

The European Union – Turkmenistan Sustainable Energy Days

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EU approach to the promotion of energy efficiency - lessons learned and a way forward

Karolis Janusevicius,
Expert in energy audits, SECCA

THE OUTLINE OF PRESENTATION

① EU APPROACH TO
ENERGY EFFICIENCY

② LESSONS
LEARNED WHILE
IMPLEMENTING
ENERGY EFFICIENCY
POLICIES

③ FUTURE
DIRECTIONS OF
ENERGY EFFICIENCY
IMPROVEMENT



THE EU APPROACH TO ENERGY EFFICIENCY



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ENERGY EFFICIENCY IS UNDERSTOOD AS A METRIC WHICH IS USED TO TRACK THE IMPROVEMENT

ENERGY EFFICIENCY =

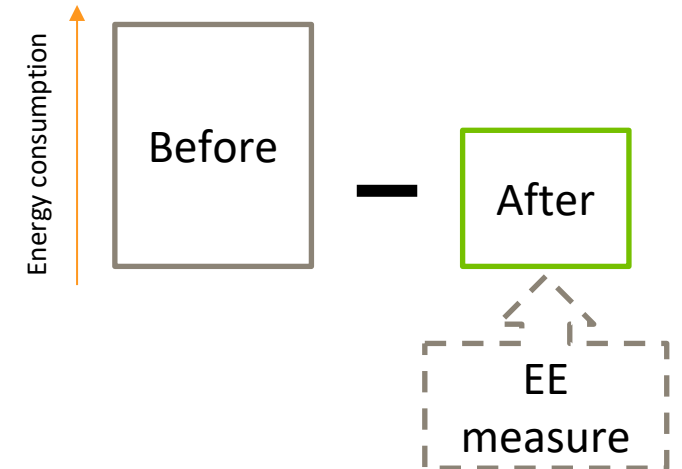
*performance, service,
goods or energy*

energy

ENERGY EFFICIENCY IMPROVEMENT an increase in *energy efficiency* as a result of measures in:

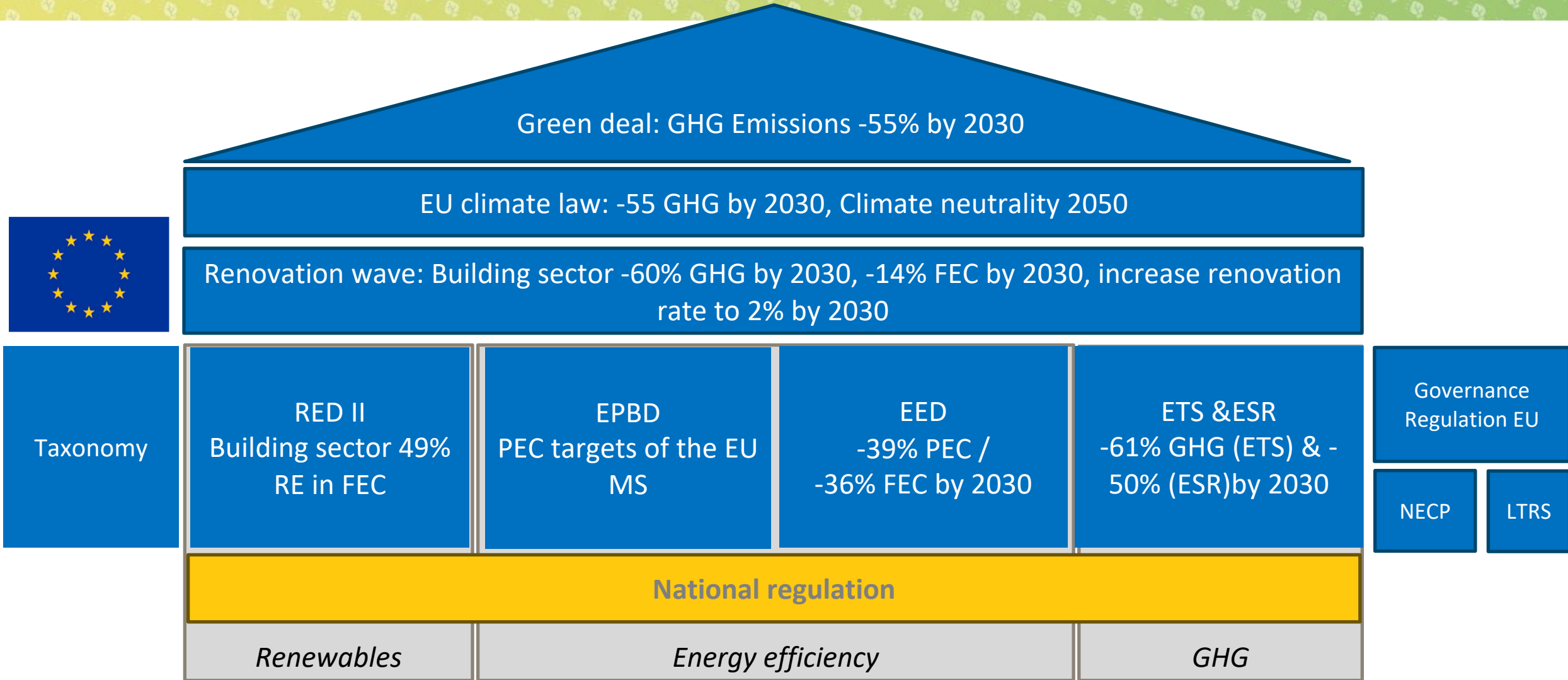
- *Technological;*
- *Behavioural;*
- *Economic aspects.*

