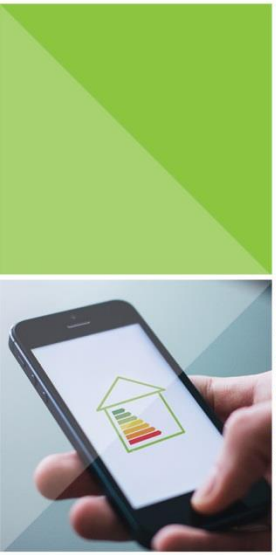





CLEAN ENERGY FOR ALL EUROPEANS

Unlocking Energy Efficiency post 2020
Policy background & R&I challenges

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

CLEAN ENERGY FOR ALL EUROPEANS PACKAGE

Innovative

Inter-connected

Enabling Framework

Energy Union Governance

Inclusive

Energy Efficiency

Energy Efficiency Directive, Energy Performance of Buildings Directive

Renewables

Revised Renewable Energy Directive

Electricity Market Design

Regulation and Directive on internal electricity market; Regulation on risk-preparedness, ACER regulation

Socially fair

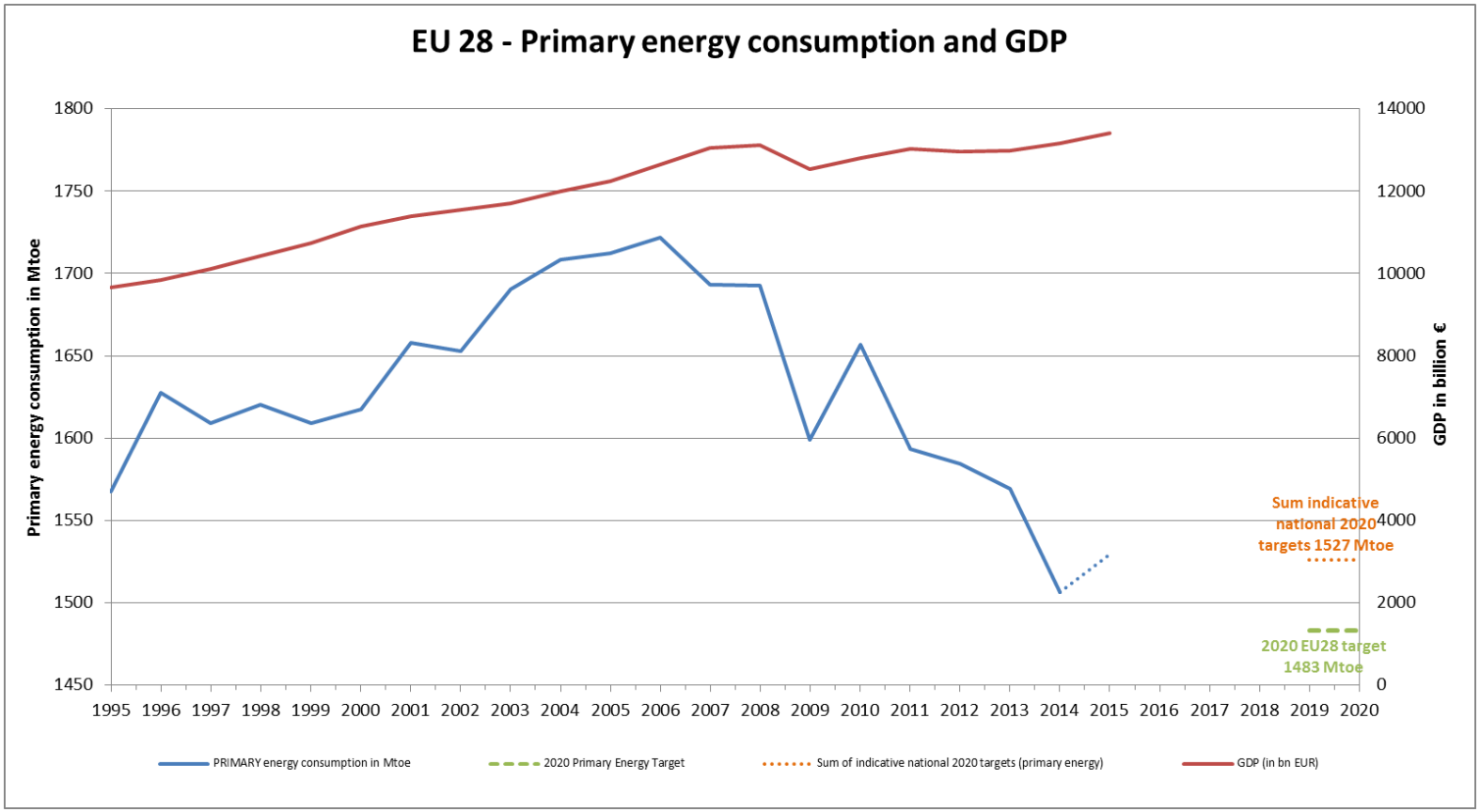
Safe for all

Digital

Investment-friendly

European Commission

It's not a dream…



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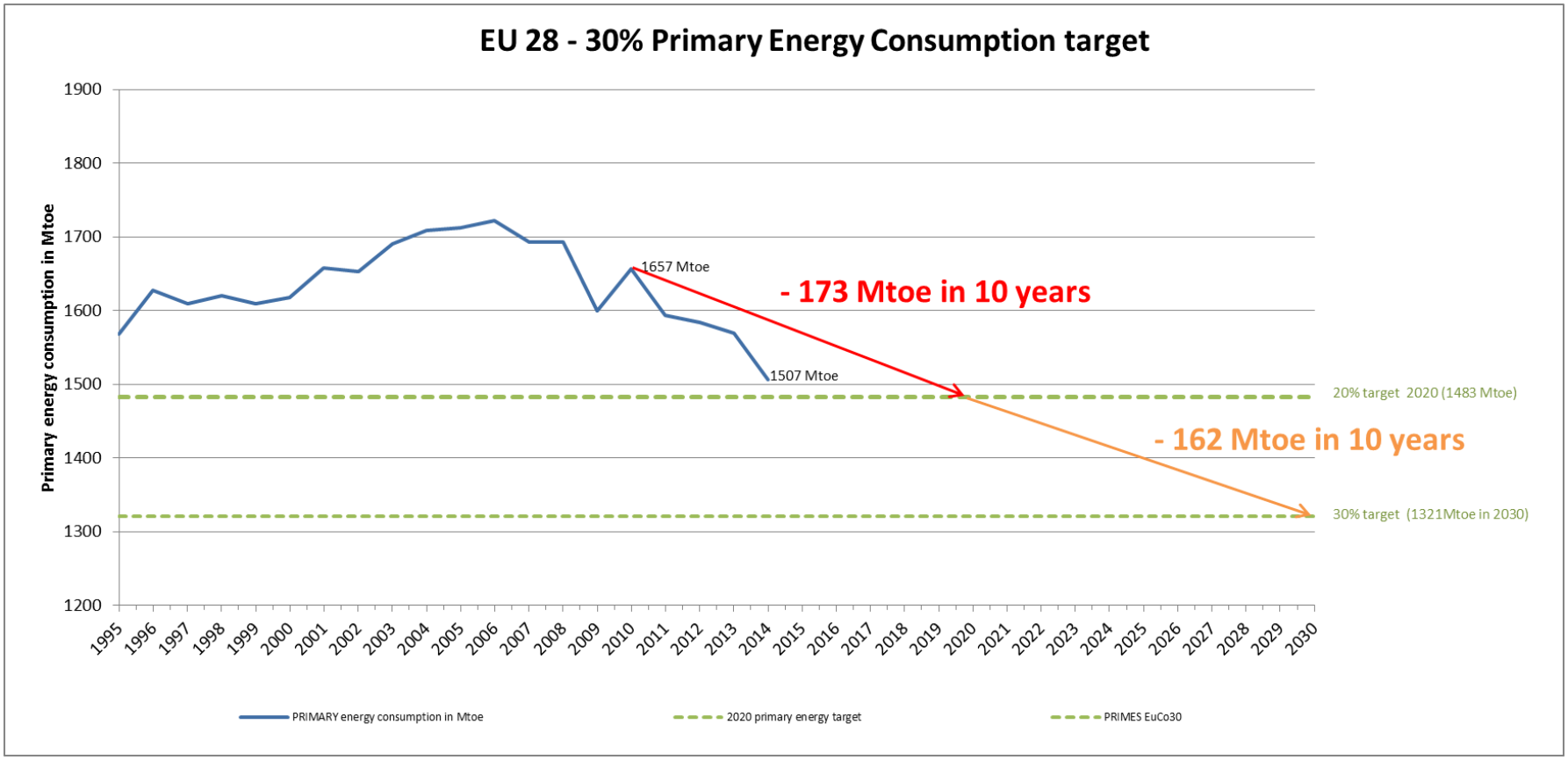
On track to meet 2020 EE target



European Commission

Why do we need new policy then?

