

ECOFYS



sustainable energy for everyone

A 2030 policy framework

**Target design and preconditions
for GHG reductions, RES and EE**

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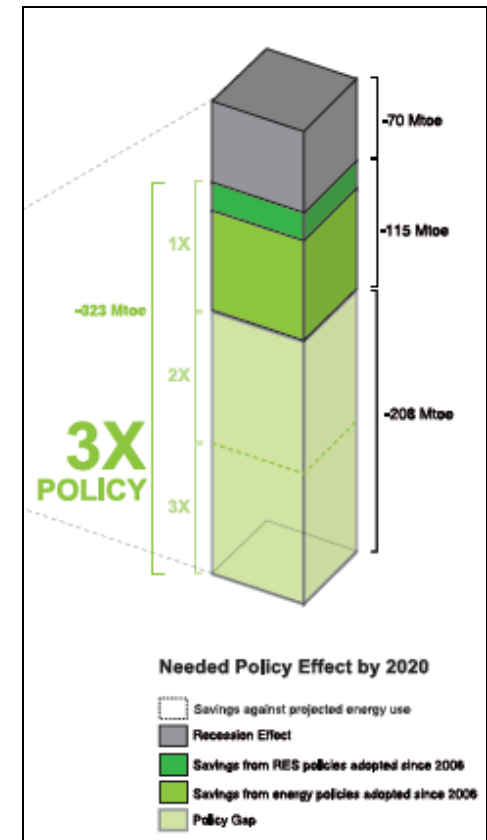
Energy Savings 2020 - overview

Project

- > ECF funded, by Ecofys/Fraunhofer
- > Progress to EU energy savings target 2020
- > Energy savings potential in Member States
- > Assessment of the impact of EU energy savings policies

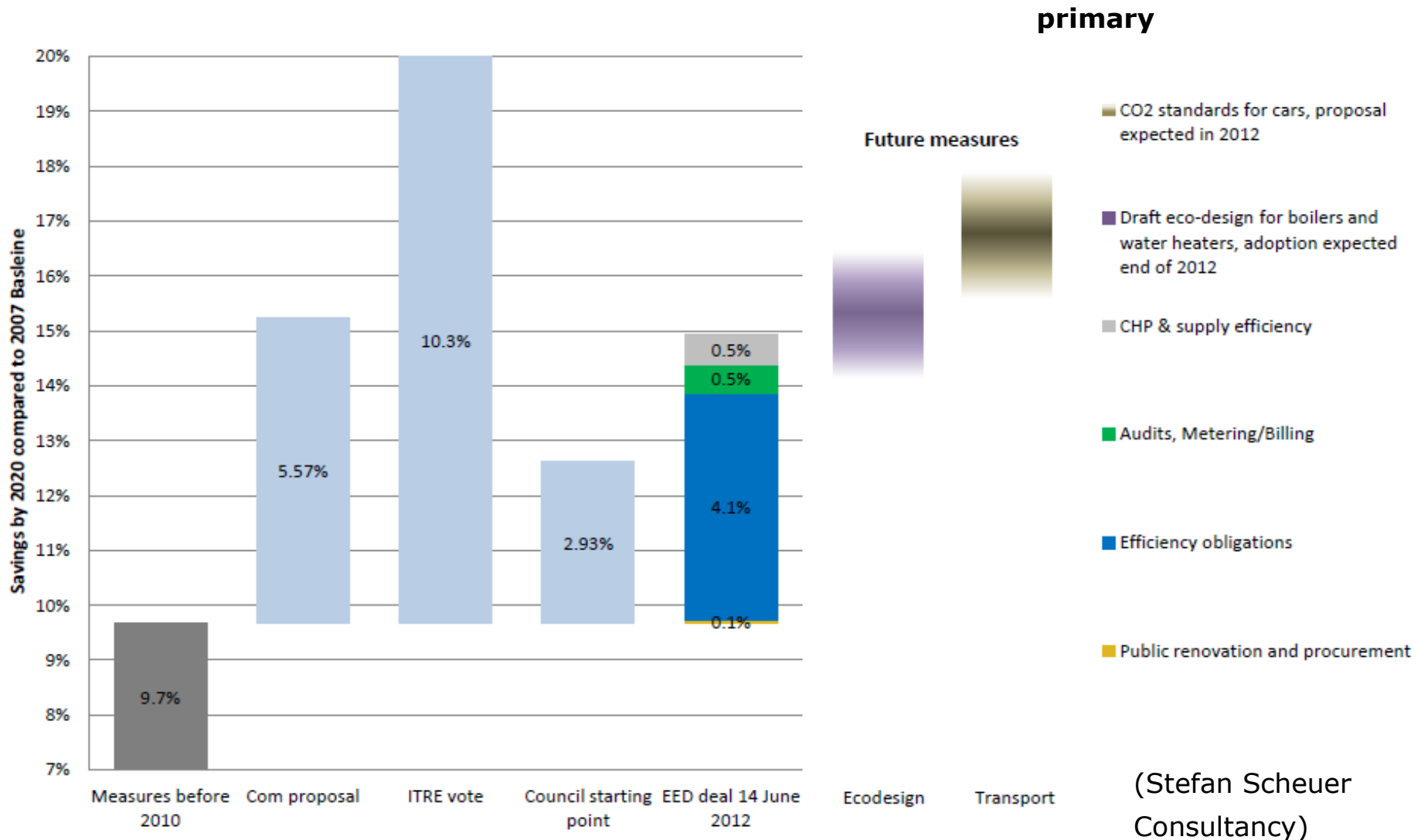
Results

1. EU policies are insufficient to meet the EU's 20% energy savings target by 2020
2. A three-fold increase in policy impact is required to close the gap
3. Realizing the available end use savings potential would nearly close the gap
4. Design options for a savings target



