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European Association
for Coal and Lignite

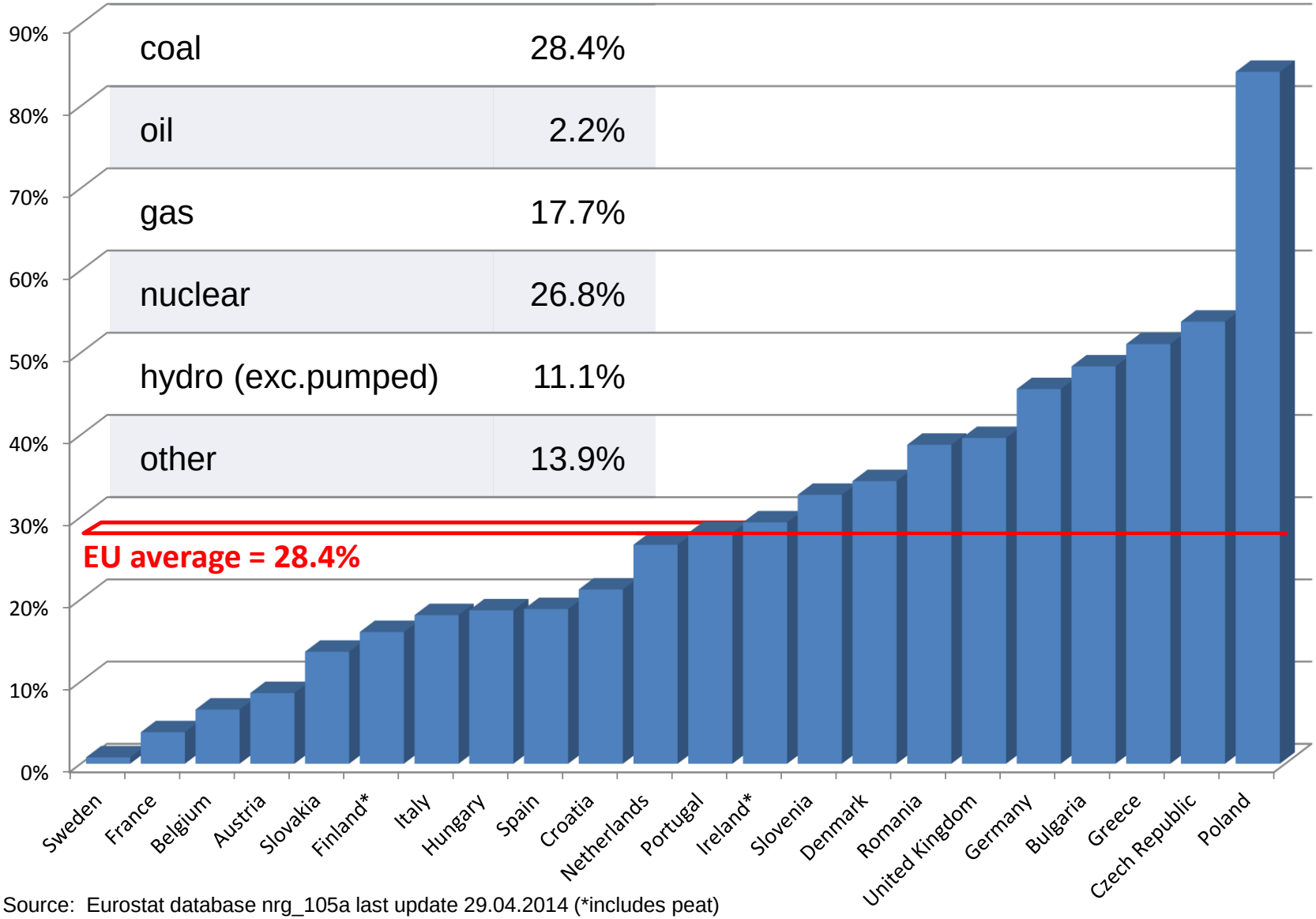
The future of coal-fired power generation in the EU and climate protection targets

5th Regional Energy Conference
"Regional Energy Development and Energy Security"
Bulgarian Energy & Mining Forum
Sheraton Hotel Balkan

28-29 October 2014, Sofia

Brian RICKETTS, Secretary-General

Share of coal in EU electricity, 2012



Source: Eurostat database nrg_105a last update 29.04.2014 (*includes peat)

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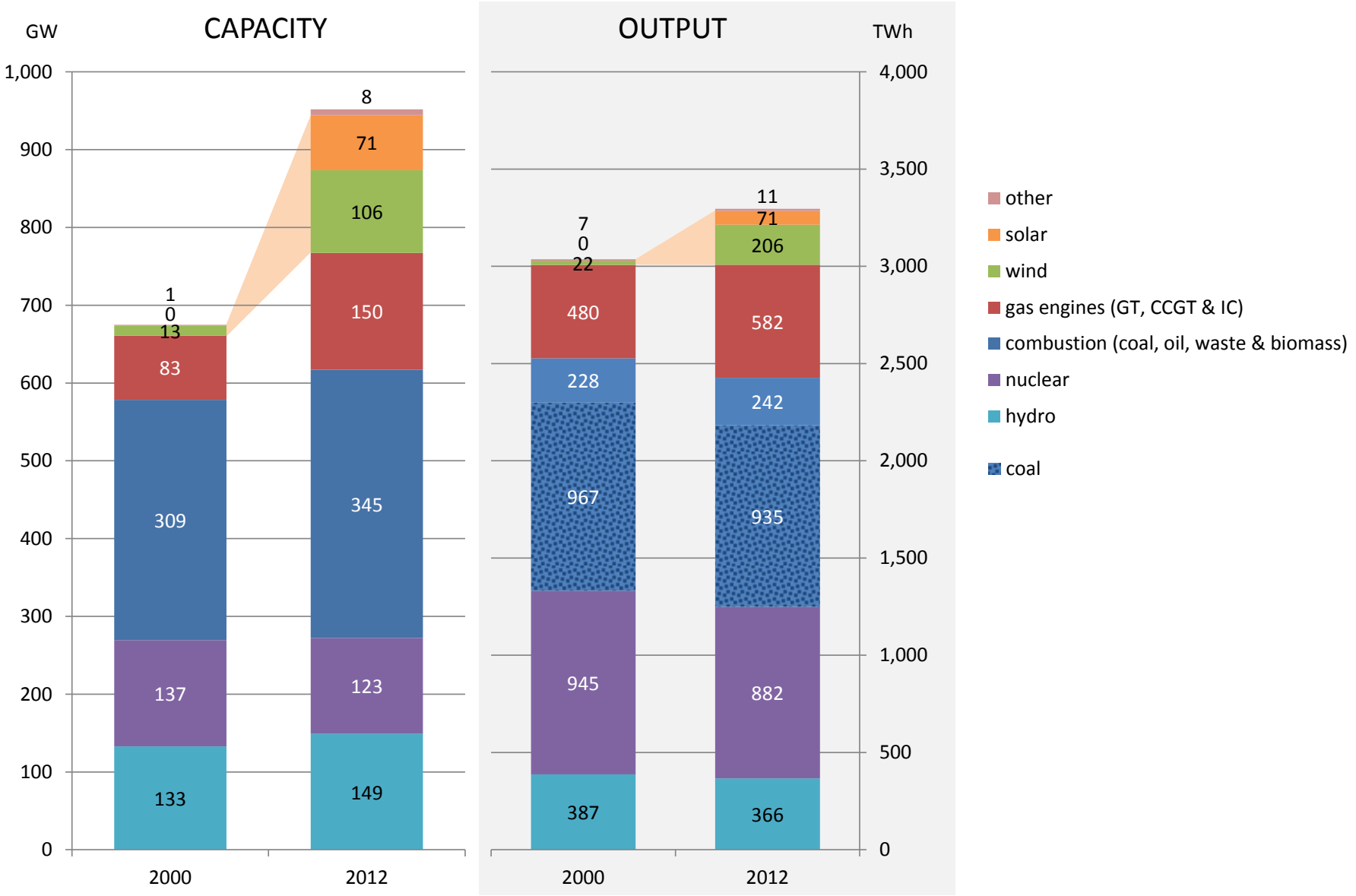
Renewables – growth in capacity, not output



