

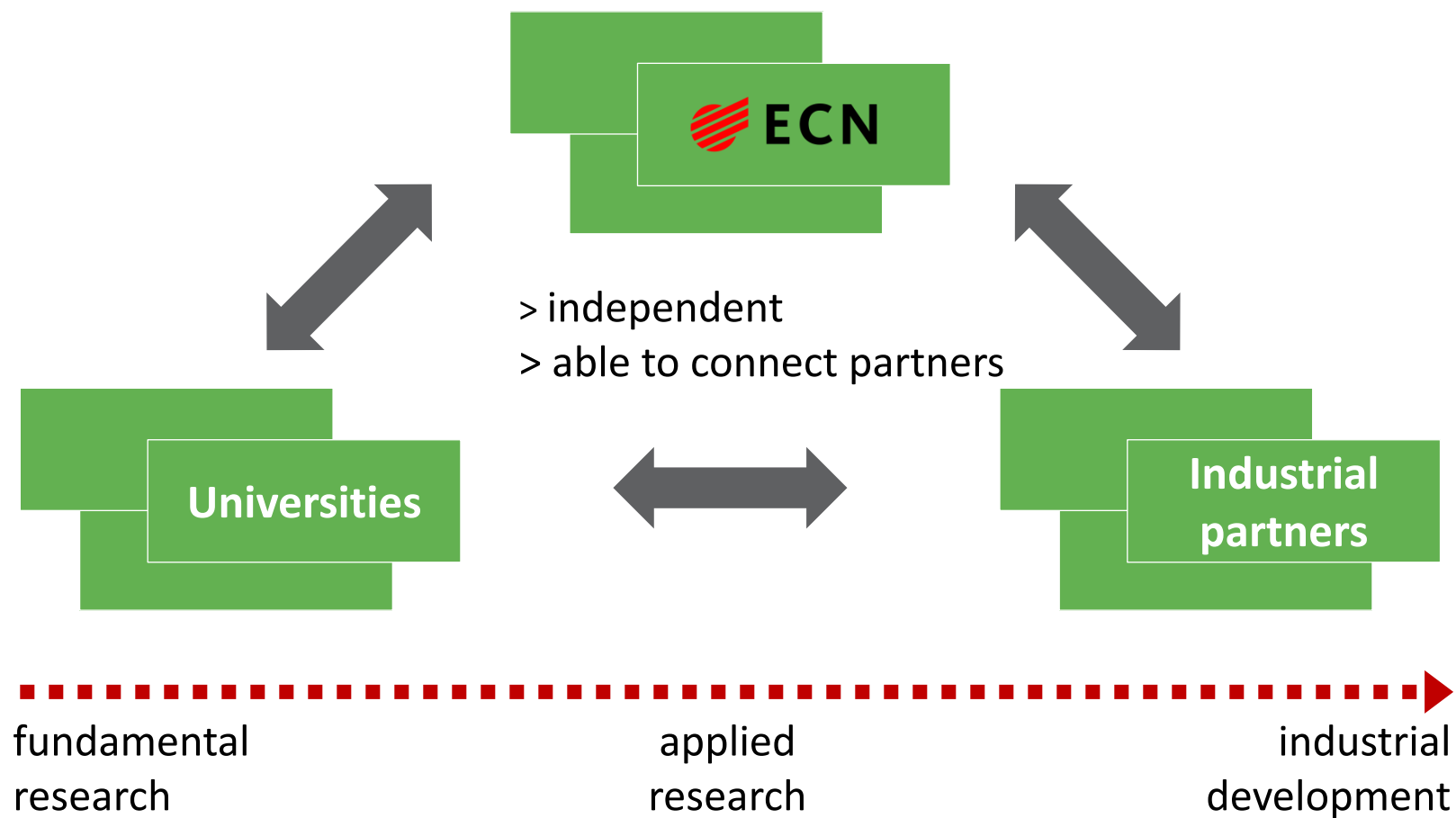
# Will the proposed Energy Efficiency Directive drive a new CHP boom in Europe?

Sytze Dijkstra  
ECN Policy Studies

PowerGen Europe 2012, Köln  
12 June 2012

# Position

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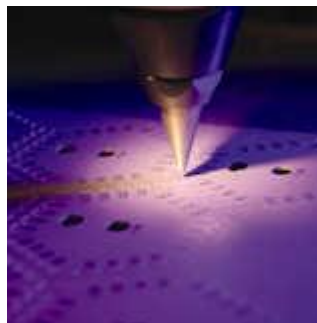


# R&D fields

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**Policy  
Studies**



**Energy  
Engineering**



**Environment**



**Wind Energy**



**Solar Energy**



**Biomass**



**Energy  
Efficiency &  
CCS**

# What we do

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- Problem solving  
*Using our knowledge, technology, and facilities to solve our clients' issues*
- Technology development  
*Developing technology into prototypes and industrial application*
- Studies & Policy support  
*Creating insights in energy technology and policy*

# Overview

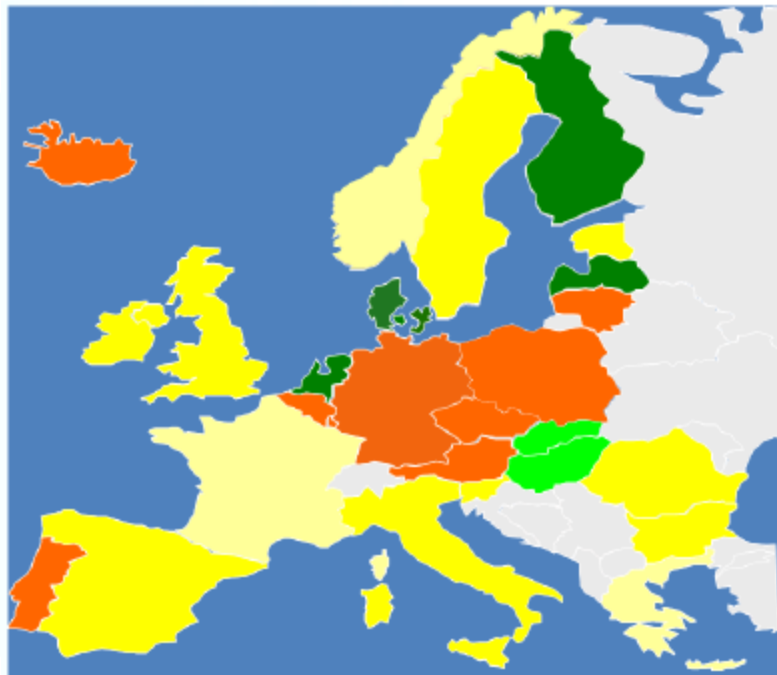
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- CHP in Europe – a patchwork of markets and policies
- The Energy Efficiency Directive: the proposed measures
- The Energy Efficiency Directive: the politics
- Conclusions: implications for CHP