Source: Ecofys & Fraunhofer ISI

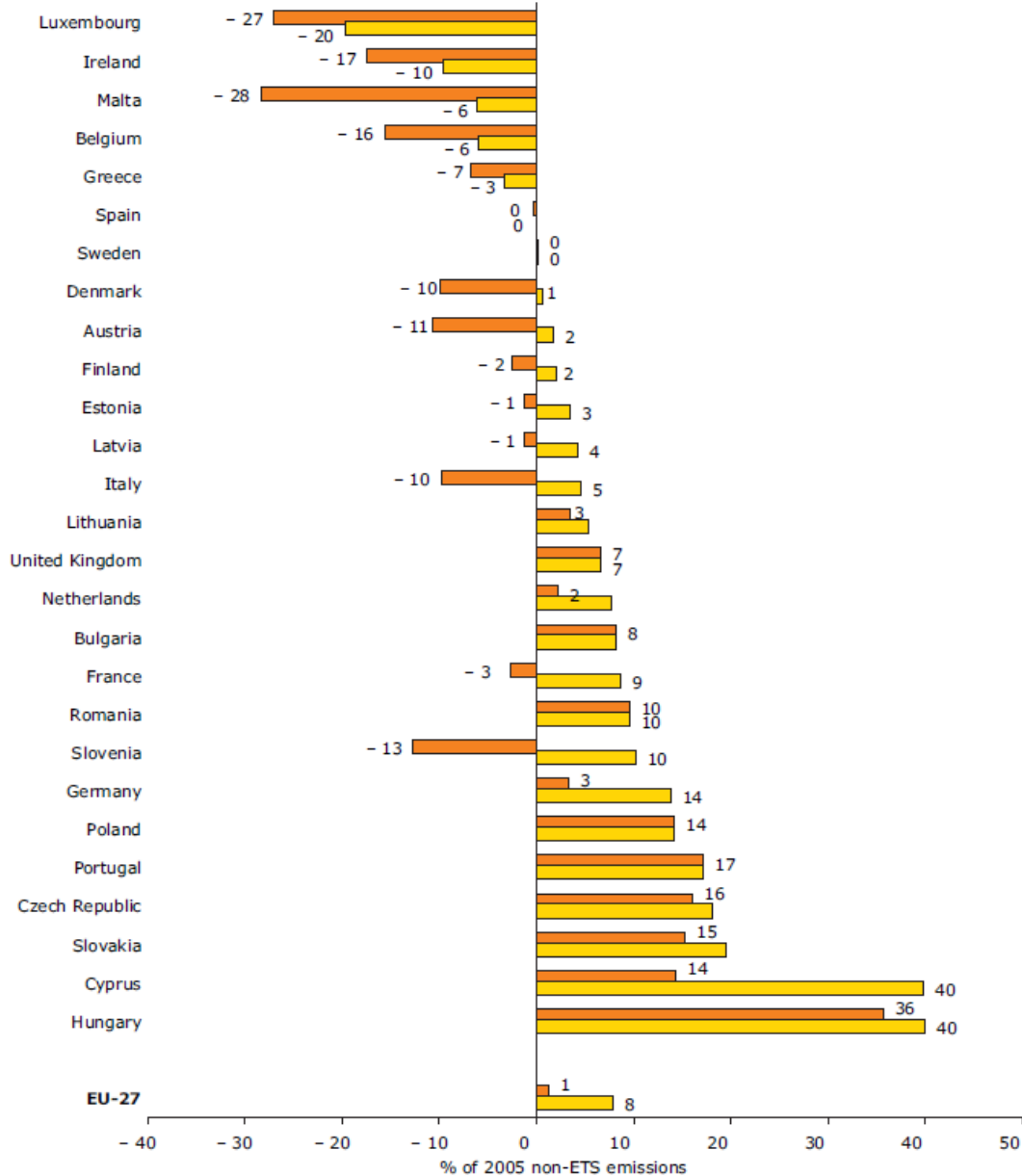
Policy contributions to reach EU 20% savings target



What targets are included in the EED?

- > Preamble: EU-wide target of -20% primary energy consumption, not binding on Member States (1474 Mtoe)
- > Art 1: 20% increase in energy efficiency
- > Art 3: national targets to be expressed as an absolute level of primary and final energy consumption in 2020
- > Art 7: new (enduse) savings of 1.5% of annual energy sales each year (2014 -2020)
- > Implementation by MS June 2014

EU27 to overshoot its 2020 GHG target (non ETS)



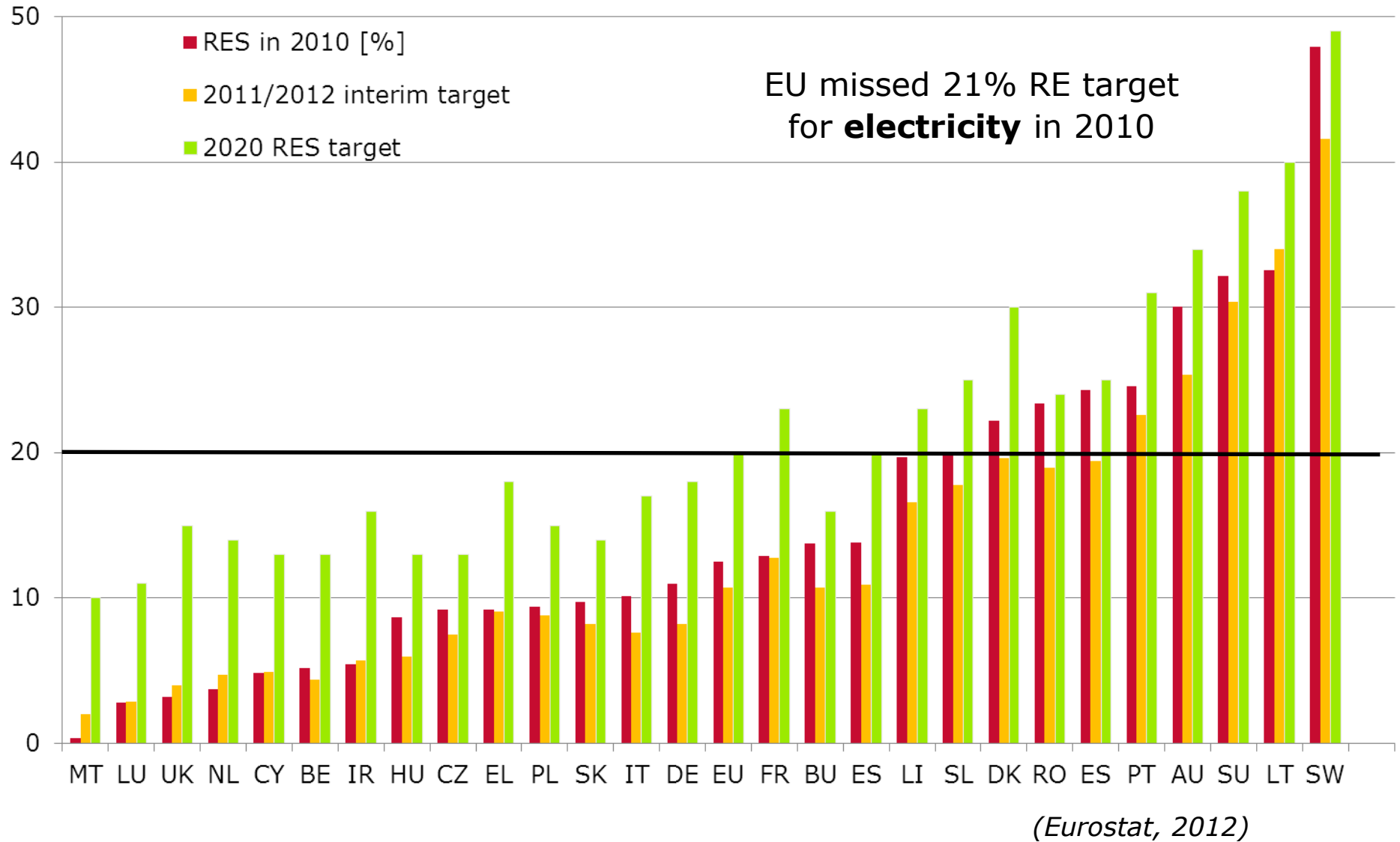
Shortfall (-) or overachievement (+)