ENERGY SAVINGS =



energy efficiency first principle means prioritizing the use of less energy before considering how to increase energy supply, by improving how energy is used and delivered, in a cost-effective way that still meets energy goals.

EU POLICY FRAMEWORK STARTS FROM CLIMATE GOAL AND CASCADDES IT TO DIFFERENT SECTORS



EED PROVIDES MORE GENERAL FRAMEWORK FOR INCREASING ENERGY EFFICIENCY AND ACHIEVE ENERGY SAVINGS

2006

Energy Service Directive (2006/32/EC)

Introduced:

- Promotion of Energy Services
- Indicative Energy Savings Target (9% at 2016)
- Energy Audits and Management Systems
- Improved Metering and Billing Information
- Energy Efficiency Funds
- Public Sector Leadership

2012

Energy efficiency directive (2012/27/EU)

Extends previous scope to:

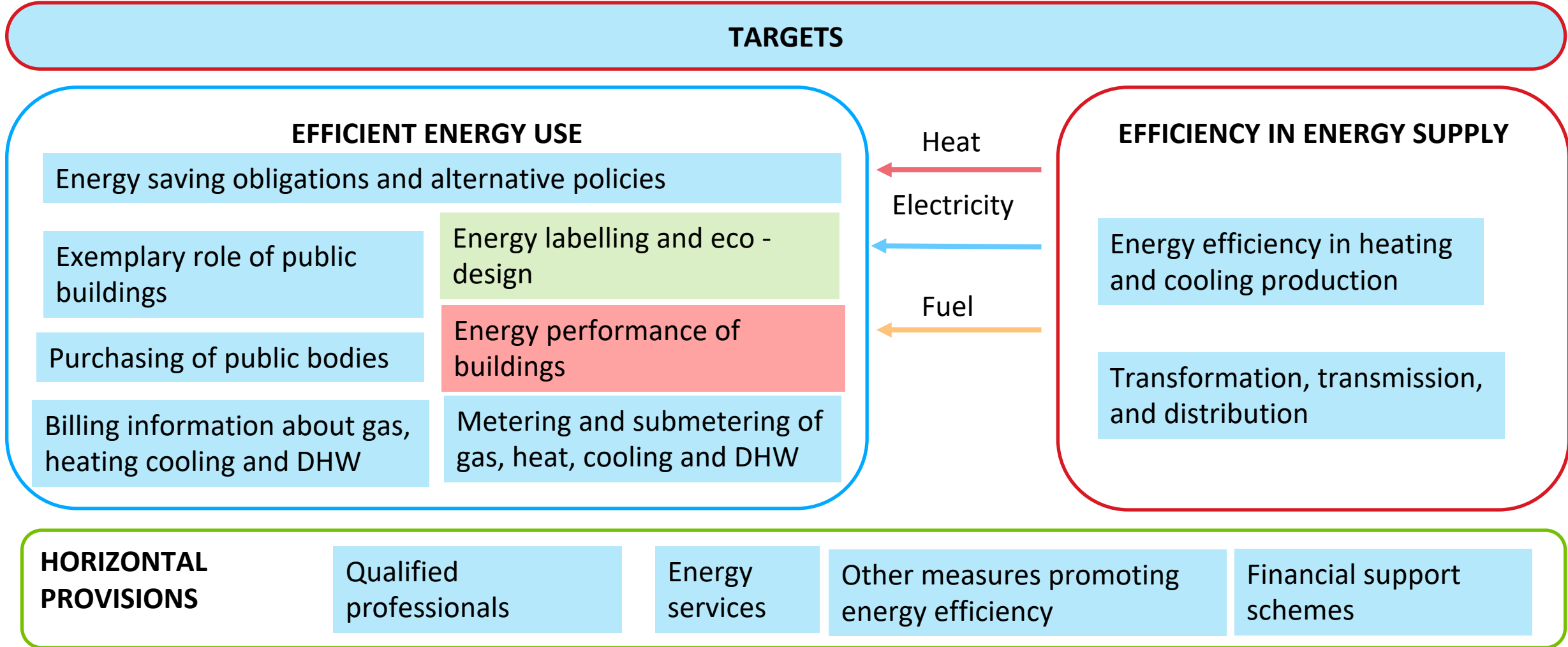
- Energy Efficiency Targets (20% at 2020)
- Energy Savings Obligation
- Consumer Empowerment
- Efficiency in Heating and Cooling generation
- National Energy Efficiency Action Plans