# CHP in Europe – a patchwork of markets and policies

# National conditions determine attractiveness of CHP

## Share (%) of CHP in total generation 2008



- CHP Directive creates an EU framework only
- National conditions more important
  - CHP and energy policy
  - Electricity generation mix
  - Gas and electricity prices
  - Energy market set-up
  - Presence and type of heat loads

Figure 1 Map showing the percentage of CHP electricity in the delivered electricity by EU Member State

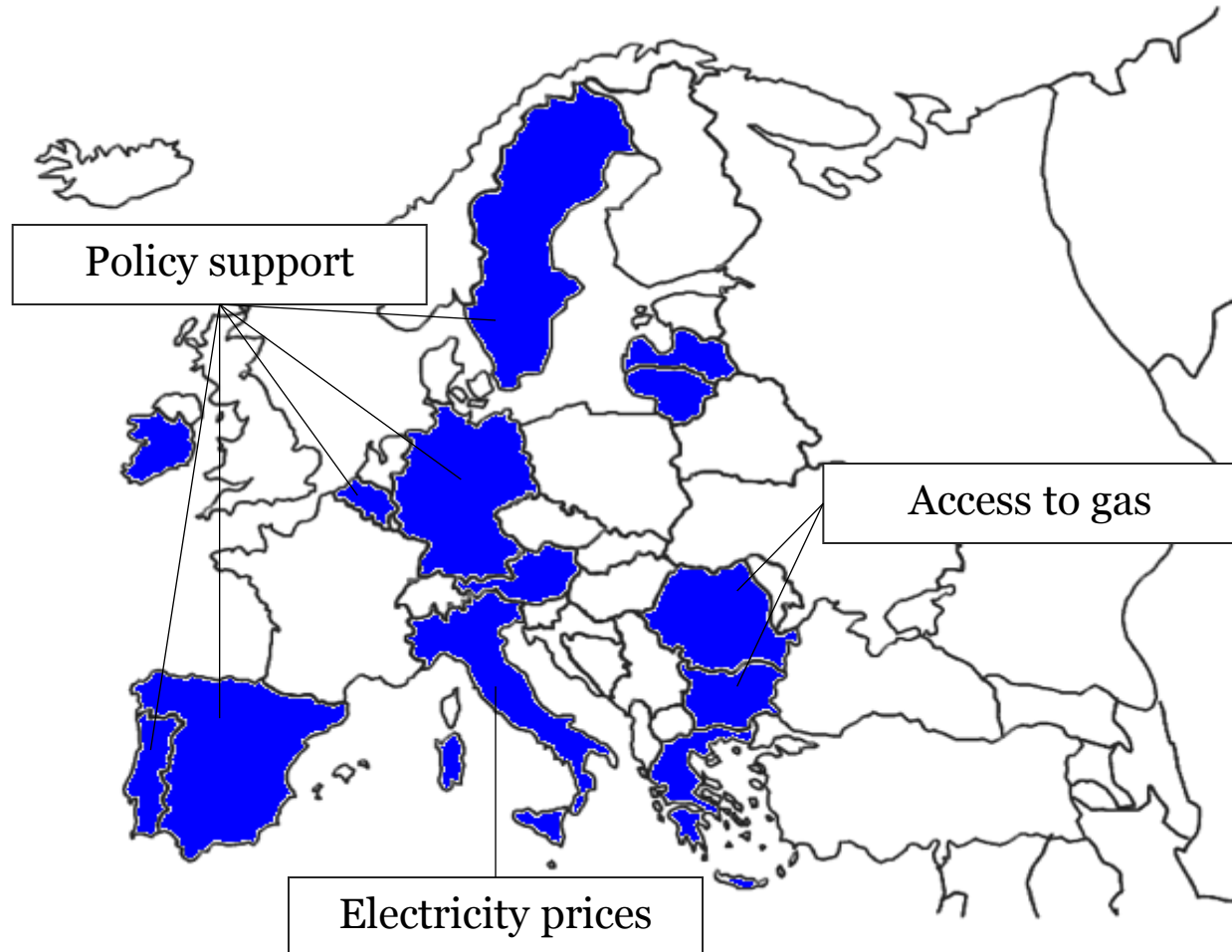
Source: CODE project



# Effect of the CHP Directive on the market

Trend since 2004

- 13 countries with growing CHP market

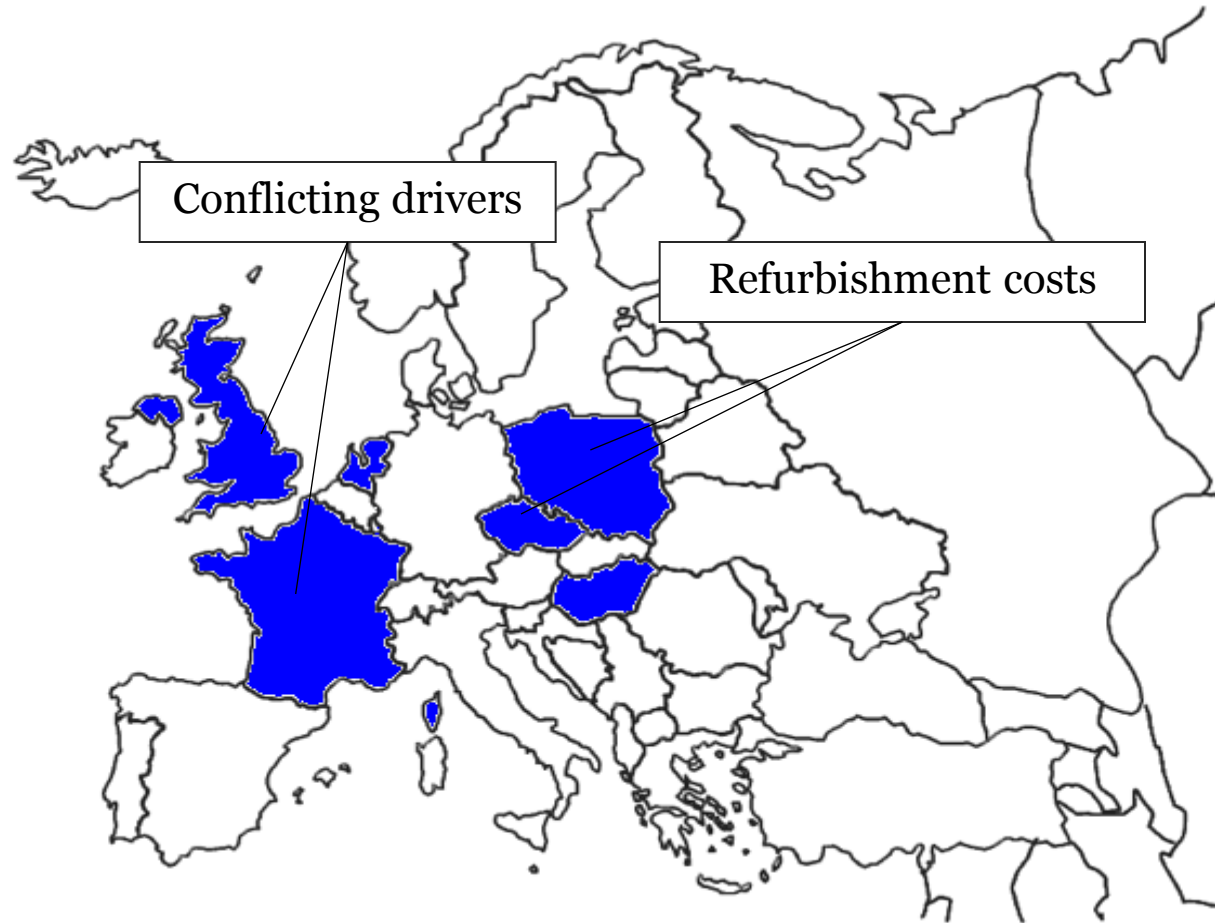




# Effect of the CHP Directive on the market

Trend since 2004

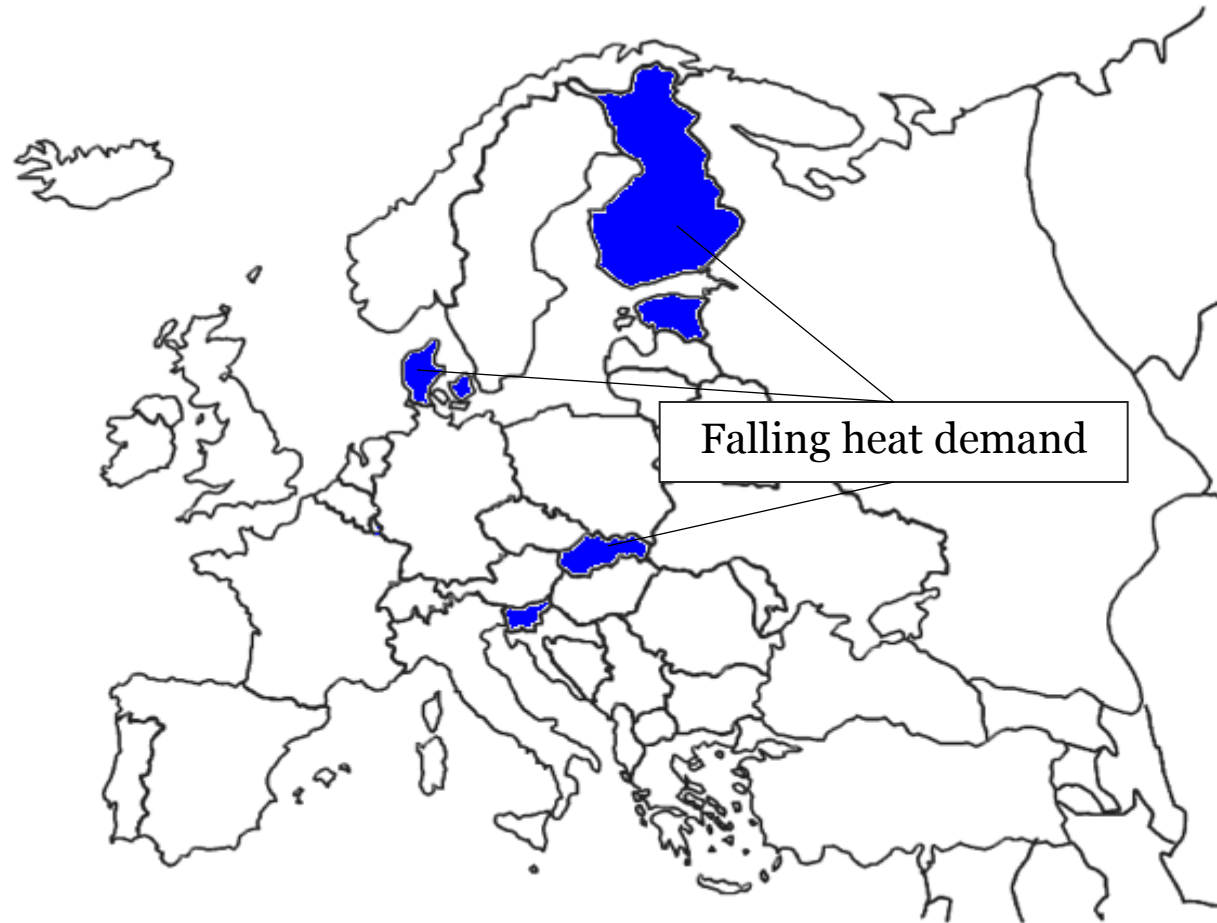
- 13 countries with growing CHP market
- 9 countries with stable CHP market



