



Energy policy in EU and nationally

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Funded by the
European Union

EU AT A GLANCE





EU Background: from six to 28 countries

Source: European Commission

https://europa.eu/european-union/about-eu/countries_en#the-28-member-countries-of-the-eu

Candidate countries and potential candidates

Country	Area (x 1000 km ²)	Population (millions)	Wealth (gross domestic product per person)
Bosnia and Herzegovina	51	3.8	7 800
Montenegro	14	0.6	10 600
Kosovo under UN Security Resolution 1244	11	1.8	:
North Macedonia	25	2.1	10 000
Albania	28	2.9	7 800
Serbia	77	7.2	9 600
Turkey	783	77.7	14 400
The 28 EU countries together	4 272	508.2	27 400

JUNKER COMMISSION 2014-2019 (2014-2020)

A new start for Europe

**an EU agenda for jobs, growth, fairness
and democratic change**

*A resilient energy union with
a forward-looking climate
change policy*

Ten priorities for Europe

A new start for Europe:

an EU agenda for jobs, growth, fairness and democratic change



The investment plan: a new boost for jobs, growth and investment



A connected digital single market



A resilient energy union with a forward-looking climate change policy



A deeper and fairer internal market with stronger industries



A deeper and fairer economic and monetary union



A reasonable and balanced free trade agreement with the United States



An area of justice and fundamental rights based on mutual trust



A new policy on migration



Europe as a stronger global actor



A European Union of democratic change

Energy context - 1

The EU is the largest energy importer in the world, importing 53% of its energy at an annual cost of around € 400 billion

Many electricity grids and gas pipelines are built for national purposes and are not well connected across borders

75% of our houses are energy inefficient; 94% of transport relies on oil products, of which 90% are imported

Wholesale electricity prices in Europe are 30% higher and wholesale gas prices are over 100% greater than in the United States

Energy context - 2

2030 FRAMEWORK FOR CLIMATE AND ENERGY — AGREED TARGETS

	GREENHOUSE GAS EMISSIONS	RENEWABLE ENERGY	ENERGY EFFICIENCY	INTER-CONNECTION	CLIMATE IN EU-FUNDED PROGRAMMES	CO2 FROM:
2020	-20%	20%	20%	10%	2014-2020 20%	
2030	≤ -40%	≤ 32%	≤ 32.5%	15%	2021-2027 25%	CARS -37.5% Vans -31% Lorries -30%

Upwards revision clause by 2030

The energy union strategy

Adopted on 25 February 2015 (COM/2015/080 final)

Endorsed by the European Council in March 2015

Has five inter-related dimensions

The strategy builds on the 2030 policy framework for climate change and energy

It is accompanied by an action plan presenting specific measures to be implemented

BUILDING THE ENERGY UNION

THE ENERGY UNION STRATEGY

Secure, competitive, and sustainable energy

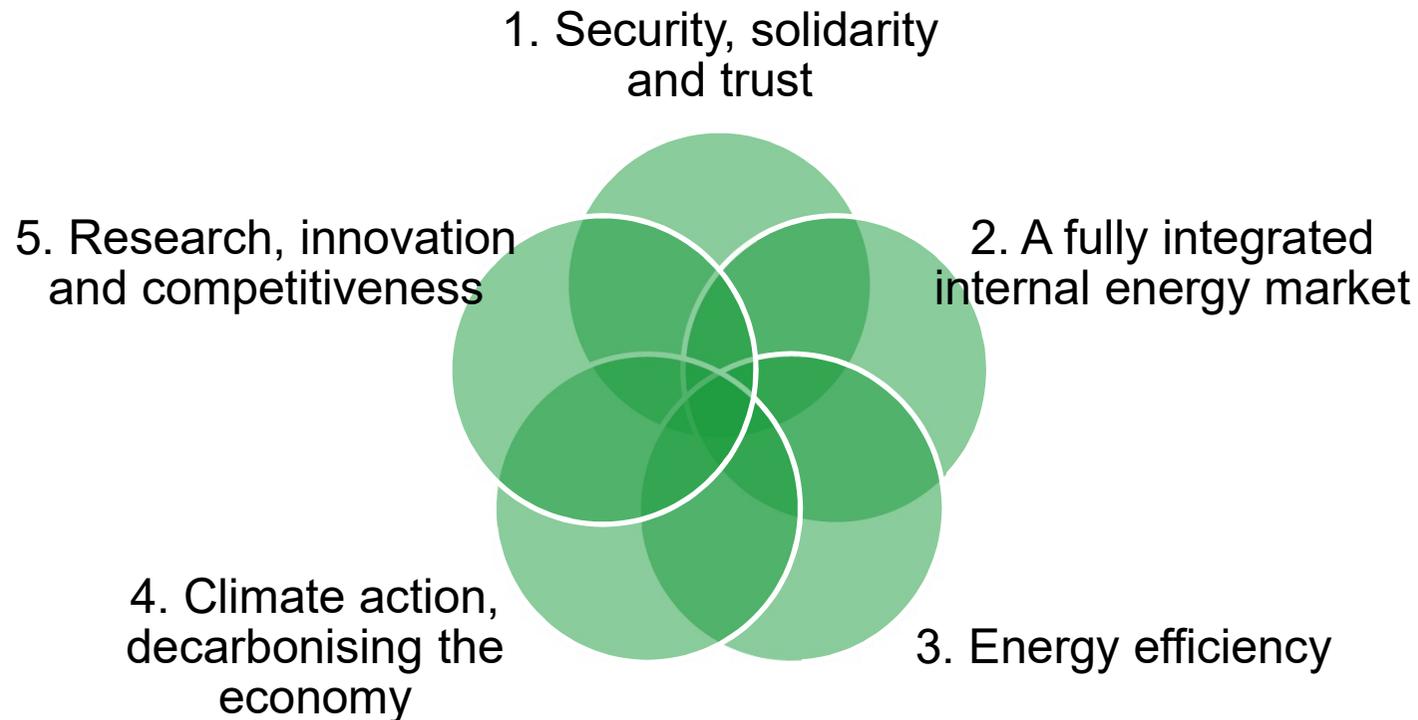
Energy union mission

The Commission wants to ensure ***secure, affordable*** and ***climate-friendly*** energy for citizens and businesses

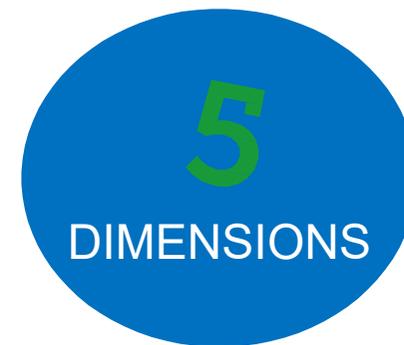


Energy union dimensions

The energy union is made up of
five closely related and mutually reinforcing dimensions



Energy union strategy

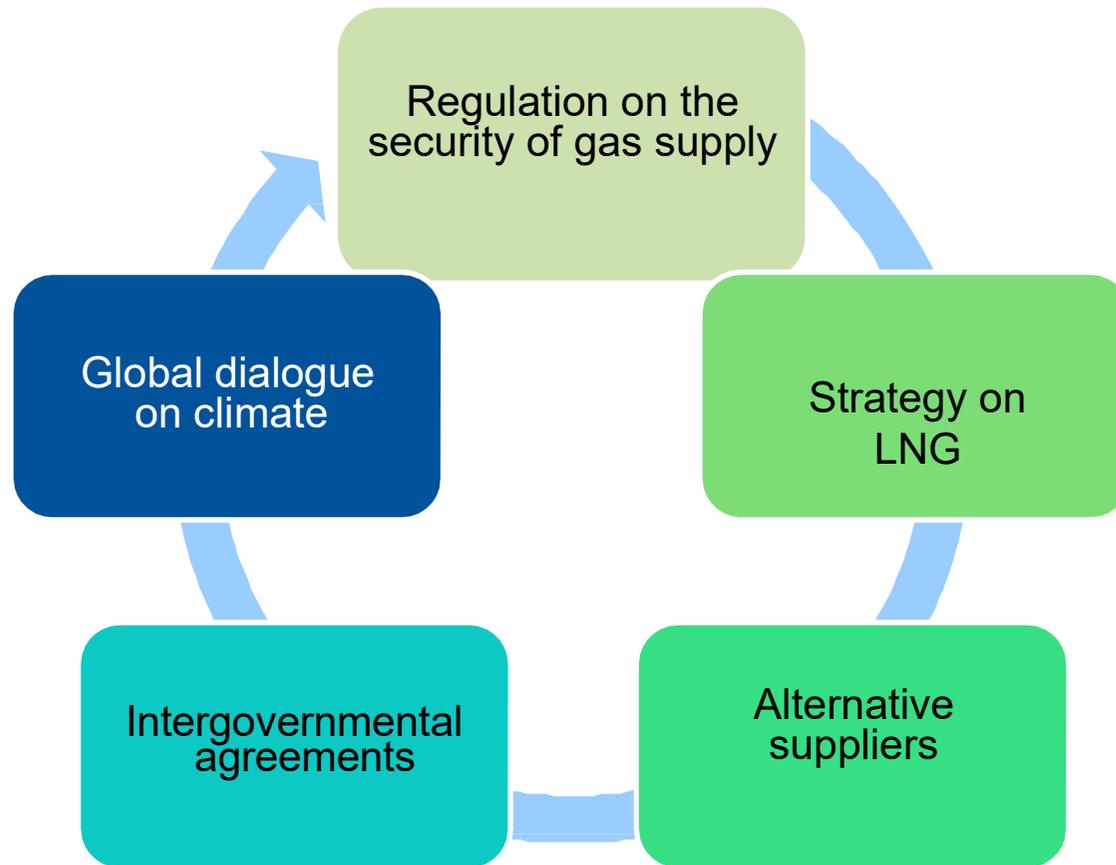


5 GUIDING DIMENSIONS

- **CONCRETE ACTIONS & INITIATIVES**

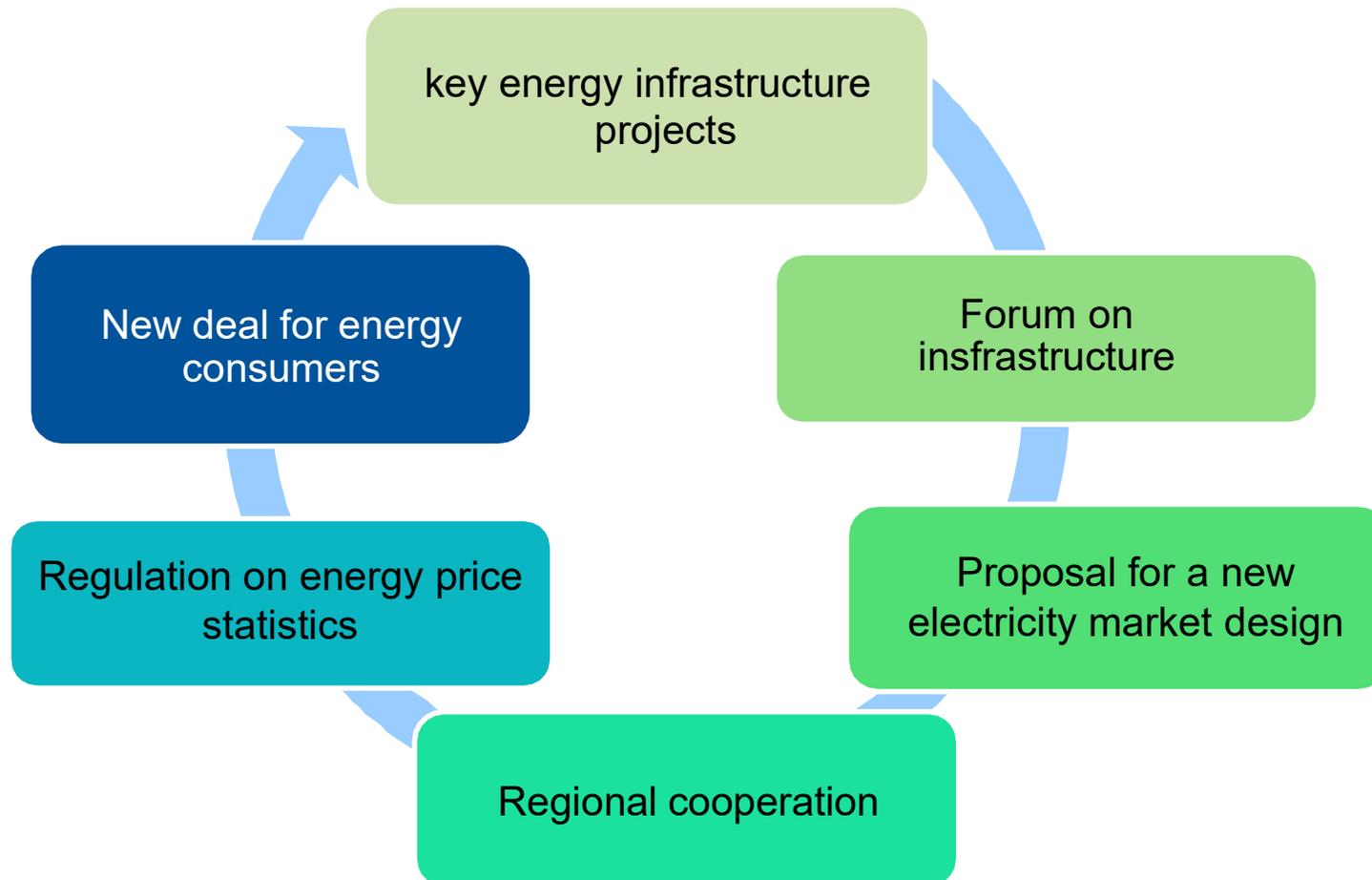
1. Security, solidarity and trust

diversifying Europe's sources of energy and ensuring energy security through solidarity and cooperation between EU countries



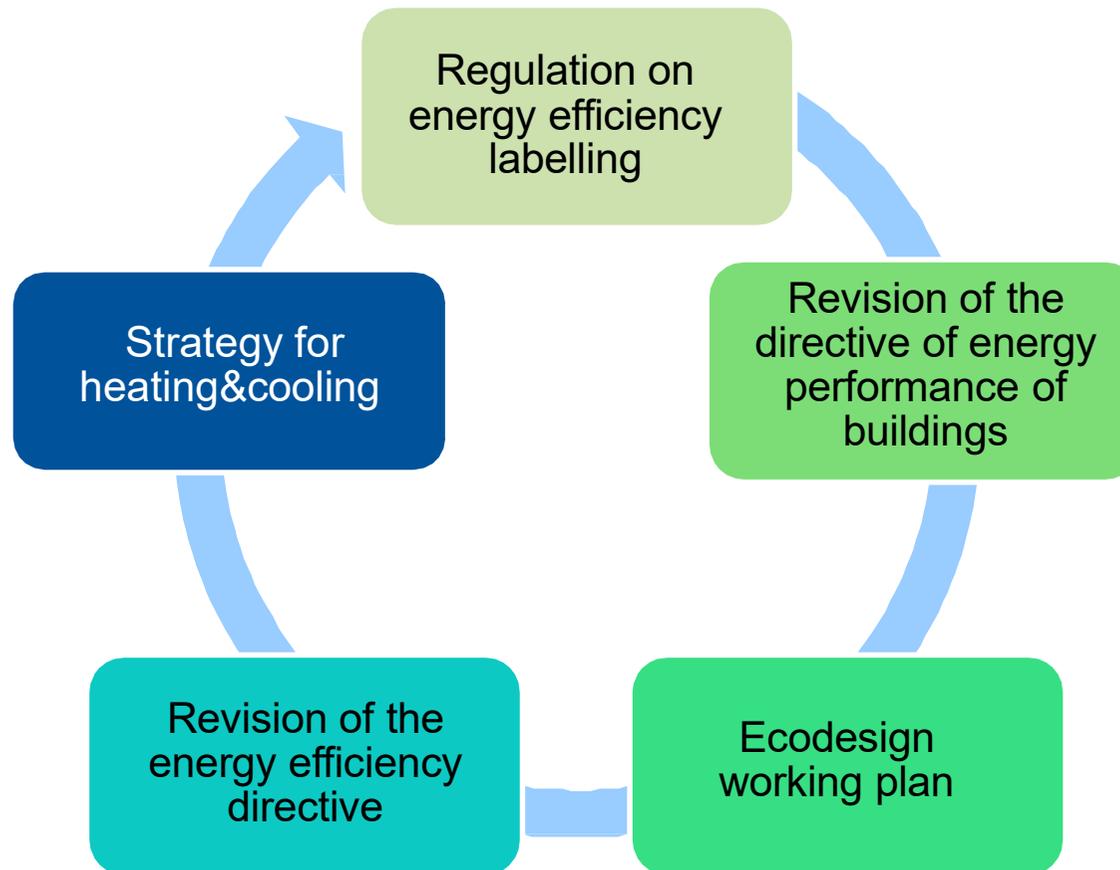
2. A fully integrated internal energy market

enabling the free flow of energy through the EU through adequate infrastructure and without technical or regulatory barriers



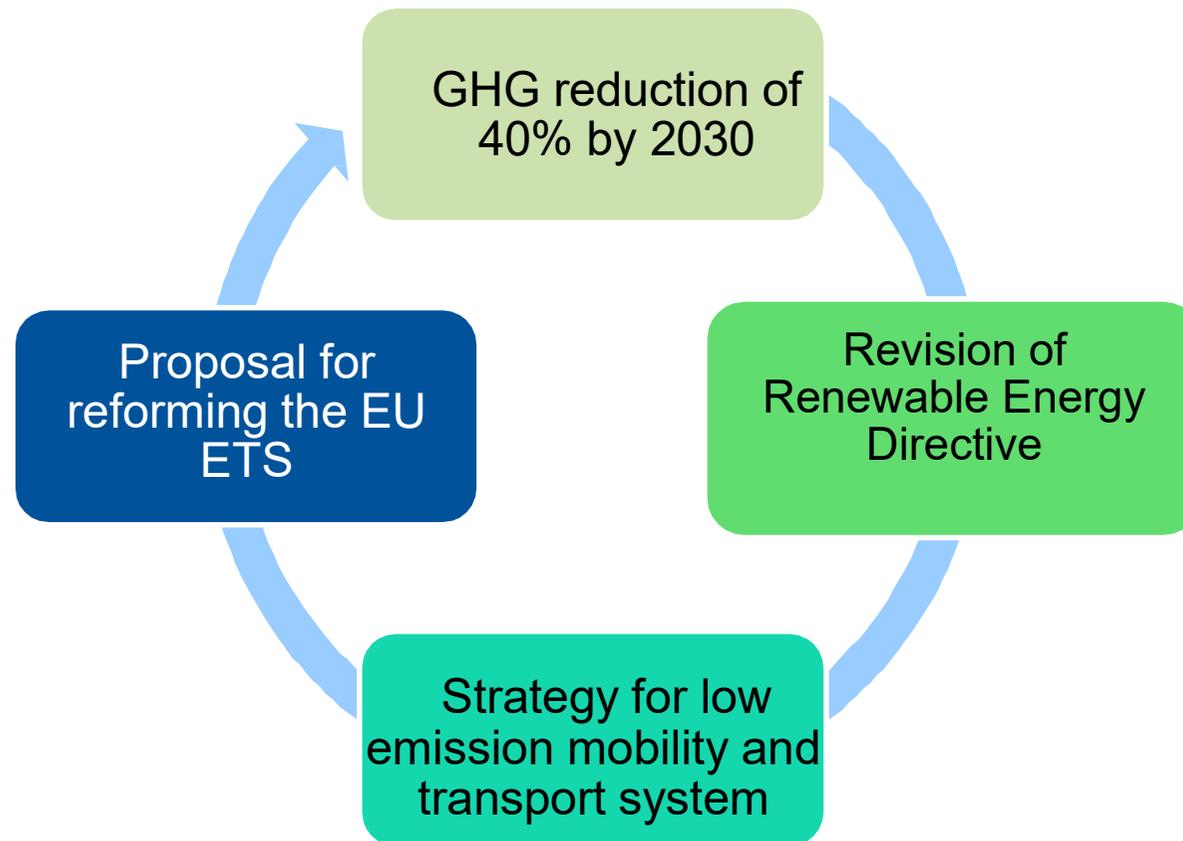
3. Energy efficiency

improved energy efficiency will reduce dependence on energy imports, lower emissions, and drive jobs and growth



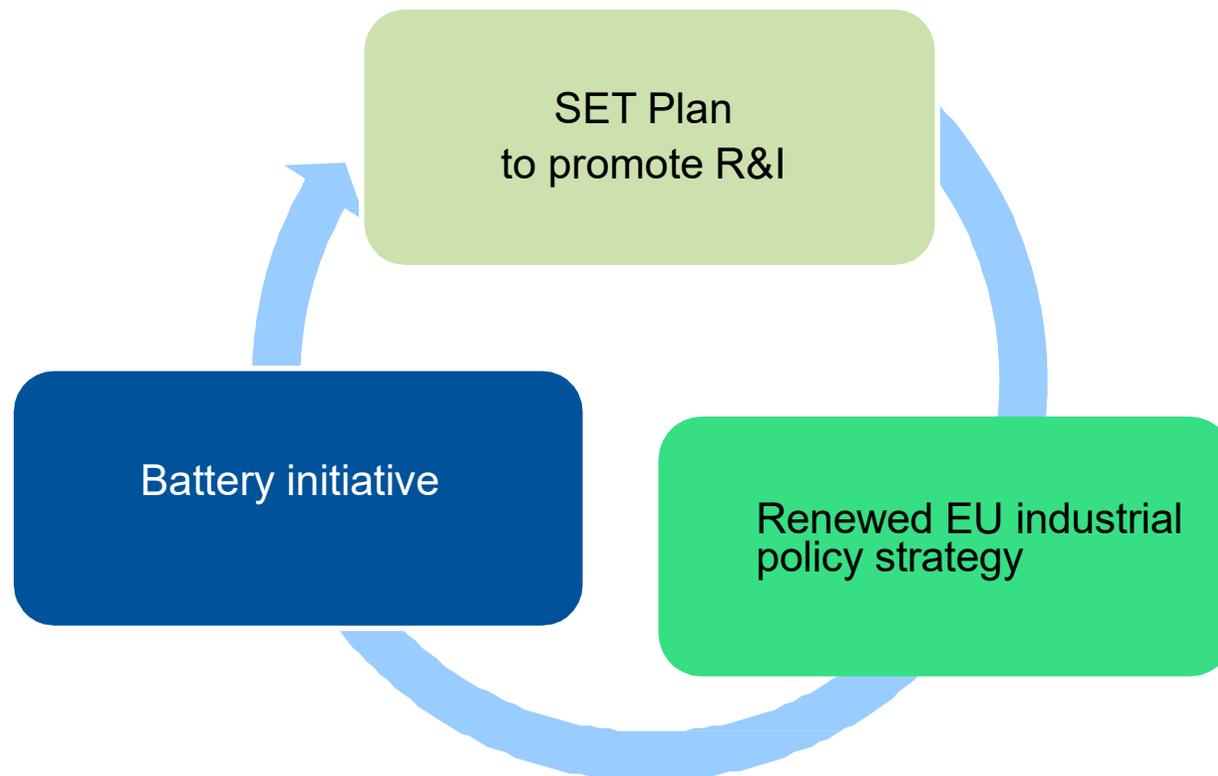
4. Climate action, decarbonising the economy

the EU is committed to a quick ratification of the [Paris Agreement](#) and to retaining its leadership in the area of renewable energy



