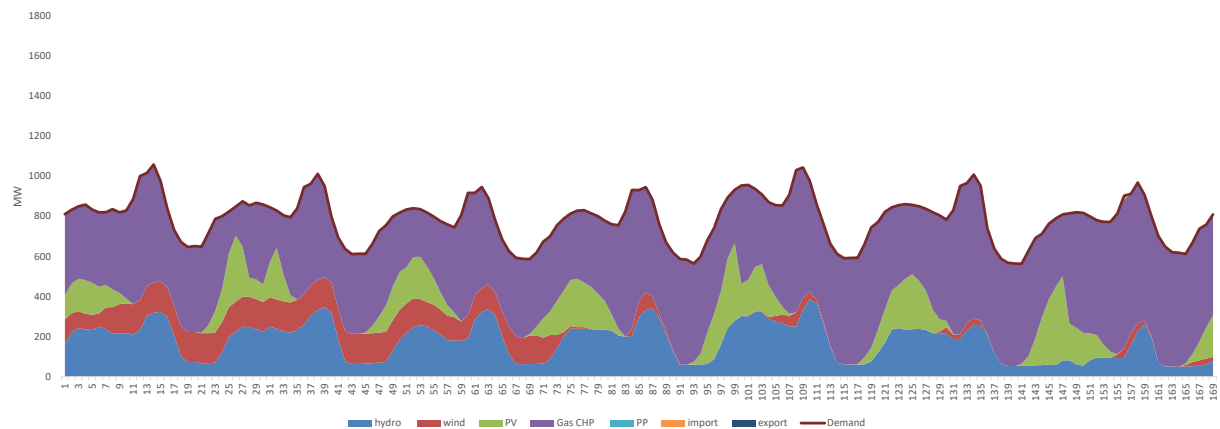
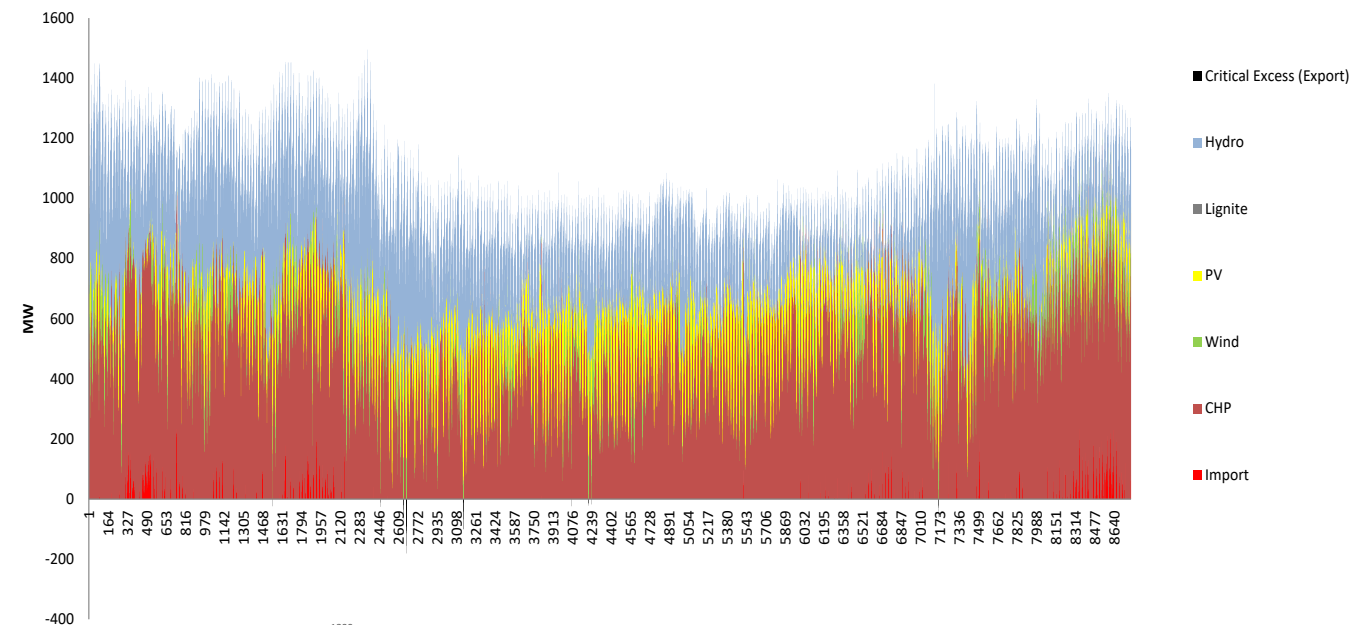
Macedonia GDP projections