2023

Energy efficiency directive (EU/2023/1791)

- Energy efficiency first principle
- Increased Energy Efficiency Target (at least 11,7 % in 2030)
- Enhanced Annual Energy Savings Obligation
- Focus on Alleviating Energy Poverty
- Expanded Energy Audit Obligations
- Heating, Cooling, and Data Centers

THE ACTIONS SPAN OVER DEMAND AND SUPPLY SIDE, TOGETHER WITH HORIZONTAL PROVISIONS



THE ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE KEEPS ON IMPROVING THE WAYS TO MAKE BUILDINGS BETTER

2002

Energy Performance of Buildings Directive 2002/91/EC

Introduced:

- Energy Performance Certification
- Regular Inspections
- Minimum Energy Standards
- Cost-Optimal Levels
- Information to Building Owners
- Promoting Renewable Energy

2010

Energy Performance of Buildings Directive 2010/31/EU

- Nearly Zero-Energy Buildings (nZEB)
- All new buildings to be NZEB by end of 2020.
- Renovation Requirements
- Energy Performance Certificates for Public buildings
- Encourage Smart Technologies

2018

Energy Performance of Buildings Directive 2018/844

- Aims to decarbonize
Promotes smart technologies and e-mobility.
- Encourages use of financial tools for energy efficiency improvements
- Stresses the use of EPC for Long-term renovation strategy

2023

The evolution of EU directives reflects a growing commitment to energy efficiency and environmental sustainability

THE UPCOMING EPBD WILL BRING ADDITIONAL IMPROVEMENTS AND NEW CONCEPTS TO THE APPLICATION

2020

All new buildings in EU must be **Near Zero Energy Buildings (NZEB)**

2025

Energy performance certificates (EPCs) must be based on a **harmonised energy performance scale** by 2025.

2030

All new buildings in the EU must be **zero-emission buildings (ZEBs)** from 2030

2050

Existing **PUBLIC** buildings must be **renovated to a high energy performance level**, with minimum energy performance standards set at EU level

Building **life cycle carbon emissions calculation** will be introduced

all new **PUBLIC** buildings must be **zero-emission buildings (ZEBs)** from 2027.

Minimum standards to existing building stock (ban of class G)

DECARBONIZED BUILDING STOCK IN 2050

THE TRANSPOSED POLICIES ARE IMPLEMENTED WITH THE HELP OF POSITIVE AND NEGATIVE ENCOURAGEMENT

Stakeholders are encouraged to improve energy efficiency by following a “carrot and stick” approach including raising awareness.

Positive encouragement

- Financial support for evaluating energy efficiency
- Financial incentives for energy efficiency measures implementation
- Tax reduction for enterprises managing energy and implementing measures

Negative encouragement

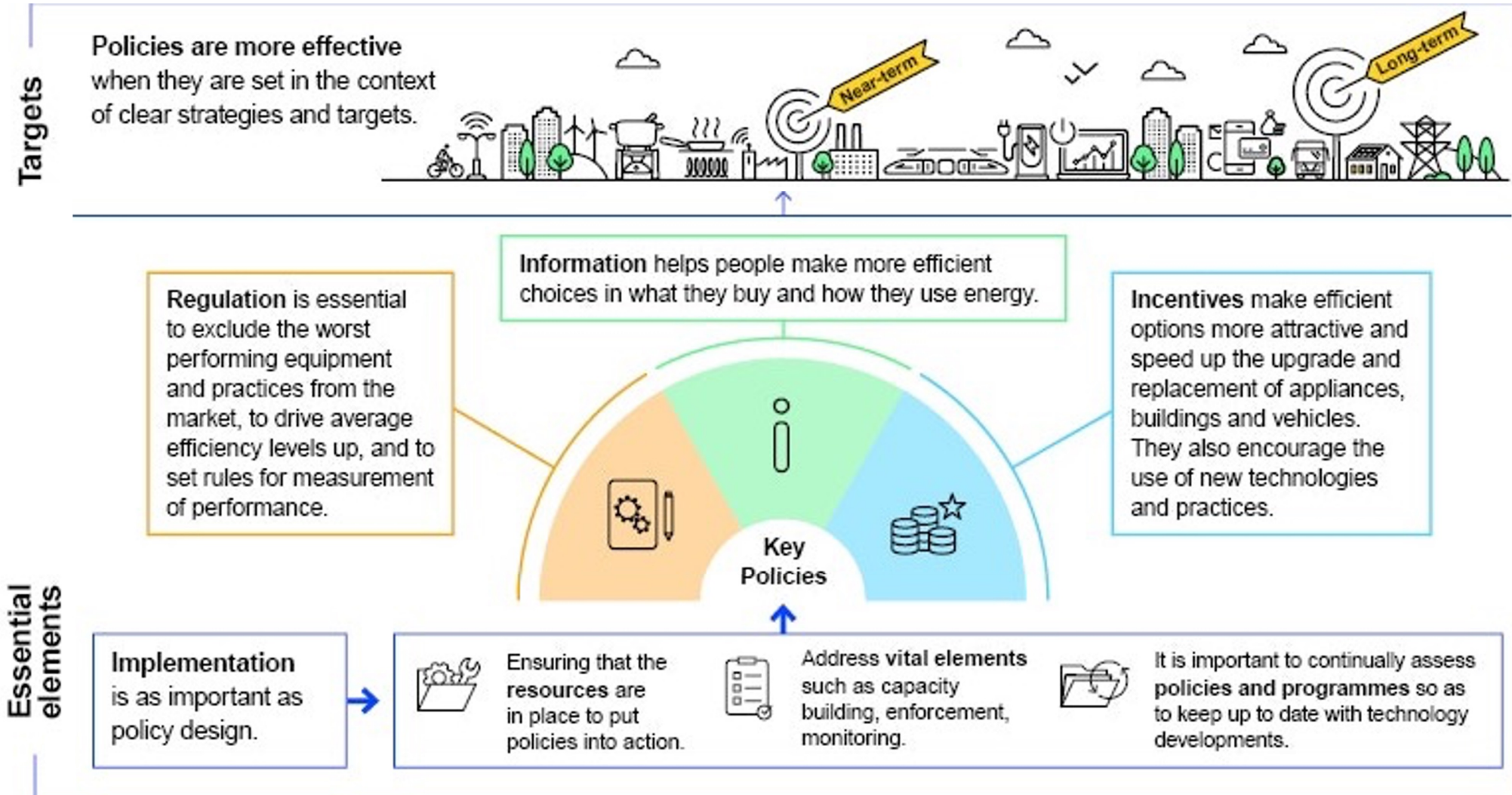
- Mandatory requirement in national legislation
- Minimum requirements
- Penalties for non-complying