5. Research, innovation and competitiveness

supporting breakthroughs in low-carbon and clean energy technologies by prioritising research and innovation to drive the energy transition and improve competitiveness



Policy packages to address the priority 3 -1

- A summer energy package of legislative proposals on energy efficiency labelling and emissions trading, and communications on energy markets and consumers, in 2015
- A sustainable energy security package, in February 2016
- A package focused on addressing climate issues falling outside the emissions trading system (ETS) sector, in July 2016
- A 'clean energy for all Europeans' package, in November 2016
- On 8 November 2017, the Commission adopted the clean mobility package, which includes proposals to foster low-carbon solutions in the transport sector

Policy packages to address the priority 3 - 2

- *A 'clean energy for all Europeans' package*, in November 2016

It includes, amongst others, a proposal for a regulation on the governance of the energy union that aims at enhancing the transparency and *coordination of energy policies* between MSs

This would oblige MSs to prepare national energy and climate plans, as well as long-term low-emission strategies, and to produce regular progress reports

CLEAN ENERGY FOR ALL EUROPEANS



Background

- The EU was an early mover on clean energy
- It was the first major power in the world to set, in 2009, ambitious energy and climate targets for 2020 (20% greenhouse gas emission reduction, 20% in renewable energy and 20% energy efficiency).
- Ten years later, the EU is broadly on track to achieve these 2020 objectives, proving it is possible to reduce emissions and achieve GDP growth at the same time.
- In the meantime, renewable energy has become much cheaper. Moreover, with the 2015 Paris Climate Agreement, the EU pledged to move further ahead and achieve greenhouse gas emission reductions of at least 40% by 2030.
- In order to respond to this challenge and continue to lead the global energy transition, the Commission proposed in 2016 a set of ambitious new rules called the “Clean Energy Package for all Europeans”.
- With this package the Commission addressed all 5 dimensions of the Energy Union

What is

The Clean energy for all Europeans package
is made up of eight legislative acts to ensure a clean and fair energy transition at all levels of the economy, setting a clear and common sense of direction

It is composed primarily of the following elements

Energy efficiency first

More renewables

A better governance of the Energy Union

More rights for consumers

A smarter and more efficient electricity market

Targets



Greenhouse Gas Emissions

2020	2030
-20%	≥-40%



Renewable Energy

2020	2030
20%	≥32%



Energy Efficiency

2020	2030
20%	≥32.5%



Climate in EU-funded programmes 2014-2020

2020	2030
20%	25%



Interconnection

2020	2030
10%	15%



CO2 from :

Cars	Vans	Lorries
2030		
-37.5%	-31%	-30%

THE EU HAS SUCCESSFULLY DECOUPLED GREENHOUSE GAS EMISSIONS FROM ECONOMIC GROWTH

Greenhouse Gas Emissions
down 22%



1990-2017

EU GDP
up 58%



1990-2017



GHG emissions and growth

Source: European Commission

**93% OF EUROPEANS
BELIEVE CLIMATE
CHANGE TO BE
CAUSED BY HUMAN
ACTIVITY**



93% OF EUROPEANS
believe climate change to be
caused by human activity



85% OF EUROPEANS agree that
fighting climate change and using
energy more efficiently can create
economic growth and jobs in Europe



Climate change and human activity

Source: European Commission - Special Eurobarometer 479

The Consumer

Three Dimensions

- **Empowerment**
 - **active consumers**, demand response, local energy communities
- **Better information**
 - on billing, switching suppliers, price comparison tools
- **Protection**
 - energy poverty and data protection

WHY DO WE NEED THIS PACKAGE?

THE ENERGY SYSTEM OF TOMORROW WILL LOOK DIFFERENTLY

2030

50% of electricity to come from renewables



2050

Electricity completely carbon free



Thanks to the EU - ambitious **energy and climate commitments**



With leadership comes responsibility

Unique opportunity to **modernise our economy** and to

boost competitiveness

create the growth and jobs we need

WHAT ARE OUR GOALS?

CREATING JOBS & GROWTH, BRINGING DOWN GREENHOUSE GAS EMISSIONS, SECURING ENERGY SUPPLY



Putting energy efficiency first



Demonstrating global leadership in renewables



Delivering a fair deal for consumers

HOW DO WE GET THERE? - 1

THE RIGHT REGULATORY FRAMEWORK FOR POST – 2020

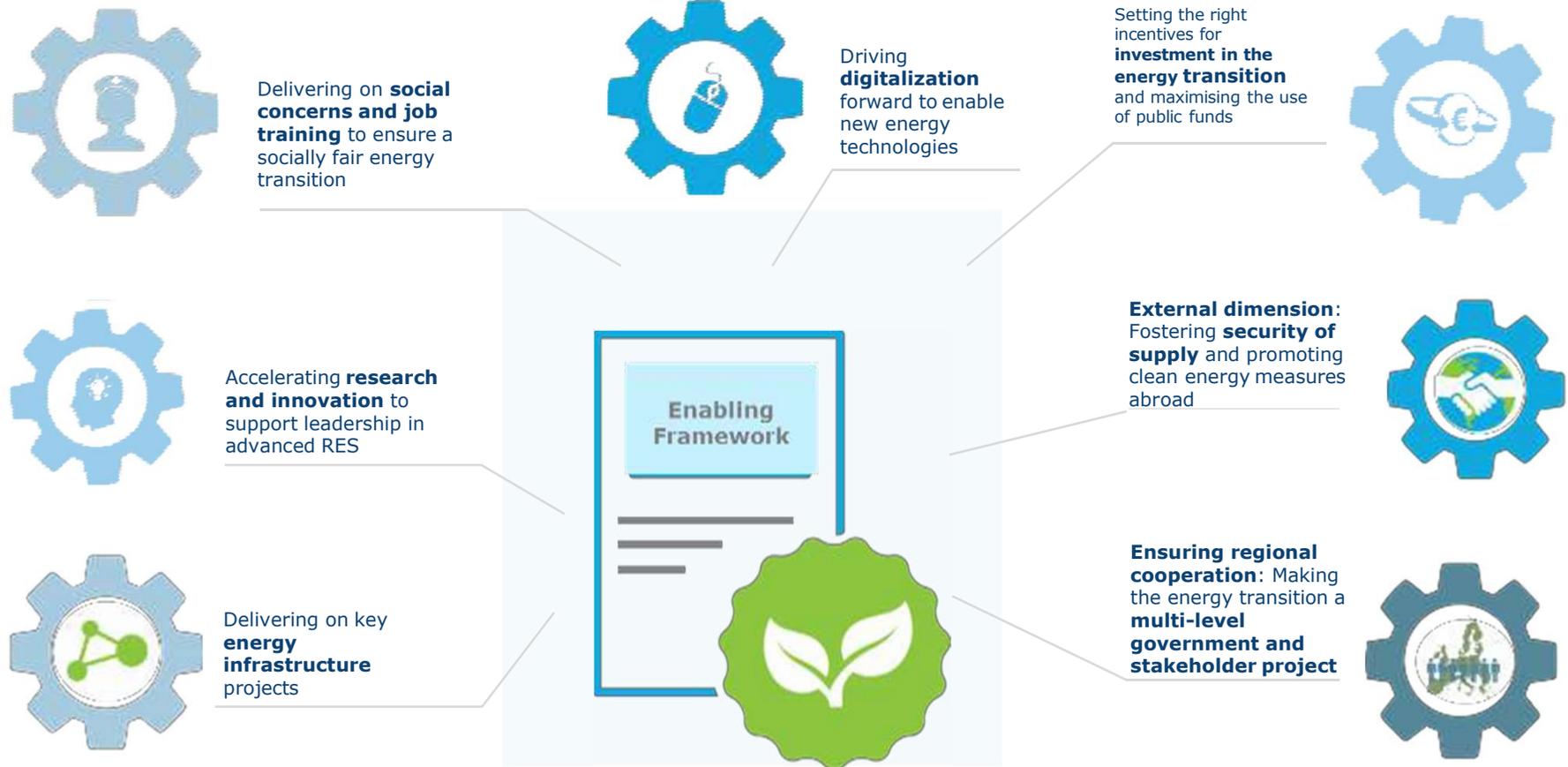
" In essence the new package is about tapping our green growth potential across the board"

Commissioner Miguel Arias Cañete (2016)



HOW DO WE GET THERE? - 2

THE RIGHT ENABLING ENVIRONMENT





ENERGY EFFICIENCY FIRST

Buildings are responsible for approximately



40%

of energy consumption



36%

of CO2 emissions in the EU



35%

of the EU's buildings are over 50 years old



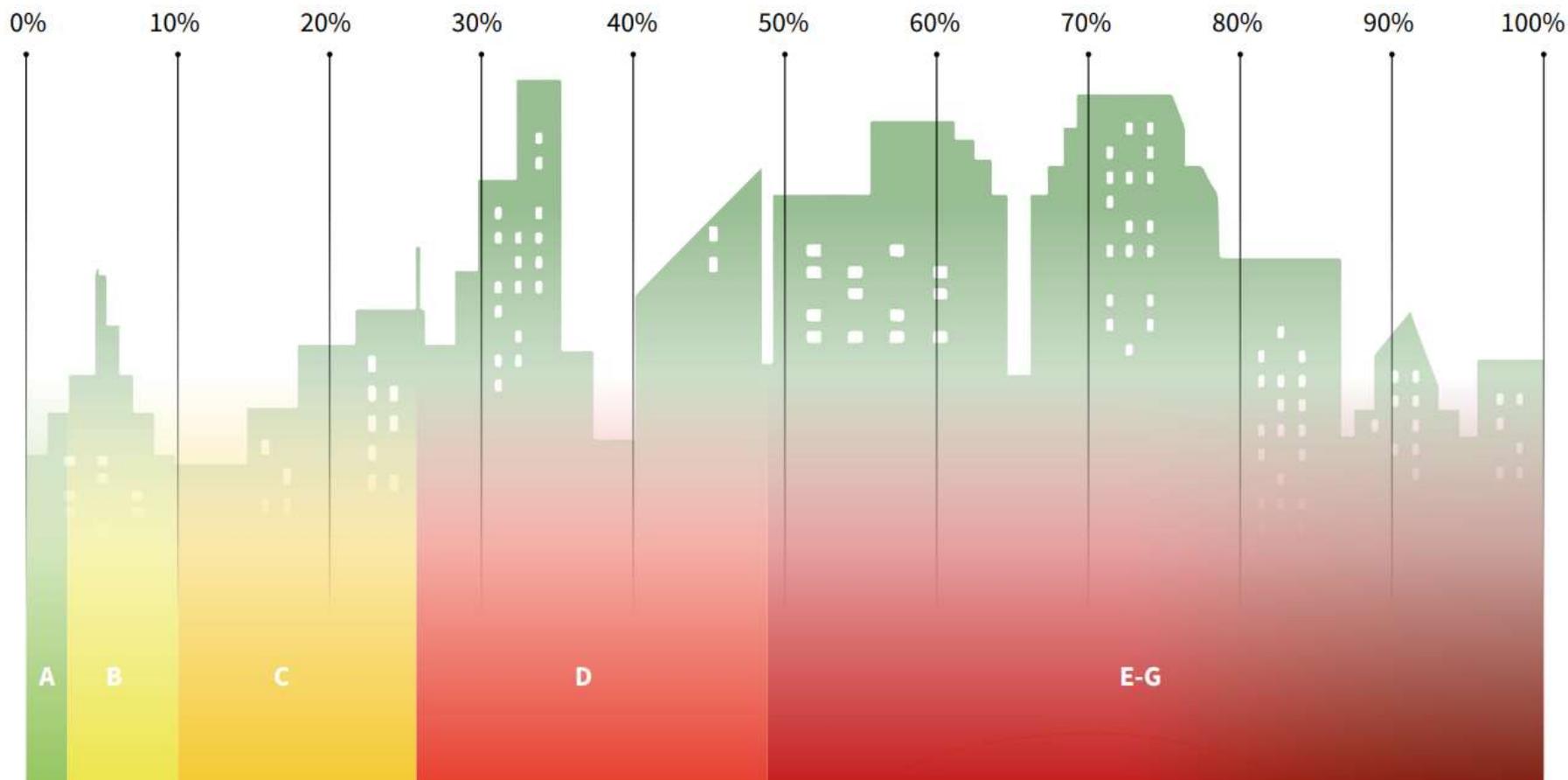
75%

of the building stock is energy inefficient



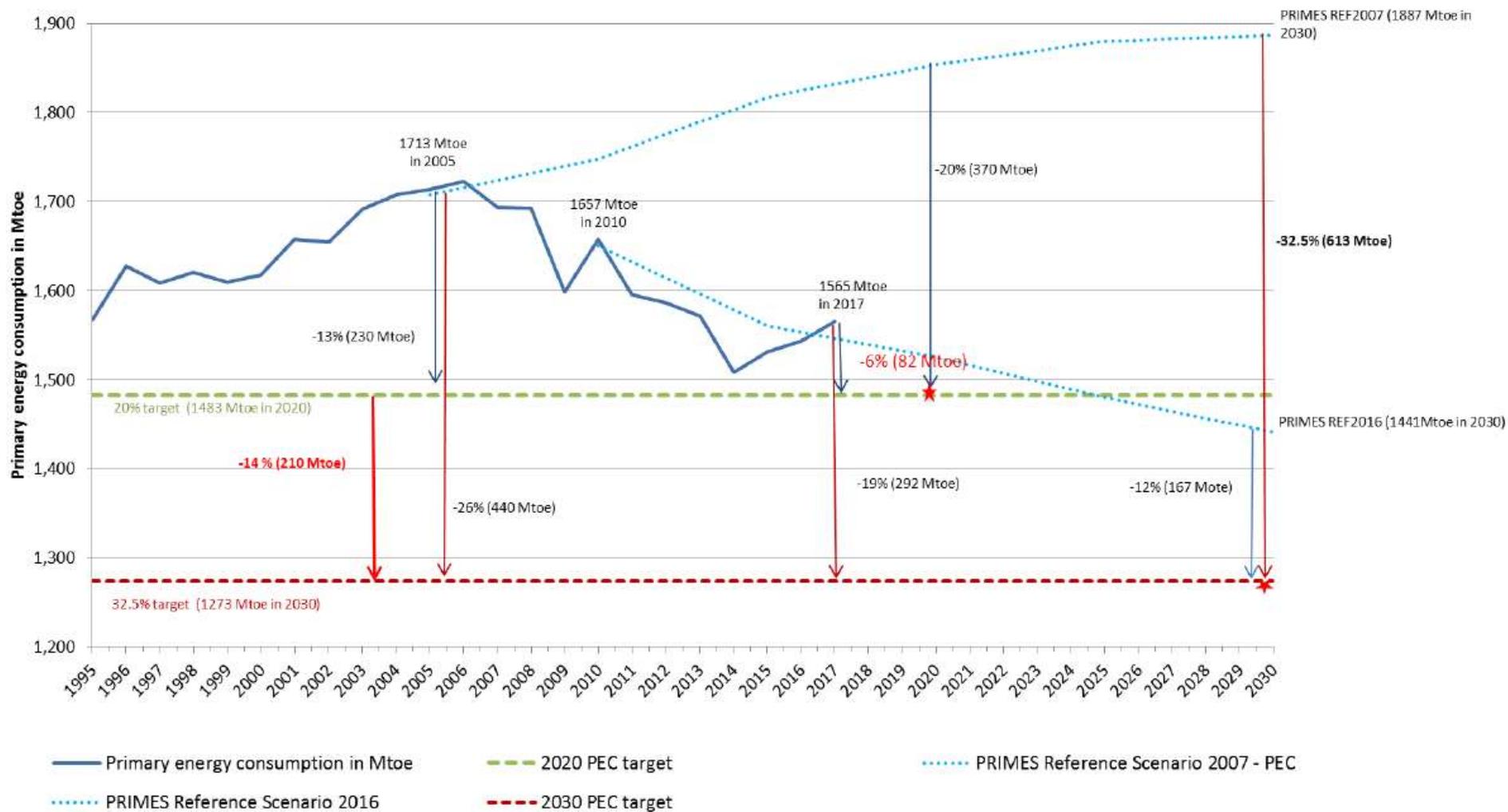
Figures about energy consumption in EU buildings

Source: European Commission



Distribution of the building stock in the EU by EPC class

Source: EuroACE



EU 32.5% Primary Energy Consumption Target

Source: European Commission

Targets

- Lower energy consumption, and lower energy bills for households and businesses making Europe less reliant on energy imports
- Incentives for producers/manufacturers to use new technologies and innovate
- More investment, for example in the building sector, thereby creating job
- Clearer information in household bills

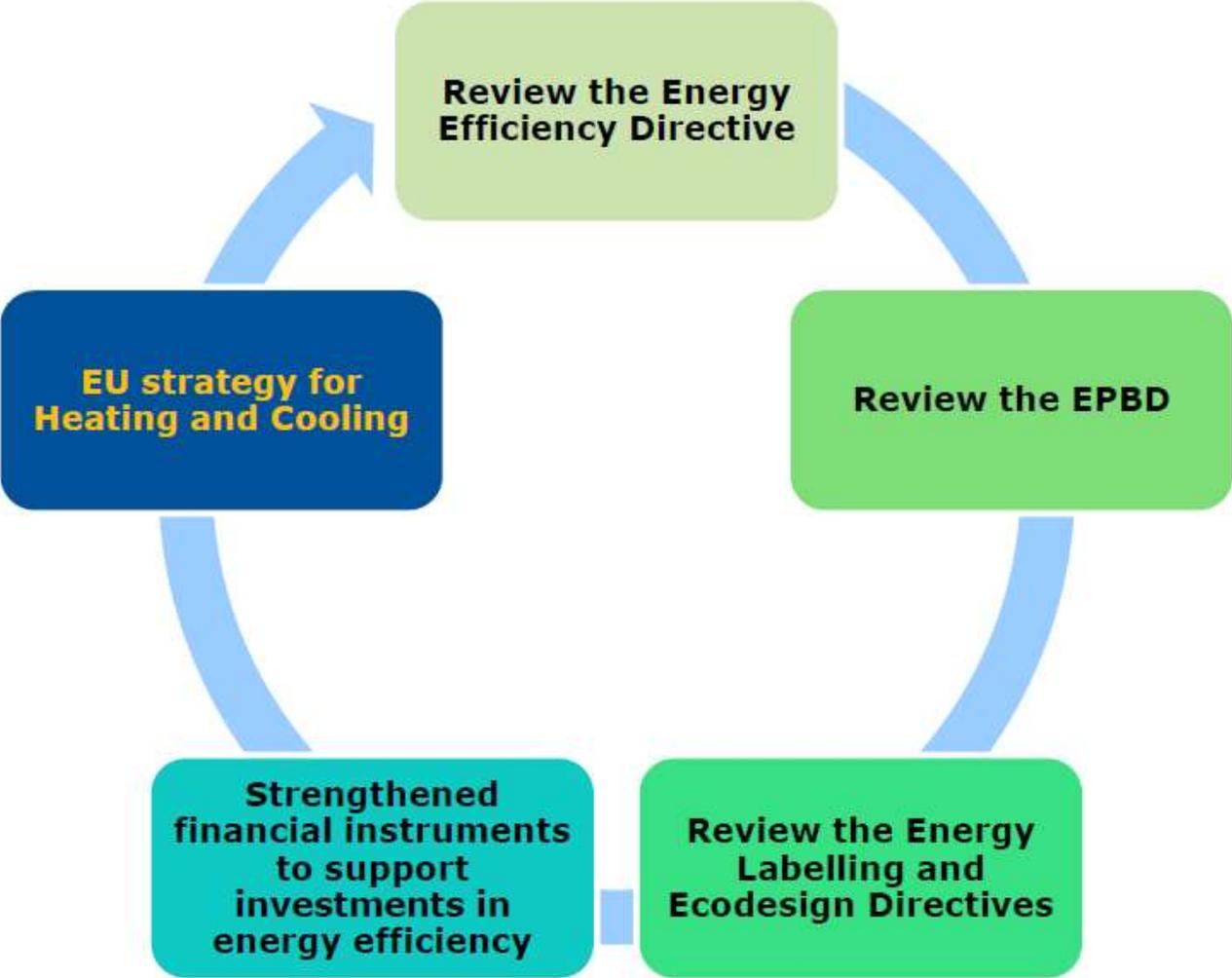
Revised Energy Efficiency Directive 2018/2002

- Extended energy savings obligation to achieve new annual energy savings of at least 0.8% (of final energy consumption) for the next period 2021-2030 and beyond, coming from new energy efficiency renovations or other measures in end-use sectors
- Strengthened rules on individual metering and billing of thermal energy
- MSs have 18 months to transpose and set targets required by the revised Directive into national law and 22 months for provisions on metering and billing
- The Commission is required to assess the target and to propose revising it upwards by 2023

Revised EPBD Directive 2018/844/EU

- The energy performance in buildings directive (EPBD) outlines specific measures for the building sector to tackle these challenges, updating and amending many provisions from the 2010 EPBD
- It is an important and concrete first delivery of the 'Clean energy for all Europeans' package, as the building sector has a vast potential to contribute to a carbon-neutral and competitive economy
- EU countries have until 10 March 2020 to transpose it into national law

Rethink energy efficiency as an energy source in its own right





Energy Efficiency Directive

Remotely readable meters and heat cost allocators for heating, cooling and hot water



Ecodesign Working Plan
2016-2019

Control capabilities of products;

Energy smart appliances;

Building Automation and Control Systems (BACS)



Energy Performance of Buildings

Requirements on the installation of control devices, including BACS;

Requirements on electromobility infrastructure;

Smart Readiness Indicator



Consumer information, metering

Smart and efficient energy-consuming products

Smart buildings

Energy efficiency and smartness

Source: European Commission

More effective use of public funds

- Deploying **Financial Instruments** and flexible energy efficiency and renewable financing platforms
- Building on EFSI blending with ESIF funds



Assistance and aggregation

- Supporting the project pipeline at EU and local level
- **Project Development Assistance** facilities
- "One-stop-shops"



De-risking

- **Understanding the risks and benefits** for financiers and investors
- The De-risking Energy Efficiency Platform
- Commonly accepted underwriting framework



Smart Finance for Smart Buildings

Source: European Commission

Article 7: energy poverty

MS shall take into account the need to alleviate energy poverty

- **Energy poverty recognised as an energy policy issue**
- MS required to identify and protect vulnerable consumers
 - Energy poverty to be addressed in the vulnerable consumer context (where identified as a problem)

Smart Readiness Indicator - SRI

Measure the technological readiness of your building



Readiness to
adapt in response
to the needs of the
occupant



Readiness to
facilitate main-
tenance and
efficient operation



Readiness to
adapt in response
to the situation of
the energy grid

Smart Readiness Indicator for Buildings

Source: European Commission



MORE RENEWABLES

Clean energy is the growth of tomorrow



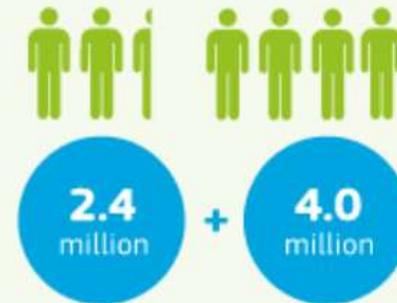
In **2014** the EU's renewable energy sector created a turnover of around **€143.6 billion**.