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Balanced energy & climate policy objectives?

Sustainability dominates debate in Brussels, but people want jobs & security.

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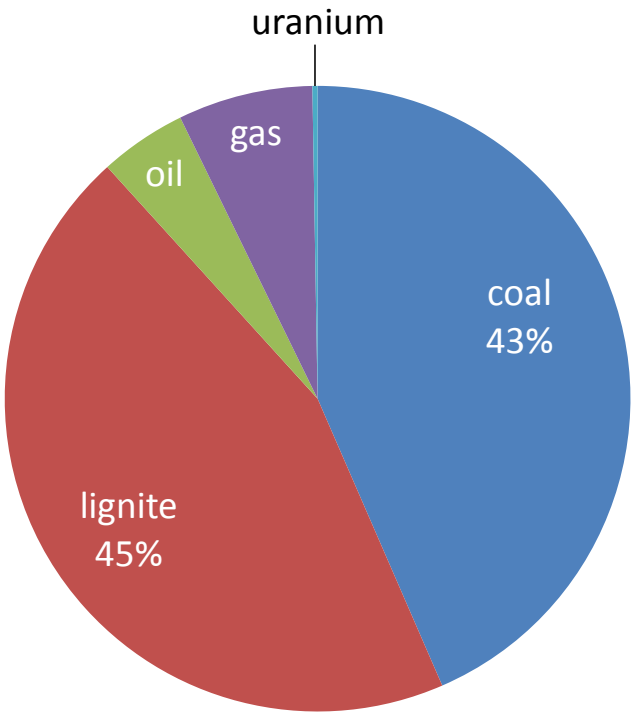
EURACOAL: 35 members from 20 countries

- CoalPro - Confederation of UK Coal Producers (GBR)
- DEBRIV - Deutsche Braunkohlen-Industrie-Verein (DEU)
- GVSt - Gesamtverband Steinkohle (DEU)
- MMI - Mini Maritza Istok (BGR)
- PPC - Public Power Corporation (GRC)
- PPWB - Confederation of Polish Lignite Producers (POL)
- ZPWGK - Polish Hard Coal Employers‘ Association (POL)
- ENEL (ITA)
- ZSDNP - Czech Confederation of Coal and Oil Producers (CZE)
- APFCR - Coal Producers and Suppliers Association of Romania (ROU)
- BRGM - French Geological Survey (FRA)
- CARBUNIÓN - Federation of Spanish Coal Producers (ESP)
- CoalImp - Association of UK Coal Importers (GBR)
- DTEK (UKR)
- EPS - Electric Power Industry of Serbia (SRB)
- GIG - Central Mining Research Institute (POL)
- HBP - Hornonitrianske bane Prievidza (SVK)
- Chemical Process and Energy Resources Institute (CERTH/CPERI) (GRC)
- Lubelski Węgiel „Bogdanka” SA (POL)
- Borsod-Abaúj-Zemplén County Government (HUN)
- Premogovnik Velenje (SVN)
- RMU “Banovići” d.d. (BIH)
- Swedish Coal Institute (SWE)
- TKI - Turkish Coal Enterprises (TUR)
- Ukrvuglerobotodavtsy - All-Ukrainian Coal Employer‘s Association (UKR)
- Vagledobiv Bobov dol EOOD (BGR)
- VDKi - Verein der Kohlenimporteure (DEU)
- Coaltrans Conferences Ltd (GBR)
- EMAG Institute of Innovative Technologies (POL)
- Finnish Coal Info (FIN)
- Golder Associates (GBR)
- Geocontrol (ESP)
- ISSeP - Institut Scientifique de Service Public (BEL)
- KOMAG Institute of Mining Technology (POL)
- University of Nottingham (GBR)

Wealth from exploitation of natural resources



source: *Energy Study 2013 – Reserves, Resources and Availability of Energy Resources*, The Federal Institute for Geosciences and Natural Resources (BGR), December, 2013

For economic and security reasons, the EU should maximise production of ALL indigenous energy resources. EURACOAL welcomes the proposed performance indicator for the share of indigenous energy sources used in energy consumption over the period up to 2030. To this end, the Commission should work with governments and industry to ensure that coal production in all Member States remains internationally competitive and so limit import dependence (2011: 42%).

Coal and lignite in the EU: 88% of energy reserves and 95% of resources.