with existing (red) and additional (yellow) measures

EU27 GHG reductions over 1990 level already -17.6%

(EEA, 2012)

Renewable energy progresses, major effort until 2020



EU ETS needs structural reform

EC Communication 14 Nov 2012

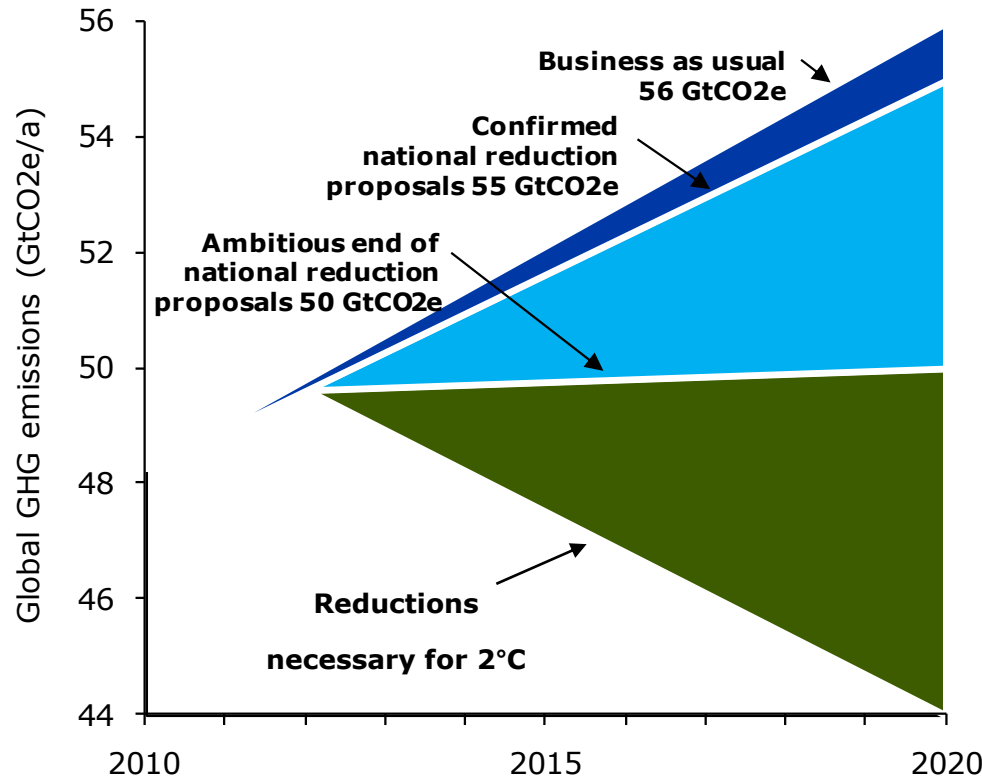
The state of the European carbon market in 2012

Options for reform:

- a) Increasing the EU reduction target to 30% in 2020
- b) Retiring a number of allowances in phase 3
- c) Early revision of the annual linear reduction factor
- d) Extension of the scope of the EU ETS to other sectors
- e) Limit access to international credits
- f) Discretionary price management mechanisms

Long term outlook on ambitious GHG target (i.e. beyond 2020) remains key

Government pledges do not close emissions gap



How to bridge the gap?



On gap: see UNEP Gap report 2012: <http://www.unep.org/publications/ebooks/emissionsgap2012/>