12 lm/W
~ 8.3W

-82%

65 lm/W
~ 1.5W

-45%

120 lm/W
~ 0.83W

Policy conclusions for 2030

*1. **Building renovation** has to do more*

*2. **Financing** has a more important role to play*

*3. **Digital/ICT** has a big potential to:*

- Capture behavioral change potentials

- Improve energy performance assessment and measurement accuracy for new business models (guaranteed energy savings)

- Activate demand-side resources to optimise energy use within the building and across the system

Energy Efficiency first

ACHIEVING THE BINDING 30% ENERGY EFFICIENCY TARGET BY 2030

Energy Efficiency Directive

- Binding 30% energy efficiency target for 2030;
- Create 400,000 new jobs;
- Reduce gas imports by 12%;
- Save € 70 billion in fossil fuel imports;
- Empower consumers by granting access to information on their energy consumption.

Energy Performance of Buildings

- Clear vision for a decarbonised building stock by 2050;
- Smart & Efficient buildings through use of Information and Communication Technologies and Smart Technologies;
- Electro-mobility infrastructure in buildings
- Smart Finance for Smart Buildings initiative:
  - More effective use of public funding
  - Aggregation of funds
  - De-risking
- Protect vulnerable groups & address energy poverty.

Ecodesign Working Plan 2016-2019

- List of new product groups;
- Outline on how ecodesign will contribute to circular economy objectives;
- Specific measures on air conditioning;
- Guidelines on voluntary agreements.

European Commission

R&I CHALLENGES TO UNLOCK ENERGY EFFICIENCY

Upgrading buildings' energy performance and smartness

(renovations- innovative technologies, processes and business; innovation in buildings energy performance assessment; smart homes)

