

ENERGY PANEL

Italy's energy transition and its links to energy security and strategic autonomy

Current situation, trends, and effectiveness of policies

Connact Energy

Objectives of the analysis

To assess the state of Italy's energy transition and the effectiveness of the policies adopted

How?

Using an analytical framework that:

- Faithfully reflects the Energy Union's governance instruments – primarily the European Commission's reports on the State of the Energy Union and the National Energy and Climate Plans and Progress Reports – in terms of scope, targets, and indicators
- It attempts to overcome some of its well-recognised fundamental limitations by introducing certain key elements of the methodology for evaluating public policies

The questions

- Which targets are achievable and which are not (in the medium and long term)?
- Have the effective policies also been efficient in terms of their cost-benefit ratio?
- Which policies have been effective and which have not? And why?
- To what extent are the limitations of current governance instruments making it more difficult to achieve these objectives?

The energy transition. And how to assess it

What is it?

A multidimensional phenomenon: a systemic process resulting from the interaction of technological, political, and market dynamics, as well as external conditions.

The existence of synergies and trade-offs between the various dimensions.

- **Decarbonisation**
  May lead to dependence on imported minerals and technologies
- **Growth in renewables**
  Greater demands on the grid, flexibility, and adequacy

A phenomenon that presents difficulties in analysing and interpreting the behaviour of the system, assessing its performance, the role it has played, and the effectiveness and efficiency of the policies adopted



The energy transition. And how to assess it

The reference framework

Objective → Indicator → Target → Observed result → Relevant policies → Costs (?)



How does it work?

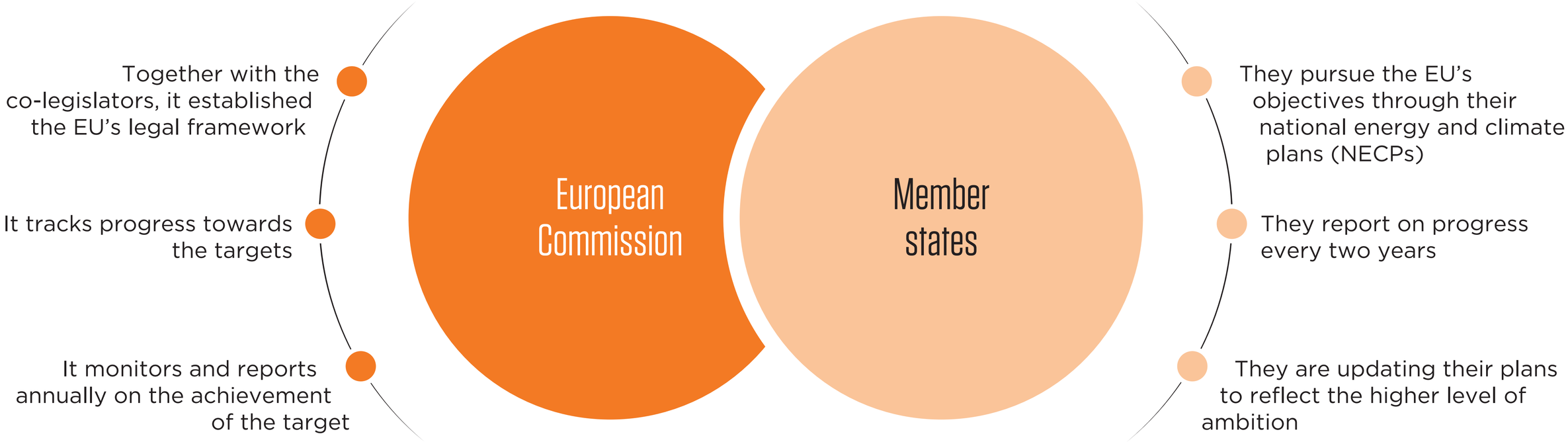
1. Identification of objectives and their measurability
2. Analysis of results
3. Assessment of the achievement of objectives
4. Identification of instruments and attribution of results to policies
5. Assessment of costs and trade-offs