On pledges: see www.climateactiontracker.org

Wedging the gap: 21 initiatives for additional global action on climate change

Companies' emissions

Top-1000 companies emission reduction

Supply chain emission reductions

Green financial institutions

Voluntary offset companies

Other actors

Voluntary offsets consumers

Major cities initiative

Sub-national governments

Energy efficiency

Buildings heating and cooling

Ban of incandescent lamps

Electric appliances

Cars and trucks emission reductions

Energy supply

Boost solar photovoltaic energy

Boost wind energy

Access energy through low emission options

Phasing out subsidies for fossil fuels

Special sectors

Intl. aviation and maritime transport

Fluorinated gases initiative

Reduce deforestation

Agriculture

Methane and other air pollutants

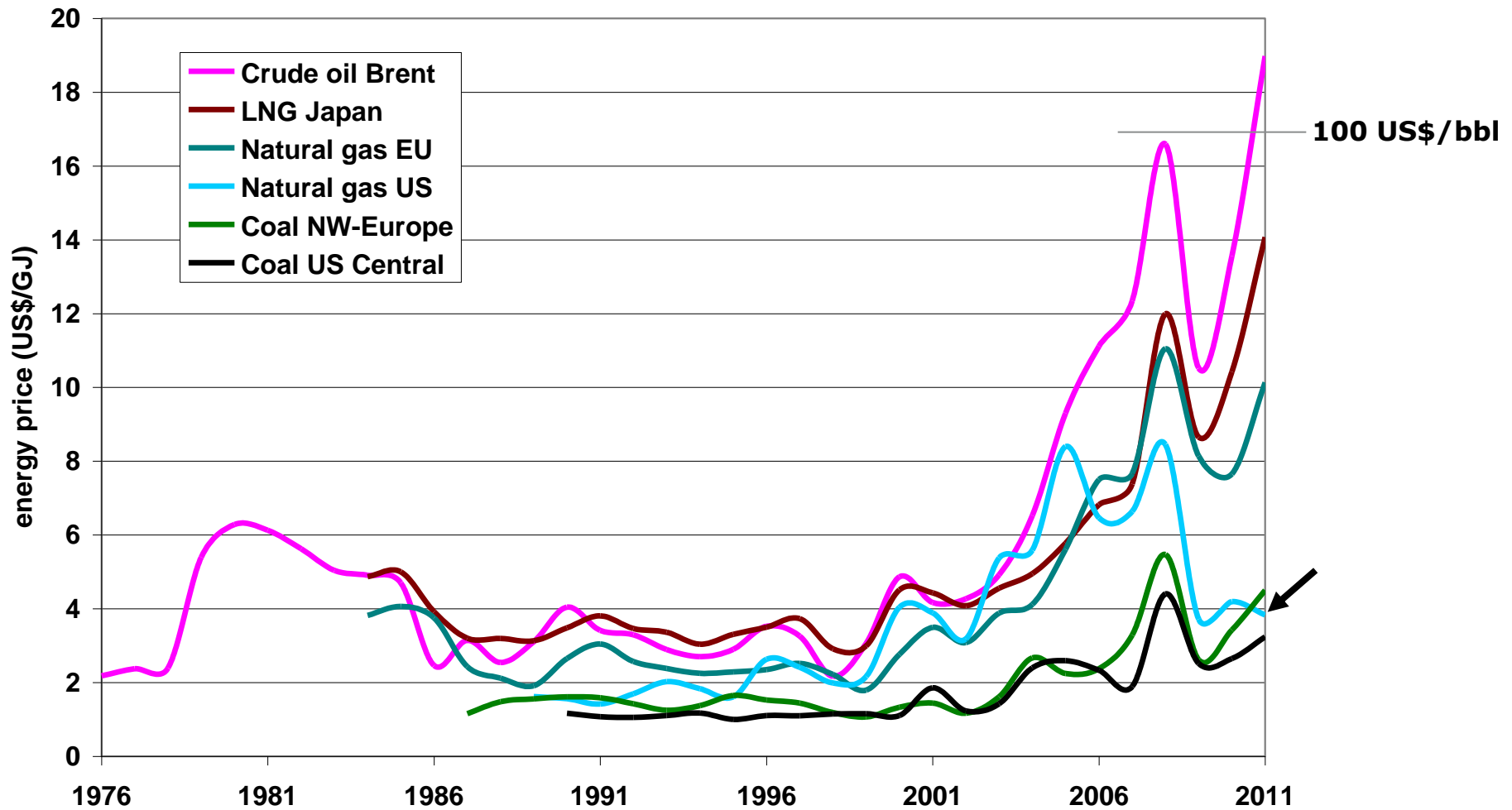
Methane and other air pollutants

Efficient cook stoves

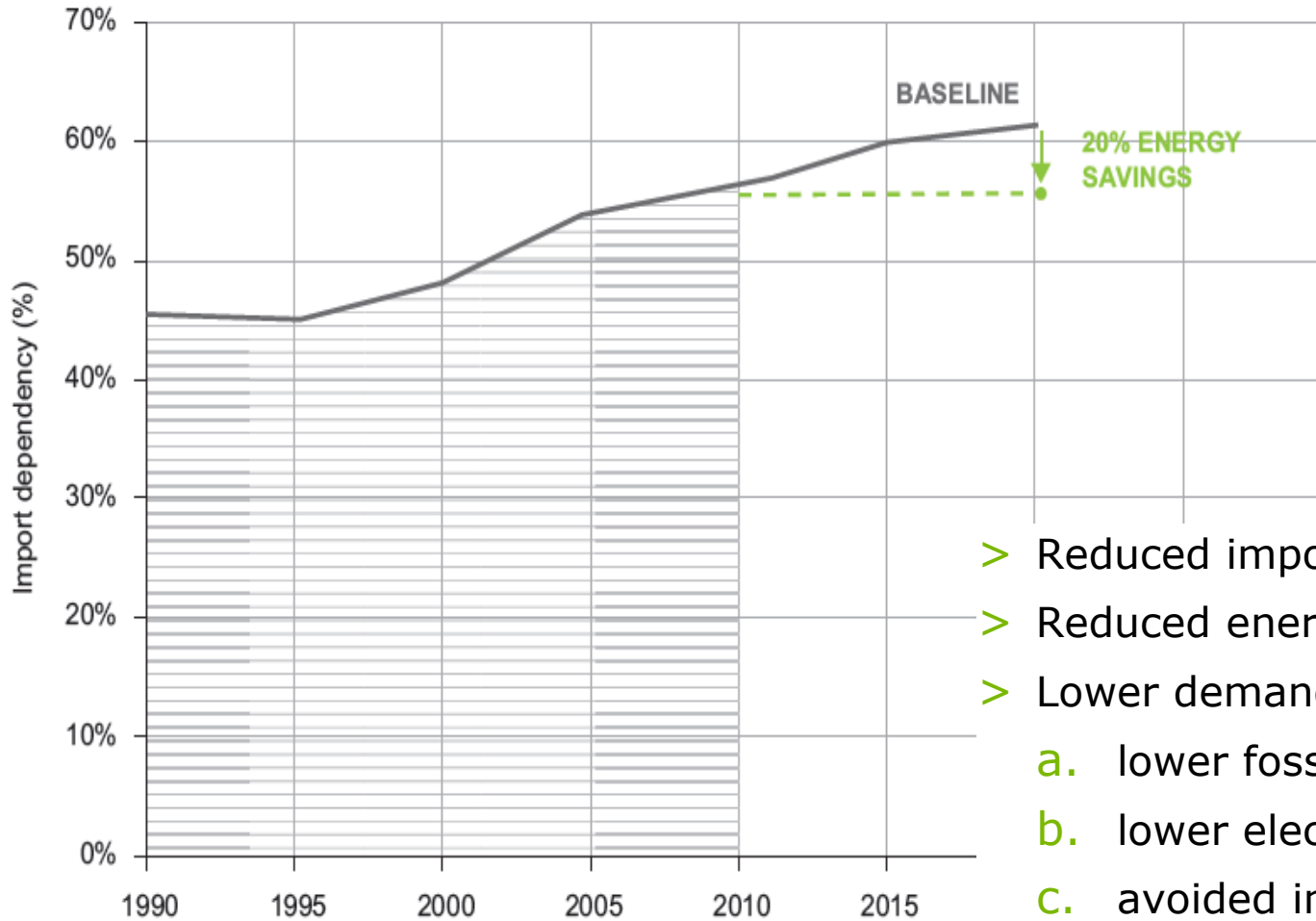
Blok et al 2012: Bridging the greenhouse gas gap, Nature Climate Change
<http://www.nature.com/nclimate/journal/v2/n7/full/nclimate1602.html>