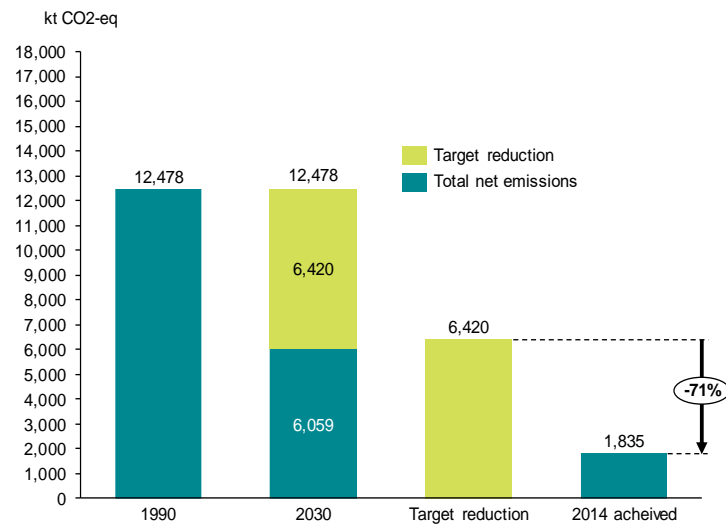
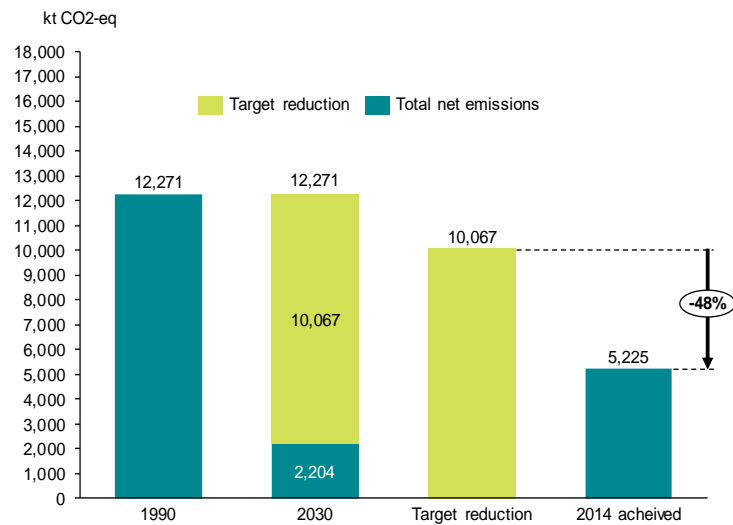
Deep-dive analyses on the electricity generation portfolio