Source: EurObserv'ER.



EU companies hold **40 % of all patents** for renewable technologies.

Source: European Parliamentary Research Service.

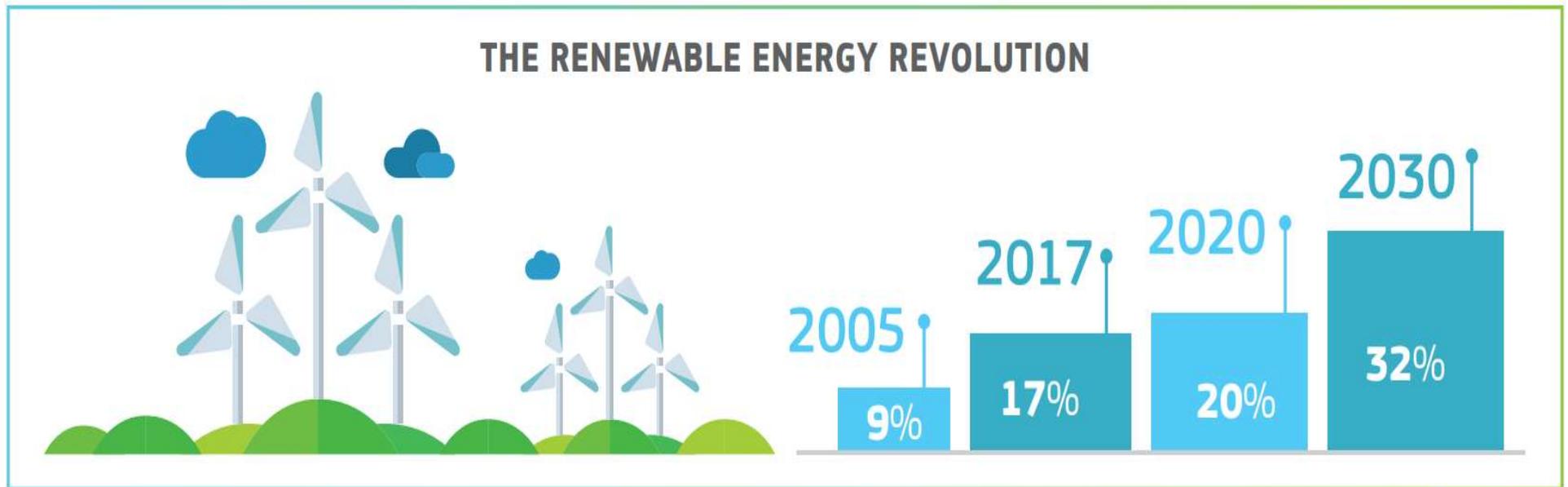


2.4 million people living in the EU are employed in sectors providing energy efficiency products and services. More than **1 million** people work in the renewable energy sector, with potentially **3 million more jobs by 2020**.

EU 2020 & 2030 climate and energy goals

Source: European Commission

- With a view to showing global leadership on renewables, the EU has set an ambitious, binding target of 32% for renewable energy sources in the EU's energy mix by 2030
- The recast renewable energy directive entered into force in December 2018



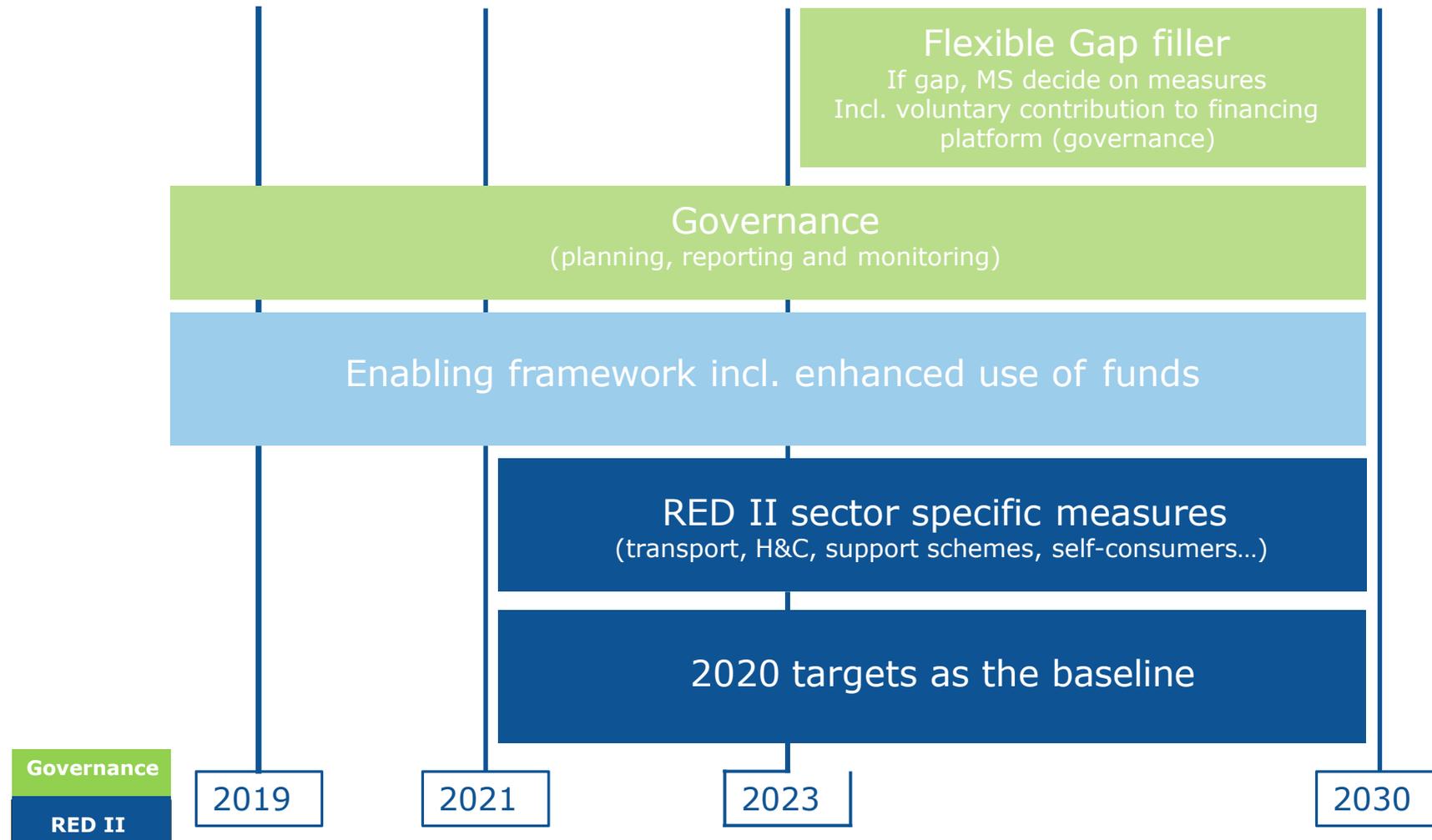
Renewable energy targets

Source: European Commission

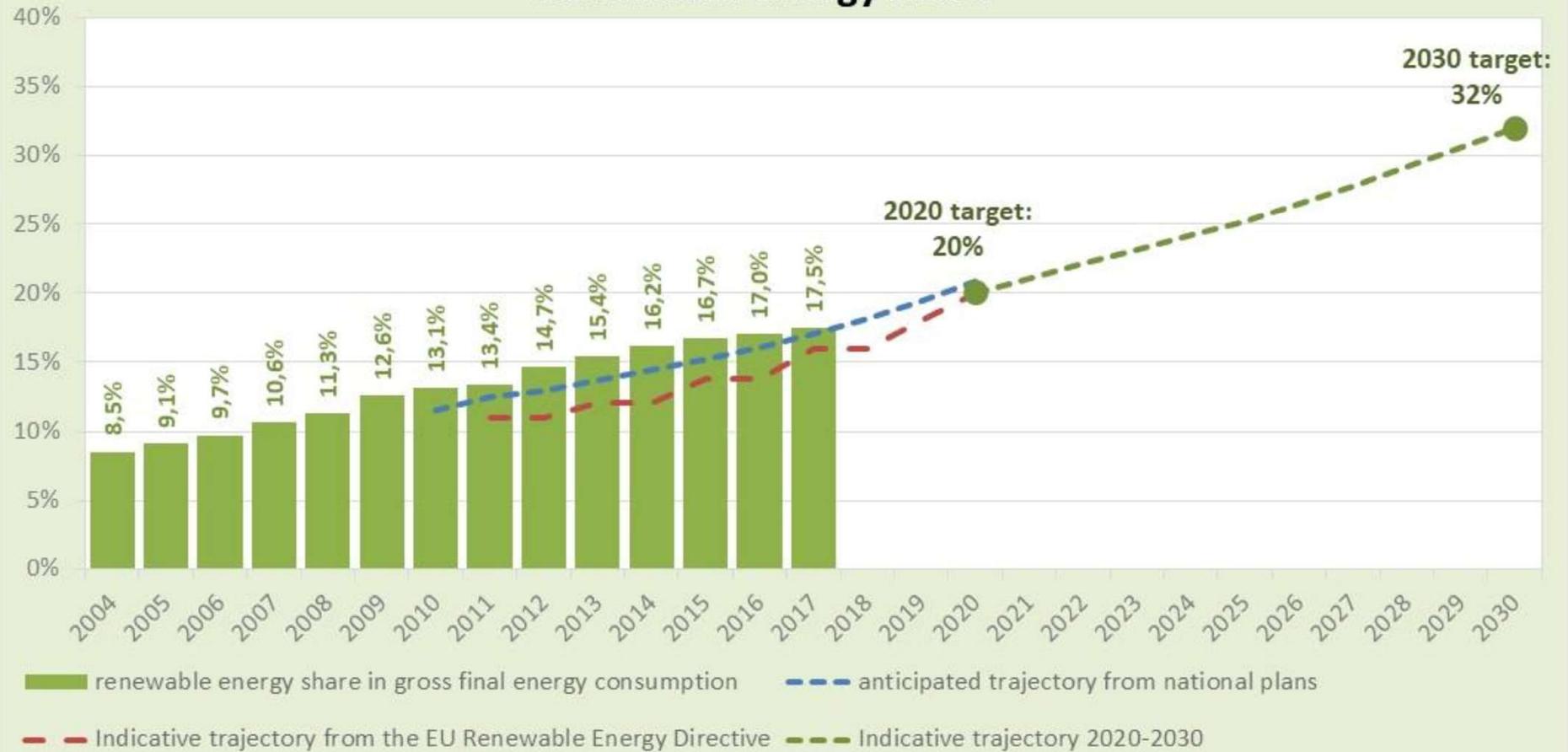
THE REVISED RENEWABLE ENERGY DIRECTIVE – MAIN OBJECTIVES



HOW TO MAKE IT HAPPEN: ACHIEVING AT LEAST 32% RES EU-WIDE

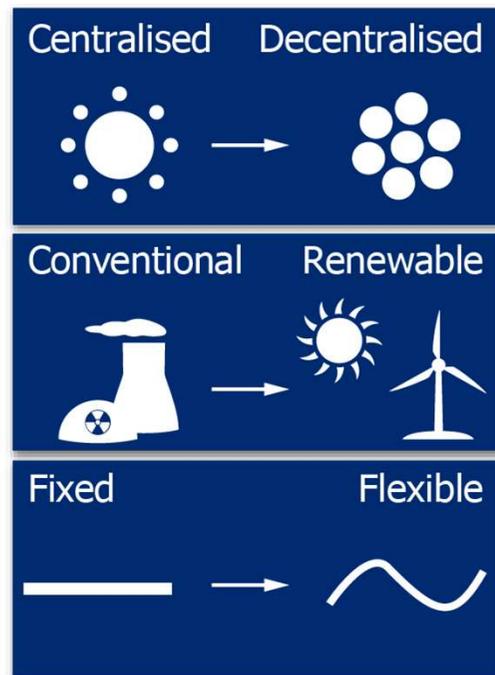


Renewable energy share

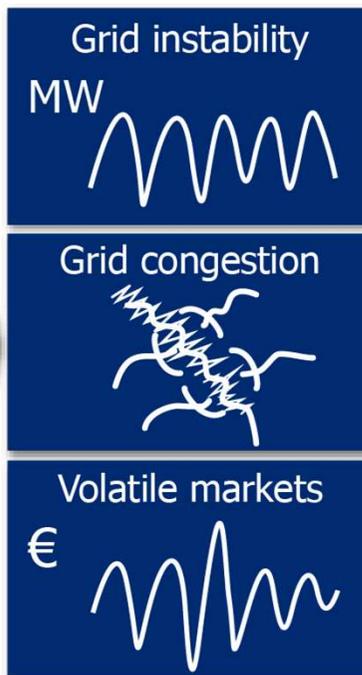


SMARTER & INTERCONNECTED

TRENDS



OBSTACLES

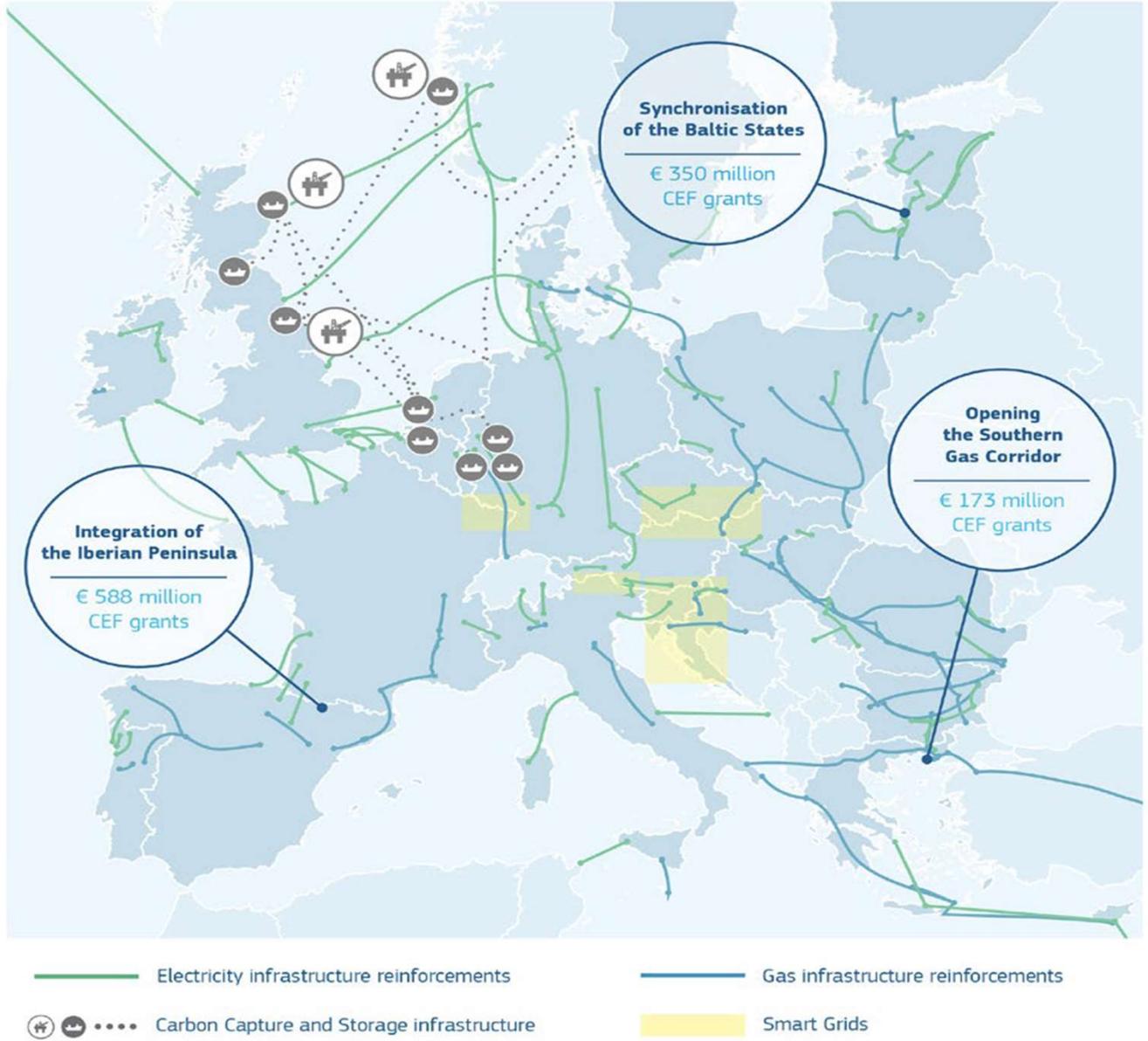


SOLUTIONS



KEY

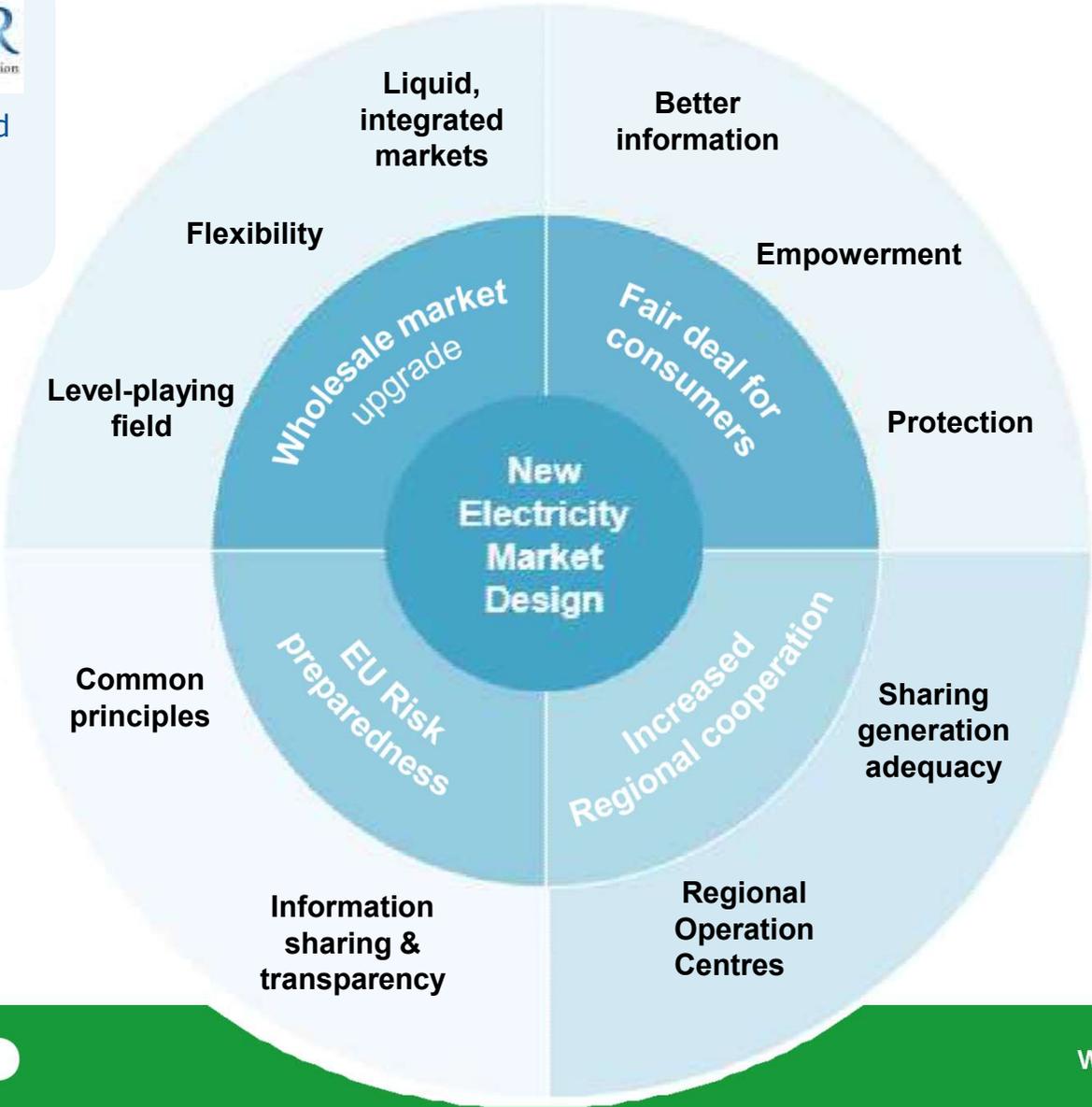




NEW MARKET DESIGN



Stenghtened role
Regulatory oversight



NEW MARKET DESIGN

A FAIR DEAL FOR CONSUMERS

BETTER INFORMED

- Access to fit-for-purpose smart meters
- Certified price comparison tool
- Clearer energy bills

EMPOWERED

- Entitle individuals and communities to generate electricity and to consume, store or sell it back to the market
- Easier switching conditions
- Reward demand-response

PROTECTED

- Monitoring of energy poverty (governance)
- Information on alternatives to disconnection
- Secured electricity supplies
- Sound data management

