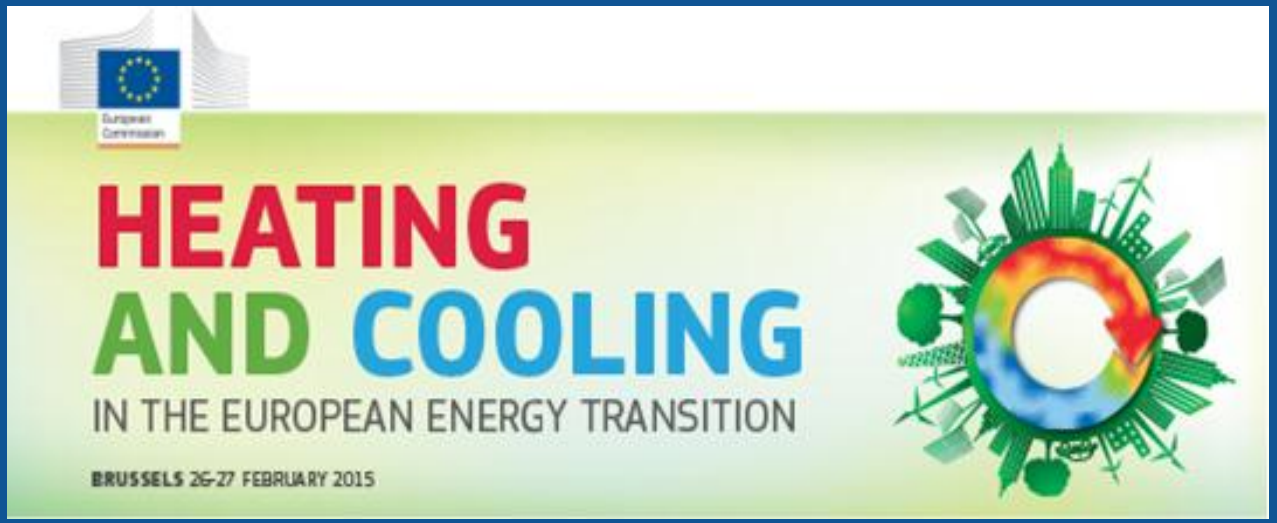
European Commission

Efficient Heating and Cooling

Implementation of Article 14 of the EED



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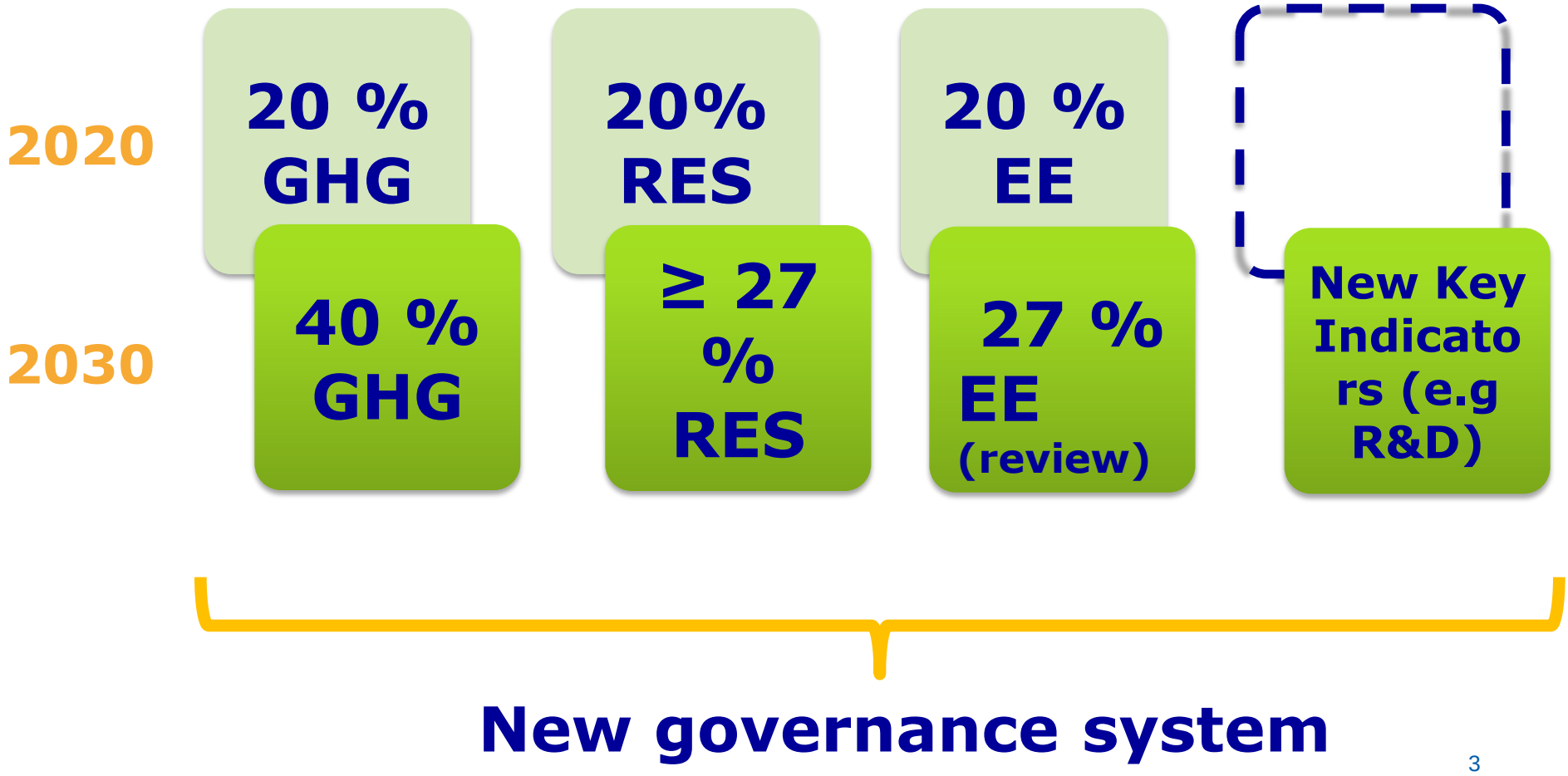
Heating and Cooling Conference

- Policy developments and context
- Implementation status EED, Article 14
- Key principles of CA implementation
- Next steps for CA, Heating/Cooling

2030 climate and energy Framework



European Commission

The way towards:

The Energy Union

Where we want to go:

A secure, sustainable, competitive, affordable energy for every European

What this means:

Energy security, solidarity and trust
A fully integrated internal energy market
Energy efficiency first
Transition to a long-lasting low-carbon society
An Energy Union for Research, Innovation and Competiveness

How we want to reach it:

1 Secure supplies

We have to become less dependent on energy from outside the EU: This means increasing transparency on gas supply; diversifying sources, supplies and routes; working together on security of supply and developing a stronger European role in global energy markets.

2 Internal energy market

Energy should flow freely across the EU – without any technical or regulatory barriers: This means connecting markets through interconnections and implementing and upgrading the internal market's software while enhancing regional cooperation and empowering consumers.

4 Emissions reduction

An ambitious climate policy is an integral part of our Energy Union: The next challenge will be to enforce the 2030 energy and climate framework, while becoming the number one in renewables.