Coal in Europe 2013

lignite production, hard coal production & imports

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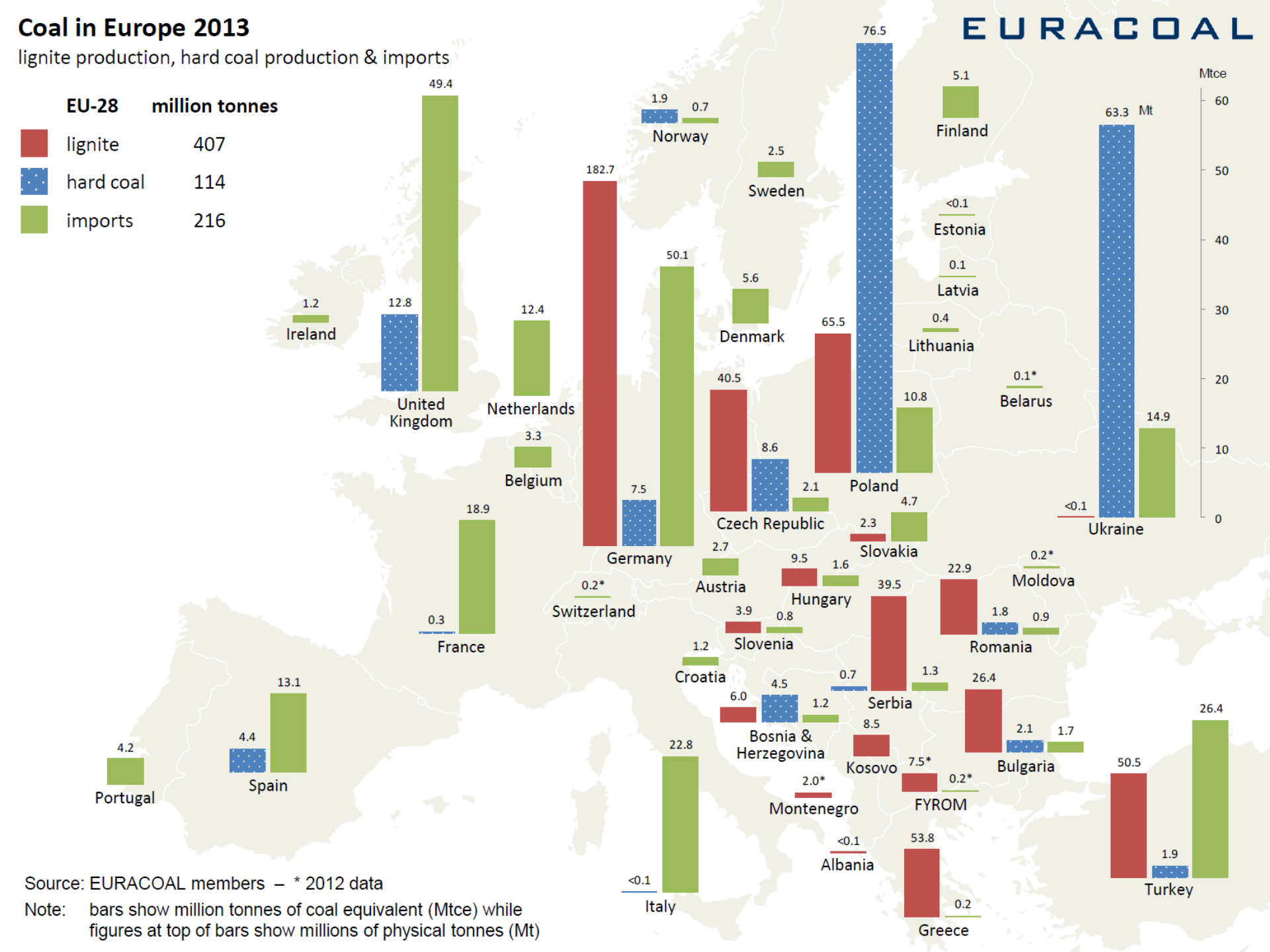
EU-28	million tonnes
lignite	407
hard coal	114
imports	216



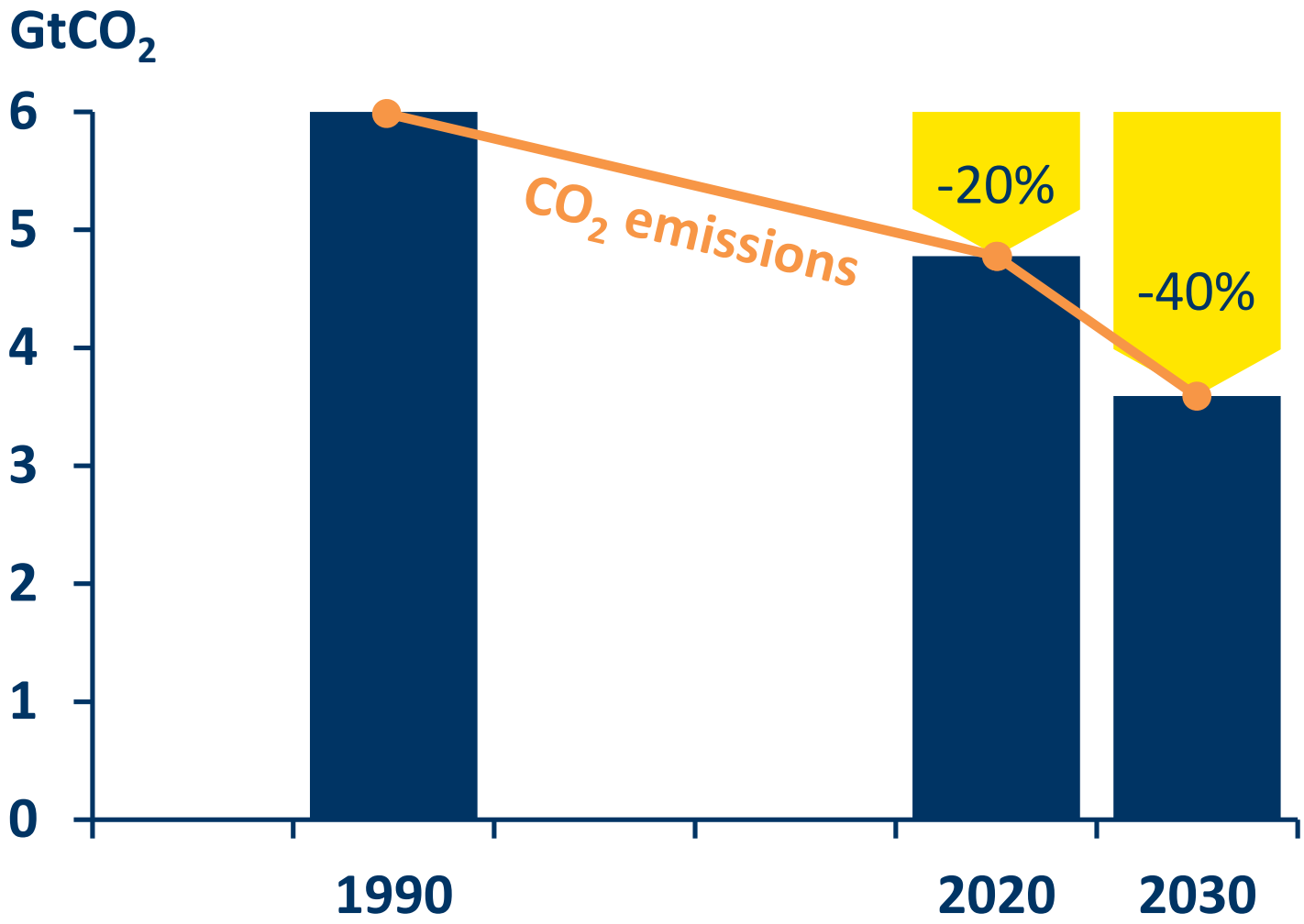
Source: EURACOAL members – * 2012 data

Note: bars show million tonnes of coal equivalent (Mtce) while figures at top of bars show millions of physical tonnes (Mt)

2030 proposals – some good points, some bad

1. A 40% GHG reduction target *c.f.* 1990 with no further "conditional" targets offered at international negotiations ✗
2. A 27% EU-wide binding target for renewable energy in final energy consumption ✗
3. ETS allowance cap to shrink by 2.2% each year from 2021 (*c.f.* 1.74% now) ✗
4. A new market stability reserve for the ETS from 2021 (Phase IV) ?
5. Carbon leakage protection to continue ✓
6. Indicators for energy price competitiveness and energy security ✓

CO_2 emission cap for under the EU ETS



Proposal from the European Commission implies a significant intensification of effort compared with past progress – it is too ambitious!