Assessing the transition. Energy Union Governance

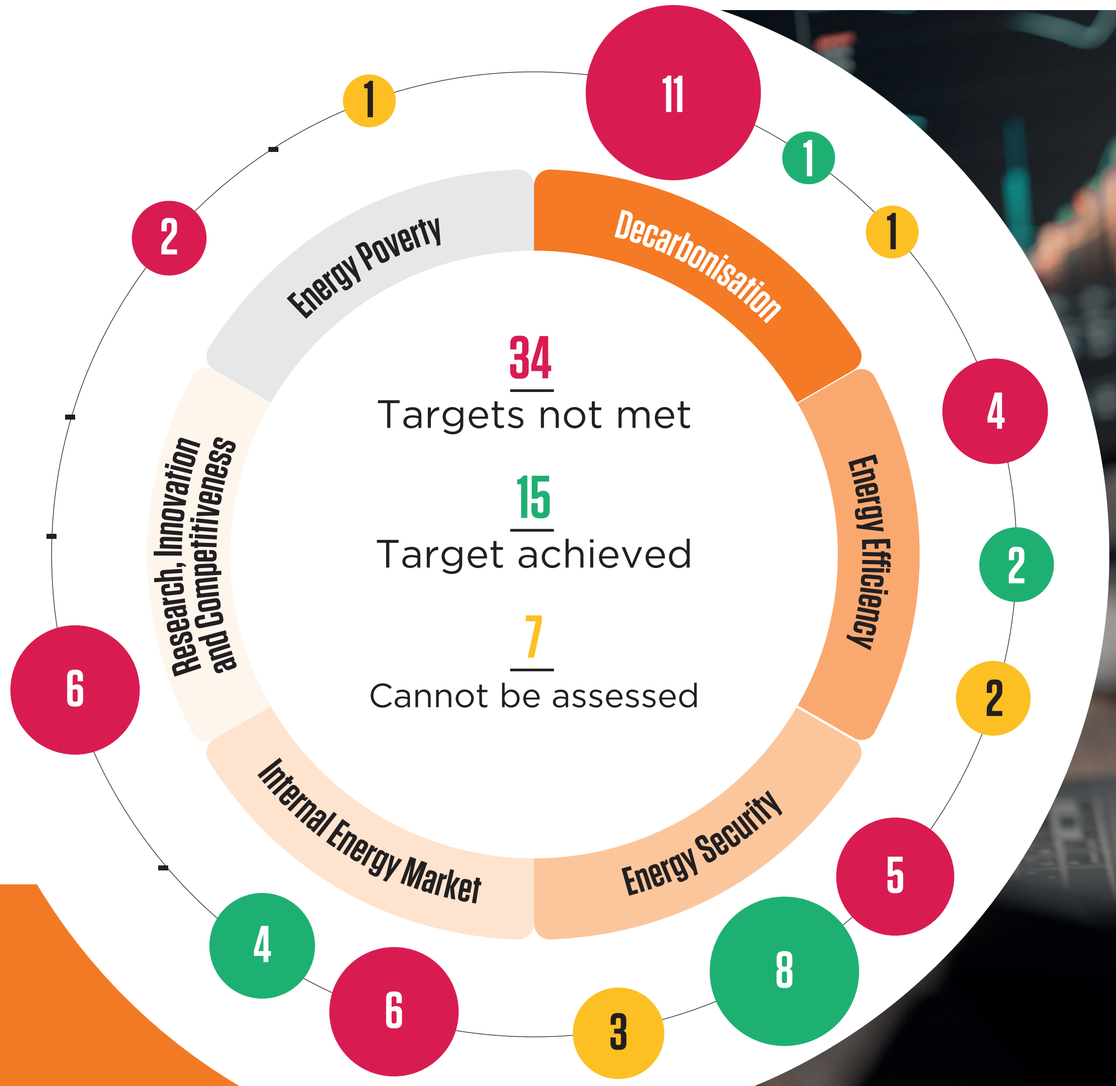
Steps in the assessment	EU Governance	Limitations
Identification and measurability of objectives	EU targets, legislation, NECPs, Energy Union indicators	A multitude of objectives and a hierarchy that is not always explicit; many targets that cannot be measured (in the NECPs); inconsistencies in the targets and indicators deemed relevant; and confusion between instruments and objectives
Analysis of results	Eurostat, Energy Union indicators, NECP progress report	Confusion between tools and objectives; many targets that cannot be measured; the frequent prevalence of indicators relating to policy implementation over those relating to outcomes and impacts
Assessment of achievement	NECP Monitoring, State of the Energy Union	Risk of confusing monitoring with effectiveness evaluation
Attribution of results	Ex-ante impact assessment	Lack of ex-post impact assessments; the gap between monitoring and evaluation
Costs and trade-offs	Ex-ante impact assessment	Lack of an ex-post impact assessment