Fossil fuel prices have increased

US\$, not inflation corrected



Energy savings contribute to energy security



(Ecofys and Fraunhofer, 2010)

- > Reduced import dependency
- > Reduced energy bills
- > Lower demand leads to
 - a. lower fossil fuel prices
 - b. lower electricity prices
 - c. avoided investments in infrastructure

TITLE XX
ENVIRONMENT

Article 191
(ex Article 174 TEC)

1. Union policy on the environment shall contribute to pursuit of the following objectives:
 - preserving, protecting and improving the quality of the environment,
 - protecting human health,
 - prudent and rational utilisation of natural resources,
 - promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.

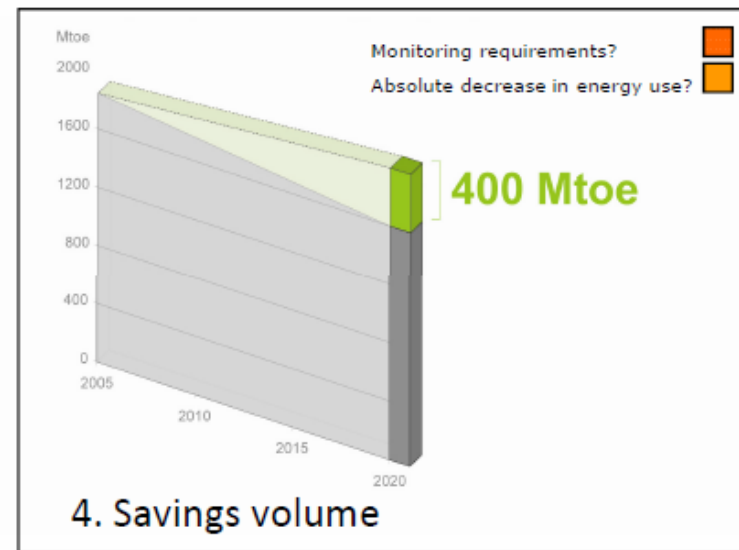
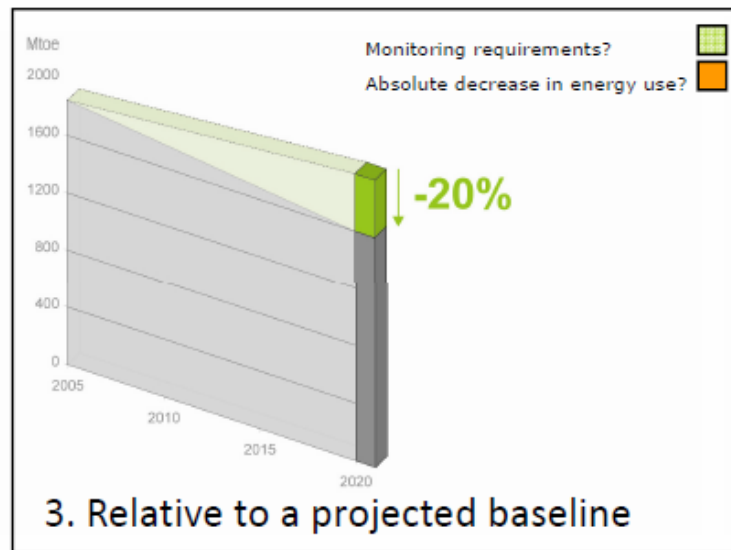
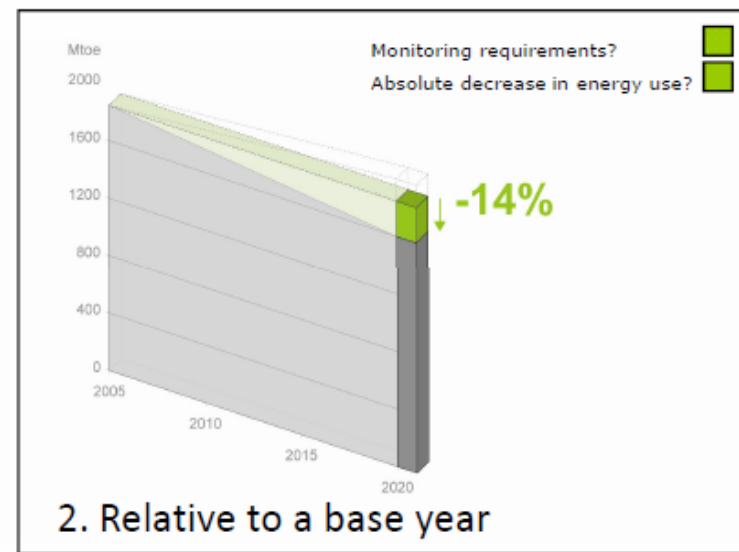
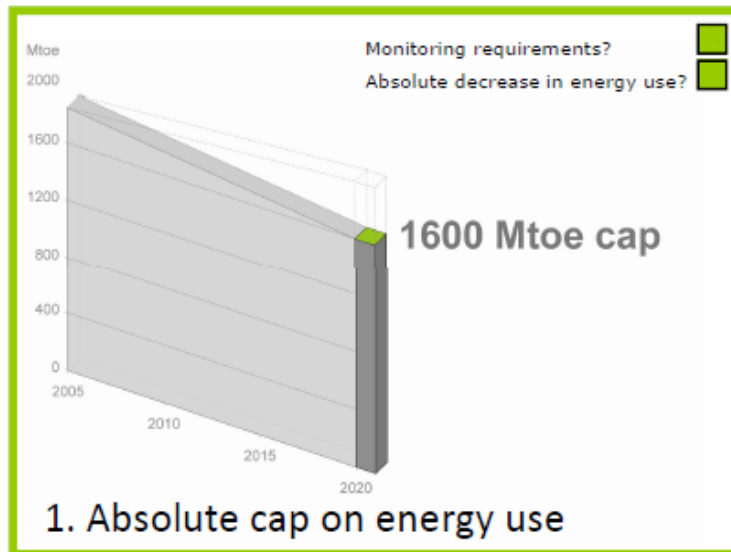
TITLE XXI
ENERGY