MARKETS FIT FOR PURPOSE

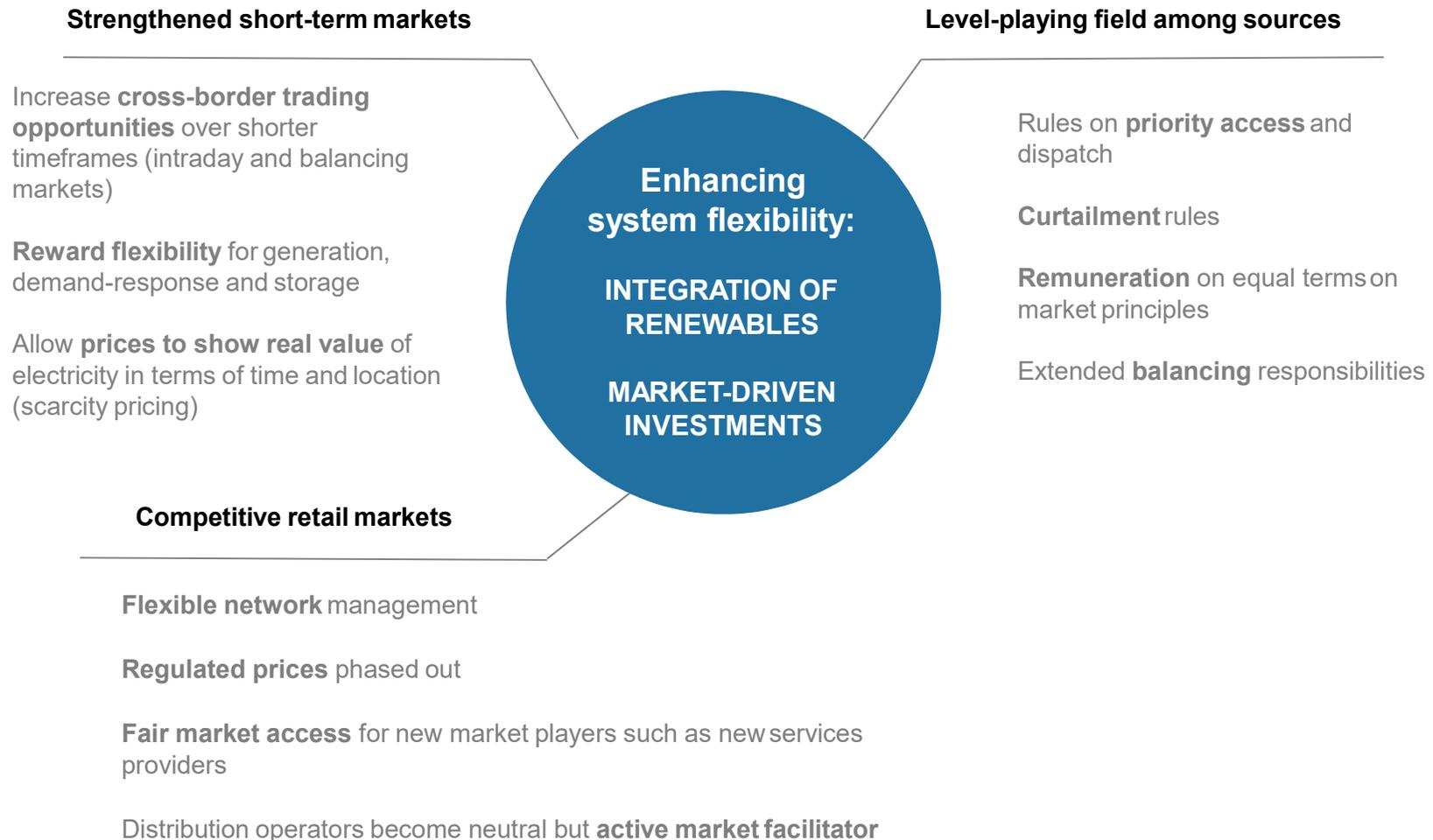
- Increase cross-border trading opportunities over shorter timeframes
- Reward flexibility for generation, demand-response and storage
- Scarcity pricing
- Create level-playing field among sources (e.g. priority access/dispatch, balancing obligation etc.)



- Flexible network management
- Regulated prices phased out
- Fair market access for new market players such as new services providers
- Distribution operators become neutral but active market facilitator

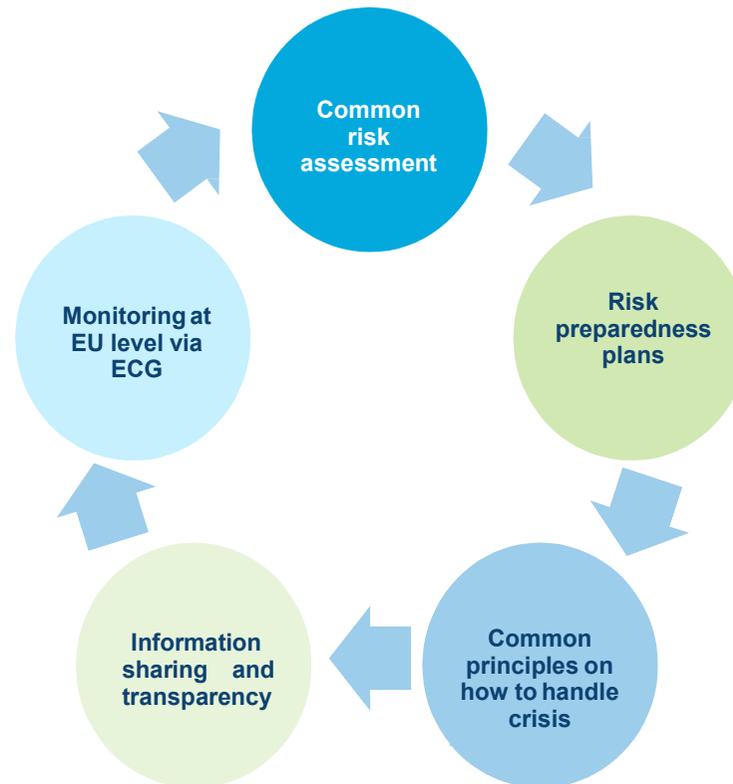
MARKETS FIT FOR PURPOSE

Competitive energy markets are at the heart of a competitive economy



STRENGTHENING RISK PREPAREDNESS: SAFER TOGETHER

ENHANCED COOPERATION COMES FROM COMMON RULES



ENERGY PRICES AND COSTS - THE HEADLINES



- ❖ Wholesale gas, electricity and oil prices have fallen significantly since 2012
 - Prices in regional EU markets have converged
 - Global price gaps with US (-) and Asia (+) have diminished
 - The EU energy import bill fell by 35% since 2013; economic growth was boosted



- ❖ Retail prices rose: higher network tariffs and taxes and levies countered fuel price reductions
 - household electricity prices rose 3% pa; gas prices around 2% pa.
 - industry electricity prices rose 2%; gas prices were stable; fell for large consumers



- ❖ Energy costs rose for households: to 5.8% of household energy expenditure
 - for poorer households share rose to 8.6%, a greater increase than for wealthier households
 - Overall industry's energy share of production costs is less than 2%
 - Data on *energy intensive industries* shows *overall* energy cost shares have declined since 2008
 - However these shares can be very significant and affect competitiveness in certain sectors

ENERGY UNION GOVERNANCE

Governance regulation

The clean4all package includes

a robust governance system for the energy union, through which each MS is required to draft integrated 10-year NECPs for 2021 to 2030 and outlining how they will achieve their respective targets on all dimensions of the energy union, including a longer-term view towards 2050



Targets

National and EU trajectories better aligned with a view to meeting the objectives and targets of the Energy Union, consistent with the Paris Agreement goals and in particular the EU's 2030 targets for energy and climate

Cover all dimensions of the Energy Union, including energy security, the internal market, inter-connections, and research, innovation and competitiveness

Transparent and coordinated planning, reporting and monitoring process

More clarity and predictability to unlock clean energy investments across the EU

Consistent reporting by the EU and its member countries under the UN Framework Convention on Climate Change and the Paris Agreement

NECPs

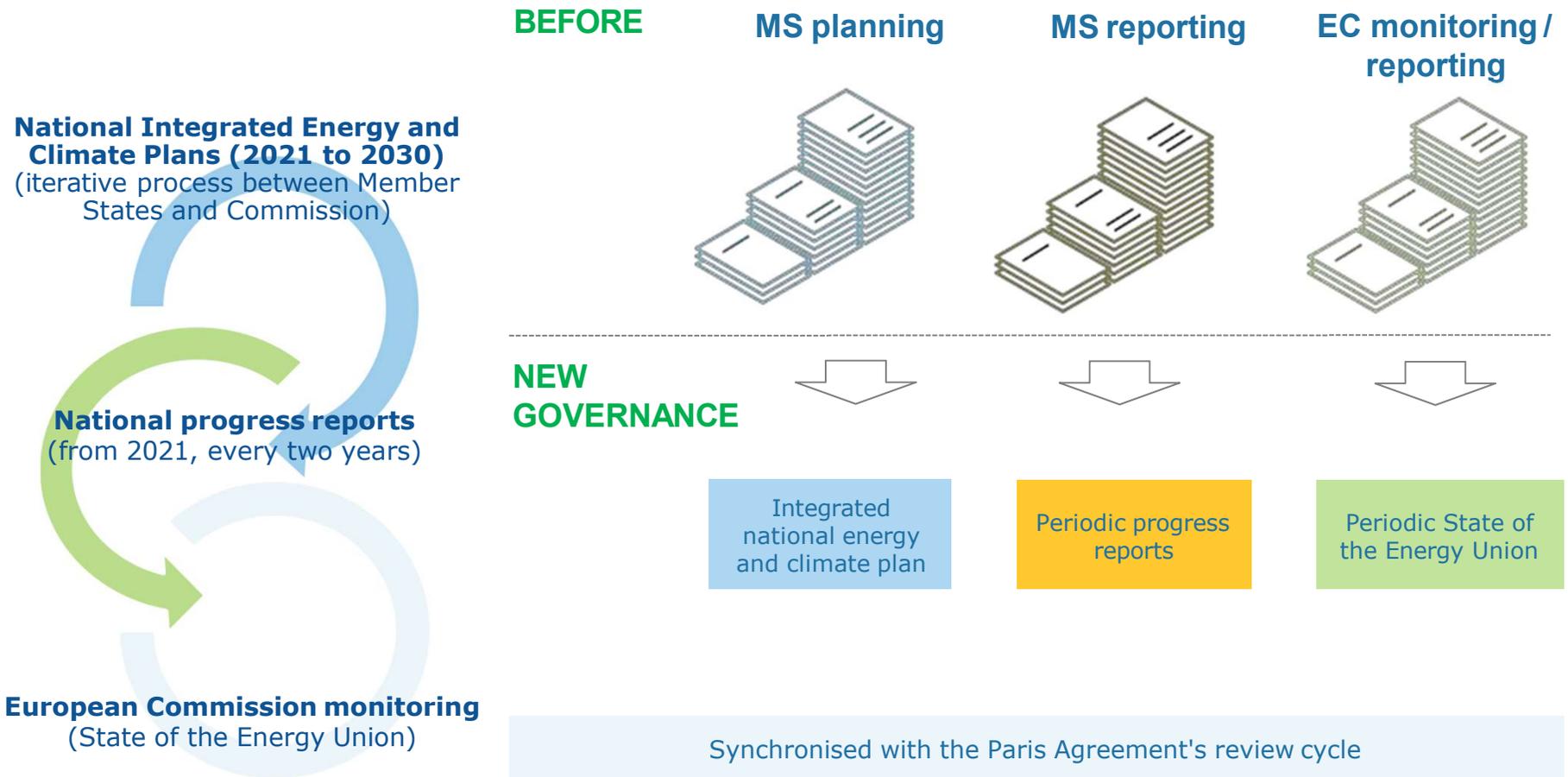
With the governance regulation in force since December 2018,

- all MSs have submitted their draft NECPs,
- and the Commission have analysed each draft NECP and produced country-specific recommendations (mandate by June 2019)

<https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union/national-energy-climate-plans>

ENERGY UNION GOVERNANCE

STREAMLINING AND INTEGRATION OF ENERGY AND CLIMATE PLANNING AND REPORTING



2050 LONG-TERM STRATEGY



2050 Long-term strategy

On 28 November 2018, the Commission presented its strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050 –

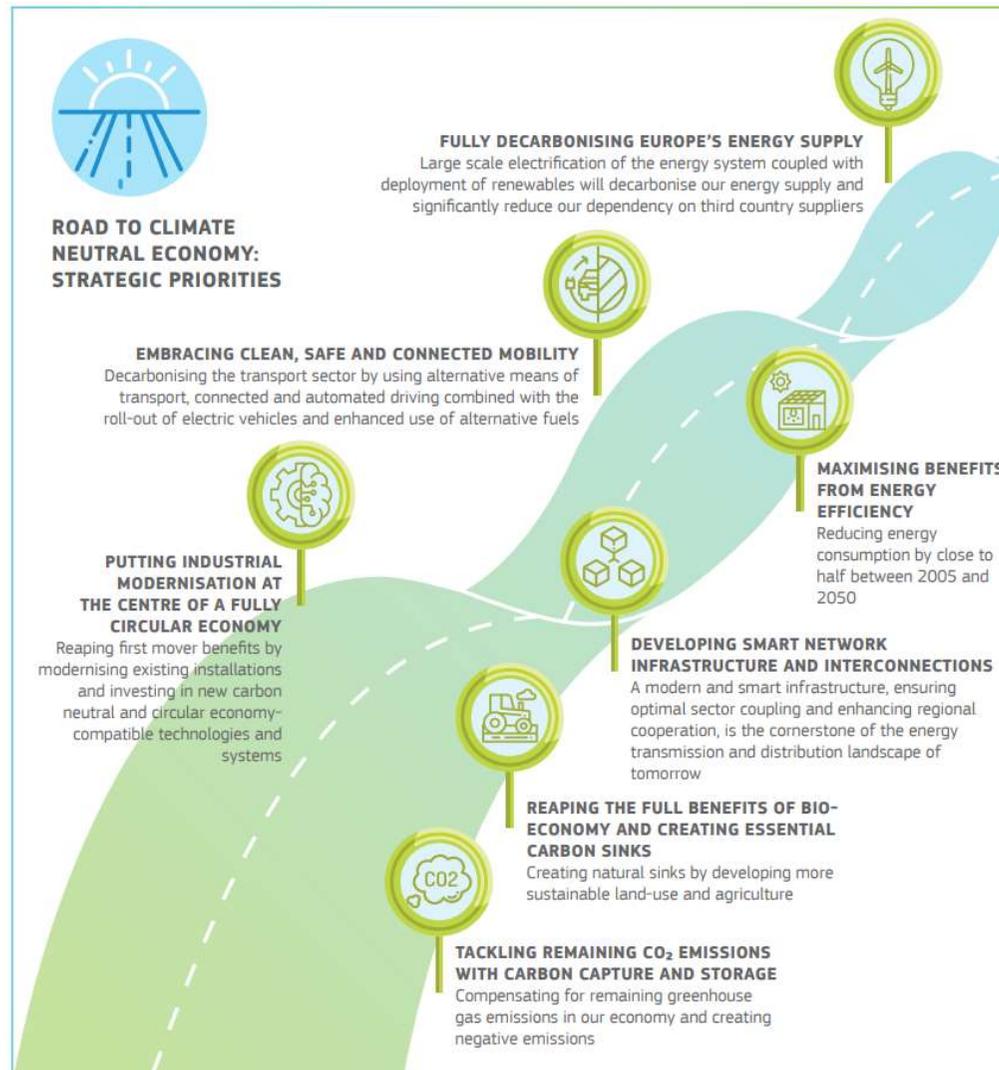
A Clean Planet for All

Europe can lead the way to climate neutrality by investing into realistic technological solutions, empowering citizens, and aligning action in key areas while ensuring social fairness for a just transition

The road to a climate neutral economy

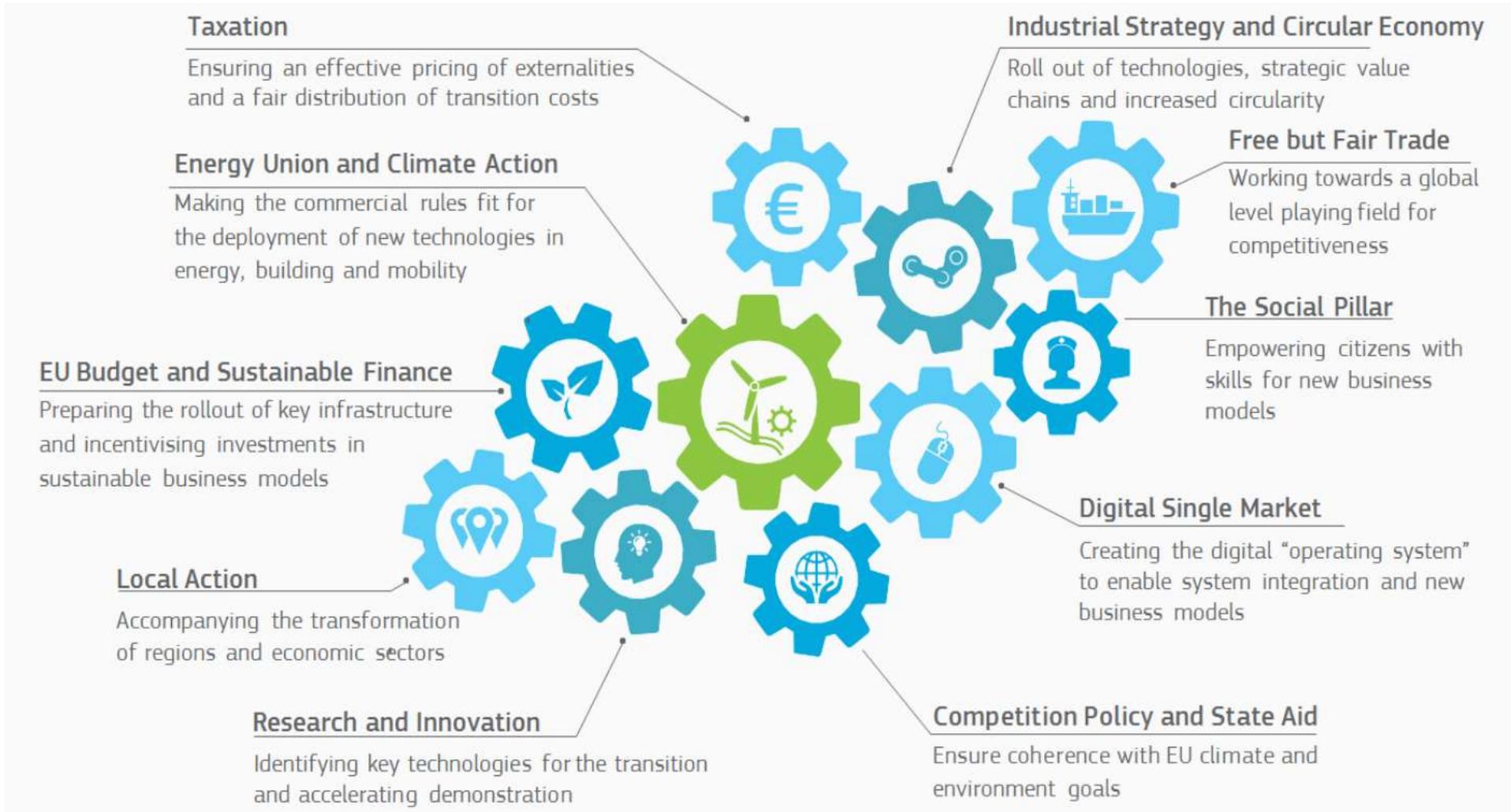
Joint action in seven strategic areas:

- Energy efficiency
- Deployment of renewables
- Clean, safe and connected mobility
- Competitive industry and circular economy
- Infrastructure and interconnections
- Bio-economy and natural carbon sinks
- Carbon capture and storage to address remaining emissions



The road to a climate neutral economy: strategic priorities

Source: European Commission



The enabling framework

Source: EPSC

SUSTAINABLE FINANCE



Sustainable finance makes sustainability considerations part of financial decision-making. This means more low-carbon, energy- and resource-efficient circular projects.



Fostering more sustainable private investments is part of the goals of the Capital Markets Union (CMU) to connect finance with the specific needs of the European economy, to the benefit of the planet and our society.

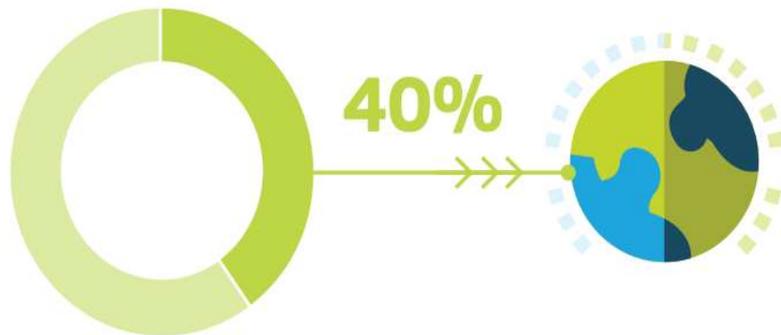


Major investments are needed to deliver on climate, environmental and social sustainability targets, including the Paris Agreement and the UN Sustainable Development Goals.

Sustainable finance

Source: European Commission

SUSTAINABLE INVESTMENT



At least 40% of European Fund for Strategic Investments infrastructure and innovation projects will aim to contribute to climate action in line with the Paris Agreement.

The EFSI has already mobilised almost € 15 billion of additional investments in the environment and resource efficiency sector



EFSI 2.0 also explicitly targets new sectors: sustainable agriculture, forestry, fisheries and aquaculture.