Awareness raising

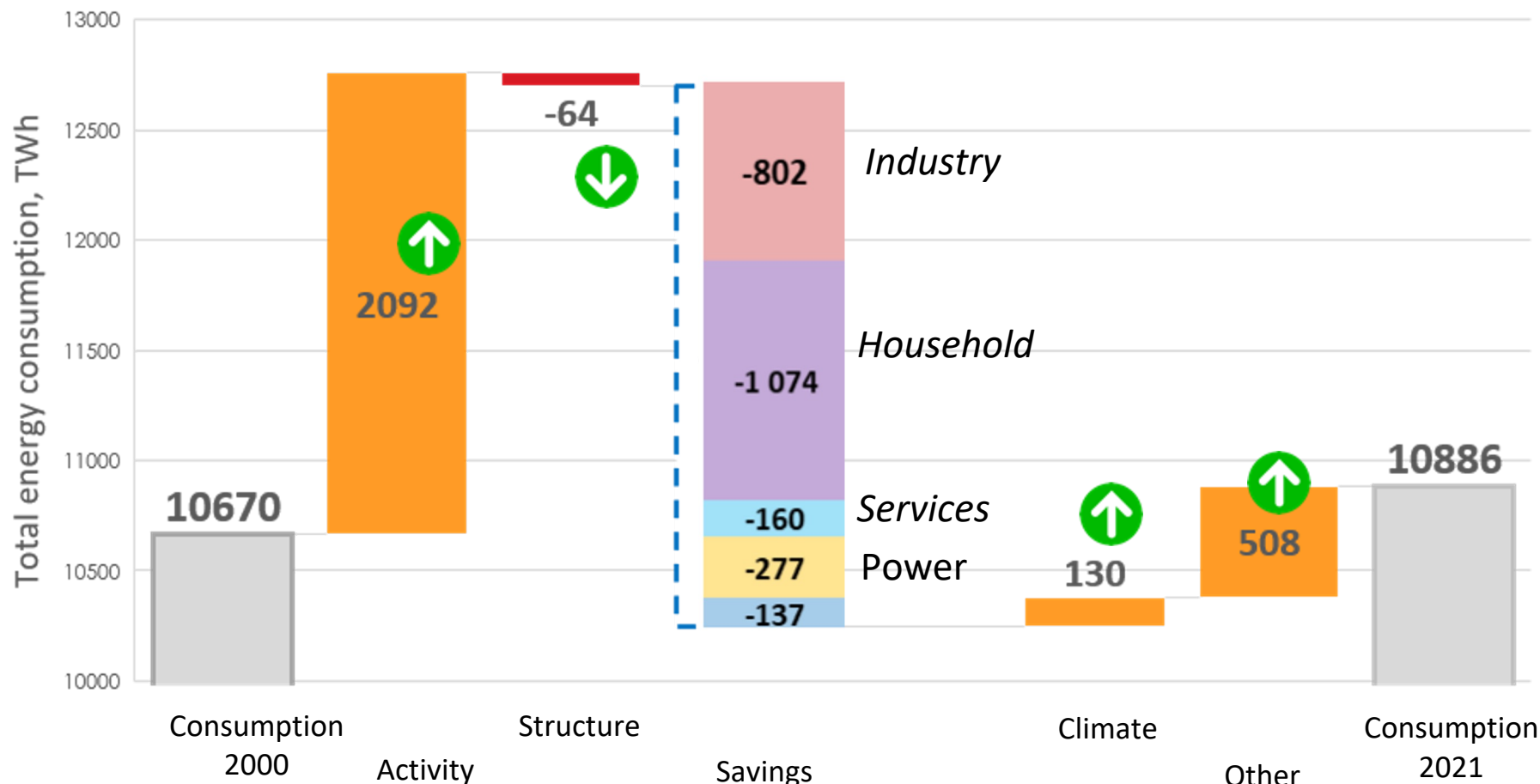
Climate stripes by Prof. Ed Hawkins.