Article 194

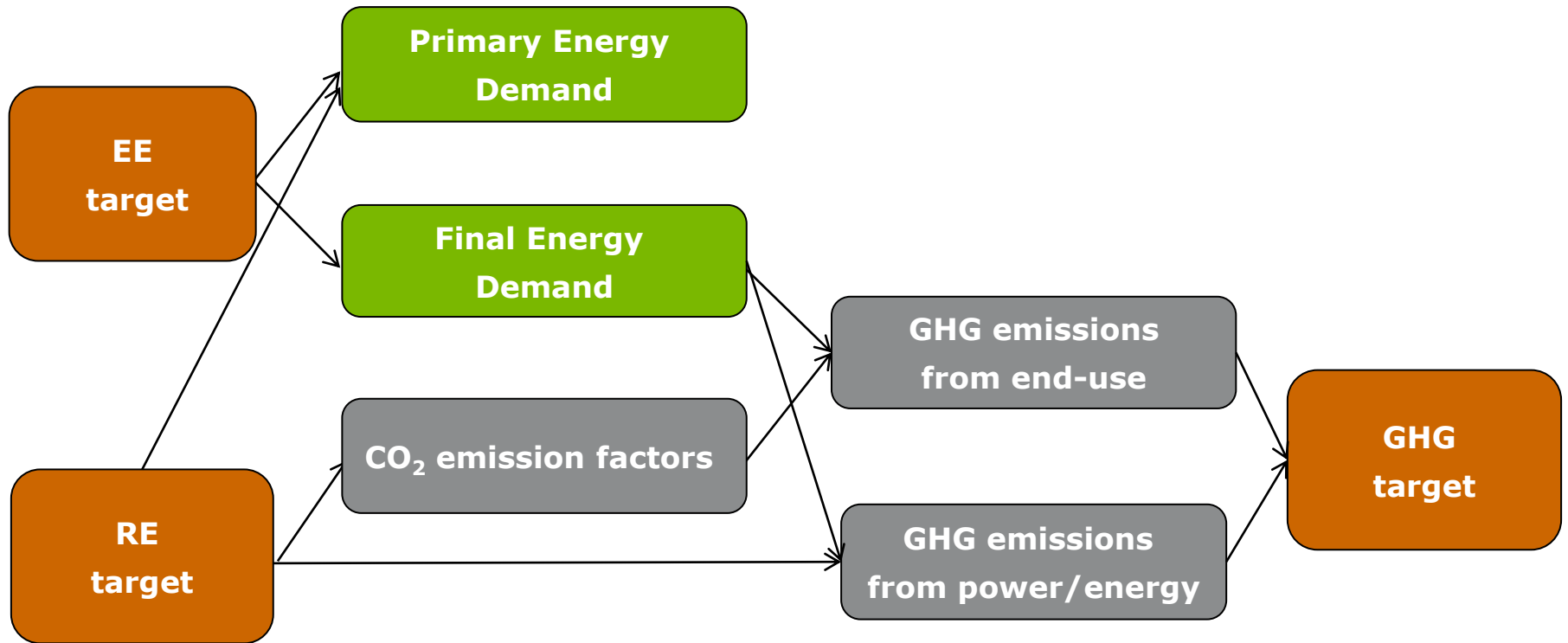
1. In the context of the establishment and functioning of the internal market and with regard for the need to preserve and improve the environment, Union policy on energy shall aim, in a spirit of solidarity between Member States, to:

- (a) ensure the functioning of the energy market;
- (b) ensure security of energy supply in the Union;
- (c) promote energy efficiency and energy saving and the development of new and renewable forms of energy; and
- (d) promote the interconnection of energy networks.

How to express an energy savings target?



Interactions between GHG, RE and EE targets



Consistency GHG, RE and EE targets for 2030

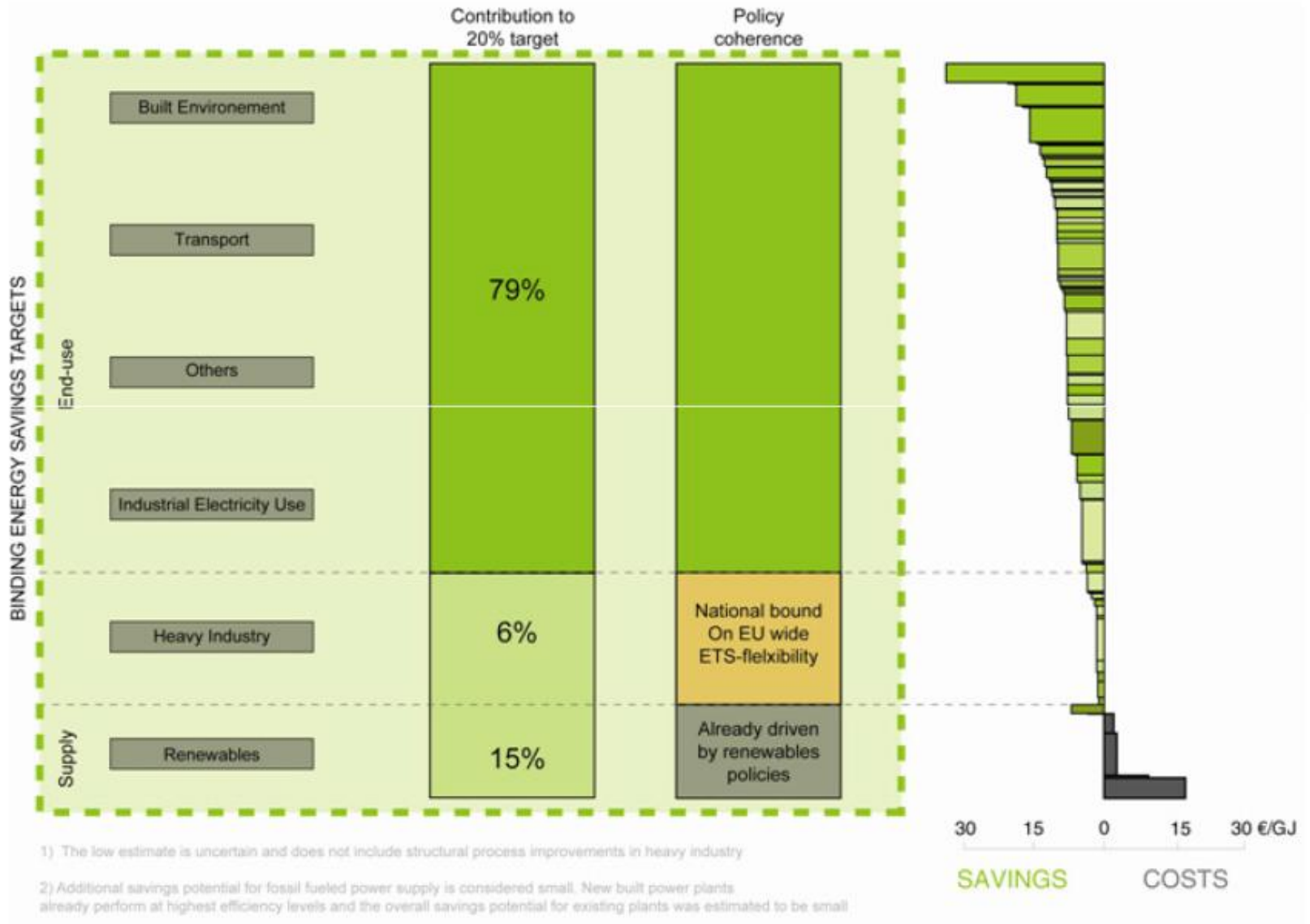
For example:

- > -42% to -45% GHGs in 2030 compared to 1990 consistent with
 - > 35% to 40% renewable energy in final energy demand in 2030
 - > 30% reduction in final energy demand over reference
 - > i.e. from 1190 to 833 Mtoe in 2030
 - > (2020 target is 1078 Mtoe)

- > Excluding offsetting, reduction of other GHGs
- > Calculations based on 2030 baseline from PRIMES 2009 reference development



Options to set targets at MS or sectoral level



Overview existing policies

ENERGY SYSTEM		SUPPLY			END-USE					
ENERGY CARRIER		RES, NUC	FOSSIL FUELS			ELEC			DH	
SECTOR		ENE	ENE	IND	TR	BE	BE	IND	TR	BE
ENERGY & CLIMATE POLICIES	A BINDING TARGETS AT EU LEVEL		ETS			CO ₂ PC			ECO-DESIGN	
	B BINDING TARGETS BY EU FOR MS	RES			EFF. SHARING DECISION					
	C BINDING EU PROCEDURES FOR MS			EED ENERGY SERVICES DIRECTIVE						
			IED	CHP	IED			EPBD		CHP

Energy Carrier: REN = Renewables, Nuc= Nuclear, DH = District Heating
 Sectors: ENE = Energy Sector, IND = Industry, TR = Transport, BE = Built Environment
 Policies: Abbreviations refer to EU legal acts, IED = Industrial Emissions Directive (IPPC)
 Eco-design stands for implementation measures of both Eco-Design and Labeling Directive
 CO₂ + tyres Regulations stands for CO₂ emissions standards for passenger cars and tyres
 labelling and minimum rolling resistance Regulations

 Emissions Policies (focus)
 Energy Policies (focus)

Ingredients for a 2030 policy framework

1. Consider Treaty objectives in 2030 framework design
 - Energy efficiency and renewable energy explicit EU objectives
 - Combating climate change mentioned in context of measures at international level
2. Ensure consistency between targets for GHG reduction, energy efficiency and renewable energy
3. Consider the possibility to formulate sectoral targets for energy efficiency to reduce interference with the EU ETS

Thank you!



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EU economic outlook

- > Economy remains fragile
- > Unemployment increased
- > GDP drops by 0.3% in 2012
- > First steps taken to harness financial system

- > Annual growth survey 2013:
 - Reducing government deficits
 - Restoring lending to economy
 - Promoting growth and competitiveness
 - Incl potential green economy, notably thru EE renovation
 - Tackling unemployment and social impacts
 - Modernizing public administration