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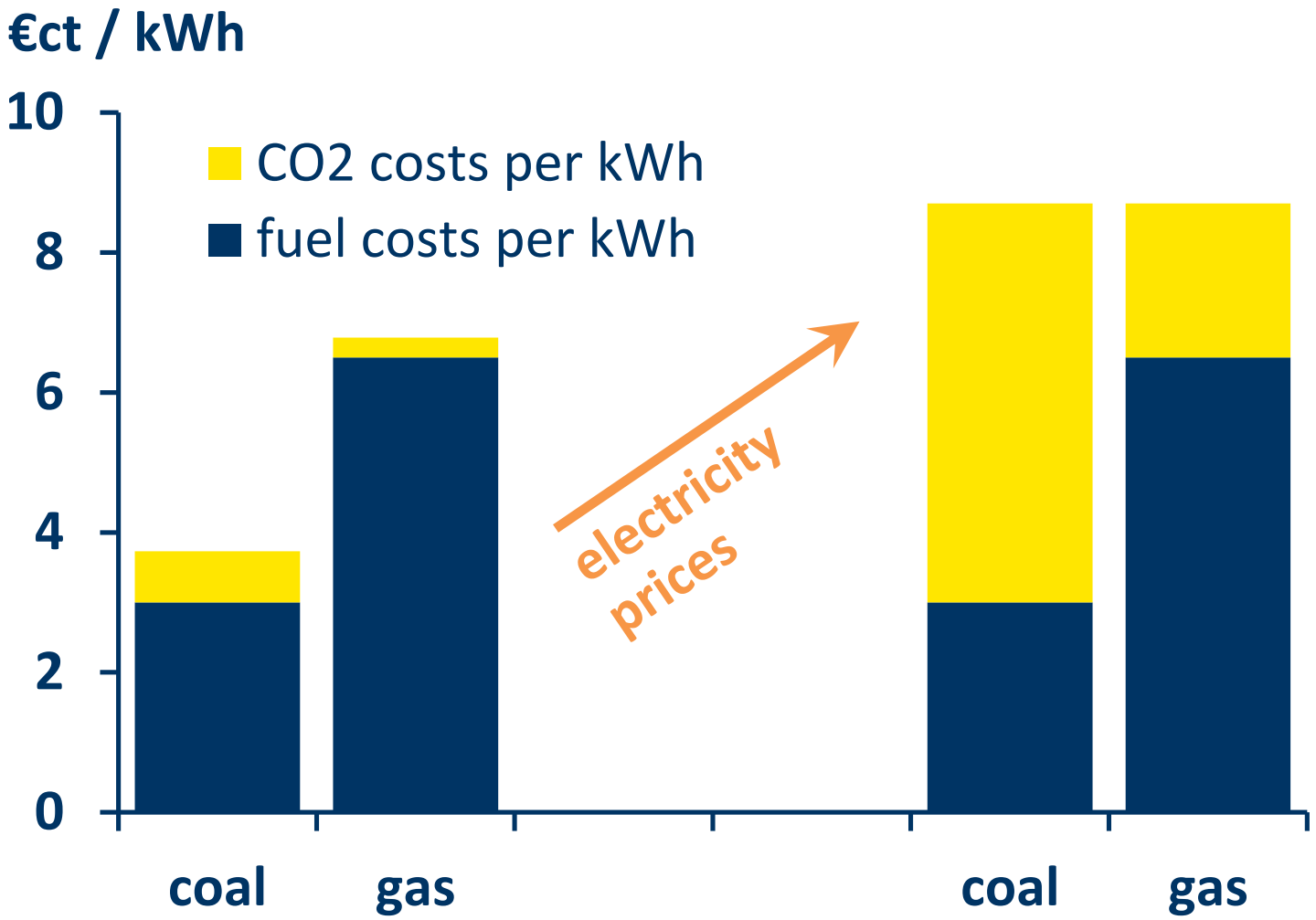
2030 package would be a bonanza for gas



Proposal from the European Commission implies fuel switching to gas at a high cost to consumers with EUAs at €55/tCO_2!

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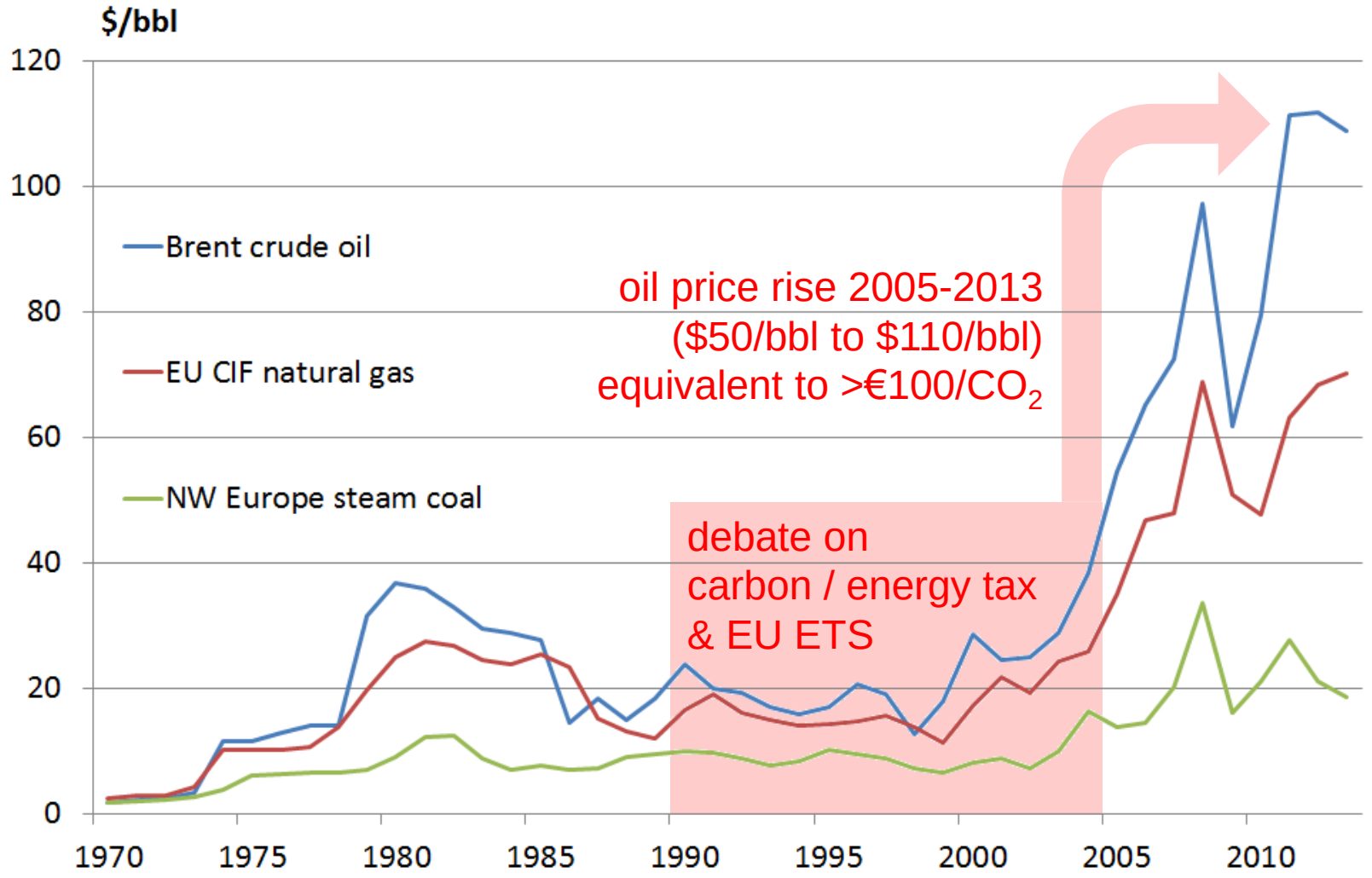
Oil, gas and coal prices, 1970 to 2013