Roles in the EU's governance plan for the Energy Union and climate action



The Italian transition
An overview

- Targets not met
- Target achieved
- Offline/cannot be assessed





5+1 DIMENSIONS OF THE **ENERGY UNION**

Decarbonisation Dimension



Key factors

- Effective policies
- Price based instruments not very effective
- The role of external factors

Macro target	Specific target	Indicators	2025 value	2025 target	Assessment quantitative	Assessment qualitative
Total emissions		Emission cut vs 1990	-28%	-30%		
ETS sector emissions		Emission cut vs 2005	-58%	-55%		
Non-ETS sector emissions		Emission cut vs 2005	-23%	-26%		
Renewable sources	Total renewables	RES in final consumption (Mtoe)	23.4	29.1		
		RES share of final consumption (RED III)	20%	25%		
	Electricity	Renewable electricity, normalised (Mtoe)	12.0	13.6		
		RES share of electricity consumption (%)	44%	47%		
	Transport	Renewables in transport (Mtoe)	1.8	3.0		
		RES share in transport (%)	11%	15%		
		Battery electric cars, BEV (%)	37%	0%		
	Heating and cooling	Renewable heat (Mtoe)	9.6	12.5		
		RES share in heating and cooling (%)	21%	26%		
	Hydrogen	Renewable H2 share in industry	0%	-		

Decarbonisation Dimension

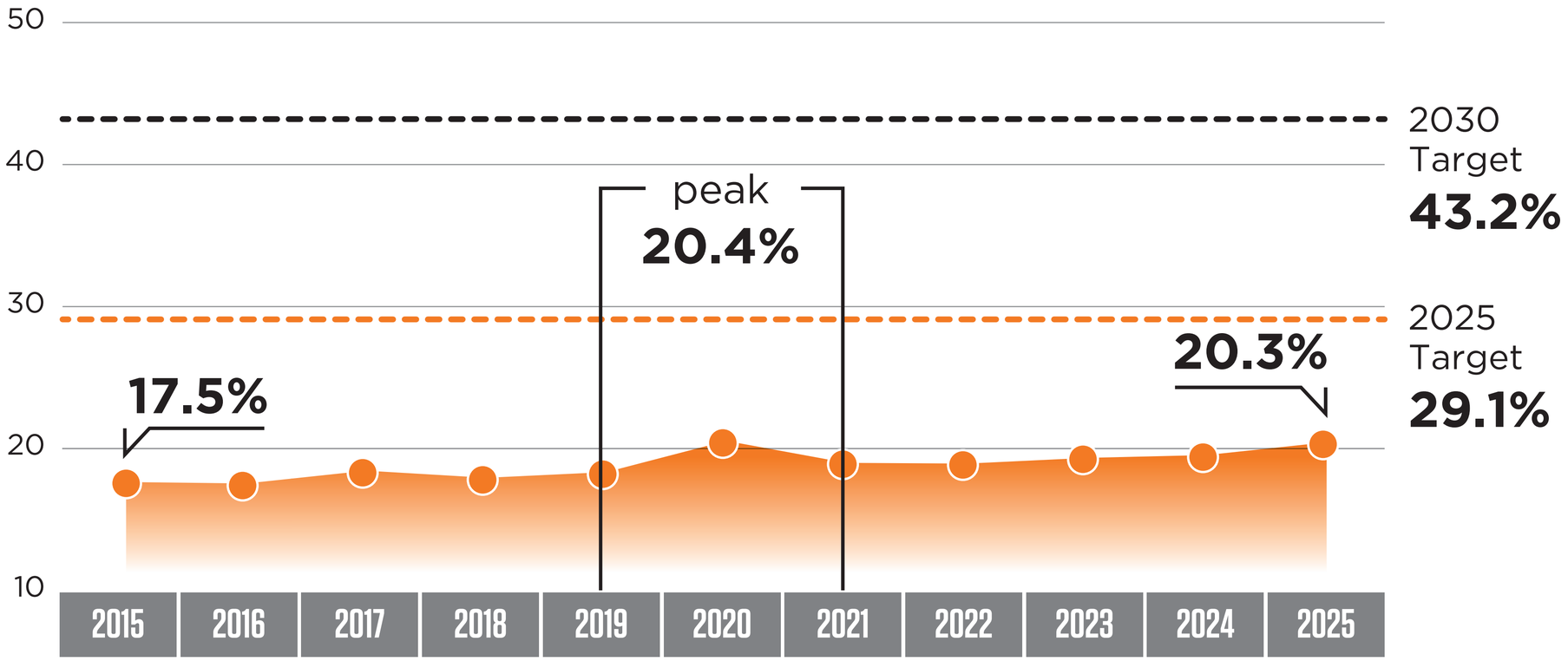
The share of renewables in final consumption