# Effect of the CHP Directive on the market

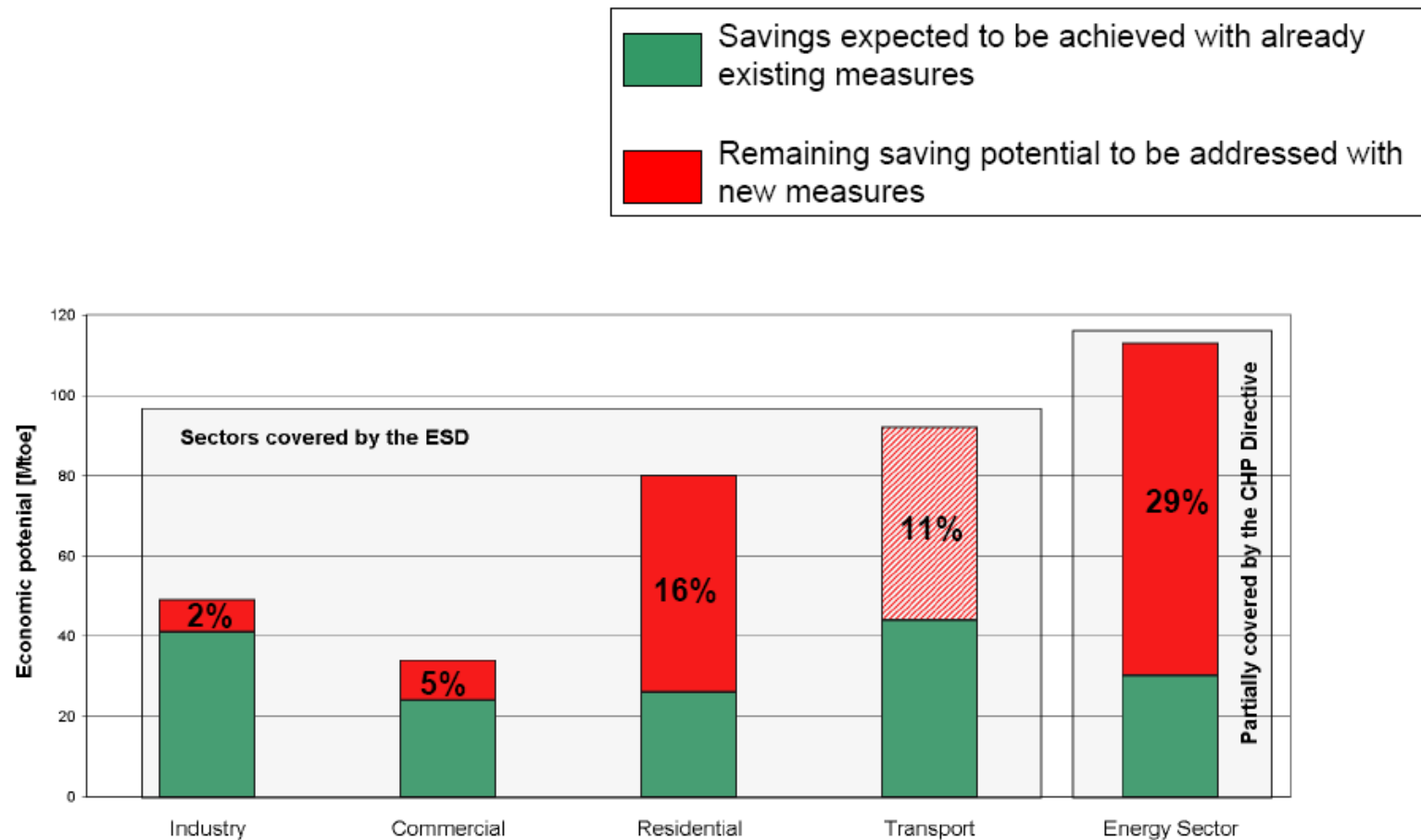
Trend since 2004

- 13 countries with growing CHP market
- 9 countries with stable CHP market
- 5 countries with declining CHP market