sources: BP, World Bank and McCloskey Coal Information Service [oil-gas-coal prices.xlx]

Natural gas has become much less competitive for electricity generation.

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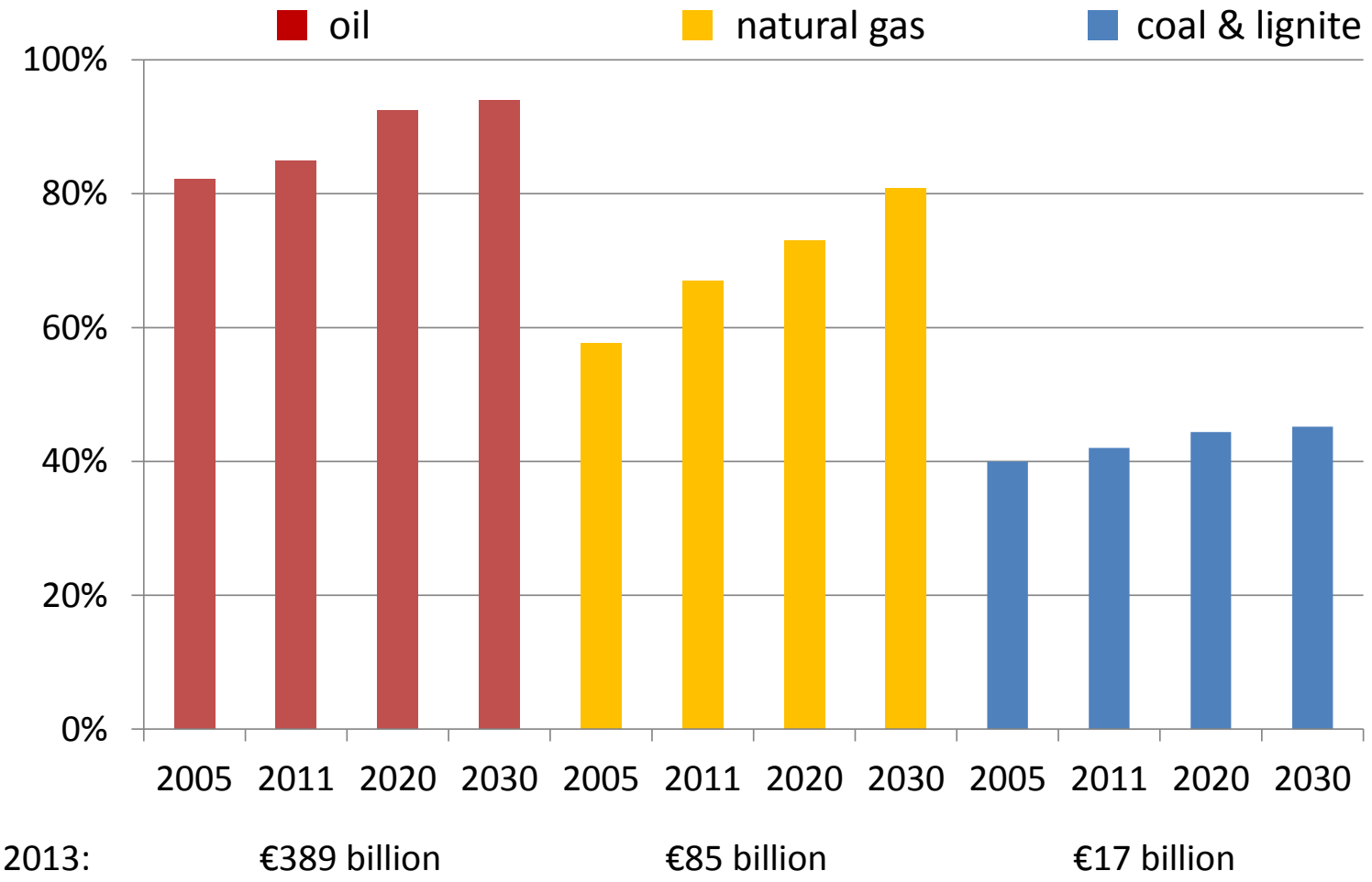
EU fossil fuel import dependence: import bill grew from 1.5% of GDP in 2002 to 4% in 2013



sources: chart - European Commission, data – Eurostat DS 018995, 15.01.14

In 2013, the EU spent €499 billion or 3.8% of GDP on energy imports.