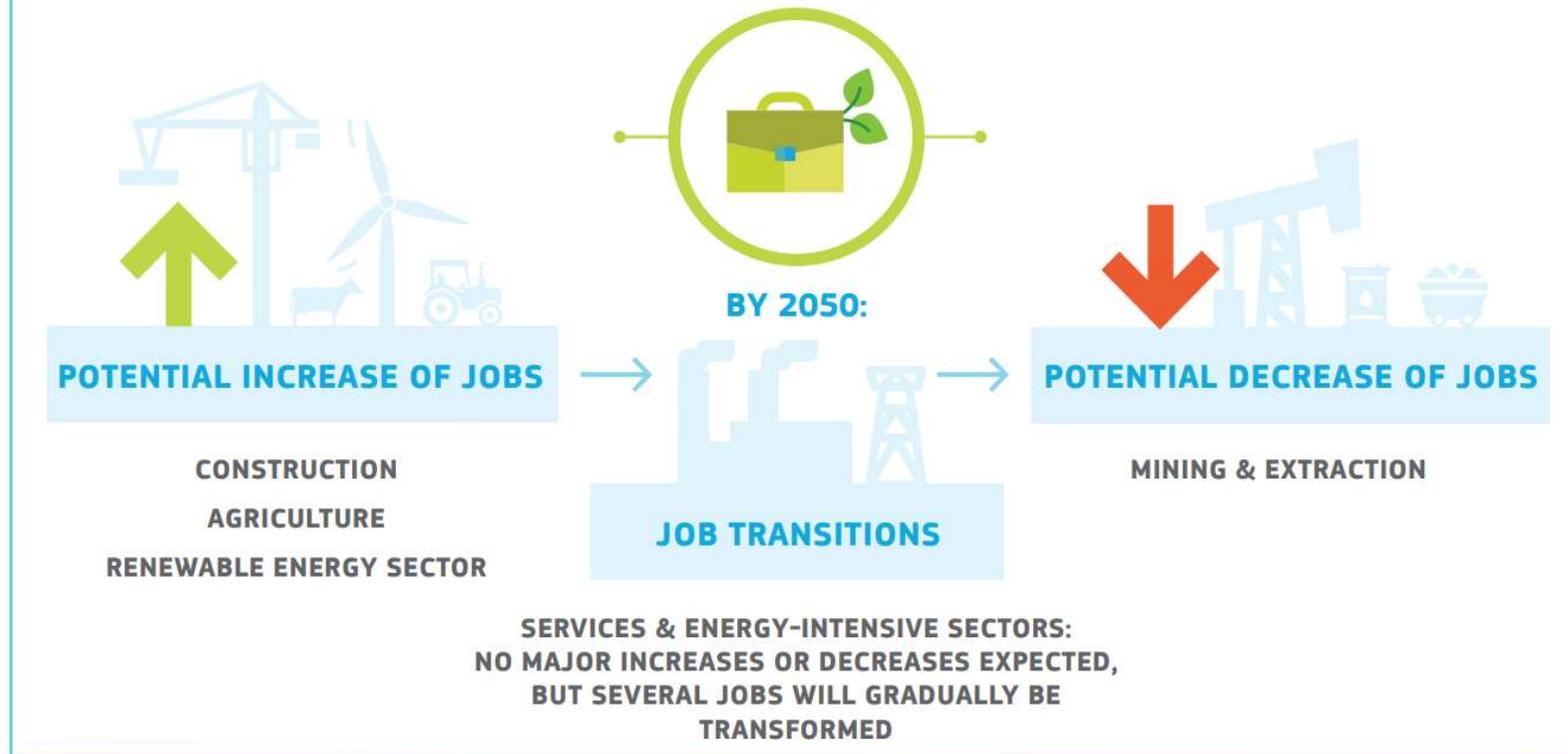
Sustainable investments

Source: European Commission

IMPACT OF THE TRANSITION TO CLIMATE NEUTRALITY EMISSIONS ECONOMY ON JOBS

The climate and energy has the **potential to create more than 1 million additional jobs**

TODAY: 4 MILLION "GREEN JOBS"

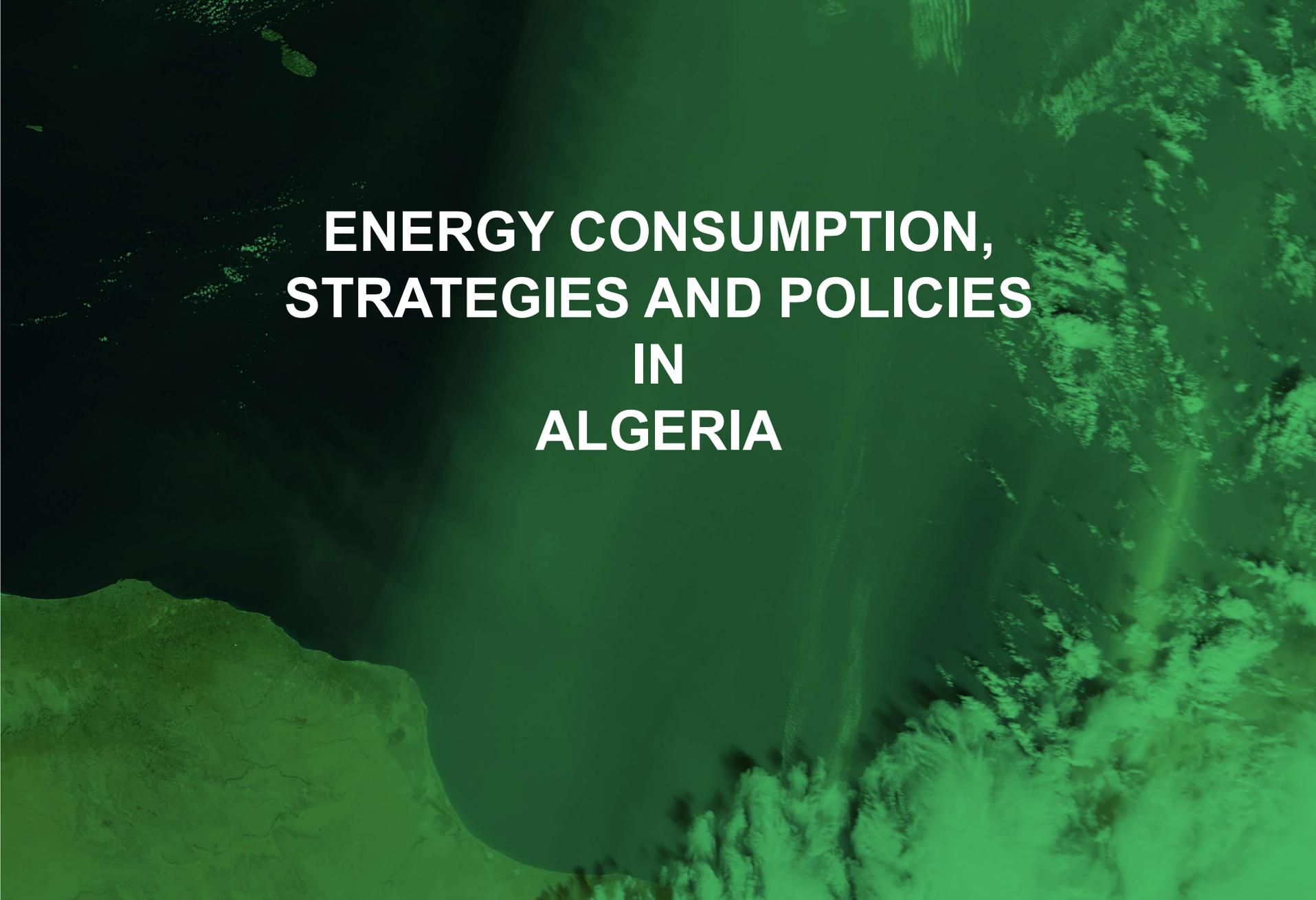


Expected impacts on employment

Source: European Commission

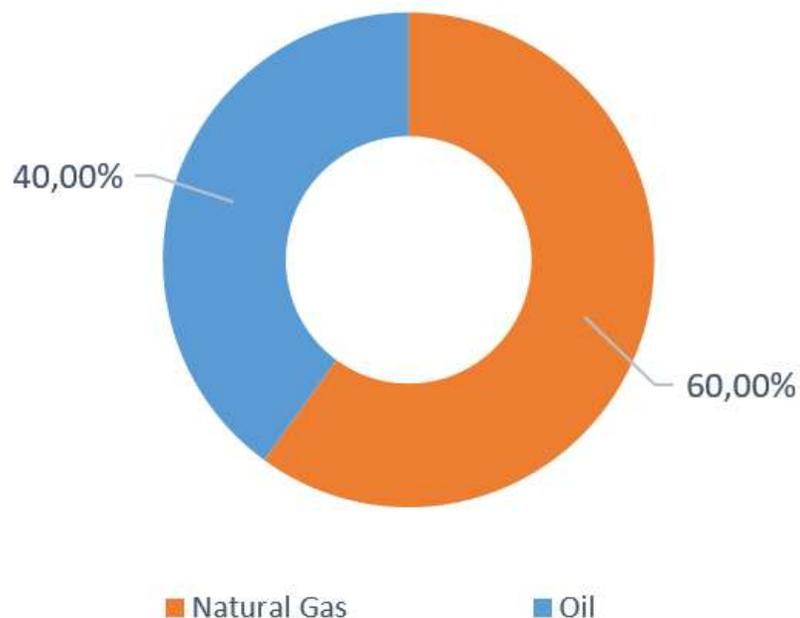
The fourth State of the energy union report

- On 9 April 2019, the Commission published the fourth State of the energy union report, which takes stock of the progress made towards building the energy union and highlights the issues where further attention is needed
- It brings together a series of Commission reports and initiatives related to the energy union in an integrated way.

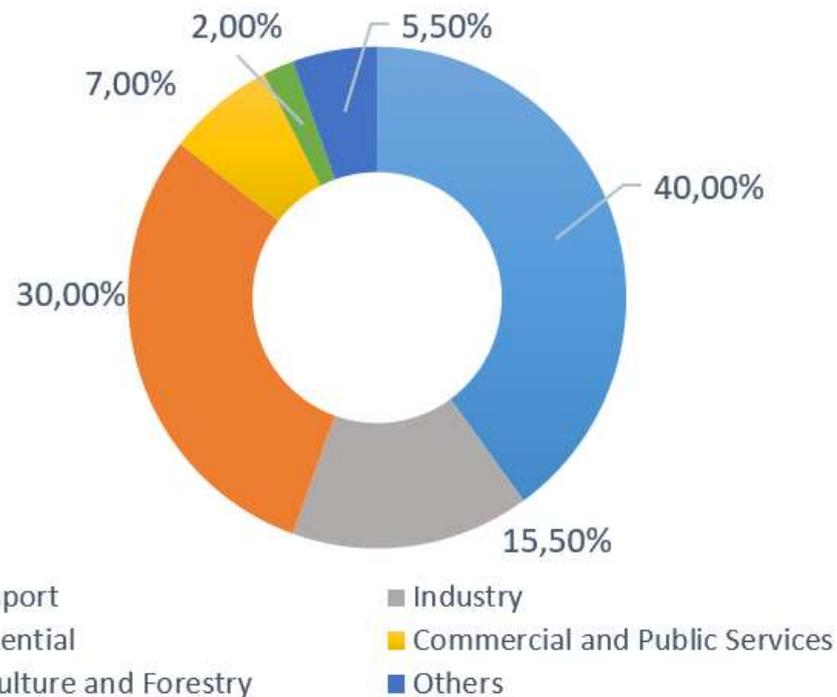


**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
ALGERIA**

Total Primary Energy Consumption (2017)



Total Final Energy Consumption (2017)



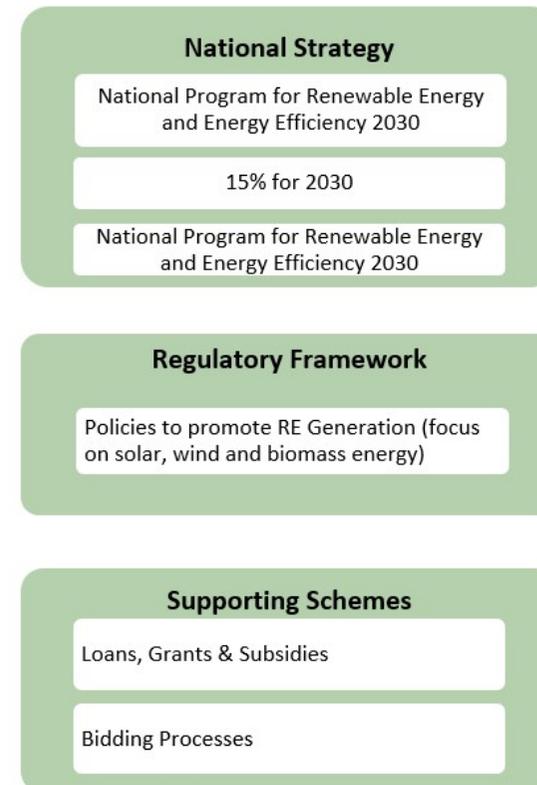
Algeria: primary (left) and final (right) energy consumption (2017)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency



Renewable Energy



Algeria: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report



Grazie! Chokran! Merci! Thank you!

Simona De Iuliis

*Renewable Energy Expert & Solar Technologies Research Scientist
Technical-Strategic Support @ Energy Technologies Department - ENEA*

Italian Delegate in the IEA CERT

Italian Delegate in the IEA Renewable Energy Working Party

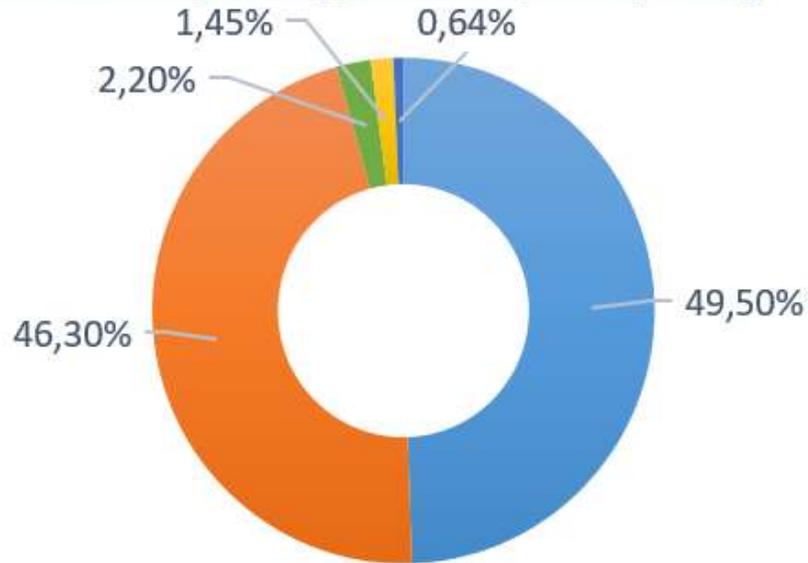
Italian Reference in the SET-Plan TWG on CSP

ENEA Representative in the EERA JP CSP & ESTELA



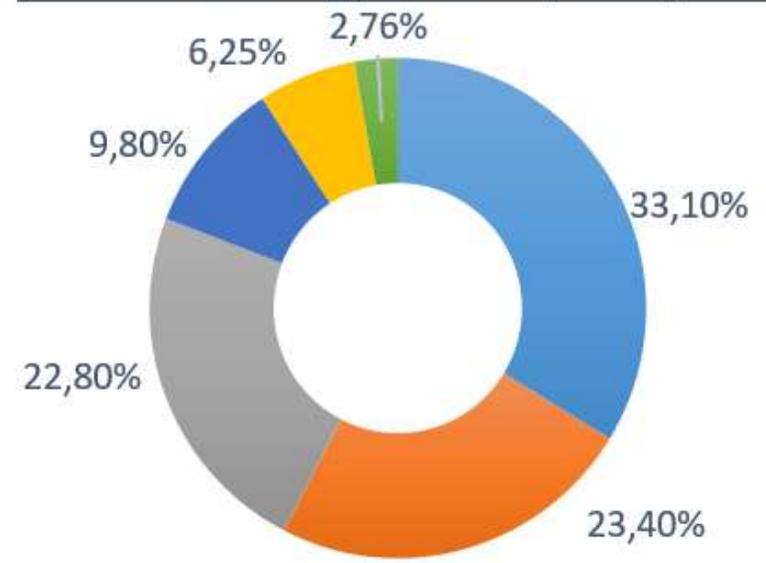
**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
EGYPT**

Total Primary Energy Consumption (2015)



- Oil
- Natural Gas
- Biofuel and Waste
- Hydro
- Others

Total Final Energy Consumption (2015)



- Transport
- Residential
- Industry
- Others
- Commercial and Public Services
- Agriculture / forestry

Egypt: primary (left) and final (right) energy consumption (2015)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency

National Strategy and Action Plans

Sustainable Development Strategy:
Egypt Vision 2030

18% for 2030

2nd NEEAP 2018-2021

Regulatory Framework

Cross sectoral - Developing an ESCO market

Buildings - Mandatory EEBC and MEPS and
Labelling for appliances

Transports - Urban transport initiatives

Industry - Mandatory energy audits

Supporting Schemes

Loans, Grants & Subsidies

Fiscal incentives

Renewable Energy

National Strategy and Action Plans

National RE Strategy 2022 & 2035

20% for 2022 | 42% for 2035

National RE Strategy 2022 & 2035

Regulatory Framework

Strong investment in solar and wind
energy

Supporting Schemes

Loans, Grants & Subsidies

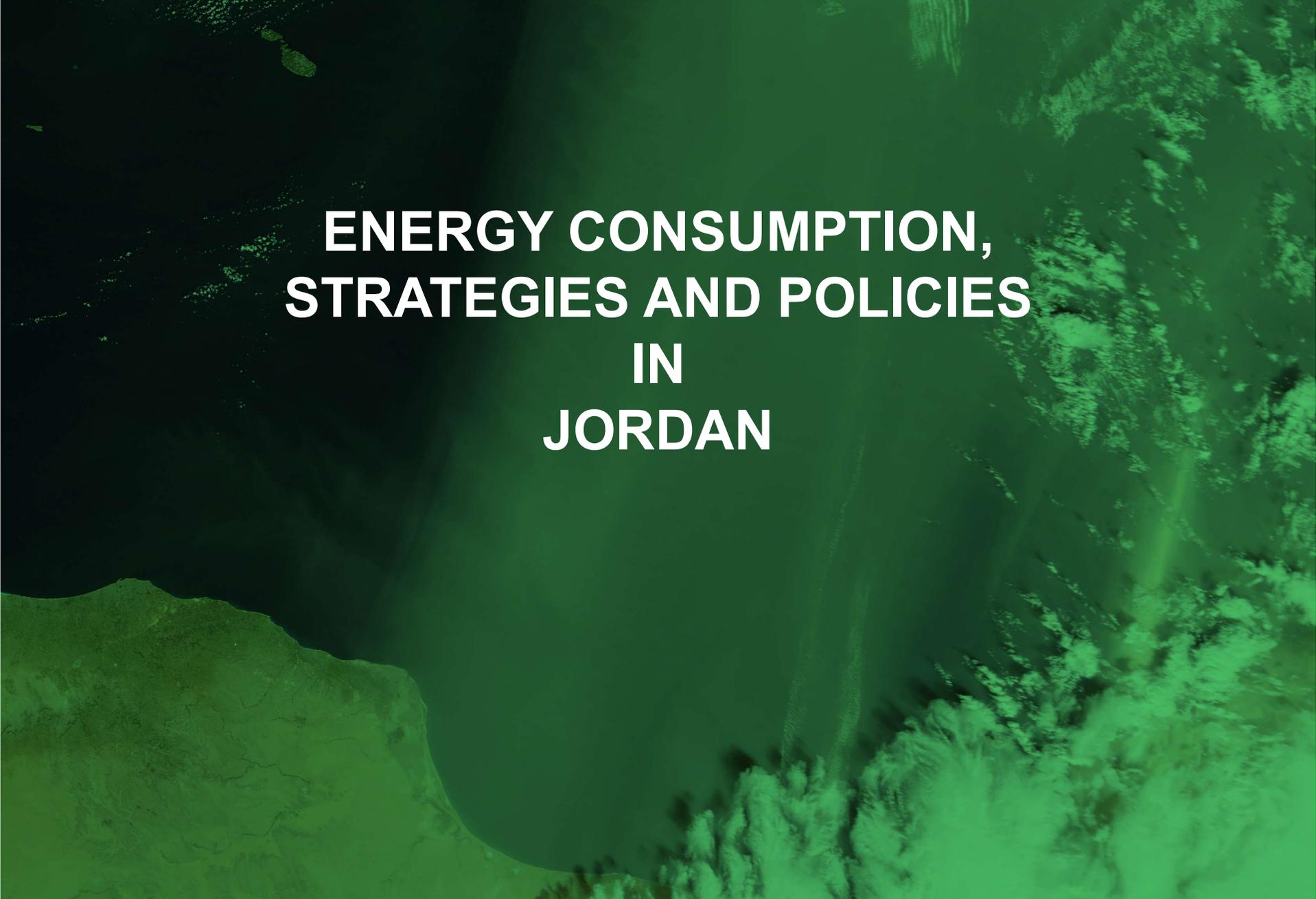
Fiscal incentives

Ne-metering

Bidding Processes

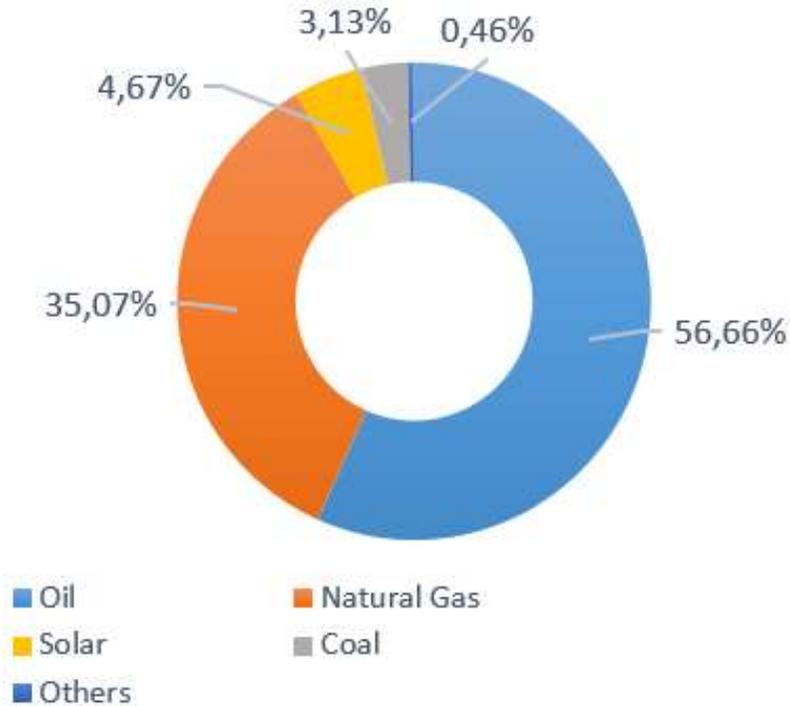
Egypt: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report

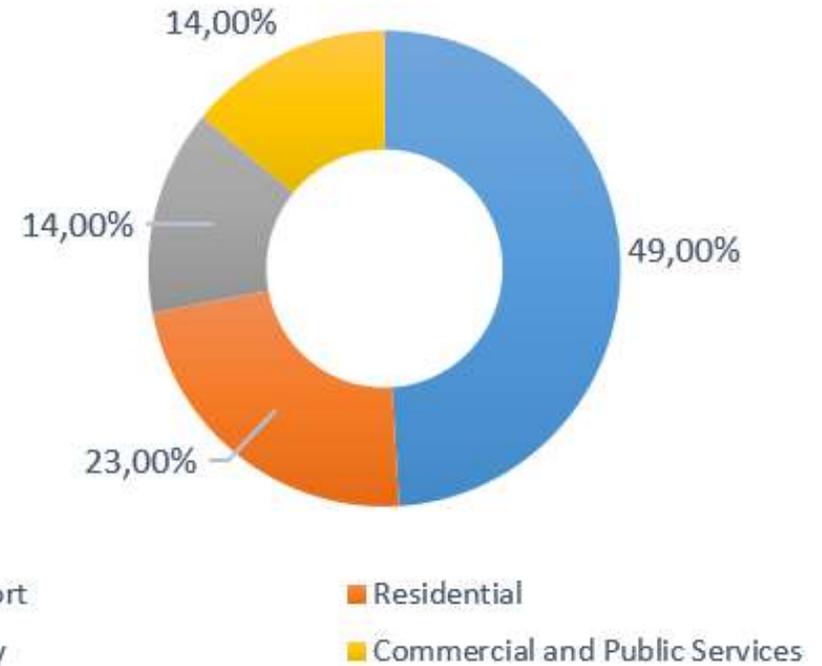


**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
JORDAN**

Total Primary Energy Consumption (2017)



