Co-funded by the Horizon 2020 programme
of the European Union

ODYSSEE-MURE

First meeting of the project *"ODYSSEE-MURE, Monitoring EU Energy Efficiency First Principle and Policy Implementation"*
16-18 December 2019, Berlin, Germany

Outlining the Efficiency First Principle

Mandel, Tim (Fraunhofer ISI)

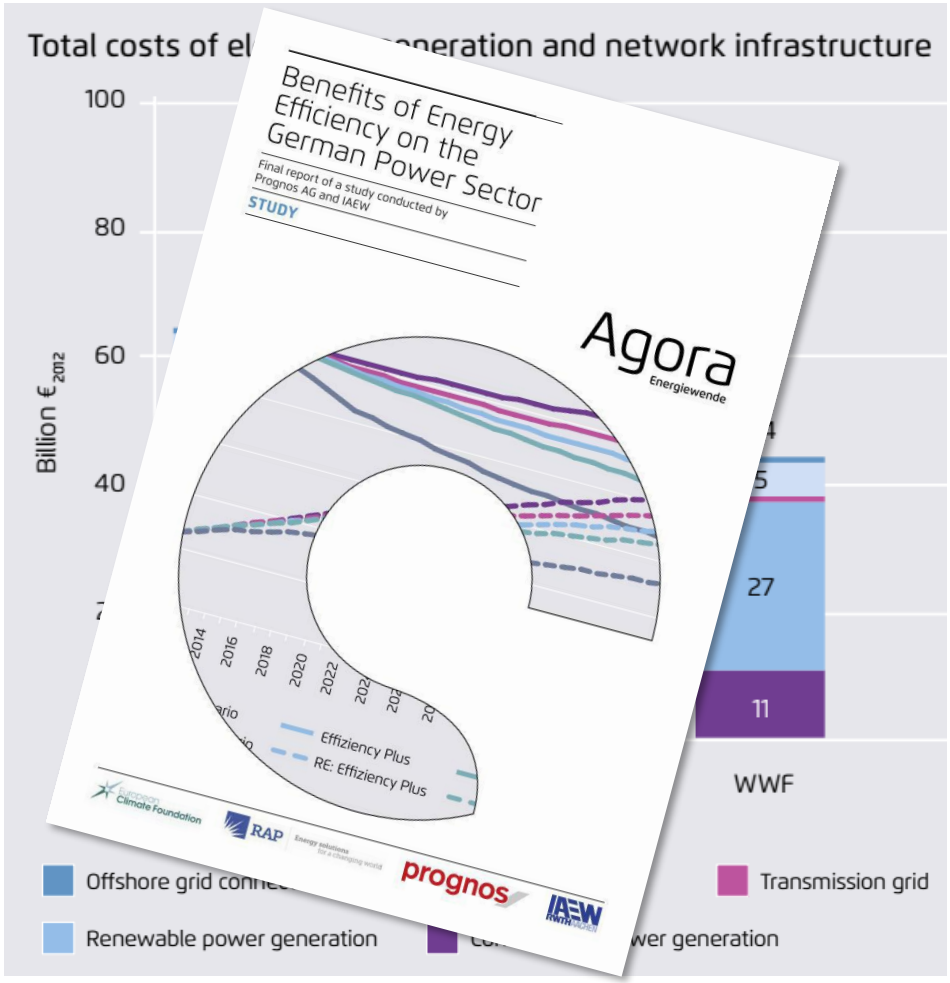
Fraunhofer ISI

Agenda

1. Why « Efficiency First » ?
2. What is « Efficiency First » (what is it not)?
3. How to implement « Efficiency First » ?