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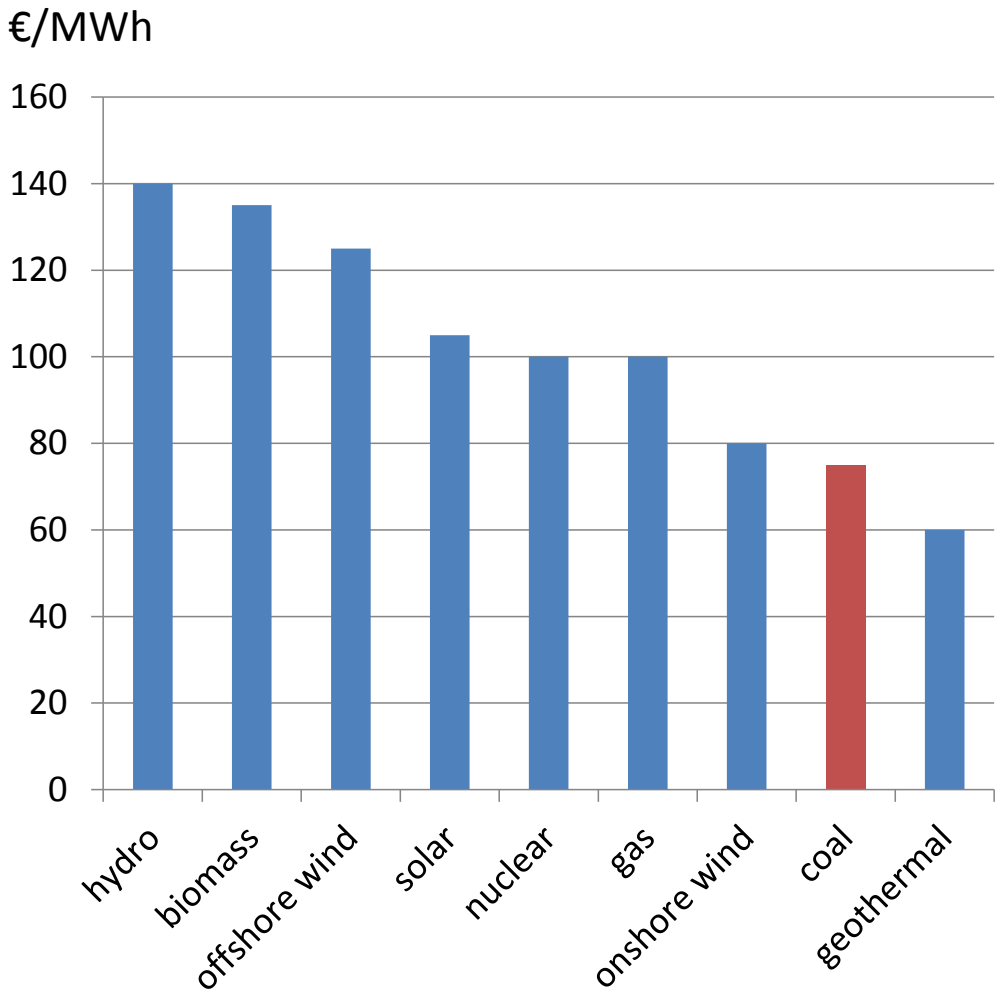
Levelised cost of power generation in EU, 2012



Source: *Subsidies and costs of EU energy – an interim report*, Ecofys by order of the European Commission, October 2014

Coal is one of the most competitive sources of power today.

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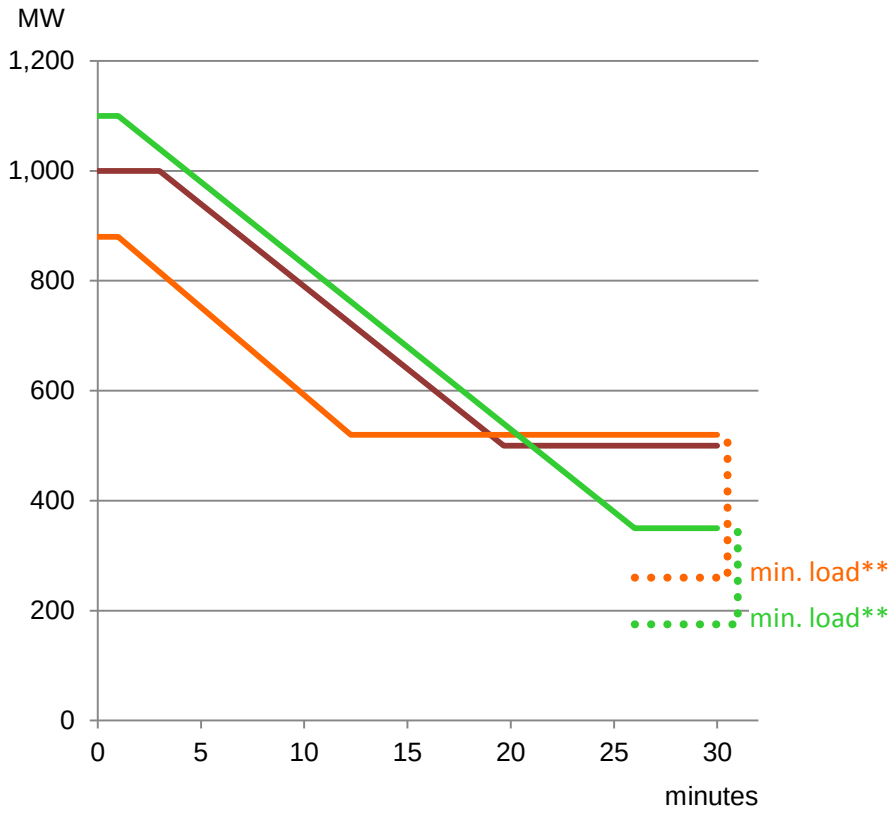
Flexibility is needed to balance renewables



BoA 1 to 3

Maximum load	~ 1,000 MW
Minimum load	~ 500 MW
Maximum ramp rate	+/- 30 MW/min

Gas-fired CCGT at Lingen

Maximum load	~ 2 × 400 MW
Minimum load	~ 520* / 260** MW
Maximum ramp rate	+/- 32 MW/min

BoA*plus*

Maximum load	~ 2 × 550 MW
Minimum load	~ 350* / 175** MW
Maximum ramp rate	+/- 30 MW/min

* 2 boilers operating
** 1 boiler operating

Coal-fired power plants match the flexibility of gas-fired power plants.

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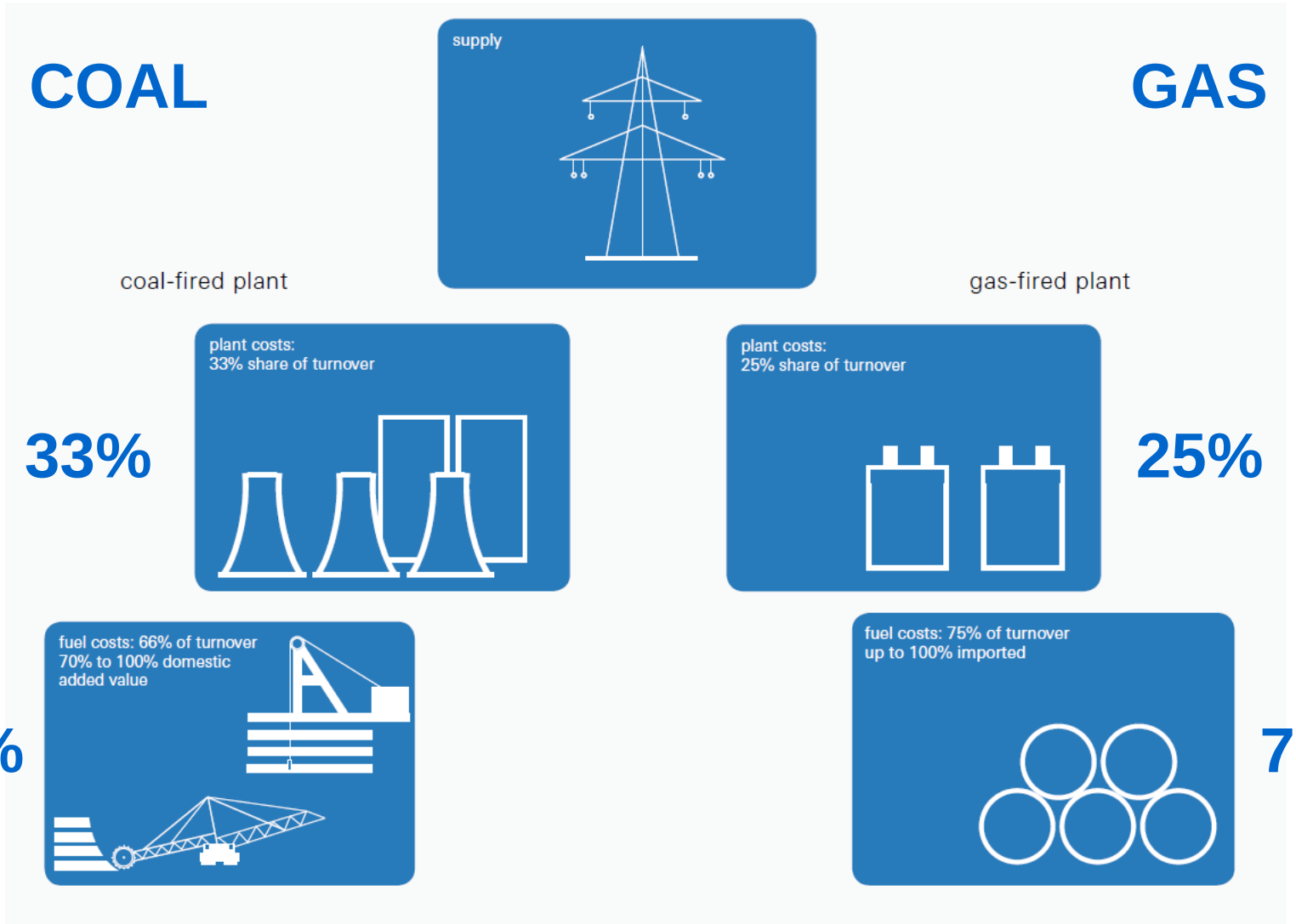
Energy flow is cash flow