Total Final Energy Consumption (2017)



Jordan: primary (left) and final (right) energy consumption (2017)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency

National Strategy

National Energy Strategy 2020

18% for 2030

2nd NEEAP 2017-2020

Regulatory Framework

Cross sectoral - ESCO market

Buildings - Mandatory EEBC and MEPS and Labelling for appliances

Transports - Introduction of electric vehicles

Industry - Mandatory energy audits

Supporting Schemes

Loans, Grants & Subsidies

Fiscal incentives

Renewable Energy

National Strategy

National Energy Strategy 2020 & Master Strategy for Energy Sector 2015-2025

10% for 2020 | 20% for 2025

Master Strategy for Energy Sector 2015-2025

Regulatory Framework

Policies to promote RE Generation (focus on solar and wind energy)

Supporting Schemes

Loans, Grants & Subsidies

Fiscal incentives

Net-metering

Bidding Processes

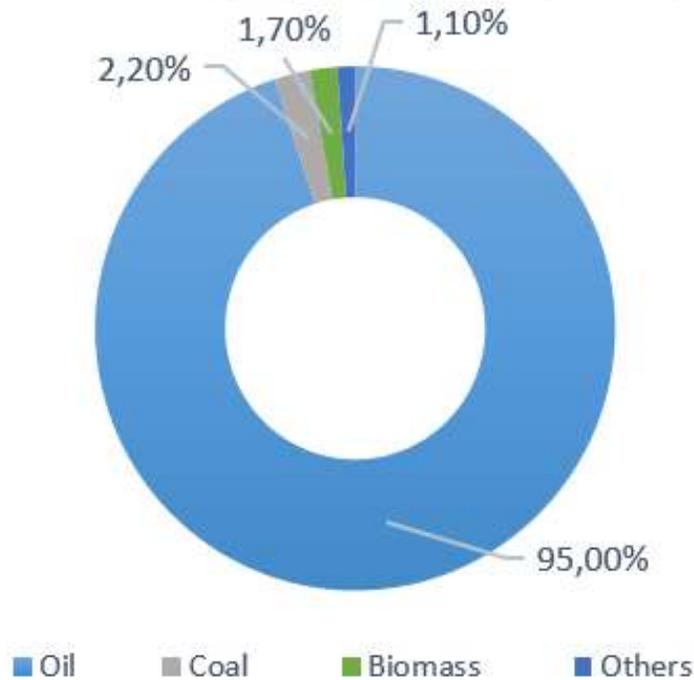
Jordan: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report

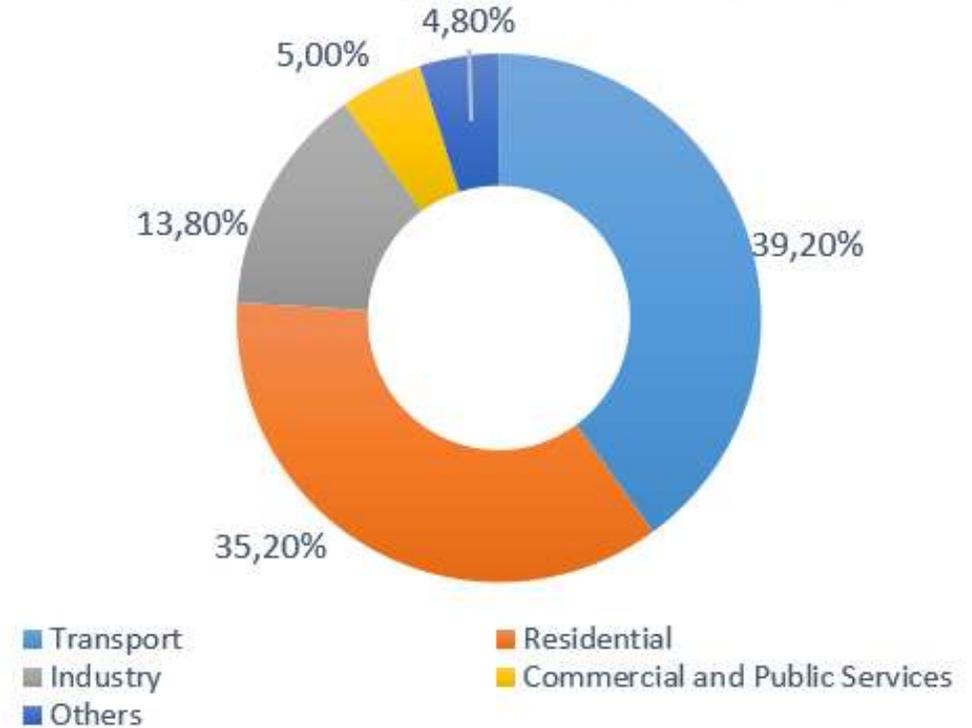


**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
LEBANON**

Total Primary Energy Consumption (2015)



Total Final Energy Consumption (2015)



Lebanon: primary (left) and final (right) energy consumption (2015)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency

National Strategy

Policy Paper for the Electricity Sector 2010

12.6 % for 2020

2nd NEEAP 2016-2020

Regulatory Framework

Cross sectoral - reduced energy subsidies
(still existing for the electricity sector)

Buildings - developing EEBC, MEPS and
Labelling for appliances

Transports - Urban transport initiatives

Industry - energy audits not mandatory

Supporting Schemes

Loans, Grants & Subsidies

Renewable Energy

National Strategy

Policy Paper for Electricity Sector 2010

12% for 2020
(share in electricity and thermal energy)

NREAP 2016-2020

Regulatory Framework

RE development dependent on the private
sector

Supporting Schemes

Ne-metering

Bidding Processes

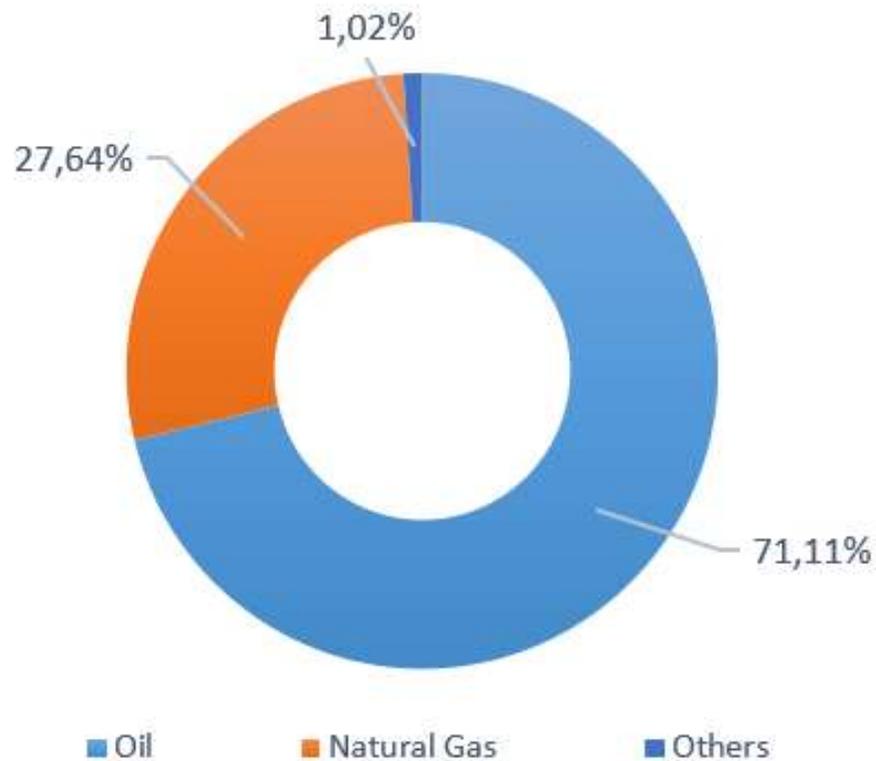
Lebanon: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report



ENERGY CONSUMPTION, STRATEGIES AND POLICIES IN LIBYA

Total Primary Energy Consumption (2016)



Total Final Energy Consumption (2016)



Libya: primary (left) and final (right) energy consumption (2016)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency

National Strategy

No national strategy in place

-

No action plan in place

Regulatory Framework

Cross sectoral - highly subsidized energy prices. Weak regulatory framework for EE development

Buildings - EEBC inexistent. Initiatives to promote energy savings in lighting

Transports: Urban transport initiatives

Supporting Schemes

Fiscal incentives

Renewable Energy

National Strategy

National RE strategy (2019-2030)

5% for 2020 | 20% for 2030

National Plan for developing RE in Libya (2019-2030)

Regulatory Framework

Focus on solar and wind energy. RE penetration is still low.

Supporting Schemes

Bidding Processes

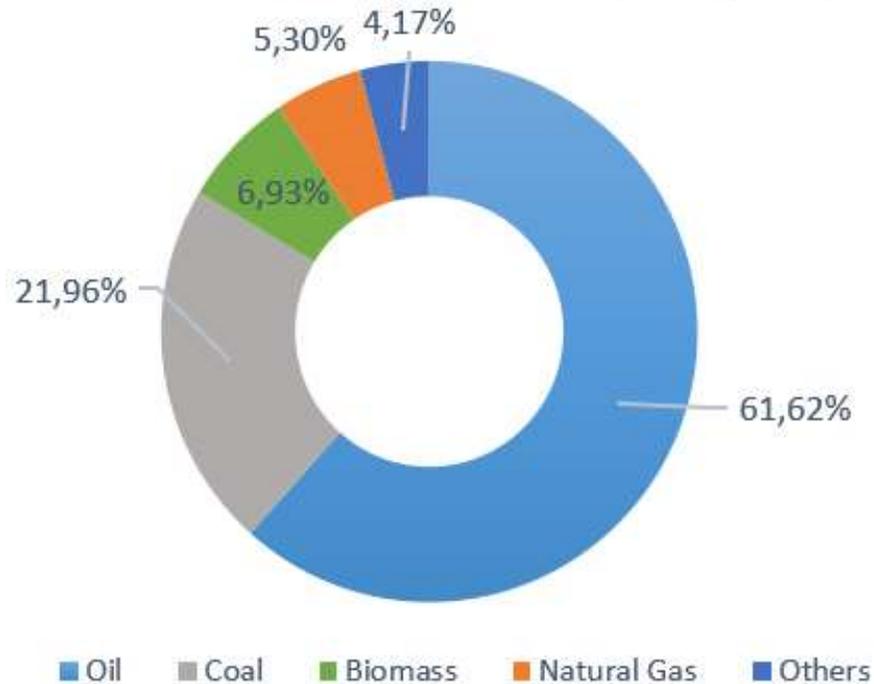
Libya: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report

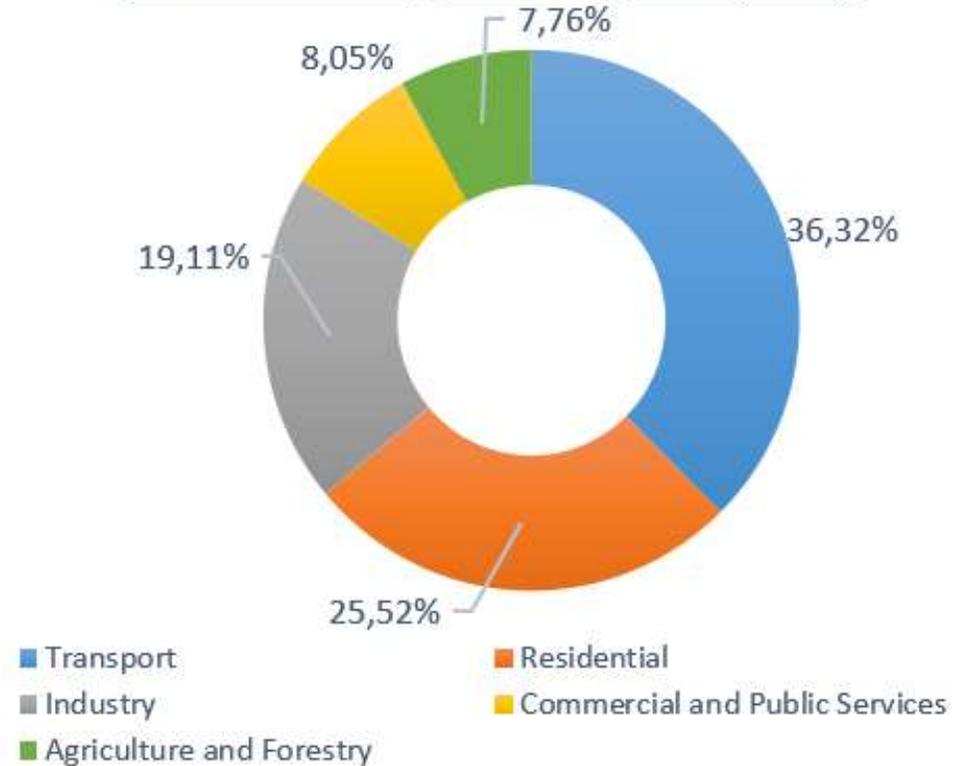


**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
MOROCCO**

Total Primary Energy Consumption (2016)



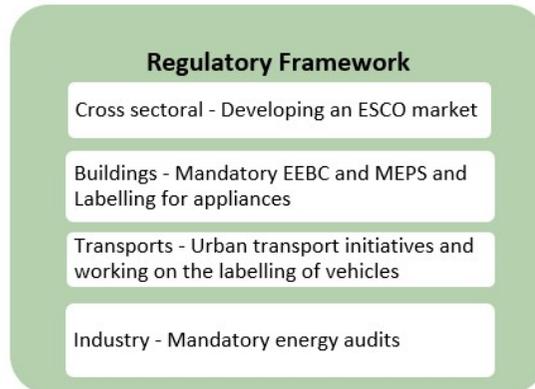
Total Final Energy Consumption (2016)



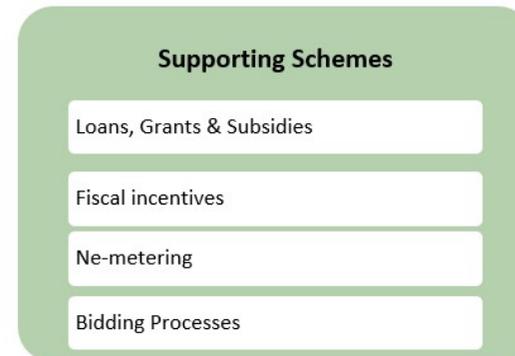
Morocco: primary (left) and final (right) energy consumption (2016)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency



Renewable Energy



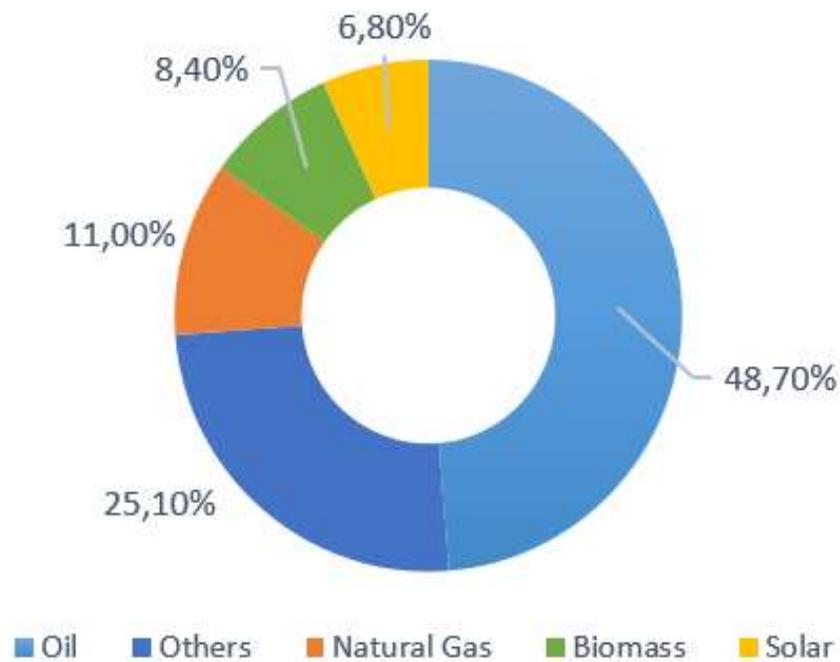
Morocco: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report

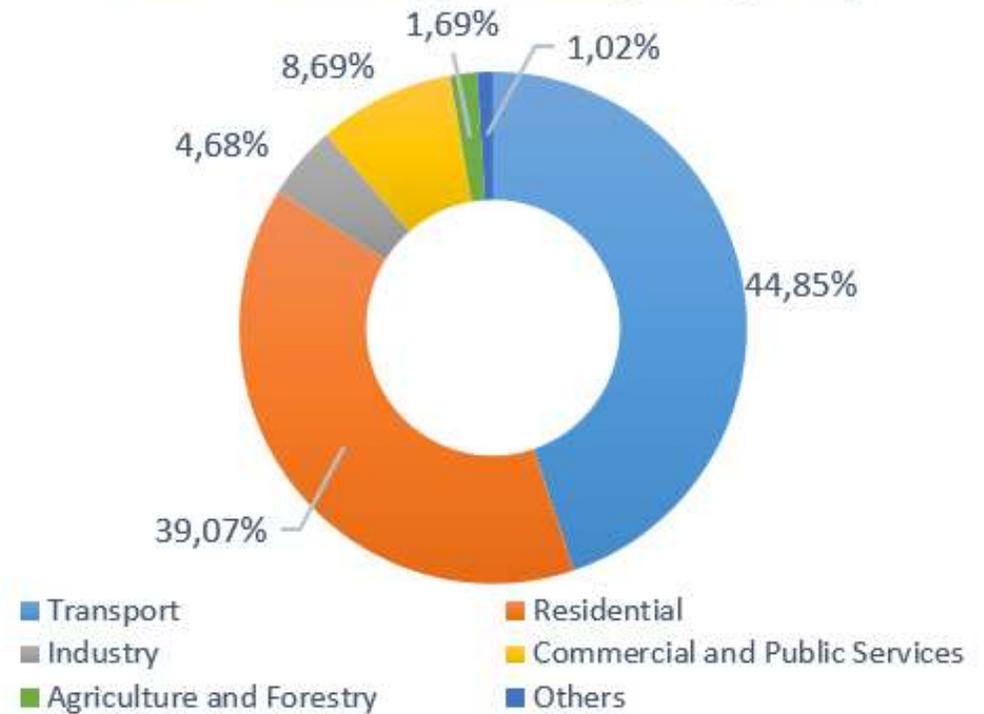


**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
PALESTINE**

Total Primary Energy Consumption (2016)



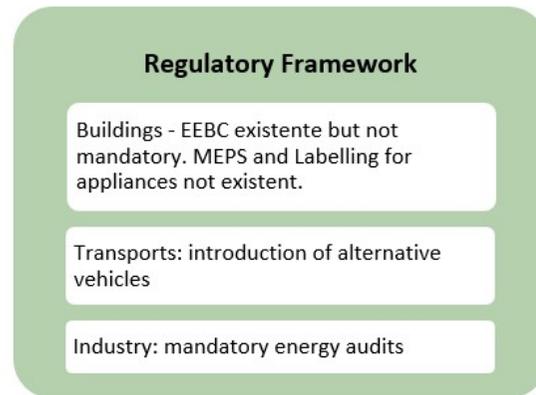
Total Final Energy Consumption (2016)



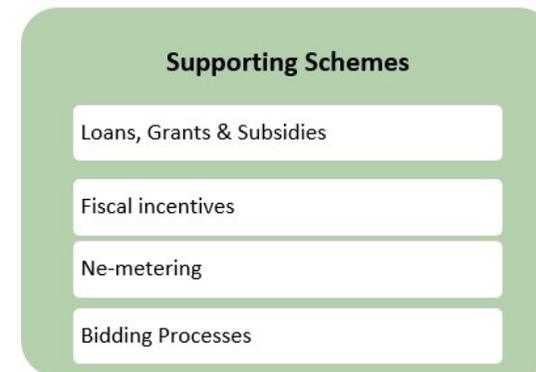
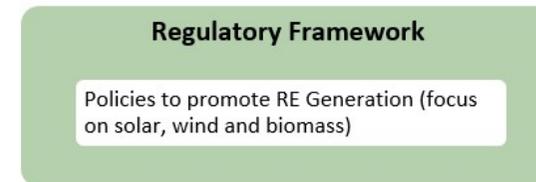
Palestine: primary (left) and final (right) energy consumption (2016)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency



Renewable Energy



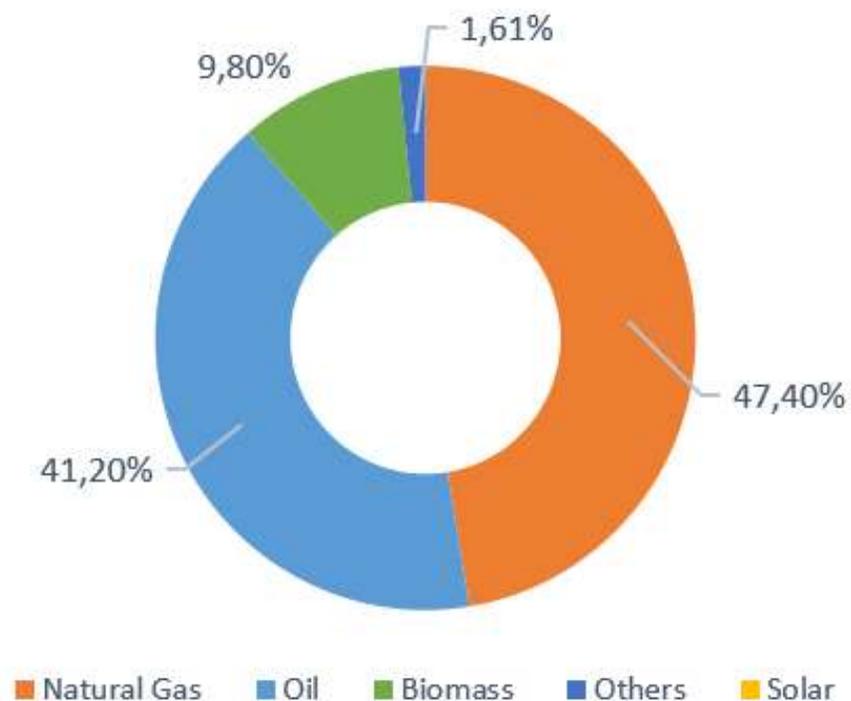
Palestine: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report