# The Energy Efficiency Directive: the proposed measures

# Large potential for supply-side efficiency



# Need for stronger measures

## Reduce greenhouse gas levels by 20%

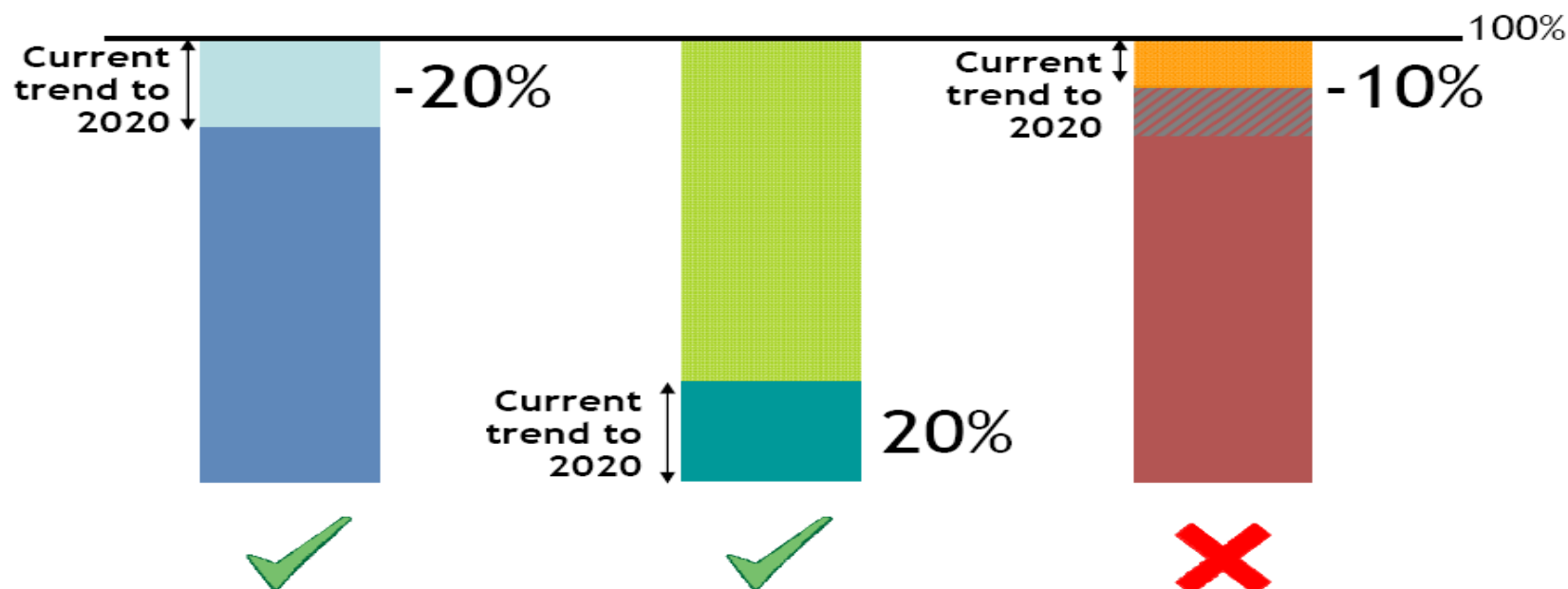
- Binding targets
- ETS

## Increase share of renewables to 20%

- Binding targets
- RE Directive

## Reduce energy consumption by 20%

- Indicative targets
- Energy Services Dir.
- CHP Directive



# Proposed measures

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## Energy Savings schemes

- Obligation on suppliers/distributors
- -1,5% per year

## Public sector leadership

- Energy efficient procurement
- Reduce own energy use

## Information for consumers

- Access to energy use data
- Clear (smart) metering & billing

## Energy audits for companies

- Incentives for SMEs
- Mandatory for large companies

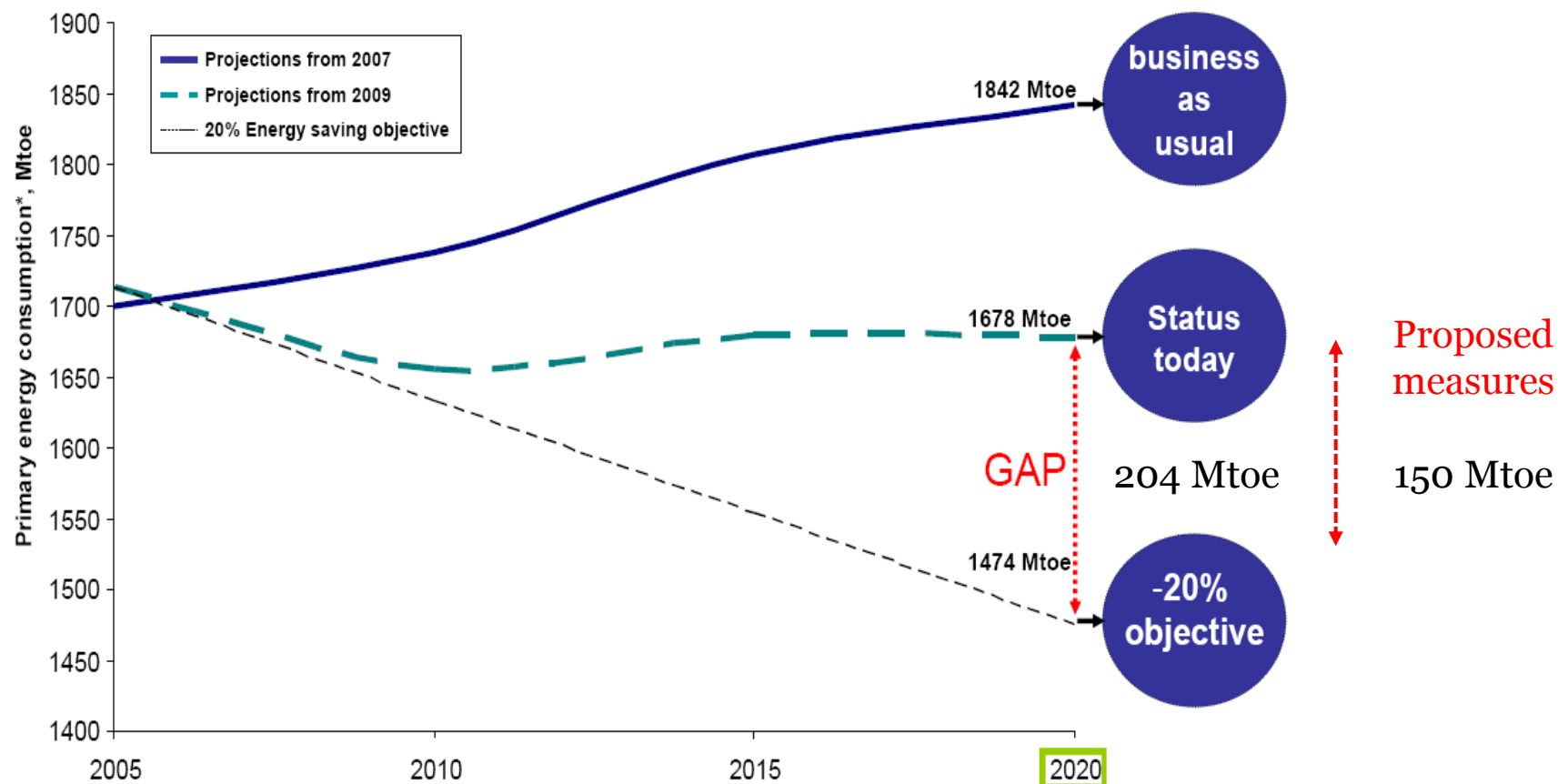
## Efficient energy generation

- National heat & cooling planning
- Mandatory use of waste heat

## Efficient T&D

- Monitor efficiency
- Take into account when approving network tariffs

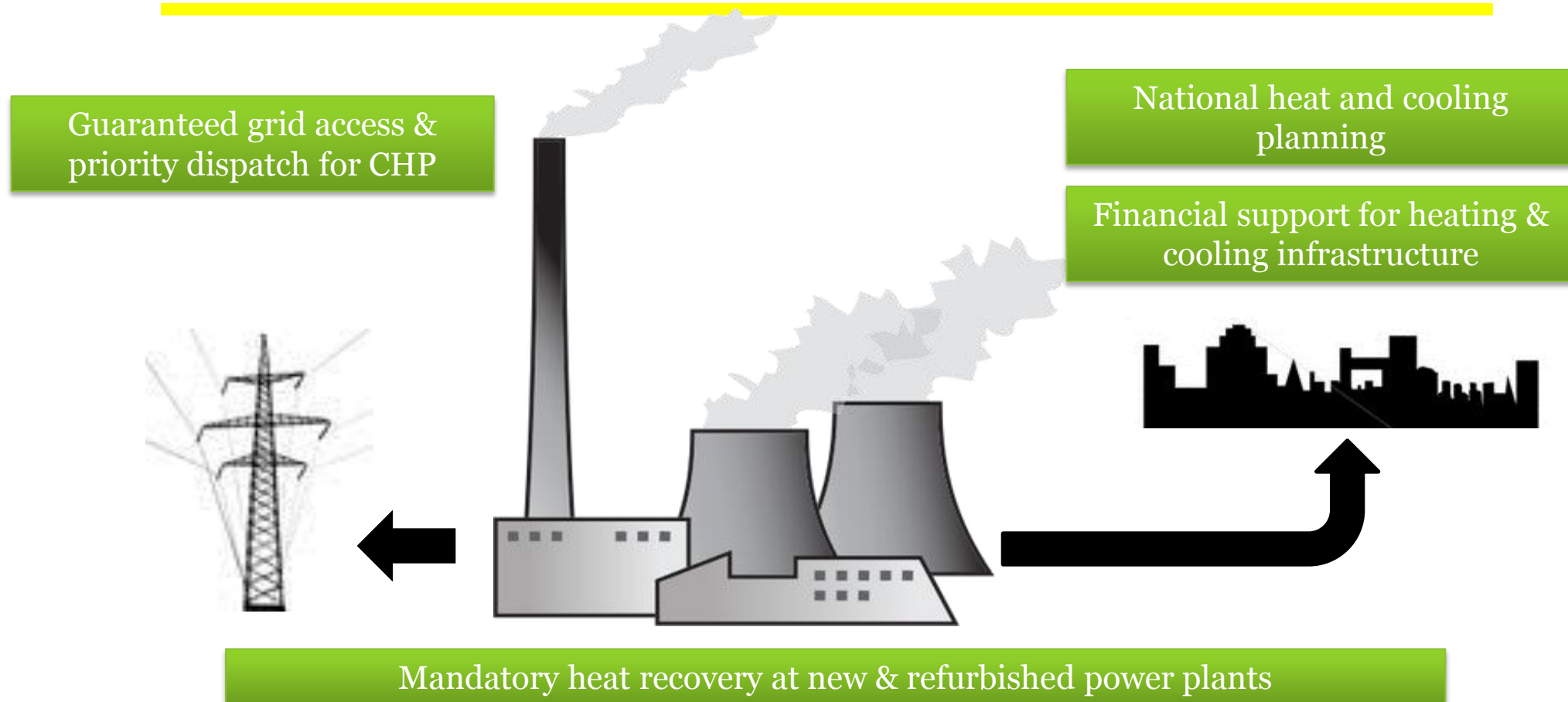
# Additional effect



\* Gross inland consumption minus non-energy uses