A 1,000 MW power plant at base load has a €7 billion turnover over 20 years

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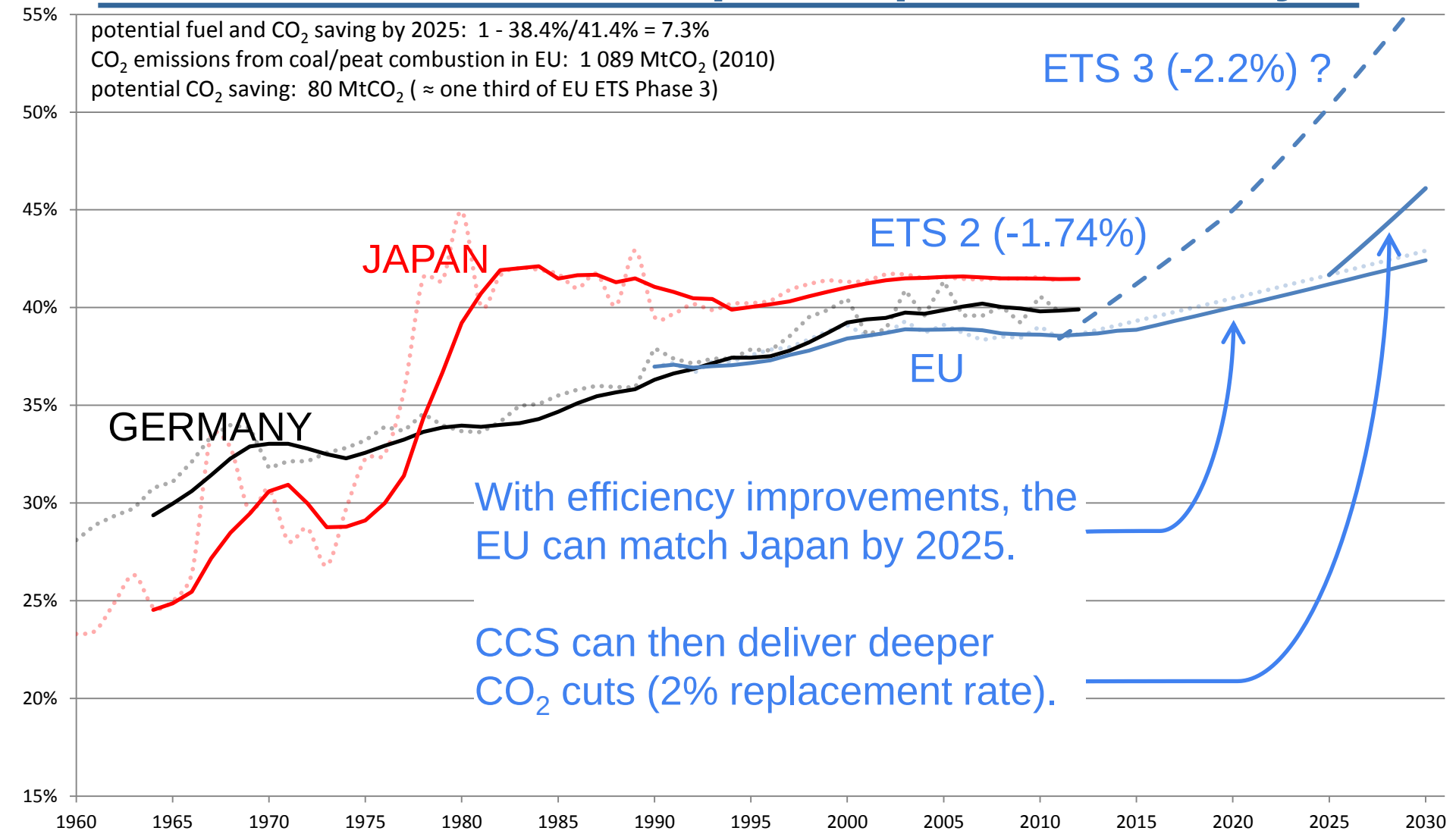
Evolution of coal-fired power plant efficiency



Renewal and modernisation of coal plants offers jobs and security.