5 Research & innovation

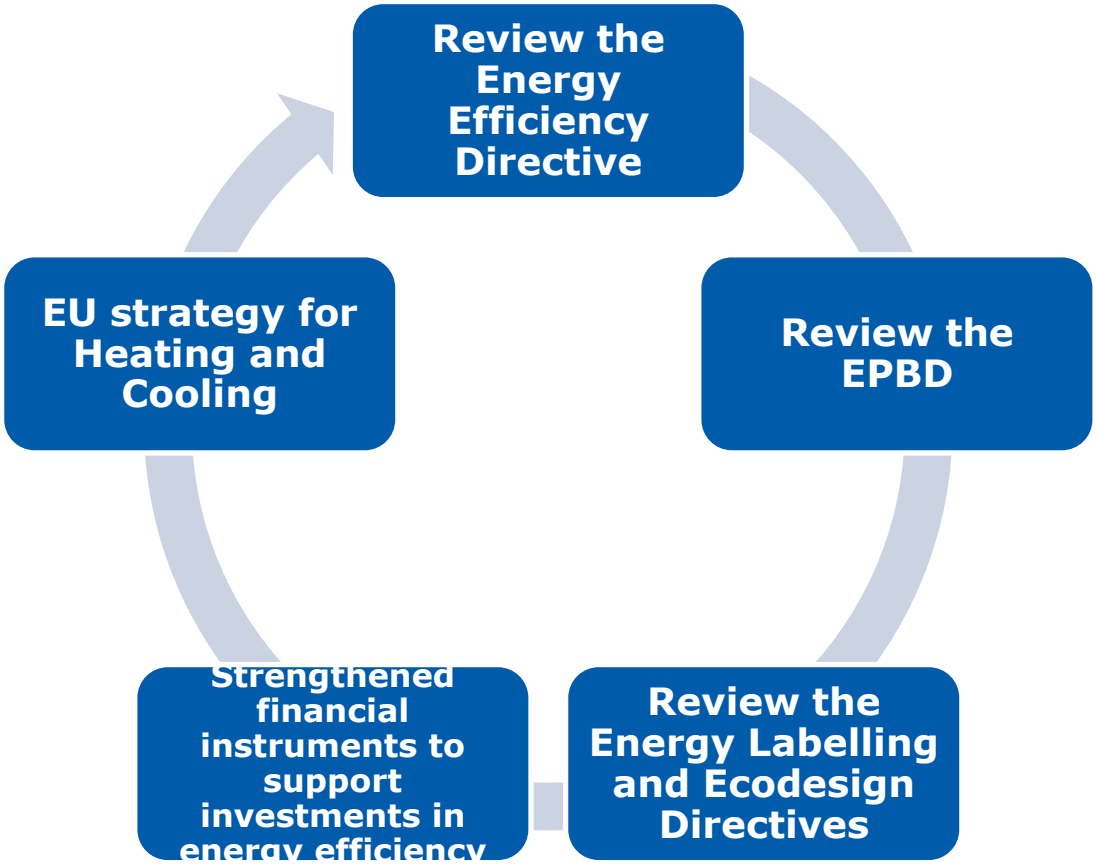
Developing EU technological leadership in low carbon technologies

3 Energy efficiency

Rethink energy efficiency as an energy source in its own right

This means increasing energy efficiency, in particular in the building sector, and promoting an energy-efficient and decarbonized transport sector as well as efficient products.

Energy efficiency - Concrete actions



Heating and Cooling Conference
26-27 February, Brussels

- comprehensive discussion on the heating and cooling sector for the 1st time
- platform for a reach debate on key issues
  - wide range of topics
  - highlighting the complexity of sector
  - need for further analysis, data, clarification
  - start of consultation process on HC Strategy
  - conclusions will feed into the HC Strategy

Conclusions (1)

- **Cost-efficient levels** of energy saving and decarbonisation?
- **Integration** of the whole energy cycle and between energy carriers' chains - Think in wider system boundaries!
  - heat/cooling systems/networks and electricity grids
  - industry and buildings (waste heat)
  - beyond the building, look at district and city dimensions
  - synergies between technologies

► Cost-efficient levels, cost control through **holistic pathways** to energy efficiency and decarbonisation in buildings (renovation) and industry

- additional energy efficiency and cost savings potentials: overall energy system costs lower, more options and more technologies become available

Conclusions (2): Industry

- Overall technical potential 22% energy savings; 8-10% is economically viable (PB 2-5 years) – This is not enough to meet policy goals – both industry and policy makers agreed on this!
- Breakthrough technologies are needed
- Potentials need to be realised! For this:
  - Information, specialised knowledge to overcome "herd mentality" - lack of awareness is pervasive
  - Tailor-made concepts and sharing best practices (sector, sub-sector specific)
  - Non-ETS sector: large potentials

► **Realise Potentials! Go Beyond Potentials! Integration! Partnerships and Cooperation!**

Conclusions (3): Financing

- Launch of the EEFIG report
- Tailor-made, easy-to-use, off-the-shelf instruments – build capacity of financing/investment community
- Buildings: Enforcement/review of building regulation, energy performance certificates,
- Industry: ISO 50001; standardisation of energy performance contracting
- Both: process standards for investment, procurement, renovation, measurement, valuation, verification of energy efficiency