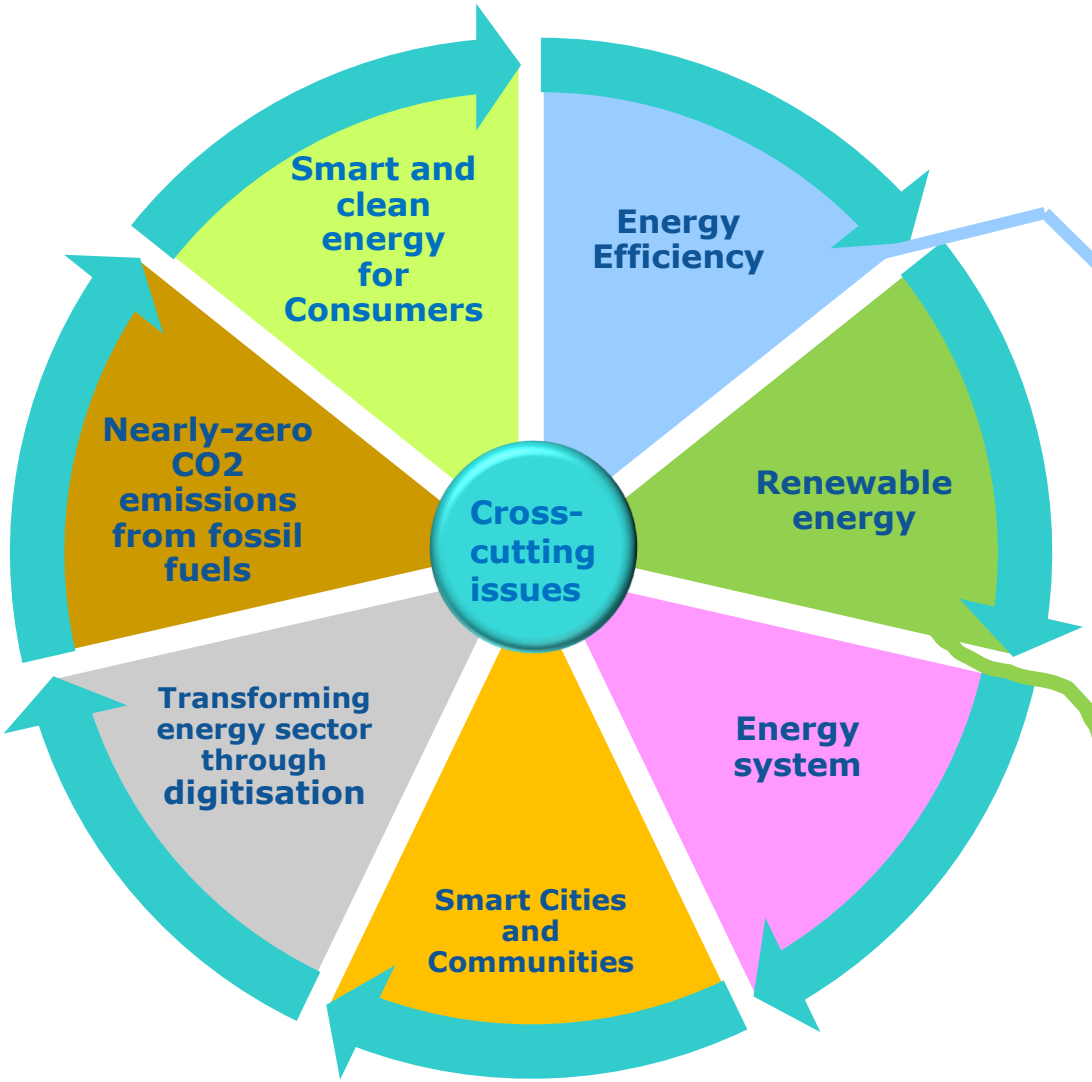
Energy efficiency is an investment

(standardisation based on reliable data, non-energy benefits valuation, aggregation of projects, innovative financing schemes)

Energy efficiency is an energy source

(next-generation of smart energy services valorising energy efficiency and consumption flexibility as energy source, socio-economic research conceptualising energy efficiency as "first fuel")

Overview- H2020 - Societal Challenge 3



- Upgrading buildings' energy performance and smartness
- Energy efficient industry and services
- Energy efficiency is an investment
- Energy efficiency is an energy source
- Support for policy-driven innovations

- Next generation renewable energy solutions
- RES at consumer scale
- RES for system level implementation
- Renewable fuels for transport

European Commission

Energy Efficiency – sub-areas

Smart and clean energy for consumers

Upgrading buildings' energy performance and smartness

Energy efficient industry and services

Energy efficiency is an investment

Energy efficiency is an energy source

Support for policy-driven innovations

EC1 2019-2020 Consumers collective actions

Rationale (why?):

Barriers continue to exist to the integration of consumers into the energy market, and to consumers fully benefitting from active demand side services available on the market and/or being developed. Different forms of collective action have the potential to assist consumers in forming critical mass and to facilitate increased uptake of energy efficiency & active demand solutions and services.

Key issues (how)?:

- *Identify and address regulatory barriers and contractual conditions with utilities, suppliers, grid operators, technology providers etc. for cooperative actions, possibly linking activities with structural solutions involving public authorities;*
- *Demonstrate that collectively organised energy-related actions are financially viable and attractive to the consumers-members of the energy community.*

Expected impact

- Consumers involved in collective actions and active demand-side services;

- Contribution to reducing regulatory barriers and improving contractual conditions;

- Increased knowledge and practical application of consumer motivations to adopt demand side services.

EE1 2018-2019-2020 Decarbonisation of the EU building stock: innovative approaches and affordable solutions changing the market for buildings renovation

Rationale (why?):

Rates of building renovation are too low, and renovation projects need to become more reliable, less time-consuming, more cost-effective and less cumbersome for the occupants

Key issues (how?):

Demonstrate innovations that ensure faster and cheaper renovation of buildings leading to high energy performance standards with less disruption.

Expected impact:

- 15% cost reduction compared with typical renovation (that meets current building regulations);
- Demonstrate the effectiveness of the proposed solutions to reach an increased rate of renovation of a defined building typology in a specific district/city/region.
- Reduce time needed for renovation by half compared with typical renovation.

EE2 2018-2019 Integrated Home Renovation Services

Rationale (Why?)

In the private residential sector, the lack of capacity of homeowners and fragmentation of the construction sector requires specific approaches to upscale investments in energy renovation.

Key issues (How?)

- Support the development of "Integrated Home Renovation Services" with one single operator -offering services from information, diagnosis, technical offer, contracting of works, structuring and provision of finance, to the monitoring of works, monitoring of energy savings, quality insurance.
- Switch from single emergency interventions [e.g. boiler breakdown] to the identification and holistic servicing of renovation projects.