THE LESSONS LEARNED

REGULATION, INFORMATION & INCENTIVES ARE THE MAIN MECHANISMS NEEDED FOR SUCCESSFUL POLICY



ENERGY EFFICIENCY HELPS TO LIMIT GROWING ENERGY DEMAND AND DECOUPLES EMISSIONS AND ECONOMIC GROWTH



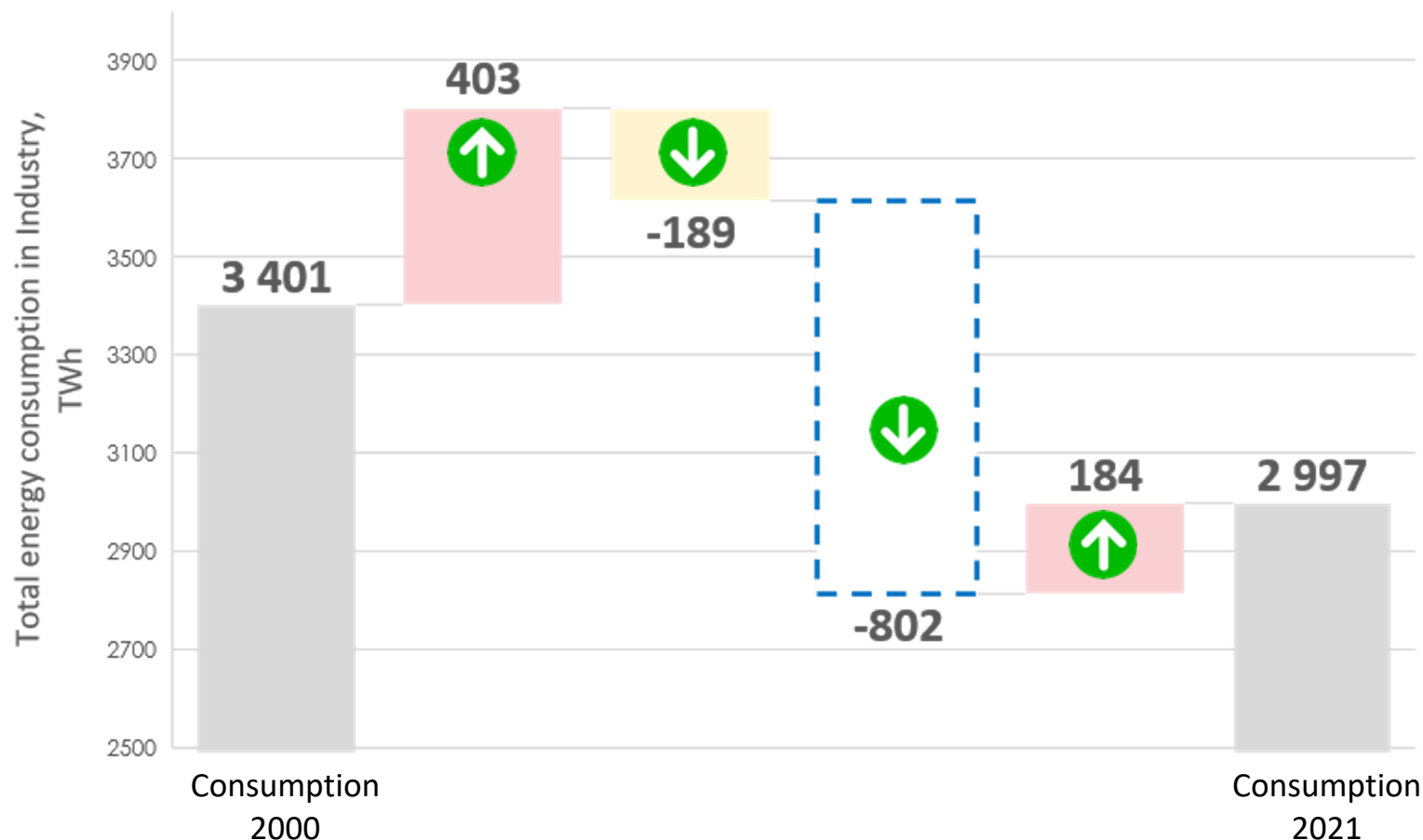
Energy demand grows **1,2%** annually

Energy efficiency measures help to reduce this annual growth to **0,1%**

Source: <https://www.indicators.odyssee-mure.eu/decomposition.html>

The efforts to save energy have created more than 2450 TWh from 2000 to 2021, with Households and Industry sectors contributing the most.