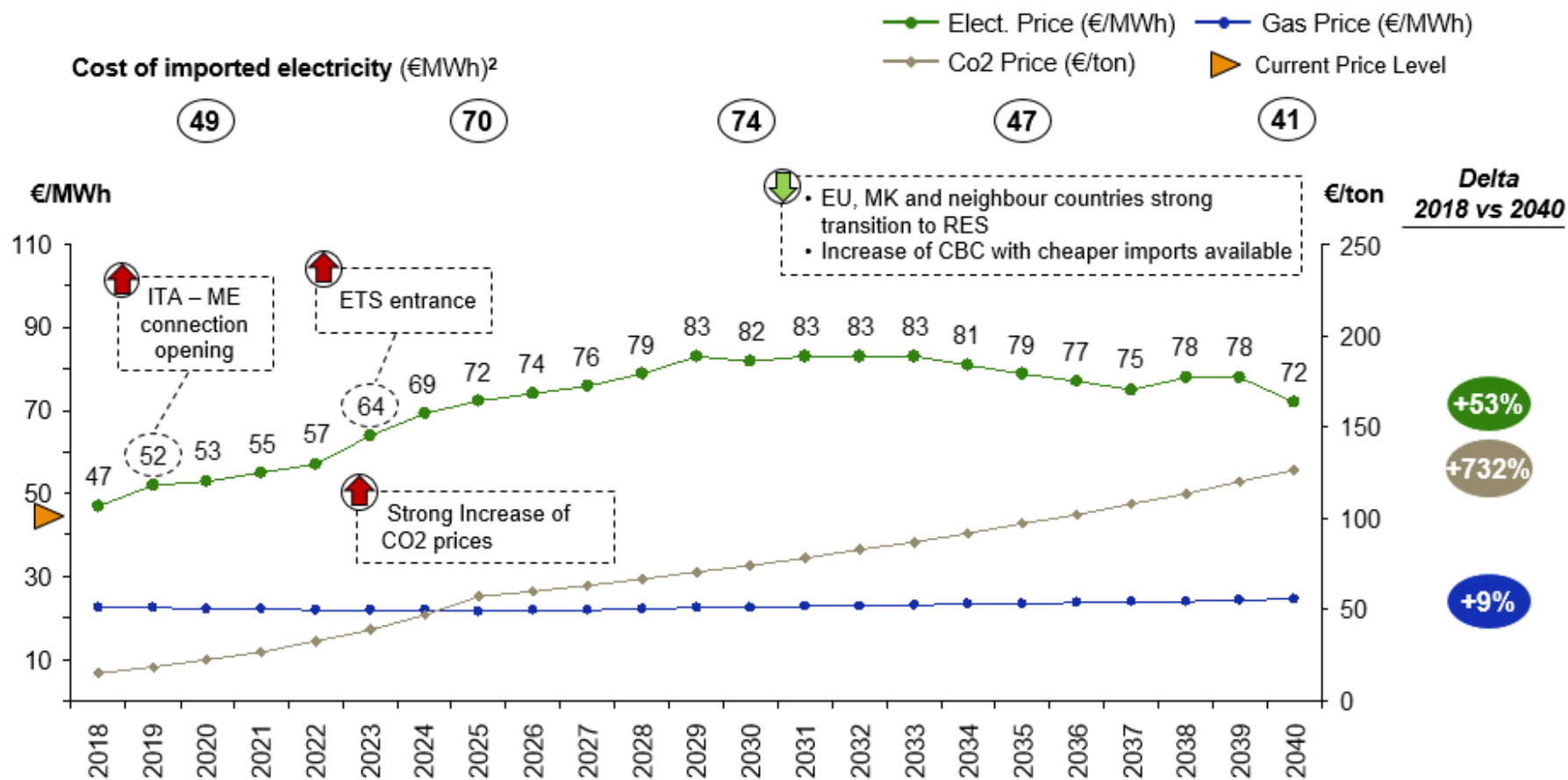
Deep-dive analyses on the electricity generation portfolio