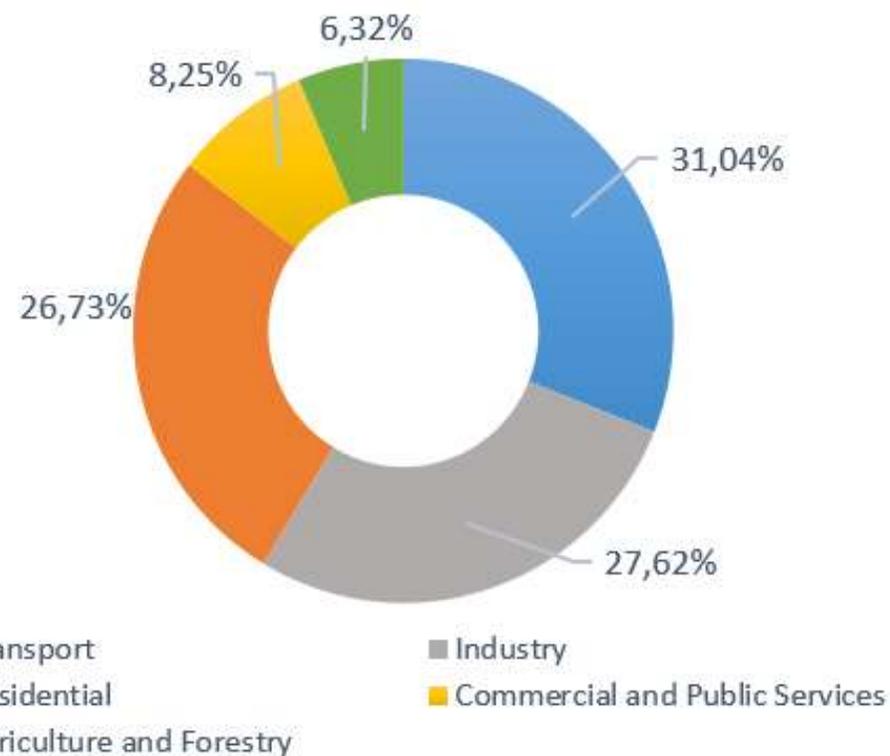


**ENERGY CONSUMPTION,
STRATEGIES AND POLICIES
IN
TUNISIA**

Total Primary Energy Consumption (2016)



Total Final Energy Consumption (2016)



Tunisia: primary (left) and final (right) energy consumption (2016)

Source: MEETMED - EE&RE Strategies and Policies report

Energy Efficiency

National Strategy

Energy transition strategy horizon 2030

30% for 2020

EE Strategy horizon 2050

Regulatory Framework

Cross sectoral - Developing an ESCO market

Buildings - Mandatory EEBC and MEPS and Labelling for appliances

Transports - Urban transport initiatives and energy labelling of vehicles (planned)

Industry - Mandatory energy audits and studies on energy efficiency and innovative technologies

Supporting Schemes

Loans, Grants & Subsidies

Fiscal incentives

Renewable Energy

National Strategy

Tunisian solar plan 2030

30% for 2030

Tunisian solar plan 2015

Regulatory Framework

Policies to promote RE Generation (focus on solar and wind energy)

Supporting Schemes

Loans, Grants & Subsidies

Fiscal incentives

Ne-metering

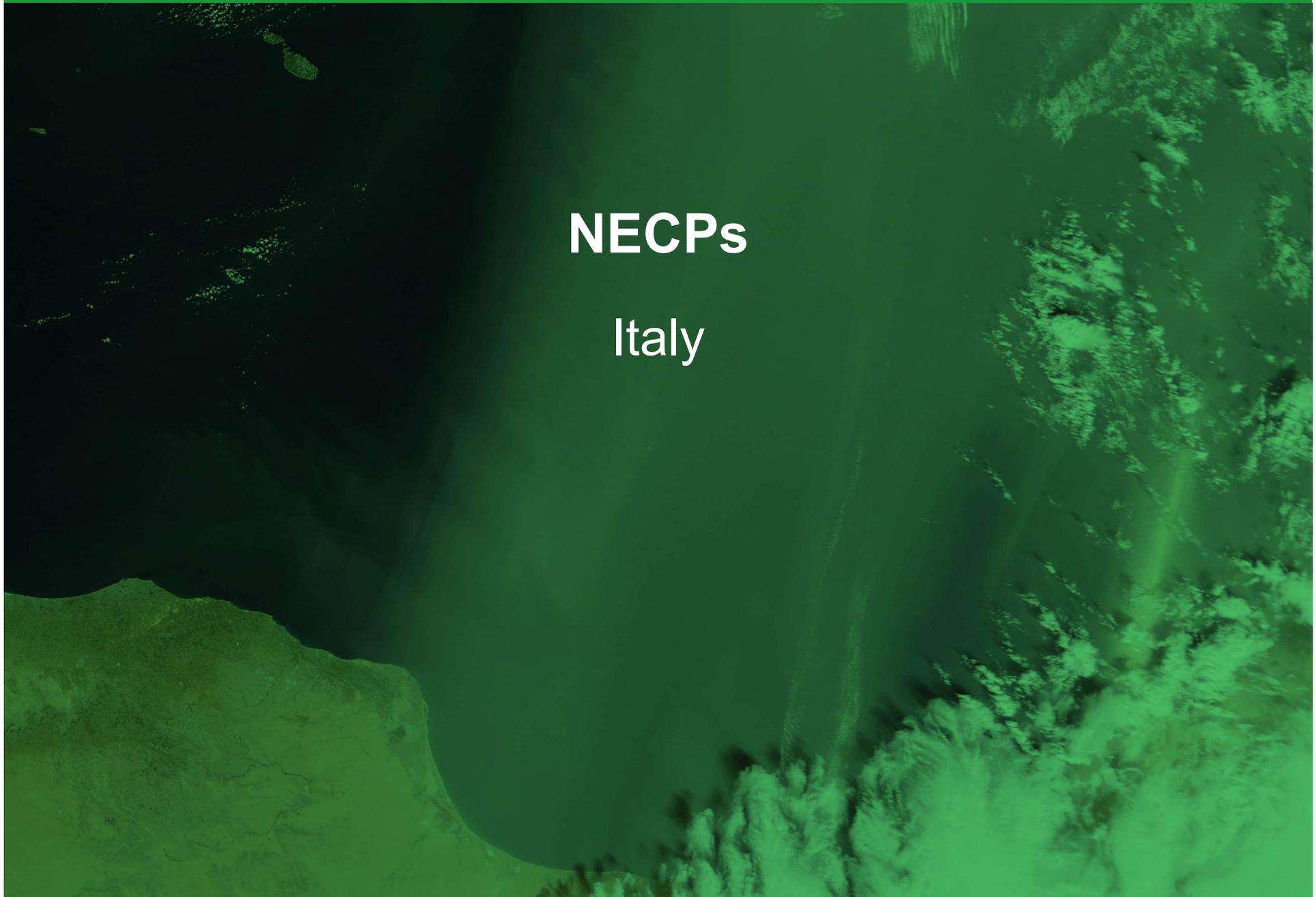
Bidding Processes

Tunisia: EE (left) and RE (right) strategies and policies

Source: MEETMED - EE&RE Strategies and Policies report

NECPs

Italy



CONTESTO

Obiettivi UE al 2030

«Clean Energy for all Europeans Package», in continuità con il precedente Pacchetto energia e Clima 2020

Obiettivi da raggiungere a livello Europeo grazie al contributo che i Paesi si impegnano a fornire nei PNIEC

- > REGOLAMENTO EMISSION TRADIGN SYSTEM (ETS)
- > REGOLAMENTO EFFORT SHARING (ESR)
- > DIRETTIVA PRESTAZIONI ENERGETICHE DEGLI EDIFICI (EPBD)
- > DIRETTIVA EFFICIENZA ENERGETICA (EED)
- > DIRETTIVA FONTI RINNOVABILI (RED II)
- > REGOLAMENTO GOVERNANCE



Entro il 2018: Stati Membri presentano una bozza di Piano Energia e Clima (PNIEC), in cui definiscono i contributi che si impegnano a fornire per il raggiungimento dei target Europei al 2030, le traiettorie e le misure che metteranno in campo

CONTENUTI

Proposta di piano elaborata da MISE, MATTM, MIT con la collaborazione di GSE, RSE, ISPRA, ENEA, Polimi
Seguendo lo schema impostato dal Regolamento Governance, il **Piano Nazionale Energia e Clima (PNIEC)** si sviluppa definendo **obiettivi, traiettorie e misure** per le **cinque dimensioni dell'Unione dell'energia**



La metodologia seguita prevede l'utilizzo di **due scenari complessi che**, sulla base di dati e ipotesi di tipo macroeconomico, tecnologico e altri vincoli esterni, consentono di rappresentare in modo **integrato gli aspetti energetici e ambientali**.

Sono stati elaborati due scenari:

- **scenario BASE**, che traccia l'evoluzione del sistema energetico a politiche correnti
- **scenario con OBIETTIVI**, che traccia l'evoluzione del sistema e i relativi impatti fissando determinati obiettivi energetici e ambientali

OBIETTIVI GENERALI

	Obiettivi 2020		Obiettivi 2030	
	UE	ITALIA	UE	ITALIA (Proposta PNIEC)
Energie rinnovabili				
Energia da FER nei Consumi Finali Lordi	20%	17%	32%	30%
Energia da FER nei Consumi Finali Lordi nei trasporti	10%	10%	14%	21,6%
Energia da FER nei Consumi Finali Lordi per riscaldamento e raffrescamento			+ 1,3% annuo	+ 1,3% annuo
Efficienza Energetica				
Riduzione dei consumi di energia primaria rispetto allo scenario PRIMES 2007	- 20%	- 24%	- 32,5%	- 43%
Riduzioni consumi finali tramite regimi obbligatori	- 1,5% annuo (senza trasp.)	- 1,5% annuo (senza trasp.)	- 0,8% annuo (con trasporti)	- 0,8% annuo (con trasporti)
Emissioni Gas Serra				
Riduzione dei GHG vs 2005 per tutti gli impianti vincolati dalla normativa ETS	- 21%		- 43%	No imposto obiettivo nazionale
Riduzione dei GHG vs 2005 per tutti i settori non ETS	- 10%	- 13%	- 30%	- 33%
Riduzione complessiva dei gas a effetto serra rispetto ai livelli del 1990	- 20%		- 40%	No imposto obiettivo nazionale

OBIETTIVI EMISSIONI GHG

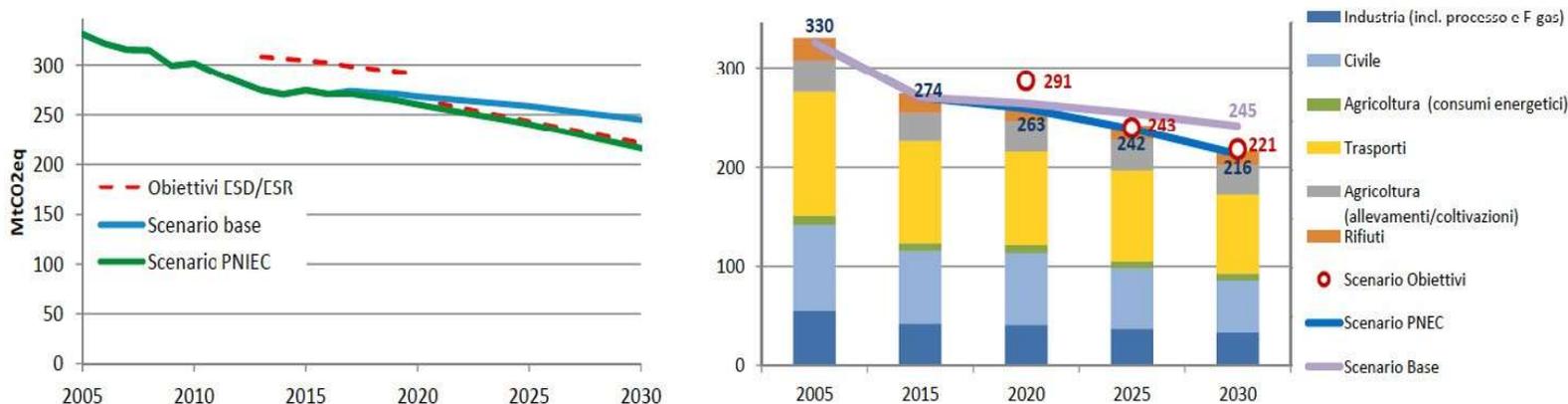


Obiettivi UE al 2030: L'Italia dovrà ridurre le emissioni nei settori **non ETS** del **33% rispetto ai valori 2005**. Per il comparto **ETS** non è previsto un obiettivo nazionale, ma un'omogenea riduzione del **43% (vs 2005) a livello Europeo**

	Obiettivo 2020	Scenario 2020	Obiettivo 2030	Scenario 2030
Emissioni ETS	-21%	-42%	-43%	-55,9%*
Emissioni ESR (non ETS)	-13%	-21%	-33%	-34,6%*

* Riduzioni conseguibili qualora si realizzassero i benefici attesi dall'attuazione di tutte le politiche e misure indicate

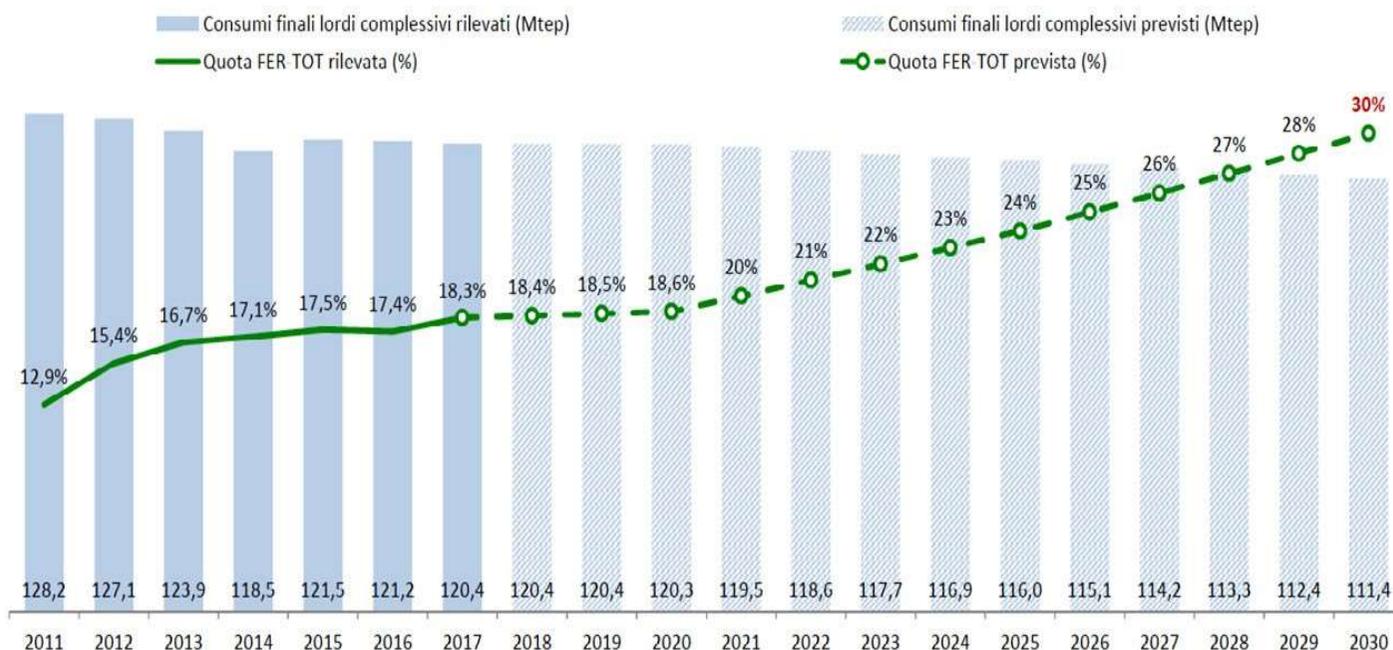
Andamento delle emissioni nei settori ESR (non ETS): obiettivi, scenario BASE e PNIEC



OBIETTIVI RINNOVABILI COMPLESSIVI



Obiettivo della **quota FER** nei consumi finali lordi di energia, pari al **30% al 2030** (18% al 2017)
Accelerazione a partire 2020, concordemente con il dispiegarsi delle politiche previste

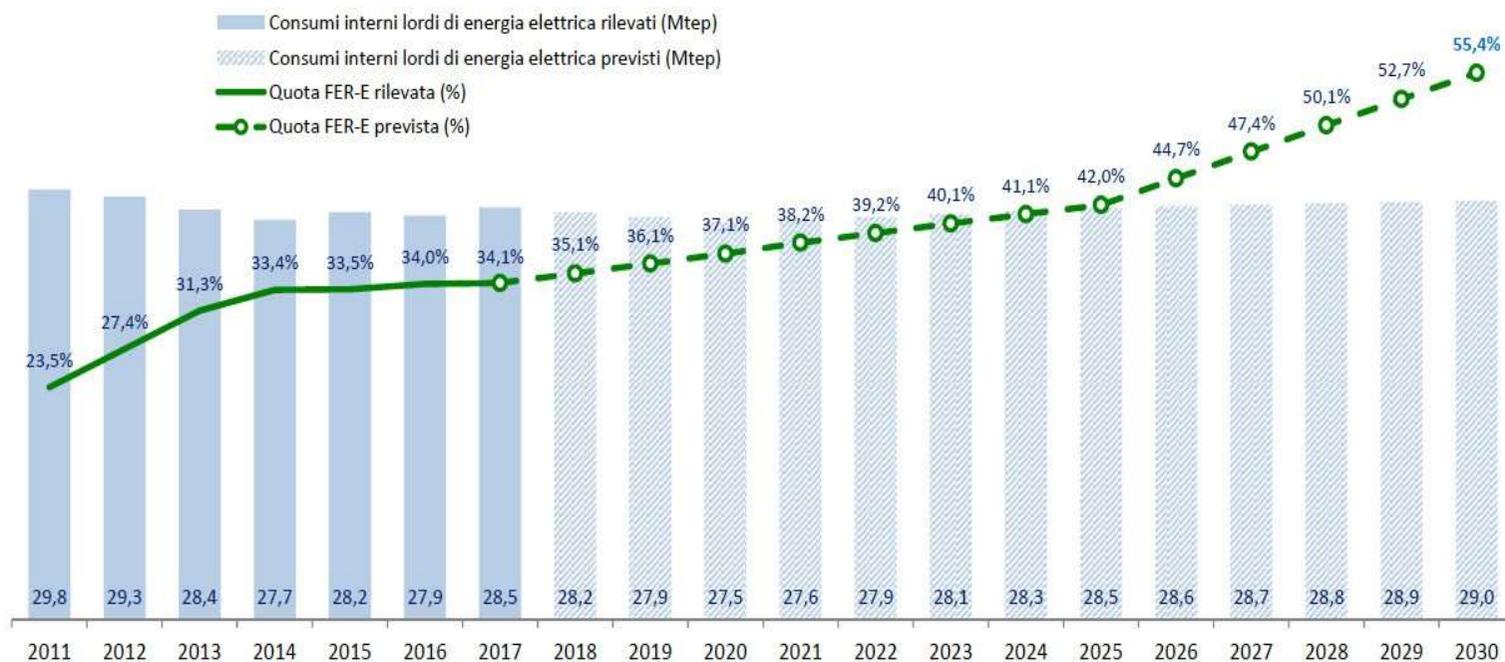


Gli obiettivi Europei non si traducono in pari obiettivi per ogni Paese. I singoli contributi ai target dell'Unione sono indicati da ogni Paese. Il regolamento Governance contiene una formula di calcolo degli obiettivi nazionali sulle rinnovabili (basata su target al 2020, PIL, interconnessioni e potenziale stimato di sviluppo delle FER con gli scenari EUCO), che la Commissione utilizzerà per valutare il livello di ambizione dei PNIEC. Il target Italiano presentato nel Piano è coerente con il risultato della formula.