INDUSTRY HAVE CREATED THE LARGEST CHANGE IN ENERGY CONSUMPTION



Already reduced amount is close to industrial sectors of:

- Germany – 621 TWh **73%**
- France – 302 TWh x **1,5** times
- Uzbekistan 79TWh x **5,7** times

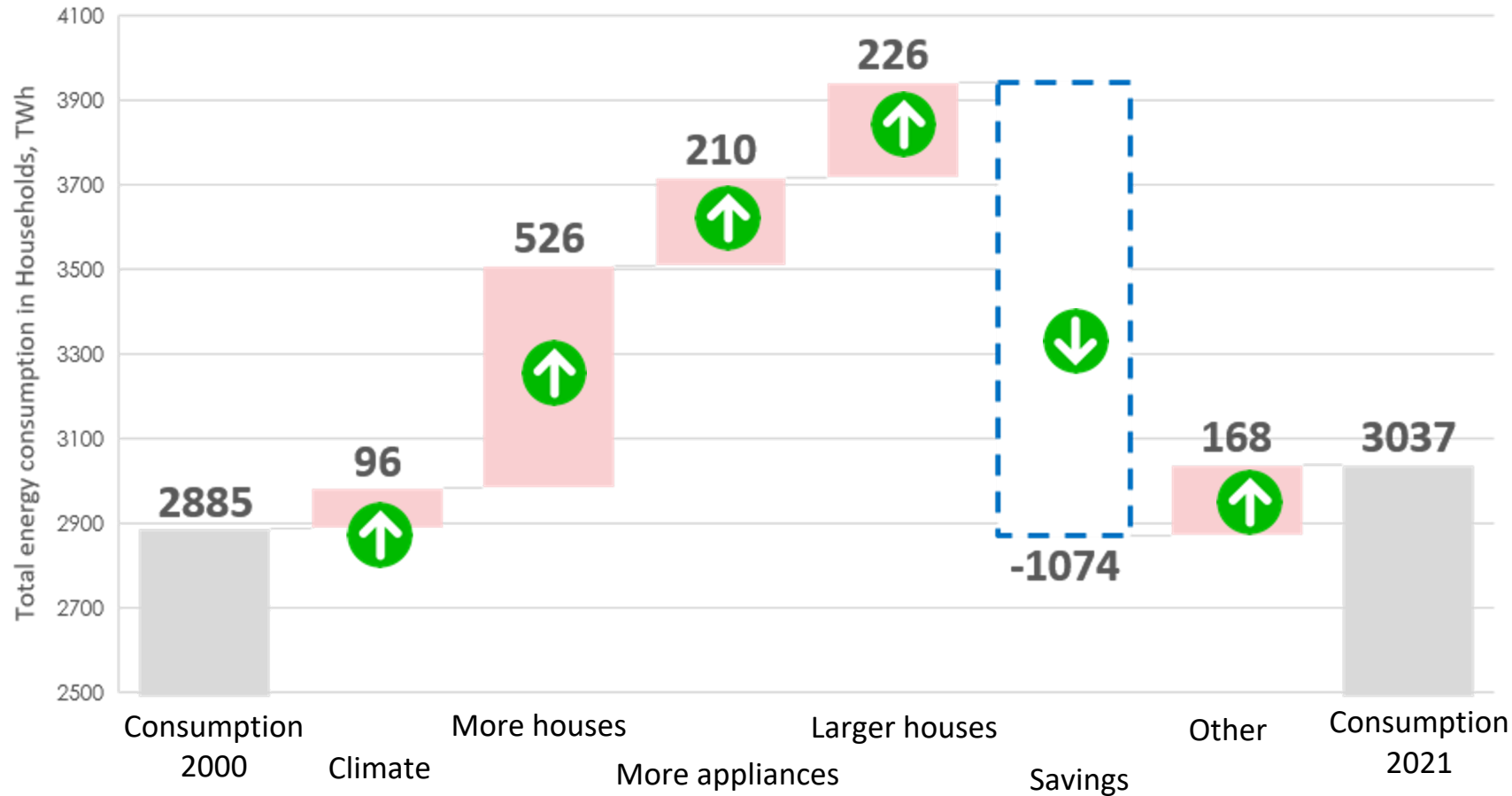
-404 TWh

Still: 1140 MtCO2 annually or aprox 22% of Total emisions

Source: <https://www.indicators.odyssee-mure.eu/decomposition.html>

Due to EU policy actions and aim to decouple economic growth from carbon emissions, Energy efficiency plays important role on reducing consumption and emissions