GHG reduction

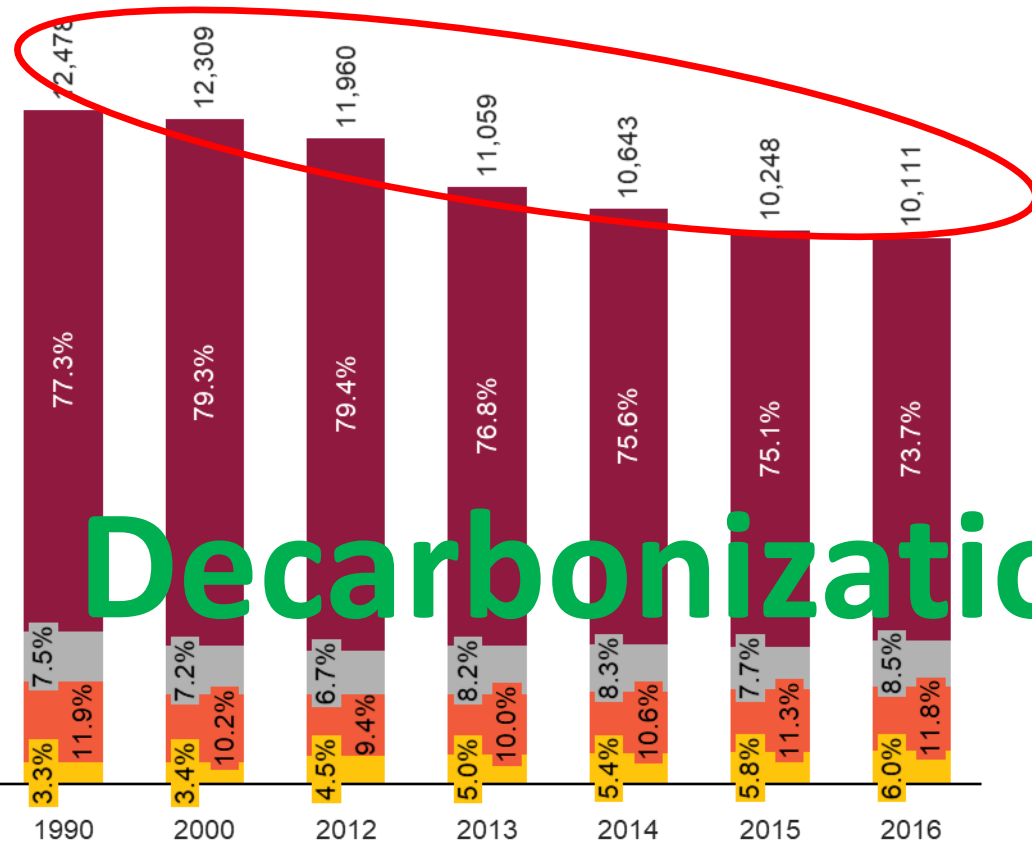


The cost of decarbonization

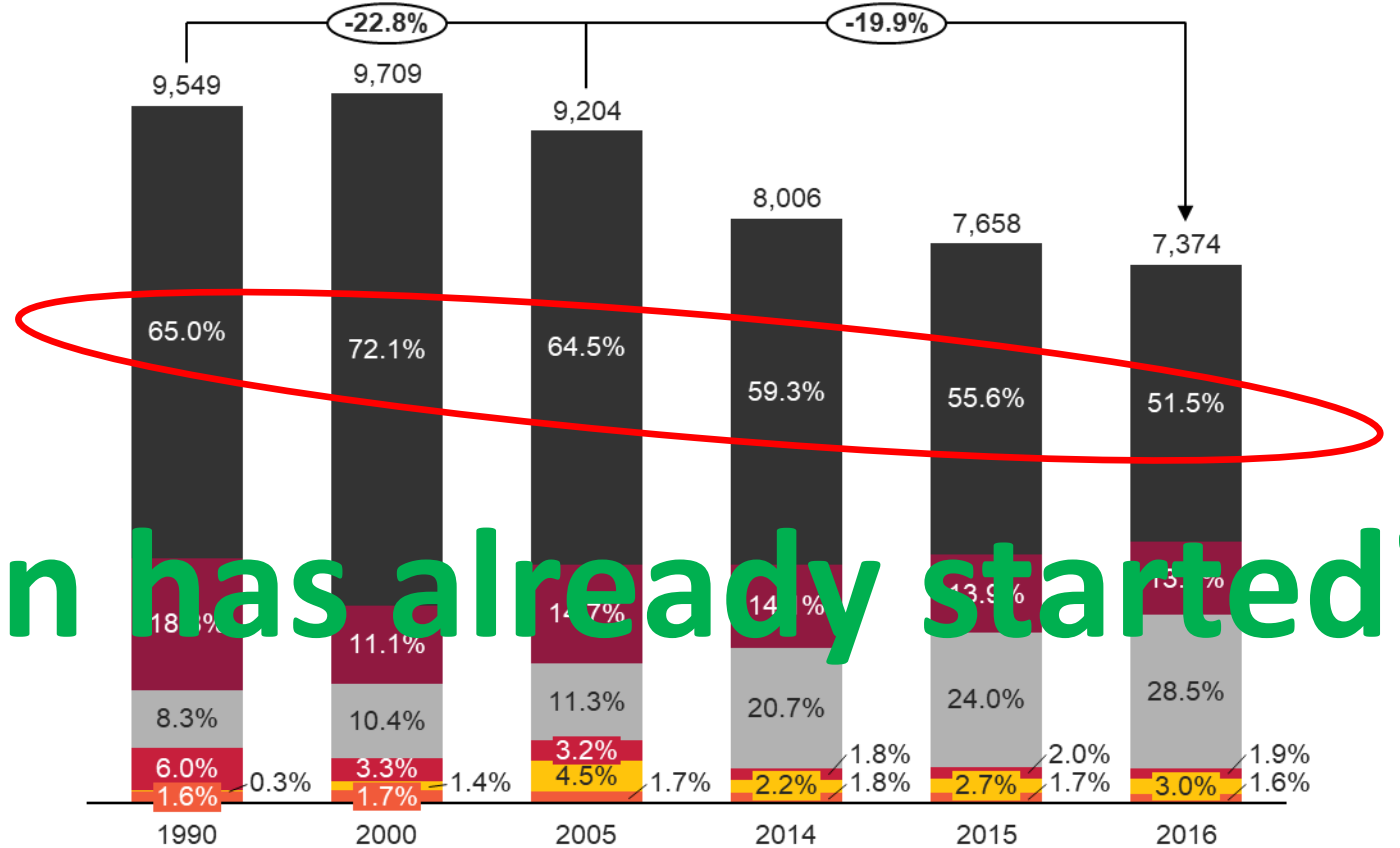


Where are we now

Total GHG emissions by Sectors (in Gg CO2-eq)



GHG emissions in Energy sector, by category (in Gg CO2-eq)