# Energy Efficiency Directive - CHP



# Energy Efficiency Directive – loose ends

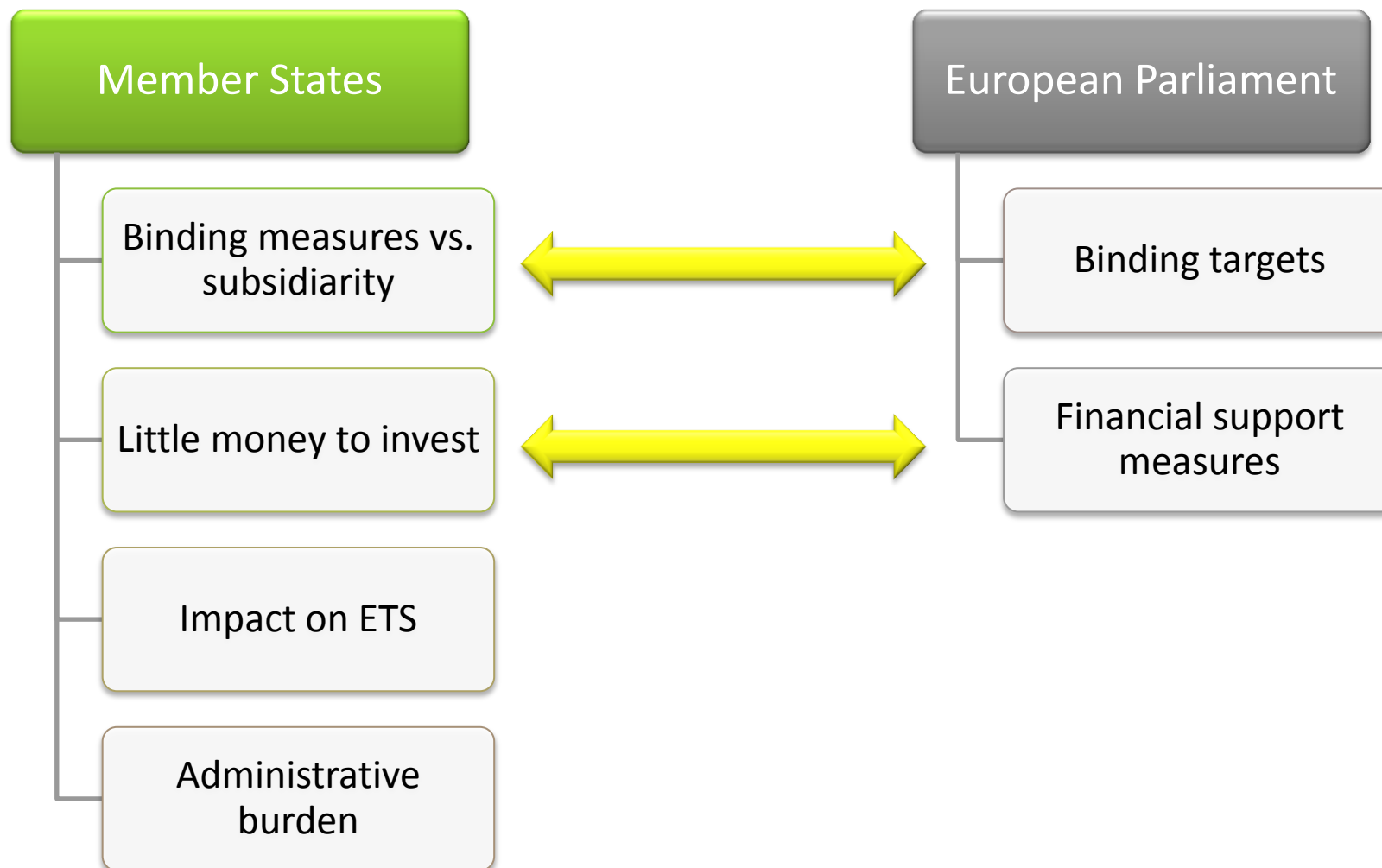
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- Content and scope of heat and cooling planning?
- Criteria for exemptions for heat recovery?
  - CHP-ready?
  - Suitable heat load?
  - Maximum distance?
  - Maximum additional infrastructure costs?
- Grid access & dispatch: CHP vs. Renewables?

# The Energy Efficiency Directive: the politics

# Too prescriptive or too weak?

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# National energy savings obligations

- Original Commission proposal: 1,5% final energy consumption p.a.  
(MS to decide on supporting measures)

## Danish presidency proposal

- Member States
  - Phasing in of 1,5% obligation
  - Count supply-side savings
  - Exclude transport sector
  - Exclude industries in ETS
- European Parliament
  - Include transport sector

+limit contribution of supply side savings to 20%

- Likely successful compromise
  - Familiar approach: national targets, with flexibility mechanisms (trading, banking, etc.)
  - Respect subsidiarity

# Mandatory heat recovery

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- Original Commission proposal: mandatory heat recovery at power plants  $>20 \text{ MW}_{\text{th}}$  input (subject to presence of suitable heat load)

## Danish presidency proposal

- Member States
  - CBA for new and refurbished power plants
  - CBA for connecting to heating network
  - Exemptions: peaking plants, nuclear, CCS
  - MS may include exemptions
- European Parliament
  - All new installations to be CHP, unless CBA shows economically not feasible
- Unlikely to result in mandatory heat recovery
  - Highly dependent on local conditions
  - National exemptions (subsidiarity?)

# Refurbishment of public buildings

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- Original Commission proposal: no concrete target

## Danish presidency proposal

- Member States
  - 3% of floor space per year
  - Buildings >500 m<sup>2</sup> only
  - Exemptions: protected buildings, army buildings, places of worship
- European Parliament
  - 80% of public building stock by 2050
- Likely weakened
  - Limited government budgets



# Efficient energy transmission and distribution

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- Original Commission proposal:
  - Monitor efficiency of energy networks
  - Include efficiency in network tariffs
  - Priority access and dispatching for CHP electricity