ACHIEVEMENTS OF ENERGY EFFICIENCY IMPROVEMENT IN BUILDINGS REMAIN INVISIBLE DUE TO THE GROWING BUILDING STOCK



Source: <https://www.indicators.odyssee-mure.eu/decomposition.html>

Energy demand in household sector grows **+1,8%** annually

With energy efficiency measures the impact to total consumption is reduced to **+0,25%** annual growth

+153 TWh

Despite creating the savings that would reduce energy consumption in the sector by 1/3, the actual consumption reduction is much smaller due to the increasing number of heated area, number of dwellings and more appliances

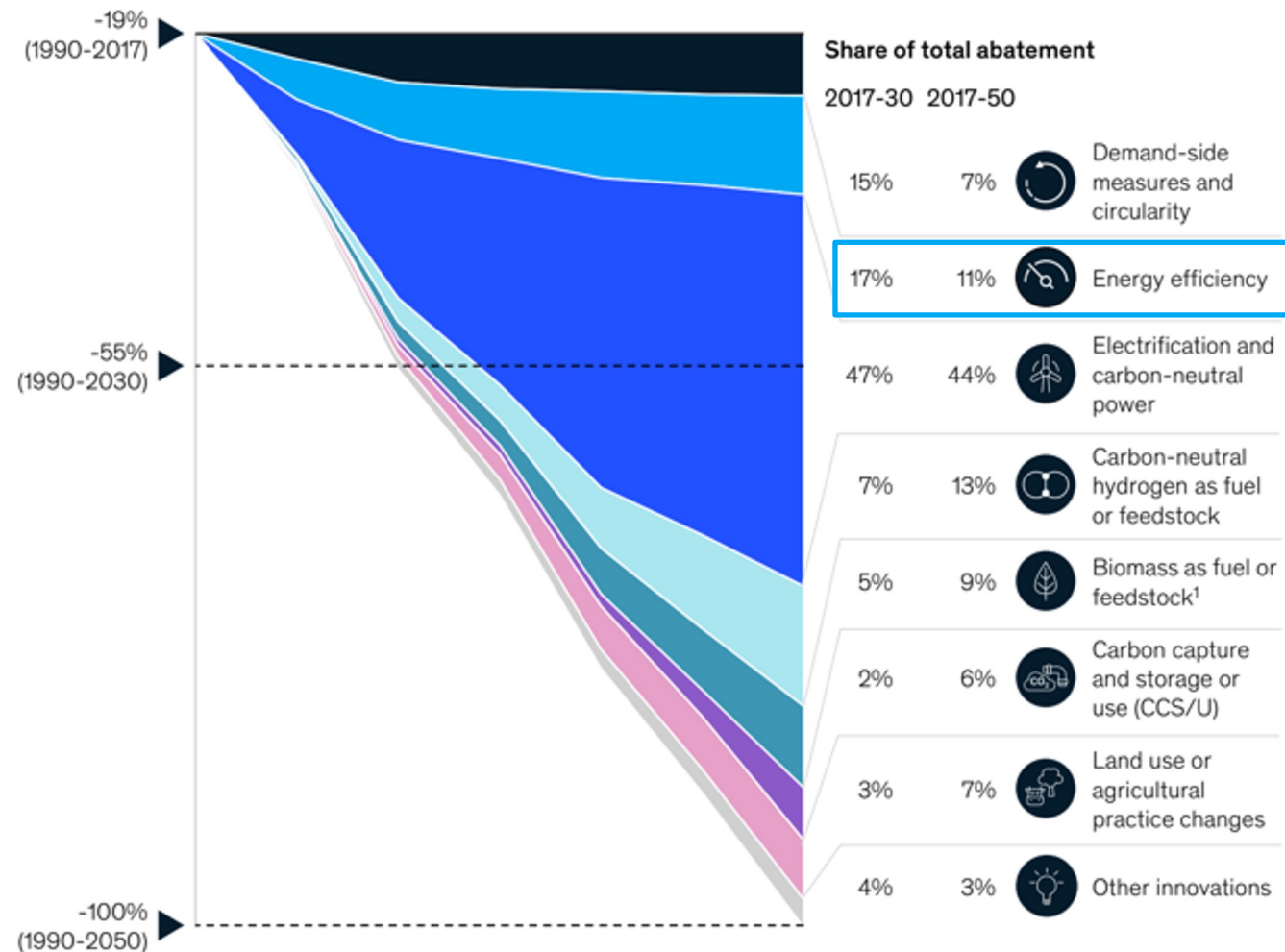
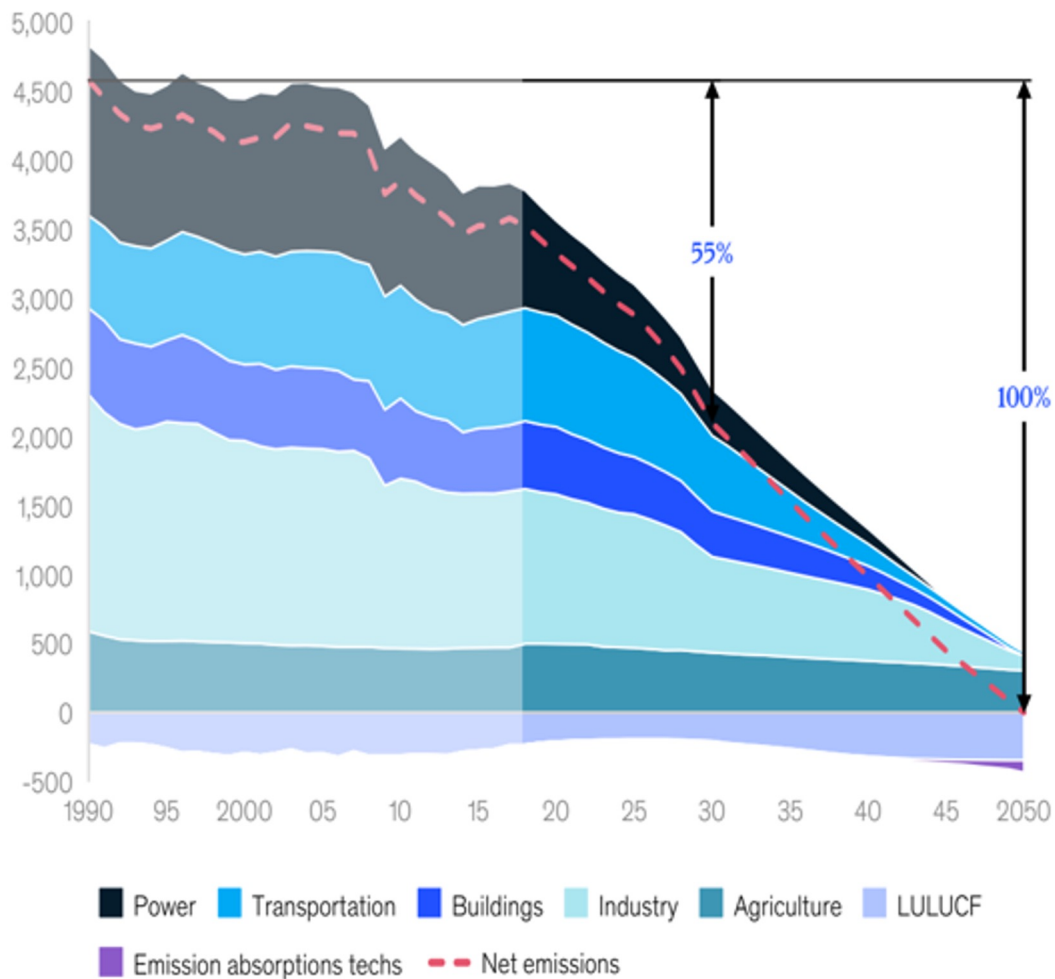