RINNOVABILI ELETTRICHE: OBIETTIVI



Crescita della **quota FER** nei consumi elettrici, che salgono al **55% al 2030** (34% al 2017), con accelerazione dal 2025
Obiettivo sfidante anche visto l'andamento crescente dei consumi elettrici, dovuto all'**elettificazione**



RINNOVABILI ELETTRICHE: PRINCIPALI MISURE E ORIENTAMENTI

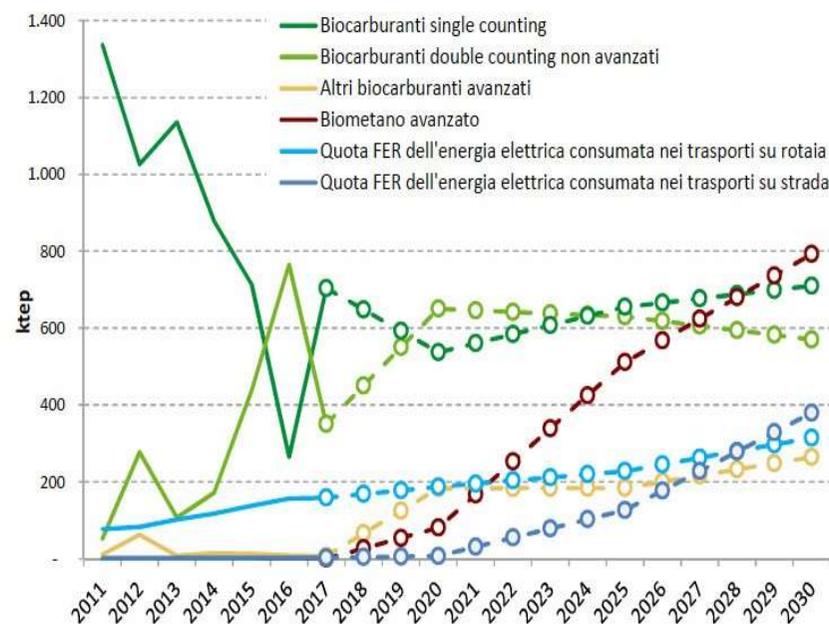
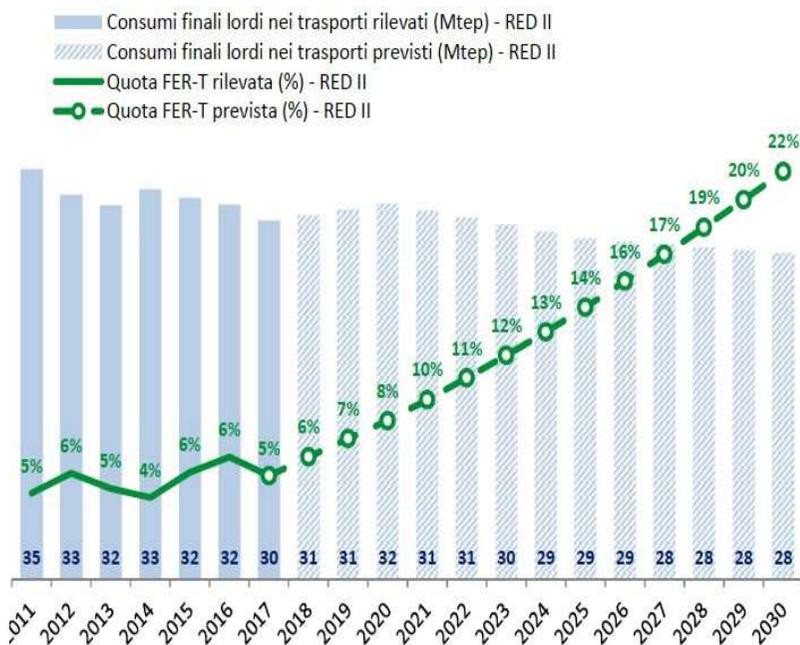


- > Procedure competitive e PPA per grandi impianti.
- > Sostenibilità ambientale e concertazione con il territorio.
- > Promozione dell'autoconsumo.
- > Preservare e ottimizzare la produzione esistente, al netto dei bioliquidi.
- > Isole minori come laboratorio

RINNOVABILI NEL SETTORE TRASPORTI - OBIETTIVI



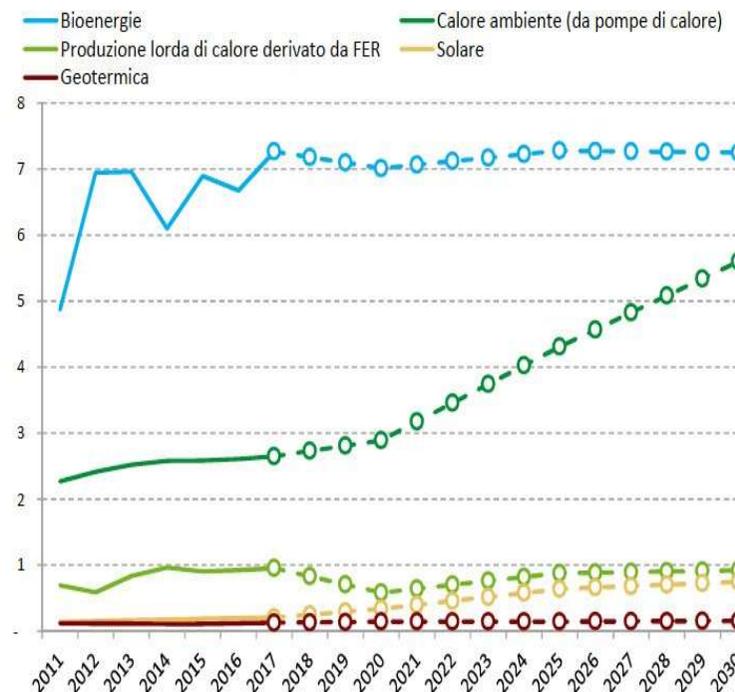
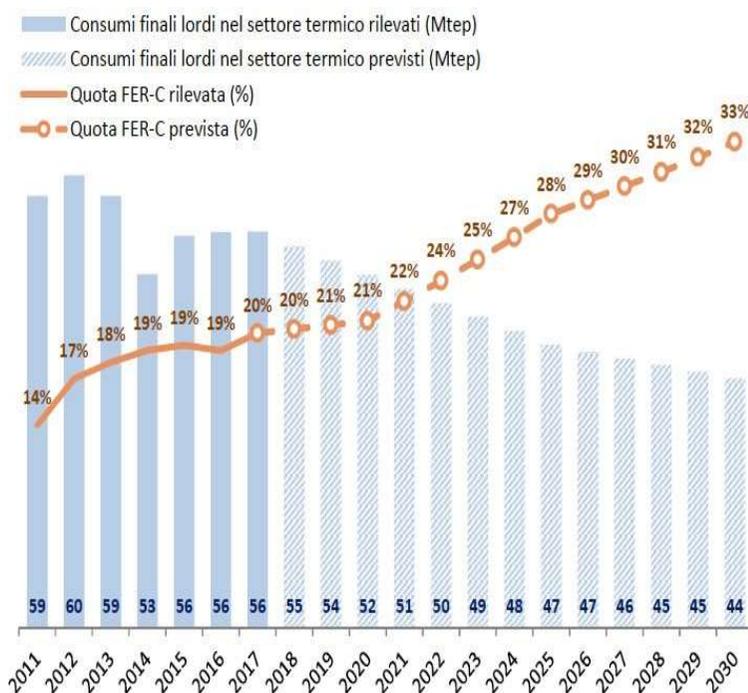
- > Obbligo di **immissione in consumo** più ambizioso di quello definito nella RED II (da 14% a 21,6%)
- > Quota dei **biocarburanti avanzati** pari all'8% al 2030 (più ambizioso del 3,5% previsto dalla RED II)
- > Crescita dell'**energia elettrica rinnovabile su strada** (fino a 380 ktep)



RINNOVABILI NEL SETTORE TERMICO - OBIETTIVI



- > Peso crescente delle **pompe di calore** elettriche e a gas nel mix termico rinnovabile
- > Contributo costante degli impianti di riscaldamento a **biomasse solide**
- > Miglioramento delle **prestazioni energetiche ed ambientali** degli apparecchi a **biomassa**
- > Ruolo crescente del **solare termico** e del **TLR** in sistemi integrati di produzione di calore efficiente e rinnovabile

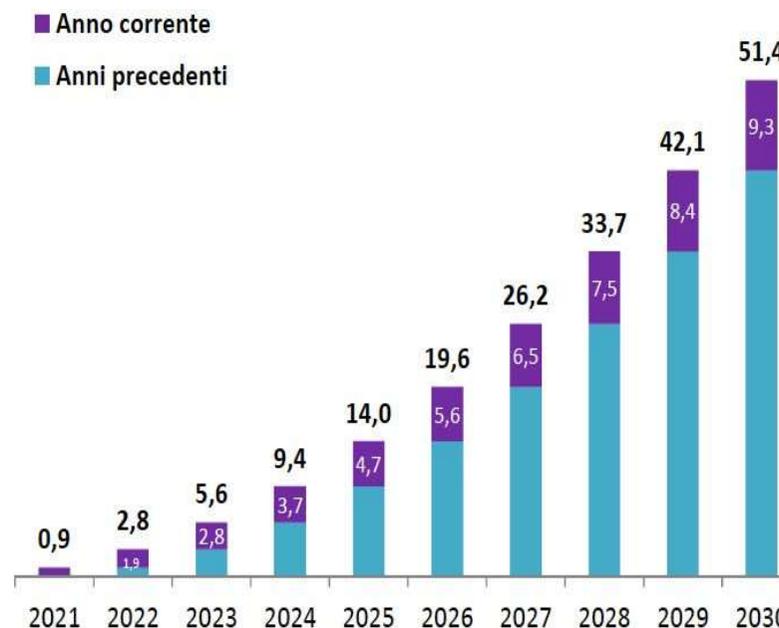
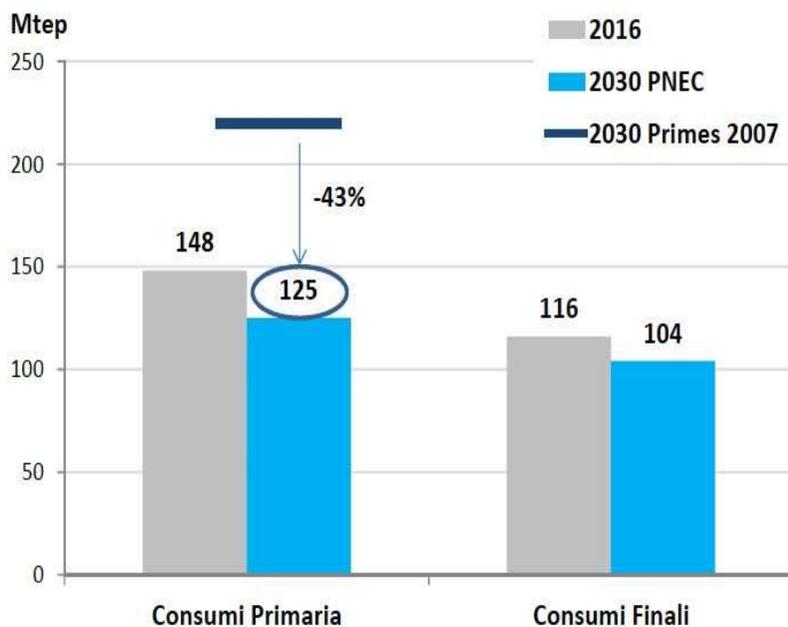


OBIETTIVI EFFICIENZA ENERGETICA



Riduzione dei consumi di energia **Primaria** al 2030 a **125 Mtep**, pari al **-43%** rispetto a scenario riferimento Primes 2007

Con **0,935 Mtep** cumulati ogni anno arriviamo al totale di **51,4 Mtep di risparmi** di energia finale riconducibili a politiche attive dal **2021 al 2030** per conseguire il target art. 7 EED



PRINCIPALI OBIETTIVI SICUREZZA ENERGETICA



Settore GAS



- **Ottimizzazione** importazione di **GNL nei terminali esistenti**
- Miglioramento sicurezza in caso di **elevati picchi di domanda**



Settore ELETTRICO



- **Incremento resilienza e flessibilità del sistema** (e delle **reti anche verso fenomeni meteorologici estremi**)
- Programmazione e realizzazione **sviluppo della rete**



- **Semplificazione** e velocizzazione **procedure autorizzative** per l'esecuzione delle opere connesse ai punti precedenti
- Implementazione **nuovi meccanismi di mercato della capacità**
- Riduzione del fenomeno **overgeneration fino a valori intorno a 1 TWh al 2030**



- Incremento utilizzo degli **impianti di pompaggio esistenti**
- Sviluppo dello **storage elettrochimico** sia a livello distribuito che centralizzato,

PRINCIPALI MISURE SICUREZZA ENERGETICA



Settore gas

- **Diversificazione** delle fonti di approvvigionamento anche tramite **GNL**
- Sviluppo **GNL** nei trasporti **marittimi e servizi portuali**



Settore elettrico

- Piani per la **resilienza della rete** a eventi meteo estremi
- **Mercato della capacità**
- Adeguamento della **disciplina riguardante le autorizzazioni** degli impianti termoelettrici
- **Cybersecurity** (anche altri settori)



Prodotti petroliferi

- Interventi di **riconversione a bioraffinerie** di raffinerie italiane marginali
- Focalizzazione su impianti per la **produzione di materie prime per la preparazione dei biocarburanti per le bioraffinerie**
- **Riutilizzo dei siti industriali** mediante conversione a deposito o ad altri investimenti produttivi
- Investimenti per la **conversione dei prodotti pesanti della lavorazioni delle raffinerie** e ridurre la produzione di olio combustibile

PRINCIPALI OBIETTIVI INTEGRAZIONE DEL MERCATO



Settore elettrico

- **Rafforzamento integrazione dei mercati**
- Promozione **ruolo attivo della domanda**, integrazione fonti rinnovabili e **generazione distribuita**
- Rafforzamento **consapevolezza e ruolo attivo del consumatore**
 - **autoproduzione** e adozione **sistemi di accumulo** e di gestione efficiente dei consumi
 - **scelta del fornitore** e corretta valutazione delle offerte commerciali e dei servizi connessi
 - **modifica del carico** in seguito a segnali di prezzo (**demand response**)



Settore gas

- **Aumento liquidità e diminuzione spread di prezzo** con altri mercati europei
- Interventi **sui piani decennali (TYNDP) del TSO italiano (Snam) e del TSO tedesco (TENP)** per la parziale o totale riattivazione della linea del **gasdotto TENP** fuori esercizio

PRINCIPALI MISURE INTEGRAZIONE DEL MERCATO



Settore elettrico

- Sostegno, riorganizzazione e razionalizzazione **configurazioni con auto-consumo** e sviluppo **Energy Communities**
- Potenziamento **sistemi di accumuli concentrati**, sviluppo della capacità di accumulo e di sistemi di **accumulo distribuiti**
- Diffusione di tecnologie per la **integrazione tra veicoli e rete elettrica**: vehicle to grid
- Sviluppo dei **PPA**
- **Smart meter** (solo con informazioni dirette ai consumatori finali)



Settore gas

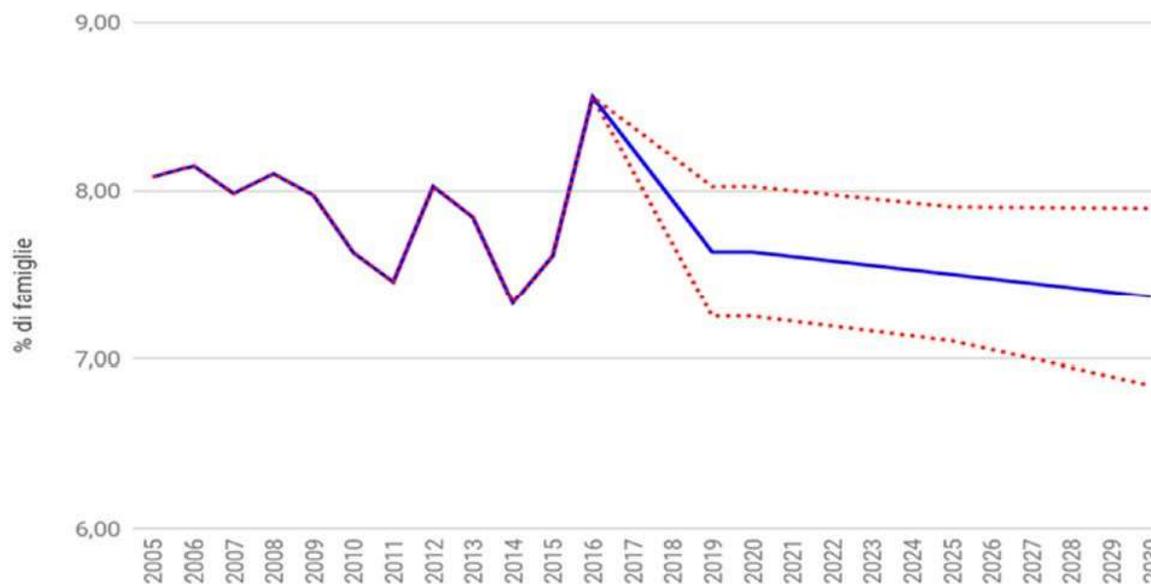
- Stabilizzazione fiscale per **GNL nei trasporti**
- Completamento della **liberalizzazione dei mercati al dettaglio**
- **Smart meter**

POVERTÀ ENERGETICA - OBIETTIVI



- > Banca d'Italia quantifica la **quota di famiglie in povertà energetica in Italia, nel 2016, pari all'8,6% del totale** (circa 2,2 milioni di famiglie)
- > Al 2030, **l'estensione e il rafforzamento delle attuali politiche di contrasto** dovrebbero ridurre l'incidenza della PE tra il 7% e l'8% delle famiglie totali, **circa 1 punto percentuale al di sotto del dato 2016** (230.000 famiglie in meno).

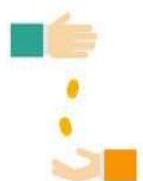
Scenario con percentuale delle famiglie in povertà energetica al 2030



POVERTÀ ENERGETICA - MISURE



Principali misure previste di **contrasto alla povertà energetica** in Italia:



- sostituzione degli strumenti attuali (bonus elettrico, bonus gas) con un **nuovo bonus energia**

- introduzione di un **meccanismo automatico di riconoscimento dell'agevolazione** agli aventi diritto, al fine di aumentarne l'accesso

- istituzione di un **programma di efficientamento degli edifici di edilizia popolare** a

- creazione di un **Osservatorio nazionale** sulla povertà energetica che raccolga dati, buone pratiche, studi e approfondimenti sul tema, ecc.

- misure allo studio per **efficientamento e produzione energia da rinnovabili** per i soggetti in povertà energetica



RICERCA, INNOVAZIONE E COMPETITIVITÀ: OBIETTIVI AL 2030



- L'Italia è coinvolta nei programmi **SET-Plan** e **Mission Innovation**
- L'Italia si è impegnata a raddoppiare i **fondi pubblici per la ricerca e lo sviluppo dell'energia pulita (da 222 milioni di euro nel 2013 a 444 milioni di euro a partire dal 2021)**
- Principali obiettivi:
 - ✓ Sviluppare **tecnologie di prodotto e processo per la transizione energetica**
 - ✓ **Favorire il contesto** in cui si dovranno inserire queste innovazioni, introducendo **sistemi e modelli organizzativi e gestionali** che supportino le imprese.



RICERCA, INNOVAZIONE E COMPETITIVITÀ: PRINCIPALI MISURE



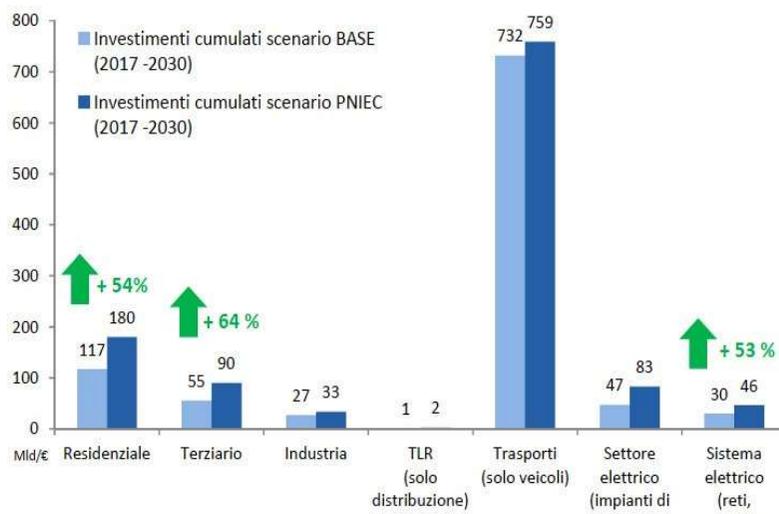
Principali misure di finanziamento:

- Fondo per la ricerca del sistema elettrico
- Fondo per interventi e misure per lo sviluppo tecnologico e industriale
- Fondo per lo sviluppo del capitale immateriale
- Fondo di garanzia
- Iper e super ammortamento
- Beni strumentali ("Nuova Sabatini")
- Credito d'imposta
- Fondo per la crescita sostenibile
- Cluster energia
- Proventi aste CO2
- Fondi di coesione

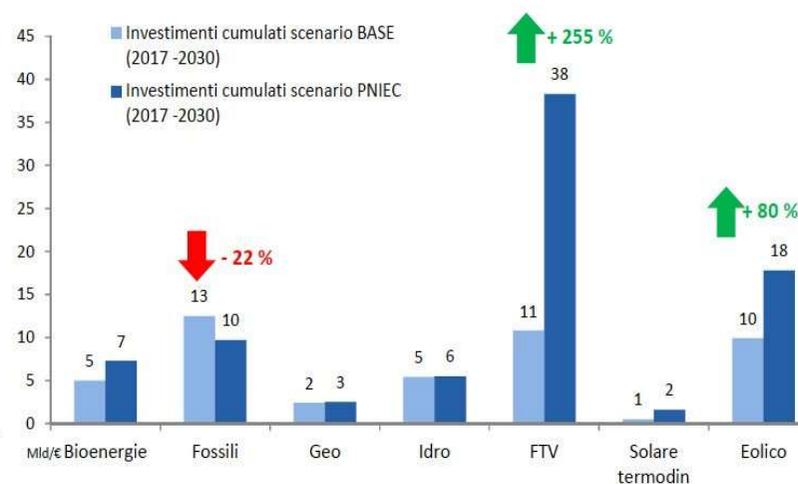
INVESTIMENTI NECESSARI ALLA REALIZZAZIONE DEL PIANO

Si stima che nel periodo 2017-2030 occorrano oltre **180 Mld/€ di investimenti** aggiuntivi cumulati rispetto allo scenario a politiche correnti (incremento 18%)

Investimenti cumulati 2017 -2030 nei settori esaminati negli scenari BASE e PNIEC



Investimenti cumulati 2017 -2030 nel settore della generazione elettrica negli scenari BASE e PNIEC



SINTESI

Alcuni degli elementi salienti

Dove:

- Grande **crescita del fotovoltaico**: +30 GW, sia a terra sia sugli edifici
- **Riduzione di consumi ed emissioni** nel settore **residenziale e terziario**: -7 Mtep
- **Decarbonizzazione dei trasporti**: - 8 Mtep di petroliferi, + 2 Mtep di rinnovabili
- **Elettrificazione dei consumi**: +1,6 Mtep tra trasporti, residenziale e terziario
- Riduzione della **dipendenza energetica**: dal 77% al 63%



Come:

- Nuove infrastrutture e impianti, con attenzione agli impatti **ambientali** (territorio, qualità dell'aria, ecc.)
- Minimizzazione degli oneri e massimizzazione dei benefici per **consumatori e imprese**
- Forte **connessione** tra diversi ambiti: **generazione elettrica, mobilità e altri consumi, ruolo attivo della domanda**

Sfide:

- Decarbonizzare in settori più difficili: **residenziale, terziario, trasporti**
- Settori dove le scelte dipendono dagli **individui**: sempre più importanti, accanto a quelle finanziarie, altre leve

PROSSIMI PASSI VERSO IL PIANO DEFINITIVO

Consultazione istituzionale e consultazione pubblica attraverso il sito web Energia Clima 2030

Processo di Valutazione Ambientale Strategica della proposta di Piano

Collaborazione con gli Stati confinanti per valutare la coerenza delle previsioni dei rispettivi Piani, ad esempio sui progetti di interconnessione

Interlocuzione con la Commissione Europea, che entro giugno 2019 formalizzerà raccomandazioni ai fini della finalizzazione del PNIEC

Ricondivisione dei contenuti con Regioni ed enti locali



Invio Piano definitivo a Bruxelles
entro il 31 dicembre 2019