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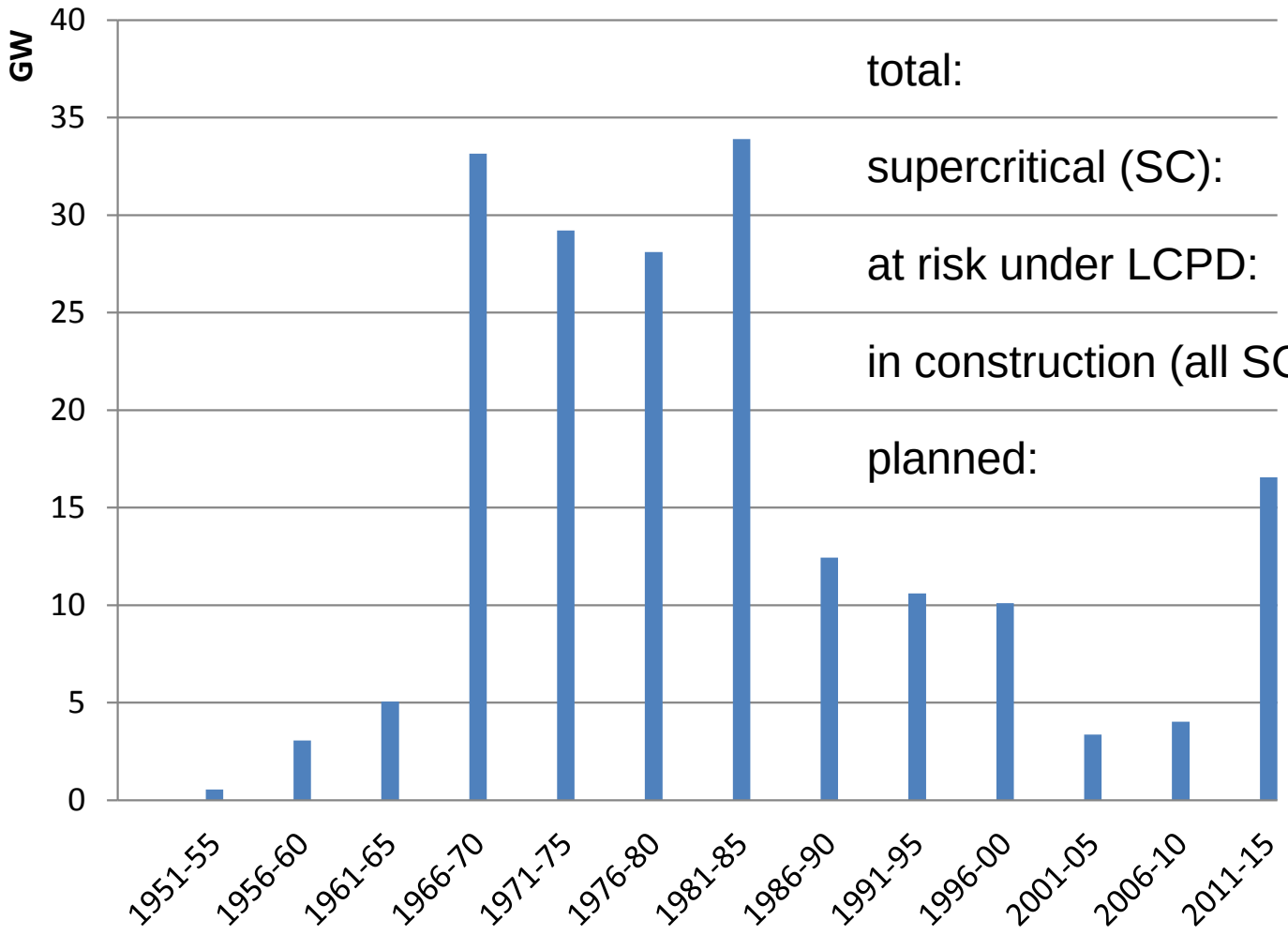
Age profile of coal-fired power plants in EU-28



total:	180 GW	
supercritical (SC):	27 GW	(15%)
at risk under LCPD:	28 GW	(15%)
in construction (all SC):	14 GW	(8%)
planned:	15 GW	(9%)

source: EURACOAL database – position as at 31 December 2013

It is not known what impact the IED will have: >100 GW needs investment.

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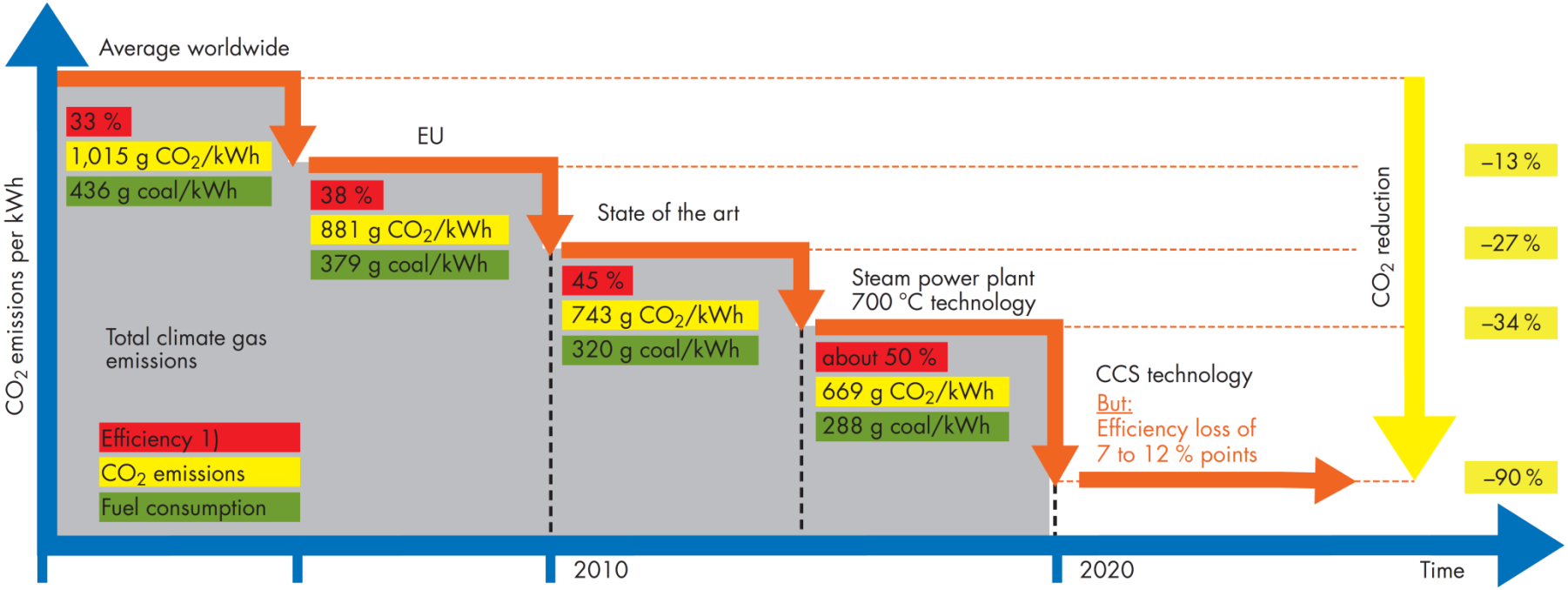
3-step clean coal strategy

- TODAY: replace old power plants with new plants
- TOMORROW: R&D for high efficiency and flexibility
- DAY AFTER TOMORROW: CO_2 capture and storage demonstration + public CO_2 infrastructure



A pragmatic 3-step strategy for a cleaner more prosperous future.

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Conclusions: a balanced energy policy is secure + competitive + sustainable (the IEA's three **E**'s)

Energy Security

indigenous resources (oil, gas, coal) + import diversity (oil, gas, coal) + flexible power plants (gas AND coal) + CTL & CTG

Economic Development

internal market + rational support for low-emission technologies + gas v coal competition (vital for the EU)

Environmental Protection

international agreement + carbon market + modernisation & renewal of old plants for higher efficiency + CCS infrastructure

The three A's of COAL = Abundant + Affordable + Accessible

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Thank you!

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