FUTURE DIRECTION



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ENERGY EFFICIENCY IS ONE OF THE TOOLS FOR DECARBONISATION BY 2050



THE PRIORITIES FOR ENERGY EFFICIENCY IMPROVEMENT IS STRENGTHENED IN THE NEW POLICY PACKAGE

Building sector – Near-zero energy buildings (NZEB) are a new construction standard. Renovation strategies foresee modernization to higher performance.

Transport – electric vehicles and charging infrastructure are promoted, and bans on internal combustion engine cars are coming.

Electrification is foreseen for heat production, transport and substitute for natural gas

Industry – energy audits and energy management systems for large energy consumers

Public sector – renovation to NZEB level, energy efficient procurement, and annual energy saving targets are introduced

SUMMARY: KEY TAKE AWAYS

- Energy efficiency is understood as a metric which is used to track the improvement
- EU policy framework starts from the climate goal and cascades it to different sectors
- EED provides a more general framework for increasing energy efficiency and achieving energy savings
- The actions span over demand and supply side, together with horizontal provisions
- The energy performance of buildings directive keeps on improving the ways to make buildings better
- The upcoming EPBD will bring additional improvements and new concepts
- The transposed policies are implemented with the help of positive and negative encouragement regulation, information and incentives are the main mechanisms needed for successful policy
- Energy efficiency helps to limit growing energy demand and decouples emissions and economic growth
- Industry has created the largest change in energy consumption
- Achievements of energy efficiency improvement in buildings remain invisible due to the growing building stock
- Energy efficiency is one of the tools for decarbonisation by 2050
- The priorities for energy efficiency improvement are strengthened in the new policy package

EU APPROACH TO THE PROMOTION OF ENERGY EFFICIENCY - LESSONS LEARNED AND A WAY FORWARD

***THANK YOU FOR
YOUR ATTENTION !***



Karolis Januševičius, PhD ⚡

Energy consultant | Energy efficiency professional
*„Helping to Unlock the Value of Energy Efficiency and
Sustainability for a More Resilient Future “*



Karolis Januševičius



karolis.janusevicius@gmail.com



<http://karolis.janusevicius.lt>