1 Why « Efficiency First » ?

(Economic) benefits of energy efficiency for the German power sector

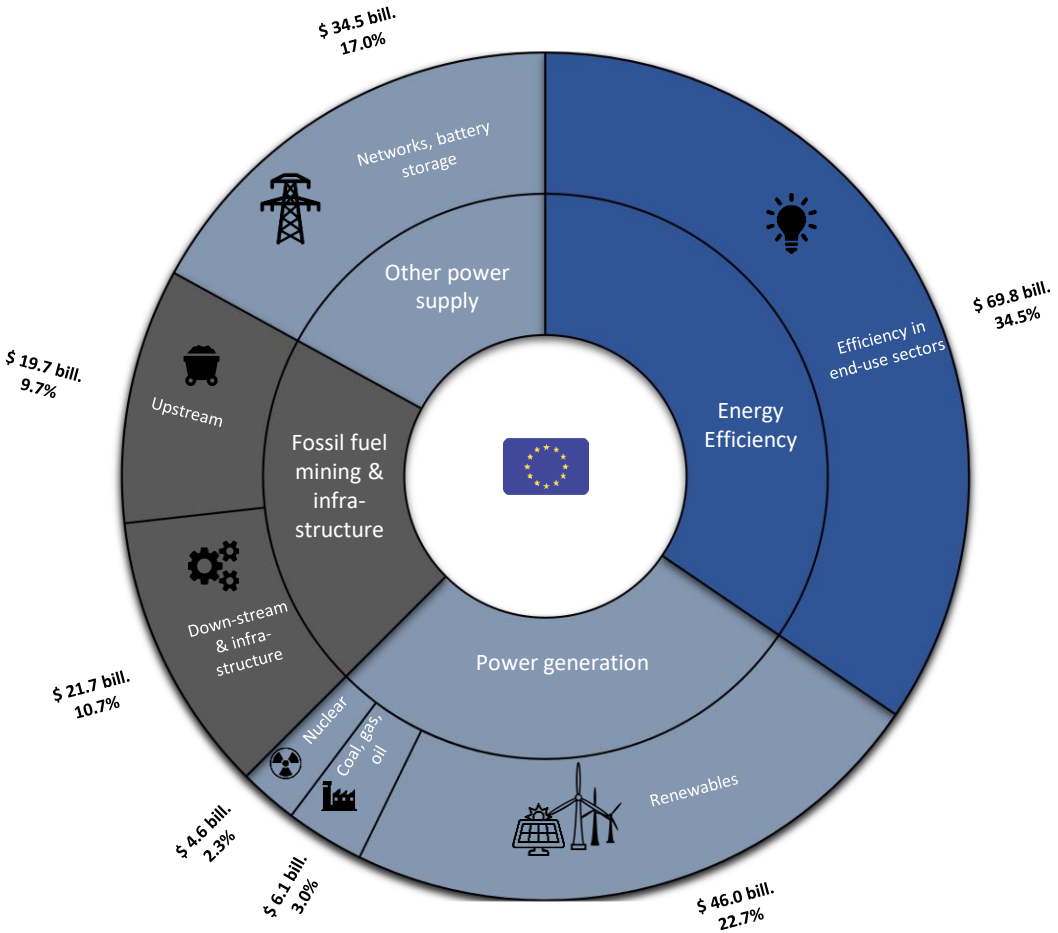


Agora Energiewende (2014): Benefits of Energy Efficiency on the German Power Sector. Final report of a study conducted by Prognos AG and IAEW. Berlin: Agora Energiewende.

- model-based assessment of economic costs of different development paths for German power sector
- **Key result (1):** If electricity consumption can be lowered by 10 to 35 percent by 2035 compared to the Reference scenario outlined in the study, the annual costs for electricity generation will reduced by 10 to 20 billion euros.
- **Key result (2):** A significant increase in energy efficiency can reduce the long-term need to expand the transmission grid: between 1,750 and 5,000 km in additional transmission lines will be needed by 2050, down from 8,500 km under the “business as usual” scenario.

1 Why « Efficiency First » ?

Total energy investment in the EU-28 (2018)



- few signs of major reallocation of capital in the EU towards energy efficiency (IEA)
- total investment fossil/nuclear fuels ≲ total investment energy efficiency
- need for high level commitment to systematically identify decision points where energy efficiency is overlooked or undervalued

IEA (2019): World Energy Investment 2019. Paris: International Energy Agency (IEA).

Agenda

1 Why « Efficiency First » ?

2 What is « Efficiency First » (what is it not)?

3 How to implement « Efficiency First » ?

2 What is « Efficiency First » (what is it not)?

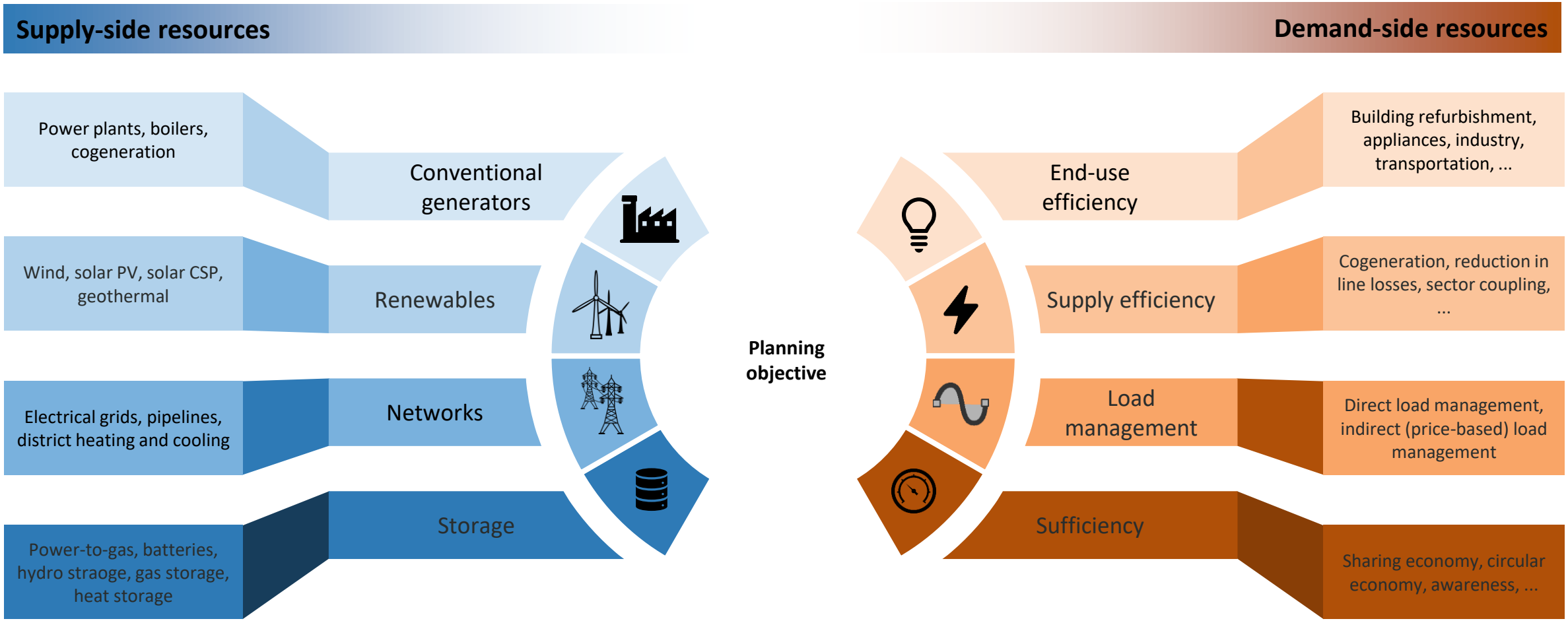
Definition Governance Regulation

> Member States should use the energy efficiency first principle, which means to consider, before taking energy planning, policy and investment decisions, whether cost-efficient, technically, economically and environmentally sound alternative energy efficiency measures could replace in whole or in part the envisaged planning, policy and investment measures, whilst still achieving the objectives of the respective decisions.

European Union (2018): Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action. PE/55/2018/REV/1. Brussels: European Union.

2 What is « Efficiency First » (what is it not)?

Trade-Off Supply- vs. Demand-side resources



2 What is « Efficiency First » (what is it not)?

Common misconceptions

	Statement	Response
(I)	« Efficiency First » means that energy efficiency is all that matters.	No, only that it should always be considered on a par with other options, from renewables to grid reinforcements.
(II)	« Efficiency First » is just a slogan.	No. It means systematically scanning every planning proposal with an EE lens. It's about using EE to frame how Europe plans, finances and delivers its energy system.
(III)	« Efficiency First » is another example of the EU going it alone.	Wrong, the U.S. are ahead of the EU, having extensive experience with «Least-Cost-Planning» approaches in systems planning at utility level

Bayer, Edith; Bowie, Randall; Cowart, Richard; Fong, Patty; Genard, Quentin; Holmes, Ingrid et al. (2016): Efficiency First: A New Paradigm for the European Energy System. Driving competitiveness, energy security and decarbonisation through increased energy productivity. Berlin/Brussels: European Climate Foundation.

Agenda

1 Why « Efficiency First » ?

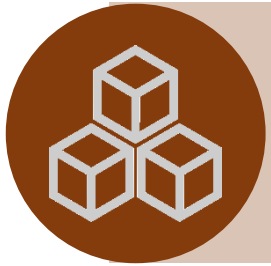
2 What is « Efficiency First » (what is it not)?

3 How to implement « Efficiency First » ?

3 How to implement « Efficiency First » ?

How to apply the Efficiency First principle in the EU context?

PRINCIPLES



PLAN

Legally enshrine E1st as a foundational policy of the Energy Union

ACTION PLANS

PLAN

e.g. Revise the 2030 EE target to -40% to meet the Energy Union's commitments
e.g. Incorporate E1st into the formulation of NECPs

LEGISLATION

PLAN

e.g. social discount rates in demand projections

REGULATE

Market design rules; dedicated EE framework

FINANCE

E1st as guiding principle for allocation of funds

Bayer, Edith; Bowie, Randall; Cowart, Richard; Fong, Patty; Genard, Quentin; Holmes, Ingrid et al. (2016): Efficiency First: A New Paradigm for the European Energy System. Driving competitiveness, energy security and decarbonisation through increased energy productivity. Berlin/Brussels: European Climate Foundation.

3 How to implement « Efficiency First » ?

REGULATE: E1st as a fundamental principle of energy market design

Wholesale power markets

- Permit demand-side resources to compete with generation
- give consumers right to participate in wholesale power markets

Regulation of TSOs/DSOs

- obligation to consider all cost-effective options (incl. EE and demand response) in developing resource adequacy assessments, investment plans

Consumer tariffs

- Require network and retail tariffs to reflect actual consumer usage
- minimize fixed charges to incentivize energy savings

Rosenow, Jan; Bayer, Edith; Rososinska, Barbara; Genard, Quentin; Toporek, Marta (2016): Efficiency First: From Principle to Practice. Real World Examples From Across Europe. Brussels: Energy Union Choices.

3 How to implement « Efficiency First » ?

FINANCE: E1st as a guiding principle for the allocation of public funds

Conditionality for supply-side funding

- when public funding is provided for supply resources, consumers should be required to identify efficiency potentials before they are allowed to access funding

ETS revenue recycling

- revise ETS revenue recycling rules to put E1st, by ensuring that min. amount of every tonne sold is spent on end-use efficiency to benefit households and businesses

Rosenow, Jan; Bayer, Edith; Rososinska, Barbara; Genard, Quentin; Toporek, Marta (2016): Efficiency First: From Principle to Practice. Real World Examples From Across Europe. Brussels: Energy Union Choices.

Conclusion

- « Efficiency First » comes down to prioritizing investments in energy efficiency whenever they would cost less or deliver more than investing in generation, networks, and storage.
- Applying this logic to all energy policy decisions can strengthen Europe's economic recovery, lower fuel imports, build competitiveness, create jobs, improve air quality and bring down the costs of the transition to a low-carbon society.
- To realize the full potential of the « Efficiency First » principle, take explicit account of distributional effects (energy poverty) and new societal trends (sufficiency, digitalization).

Rosenow, Jan; Bayer, Edith; Rososinska, Barbara; Genard, Quentin; Toporek, Marta (2016): Efficiency First: From Principle to Practice. Real World Examples From Across Europe. Brussels: Energy Union Choices.

Tim Mandel
Tim.Mandel@isi.fraunhofer.de

Fraunhofer-Institut für System- und Innovationsforschung ISI
Breslauer Straße 48
76139 Karlsruhe

Wolfgang Eichhammer
Wolfgang.Eichhammer@isi.fraunhofer.de

Fraunhofer-Institut für System- und Innovationsforschung ISI
Breslauer Straße 48
76139 Karlsruhe

Rosenow, Jan; Bayer, Edith; Rososinska, Barbara; Genard, Quentin; Toporek, Marta (2016): Efficiency First: From Principle to Practice. Real World Examples From Across Europe. Brussels: Energy Union Choices.