Member States can set relative priority of RES & CHP electricity

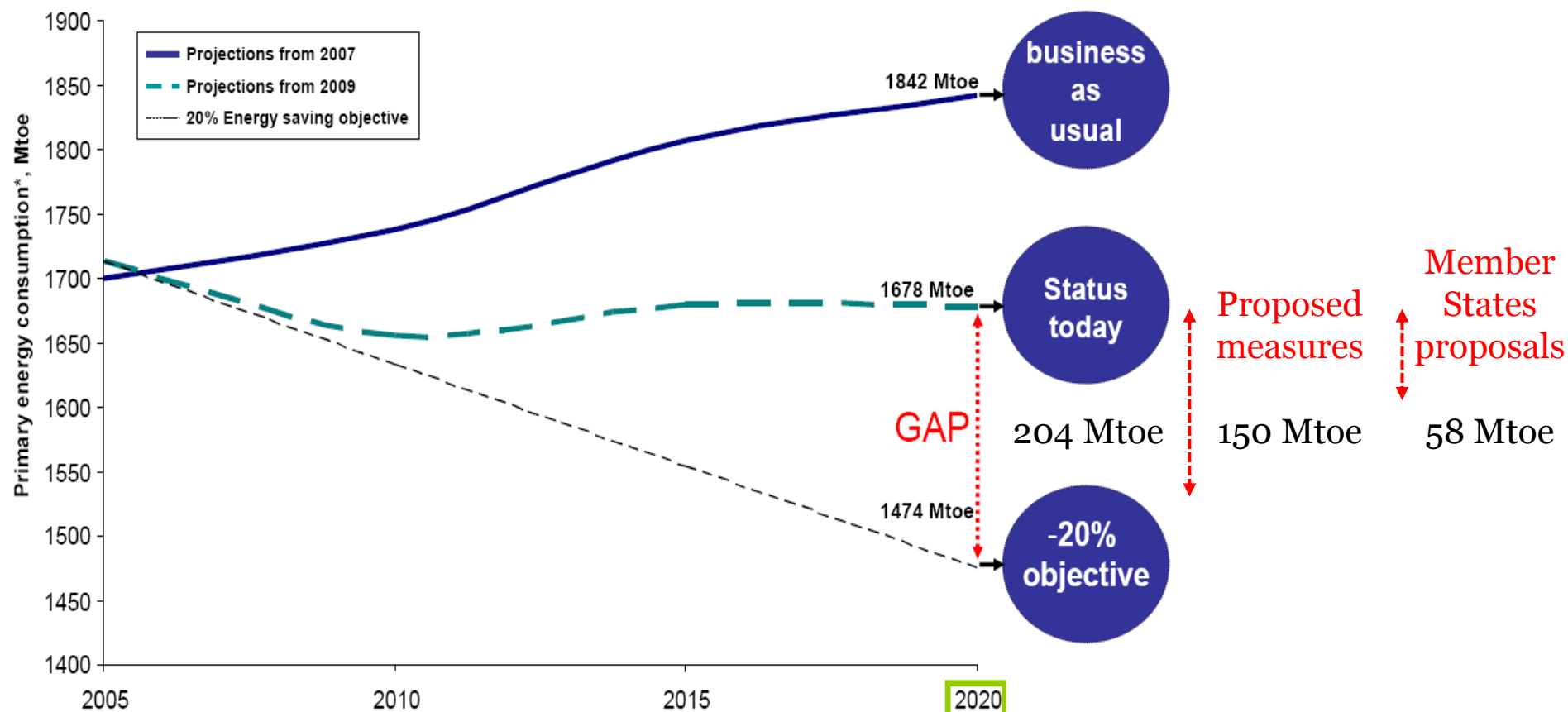
Danish presidency proposal

- Largely unchanged

Conclusions: implications for CHP

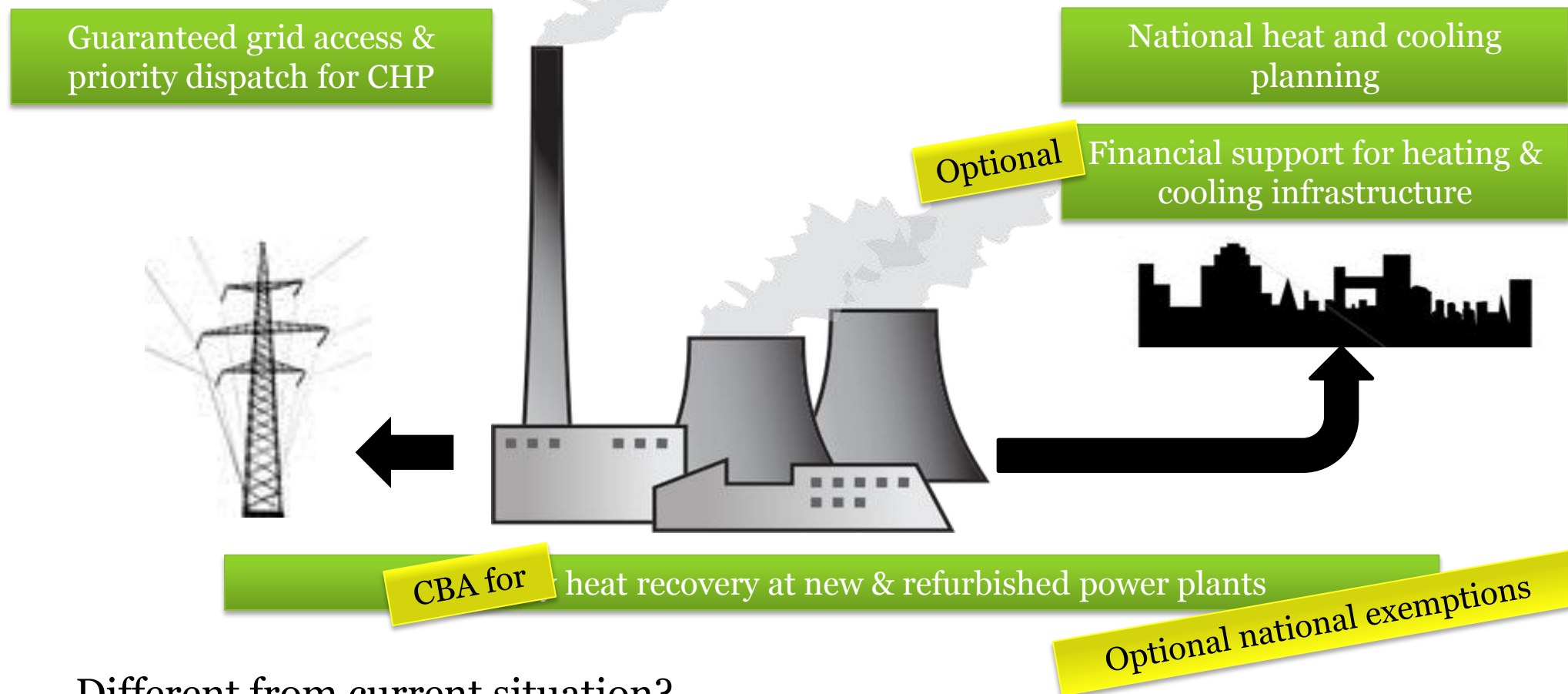


# Additional effect



\* Gross inland consumption minus non-energy uses

# Energy Efficiency Directive - CHP



Different from current situation?

- Project developer / EPC consultant should consider CHP in feasibility study
- National differences remain

# National energy savings obligations & CHP

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- 1,5% final energy consumption per year
  - Banking
  - Trading between obligated suppliers / distributors
  - Trading between MS
- Up to 20% contribution from supply-side measures
  - CHP often cost-effective
  - CHP often easier to implement for supplier than incentivising customers

# Conclusions

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- National patchwork of policies and markets remains
- (Recognition of need for) stronger policy framework
- National savings obligation = (voluntary) national target by another name?
- Obligation forces utilities to promote savings: gradual change of utility business model?
- Possible weakening of ETS: additional tightening of the cap necessary

# Thank you for your attention

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