Conclusions (4): Buildings

- Building level and district level energy efficiency and decarbonisation to be looked at together – to find more cost-efficient balance
- District heating/cooling in dense cities, individual renewable solutions and heat pumps in low density and rural areas
- District heating is not in conflict with low-energy buildings: there is a need for more efficient buildings (30-50% savings) together with decarbonised solutions
- Synergies between energy efficient construction and low carbon efficient heat supply from district heating and cooling

Conclusions (5): Technology

- Technologies are there but broader deployment face many hurdles: trained installers are key!
- New business models for commercialisation and streamlined regulations
- Energy labels and eco-design
- Hybrid packages with renewables
- Replacement rates and link with building renovation
- Gaps in technologies: high-temperature process – R&D&D
- Technology highlights: Smart district heating/cooling able to level seasonal and load variation with storage, industrial heat pumps, solar technologies

Conclusions (5): Heat markets

- Consumers in centre! information, personalised advice
- Level-playing field, competition
- Transparent prices are key!
- Long-term national strategies, clear policy goals are the foundations for heat markets – rallies market actors, efforts
- Heat markets are local
- Role of local authorities is central
  - Heat mapping and planning,
  - Regulatory framework (e.g. for pricing, buildings),
  - Coordination, partnerships,
  - Project structuring, financing and investing
  - Coordinating with building renovation, construction

Overall Conclusions (1)

- Better data and understanding of existing heat markets;
- Better understanding of long-term pathways to decarbonise energy use in buildings and industry;
- Clear identification of priorities for action, of trade-offs and of synergies between policies and measures;
- Viable solutions to accelerate the renovation rate of buildings and the synergies between energy efficient construction and heat supply from district heating and cooling;
- Overcoming of barriers to investment in energy efficiency and renewable energy in buildings and industry.

Overall Conclusions (2)

- There is great untapped potential to increasing energy efficiency and renewable energy use in heating and cooling through:

- Broader deployment of existing technologies;
- The development of new technological solutions;
- The use of waste heat from industry in buildings;
- The use of thermal storage to smooth out peaks for electricity demand;
- Integrated approach making the connection between the heating sector and the electricity sector.

Implementation Status

- Only six Member States declared full transposition of the EED
- Article 14 (1)-(4): CA - 31 December 2015
- Article 14 (5)-(8): CBA - 5 June 2014
- Article 24 (6): Statistics - April 2015 (delay)
  - Memorandum of Understanding with Eurostat signed 11 March to resolve resource constraints
  - New questionnaire is being developed
  - Old Questionnaire is in the transitory period

Key Principles (1)

- Current situation, trends - baseline
  - Time horizon: min. 10 years, alignment with EU/MS long-term energy and climate goals
  - Comprehensive data of demand & supply, high granularity – Heat is local!
  - Existing technologies, infrastructures (planned too)
  - Heat mapping: energy supply sources (RES, waste, fuels, plants), demand points (cities, industries)
- EE and RES goals, options to achieve them – alternative scenarios
  - CHP, DHC, RES, waste, efficient individual technologies infrastructures (linking with electricity and industry)
- Involvement and consultation of stakeholders is key

Key Principles (2)

- CBA – economic analysis + financial analysis
  - Economic, social and environmental benefits
  - Economic, social and environmental costs
  - Many of these do not have (full) market valuation - externalities
  - Financial analysis: discounted cash flows
  - Sensitivity analysis
- Geographical boundaries, system boundaries are key
  - Integrated approach
  - CBA in city/municipal/district boundaries
  - Taking into account national/EU goals

Key Principles (3)

- Selection of alternative scenarios with cost-benefit surplus (key metric NPV)
  - ⇨ Scenarios with negative financial outcome but positive economic (social, economic, environment factors) outcome can be selected – gaps can be bridged by policies, regulations, support
- Measures to realize economic potentials for CHP and DHC (mandatory), other efficient H/C options (optional) – alignment with EU/MS goals!

Next steps

- Expert workshop – tentative date: 6 May 2015
- EUSEW – Session on EPBD, Heating/Cooling, 15-19 June 2015
- Publication as best practice guidance, if sufficient consensus
- EU Strategy for Heating and Cooling – December 2015

Thank you!