13.1%

Actual growth

2.1%

The share of renewables in final consumption



Energy Efficiency Dimension



Key factors

- Efficacy policies
- Price based instruments
- Rigidity, particularly in the transport sector
- Key external factors affecting the industry and demand for heating

Macro target	Indicators	Assessment	
		quantitative	qualitative
Primary Energy Cons. (PEC-EED)	Total PEC-EED	🟢	
Final Energy Consumption	Total FEC-EED	🔴	
	FEC - Industry	🟡	
	FEC - Transport	🔴	
	FEC - Tertiary and Residential	🟡	
Electrification	Share of Electricity on Final Energy Consumption (%)	🔴	
Primary energy intensity	Primary Energy Cons. (PEC-EED) / GDP	🟢	
Final energy intensity	Final Energy Cons. (PEC-EED) / GDP	🔴	

Energy Security Dimension



Key factors

- Effective policies
- Many policies are still only at the planning stage or are currently being implemented
- The significant role of external factors and geopolitical events

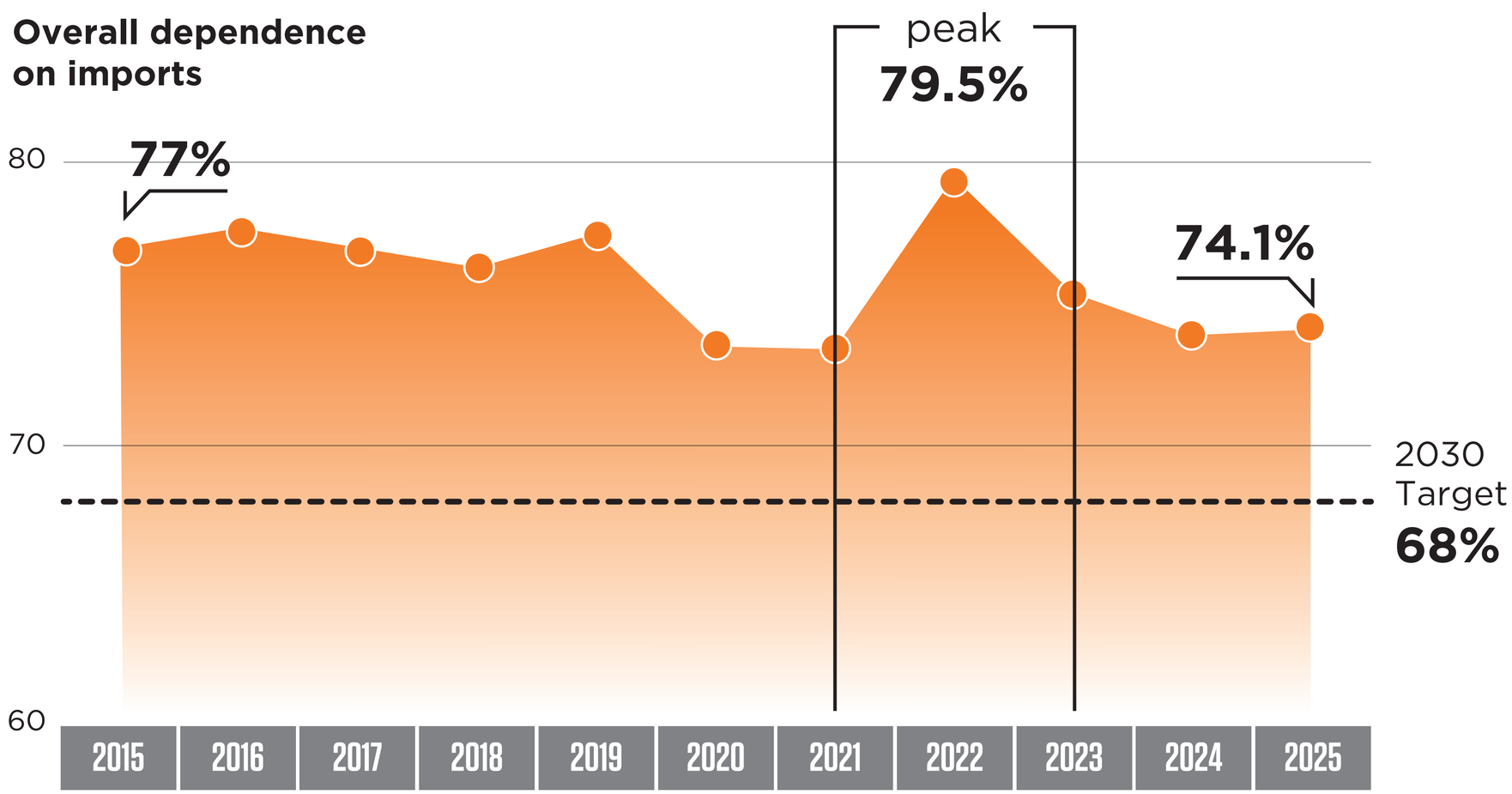
Macro target	Specific target	Indicators	Assessment quantitative	Assessment qualitative
Diversification of energy sources and supply		Diversification primary energy supply	🔴	
		Diversification and upgrading of gas interconnections		🟢
		Diversification of supply and LNG enhancement		🟢
		New LNG connections and depots		🟢
		Increase in renewable gases in the grid		🟢
Reducing energy import dependency		Total import dependency	🔴	
		Oil dependency	🔴	
		Gasoline / diesel / jet fuel	🟡	
		Gas dependency	🔴	
Development of the ability to cope with constrained or interrupted supply		LOLE, EENS	○	○
		Strengthening internal network to promote RES integ.		🟢
		Supplier concentration index - Gas	🟡	
		N-1 natural gas	○	○
		Gas storage / Gas demand	🟢	
Flexibility of the national energy system	Electricity*	Development of infrastructure projects		🟢
	Storage and sector integration	Development of centralised storage		🟡
		Development decentr. storage		🟢
	vRES integration	Power price volatility	🔴	

**Diversif./enhanc. electricity interconnections*

Energy Security Dimension

6.1%

This is the shortfall in 2025 in terms of meeting the 2030 target



Domestic Market Size Dimension



Key factors

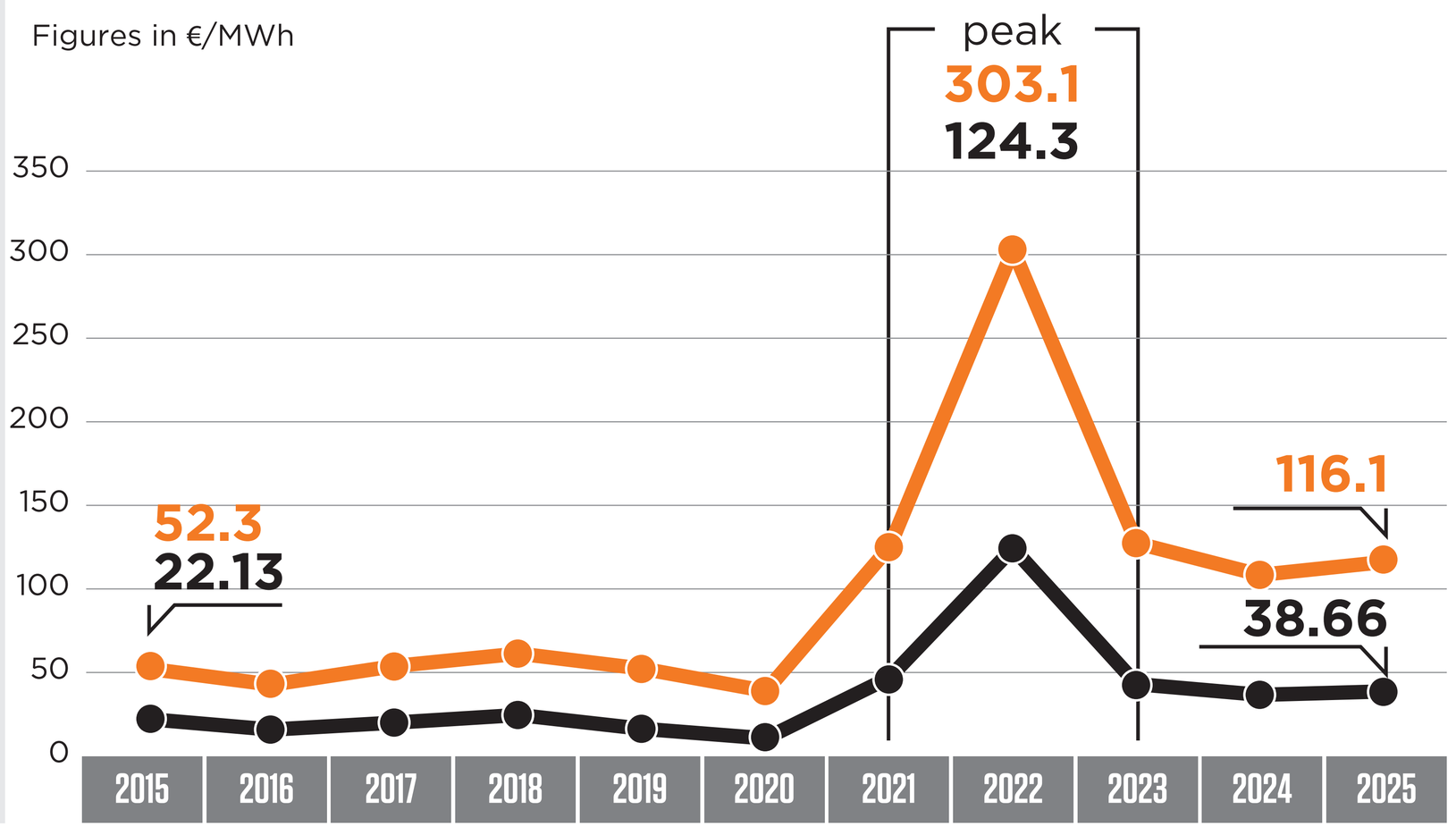
- The important role of external factors
- Effective policies

Macro target	Specific target	Indicators	Assessment quantitative	Assessment qualitative
Electricity interconnectivity		NTC to installed gen. capacity	●	
		NTC to peak load	●	
		NTC to installed renewable generation capacity	●	
		Day Ahead price differentials	●	
Key infrastructure projects		Projects of Common Interest (PCI)		●
		Other infrastructure projects		●
Progress on internal energy market	Energy system flexibility		○	○
	Non-discriminatory	Aggregation of generation		●
	Consumer participation	Encouraged via smart meters		●
	Electricity system	Target for market-based capacity mechanisms	○	○
Energy prices	Wholesale electricity pr.	Day Ahead hourly electricity prices	●	
	Wholesale gas prices	Daily PSV prices	●	

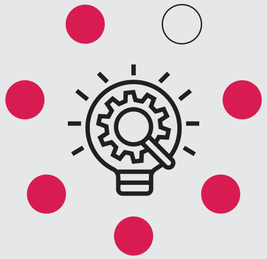
Domestic Market Size Dimension

Electricity price trends

Gas price trends



Research, Innovation and Competitiveness Dimension



Key factors

- Effective policies
- The important role of external factors

Macro target	Indicators	Assessment: quantitative	Assessment: qualitative
Progress towards the SET Plan's objectives and policies		○	○
Public and private research & innovation spending relating to clean energy technologies	Public investments on Energy Union related R&I (% GBAORD)	●	
Decarbonising energy- and carbon-intensive industries and CCUS	Industry decarbonization projects / infrastructure development support		●
Patents related to Energy Union R&I priorities	Number of patents received	●	
	Number of start-ups and SMEs created or receiving government funding or support		●
Competitiveness low-carbon technologies	Trade balance for low-emission technologies	●	
Competitiveness energy intensive industry	Index of industrial production in energy-intensive sector	●	

Energy Poverty Dimension



Key factors

Effective policies

Macro target	Indicators	Assessment quantitative	Assessment qualitative
Progress on energy poverty	Inability to heat the home adequately	●	
Energy price trends	Inability to heat the home adequately	●	
	Gas prices for domestic consumers	●	