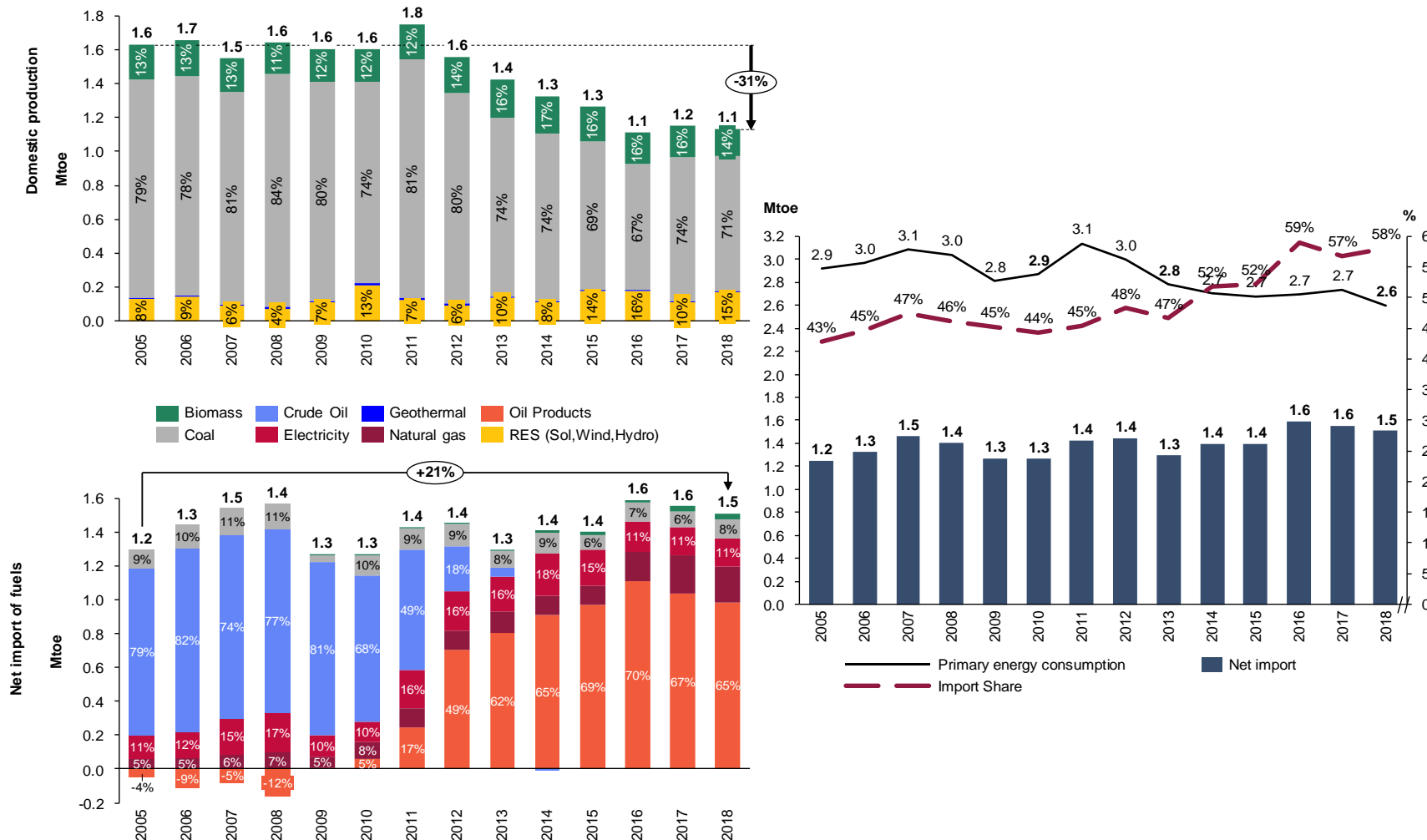
Decarbonization has already started?

Energy
Industrial Processes and Product Use
Agriculture (excl. FOLU)
Waste

Energy Industries
Manufacturing Industries and Construction
Transport
Other Sectors
Non-Specified
Fugitive emissions from fuels - Solid Fuels
Fugitive emissions from fuels - Oil and Natural Gas

Where are we now

Current energy mix by domestic resources and imports, as well as import dependence, 2005-2018



- The import of electricity is increasing because most of the companies participate in the open market and are not obliged to buy electricity from domestic production.
- 2005-2015 the electricity import \uparrow 60%, 2015-2018 \downarrow 24% higher CHP production,
- Import dependence is almost 60% in the last three years of the analyzed period, which is around 17% points more than 2005