Expected impact

- Implementation and upscale of economically viable business models, running without the need for public subsidies
- Development of large, standardised investment pipelines for home renovation

EE4 2019-2020 Upgrading smartness of existing buildings through innovations for legacy equipment

Rationale (why?):

Demonstrate easy and cost-efficient integration of smart home energy management in existing buildings including installed systems and appliances

Key issues (how?):

- Demonstrate technological solutions in existing buildings to achieve levels of smartness that optimise building energy use and enable active-demand side services including D-R, energy storage via H&C or DHW and charging of EV.
- Several types of domestic appliances, that are relevant for contributing to the above-mentioned goals, should be tested in order to assess their performance and reliability in fulfilling new functionalities.

Expected impact:

Demonstrate in several pilots how the smart systems (smart controllers and smart appliances) can be integrated in the existing buildings to interface and/or to control the major energy consuming domestic appliances that are already installed;

EE5 2018-2019-2020 Next-generation of Energy Performance Assessment and Certification

Rationale (why?):

Improve tools and methods for reliable and cost-effective energy performance assessment in order to upgrade the practices and tools and ensure the convergence of Energy Performance Certificates across the EU

Key issues (how?):

Focus on methods convergence, EU standards operationalization, compliance with EU legislation of building energy performance assessment and certification (CSA- 2018)

Focus on definition and demonstration of innovative approaches to the assessment of building energy performance (IA-2019)

Expected impact:

- Evolution of energy performance assessment practice across the EU;

- Increased convergence of energy performance assessment and certification and uptake and compliance with EU standards;

- Quantified enhancement of building energy performance reliability;

EE9 2018-2019 Innovative financing for energy efficiency investments

Rationale (Why?)

Innovative financing schemes need to be developed in order to help a better use of public funds to leverage in private finance

Key issues (How?)

Financing schemes can include, not exclusively:

- replication of solutions already implemented through PDA facilities (MLEI, Horizon 2020 PDA, ELENA)
- integration of EU ETS or energy efficiency obligations in new business models
- establishment of local/regional aggregators which are able to develop large standardised project pipelines
- support to the creation of national investment platforms for energy efficiency

Expected impact

- Innovative financing schemes operational and ready to finance EE investments;
- Local/regional aggregators able to set up large-scale (standardized) project pipelines;
- Regional/national energy efficiency investment platforms providing a comprehensive range of support and/or services to facilitate access to energy efficiency finance.

EE 11 2018-2019-2020 Project Aggregation-Project Development Assistance

Rationale (Why?)

- Help project promoters find innovative ways to build large scale investment programmes
- Build capacity of project aggregators, in particular, in the public sector to structure programme and to tap into private capital
- Support the delivery of the Smart Finance for Smart Buildings Initiative

Key issues (How?)

- Specific focus areas such as cities with buildings renovations and retrofitting of heating & cooling, industry and services, infrastructure operators and large property owners
- Deploy more flexible application modalities for applicants
- Focus on the regions where less is happening and attract highly innovative schemes

Expected impact

- Delivery of a series of sustainable energy investment projects and innovative financing solutions and/or schemes including their uptake from potential replicators
- Every million Euro of Horizon 2020 support should trigger investments worth at least EUR 15 million
- Primary energy savings, renewable energy production and investments in sustainable energy triggered within project duration

EE13 2018-2019-2020
Enabling next-generation of smart energy services valorising EE as energy resource

Rationale (Why?)

New energy technologies and services are emerging. It is crucial that these include, up-grade and valorise energy efficiency and demand-side flexibility; engage more and new actors and sectors; contribute to the verification of energy savings and flexibility.

Key issues (How?)