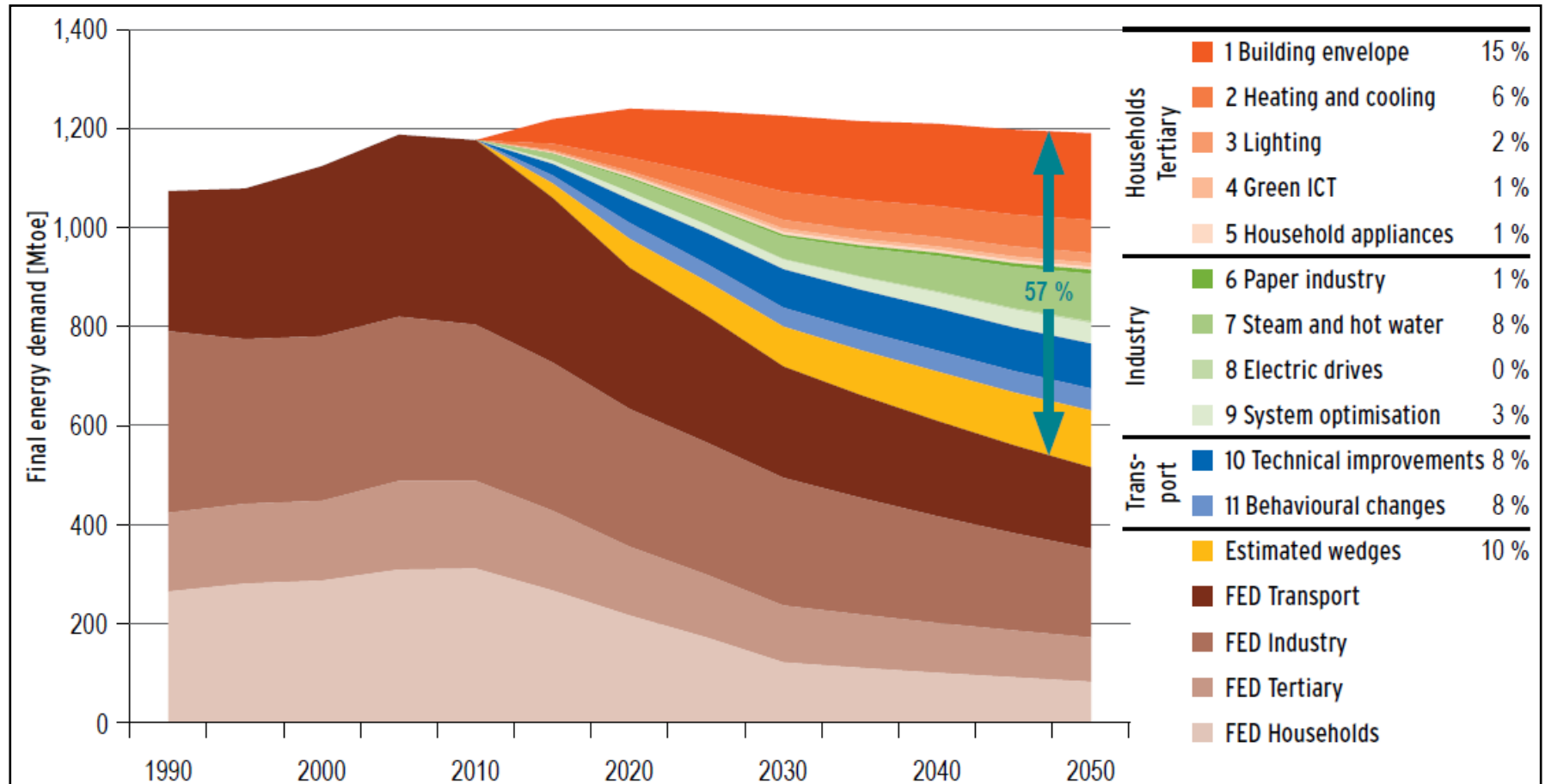
Content

1. Energy Savings 2020
2. Energy Efficiency Directive
3. Progress on 2020 targets
4. Context for framing 2030 policies
5. Architecture of a 2030 policy framework

Final energy demand can be more than halved by 2050

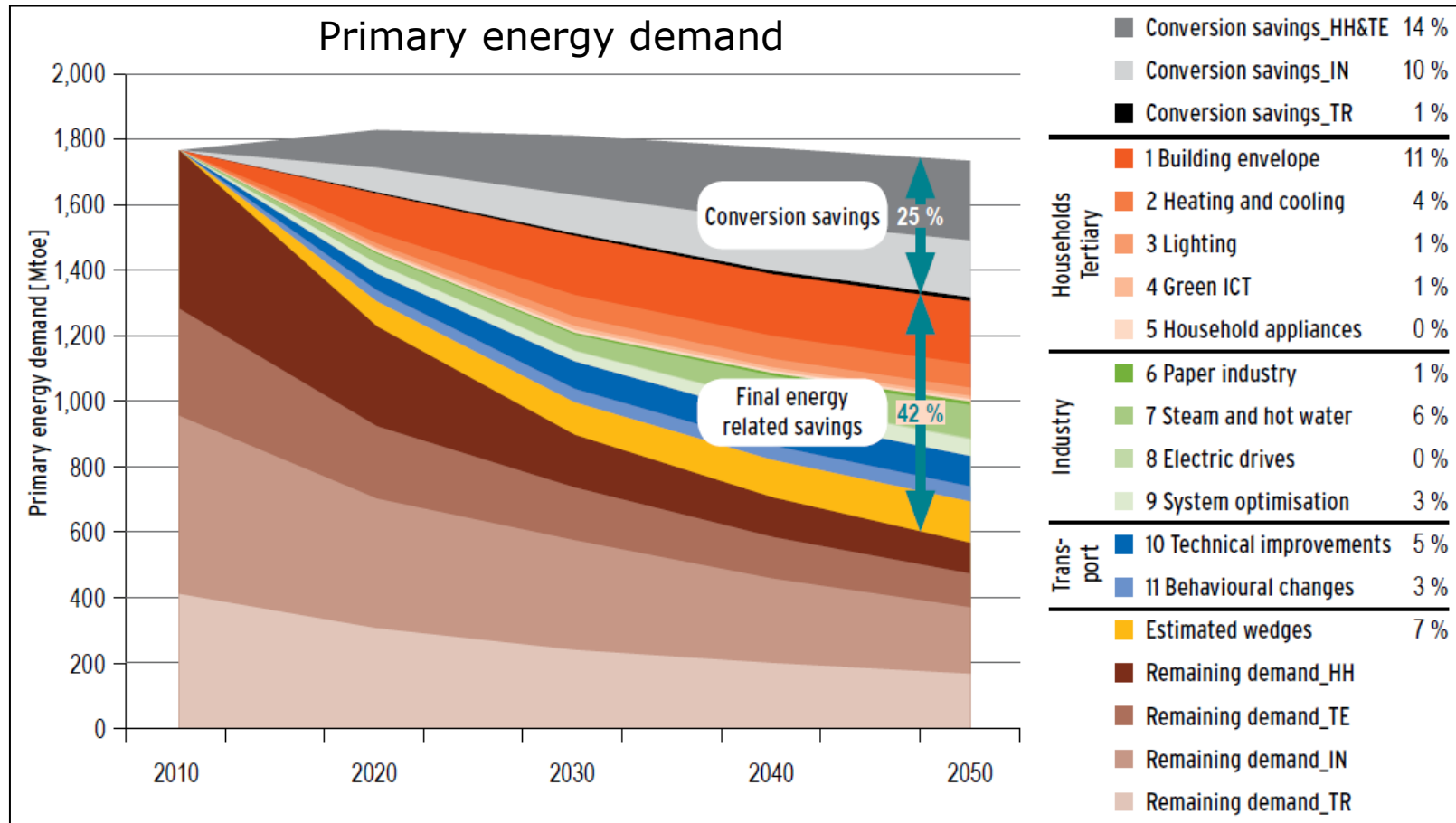
Final energy demand

(Fraunhofer)



Primary energy saving potential in 2050 is very large..

(Fraunhofer)



.. equal to 118% of all EU's energy imports in 2008