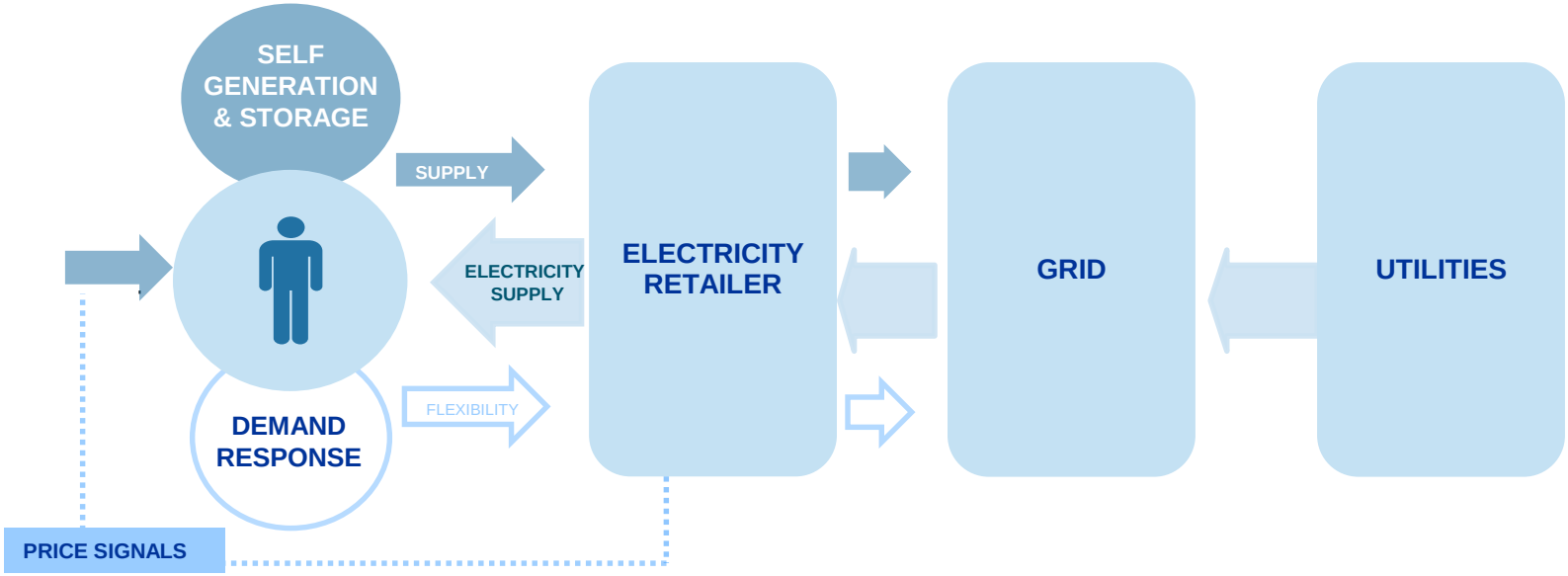
Develop and validate the use case and commercial framework for new types of demand-side energy services, e.g. by

- developing and testing business models integrating energy efficiency, demand-side flexibility, other services and non-energy benefits (incl. "pay for performance" to reduce peaks);
- conceptualising the use of 'big data' generated by equipment and sensors enabling accurate measurement and verification.

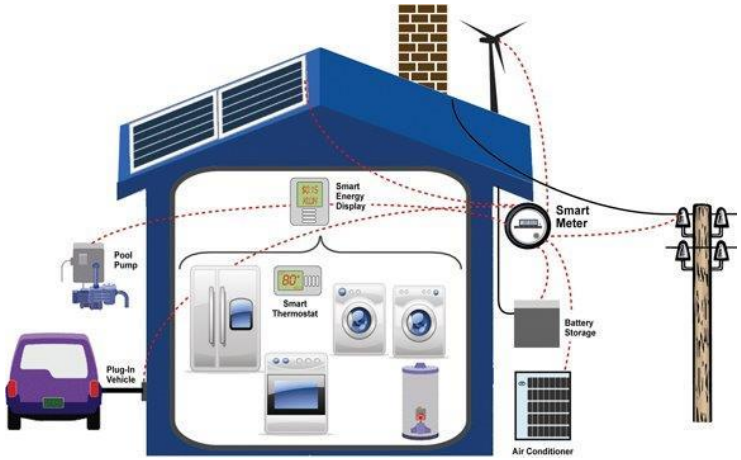
Expected impact

- up-take of innovative energy services based on distributed demand-side resources;
- up-take of innovative data gathering methods for monitoring and verification;
- improved viability of innovative energy services

ACTIVE CONSUMERS ARE KEY TO DELIVERING A MORE FLEXIBLE ENERGY SYSTEM…



BUILDINGS & SMART APPLIANCES WILL BECOME THE ACTIVE ELEMENTS OF ENERGY SYSTEM



European Commission

'Digitalisation of the energy' R&D priorities

Multiplication of connected objects
Challenge: interoperability
Call:DT-ICT-10-2018: Interoperable and smart homes and grids

Exponential increase in generation of energy-related data
Challenge: data analytics
Call: DT-ICT–11-2019: Big data solutions for energy

Challenge: cybersecurity
Call:
SU-DS-04-2018-2020: Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks.

Develop the future energy system – increase the digital capacity of the energy sector for the benefit of a system that is able to integrate higher shares of RES and to optimise energy use across the system improving overall energy efficiency

Thank you!

Margot Pinault
Policy Officer – Energy Efficiency Unit
DG ENER, European Commission

https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition