

EURACOAL

European Association
for Coal and Lignite



Coal's Contribution to Security of Energy Supply in Europe

Brussels – 24th September 2009

Dr. Thorsten Diercks, Secretary General

EURACOAL Members

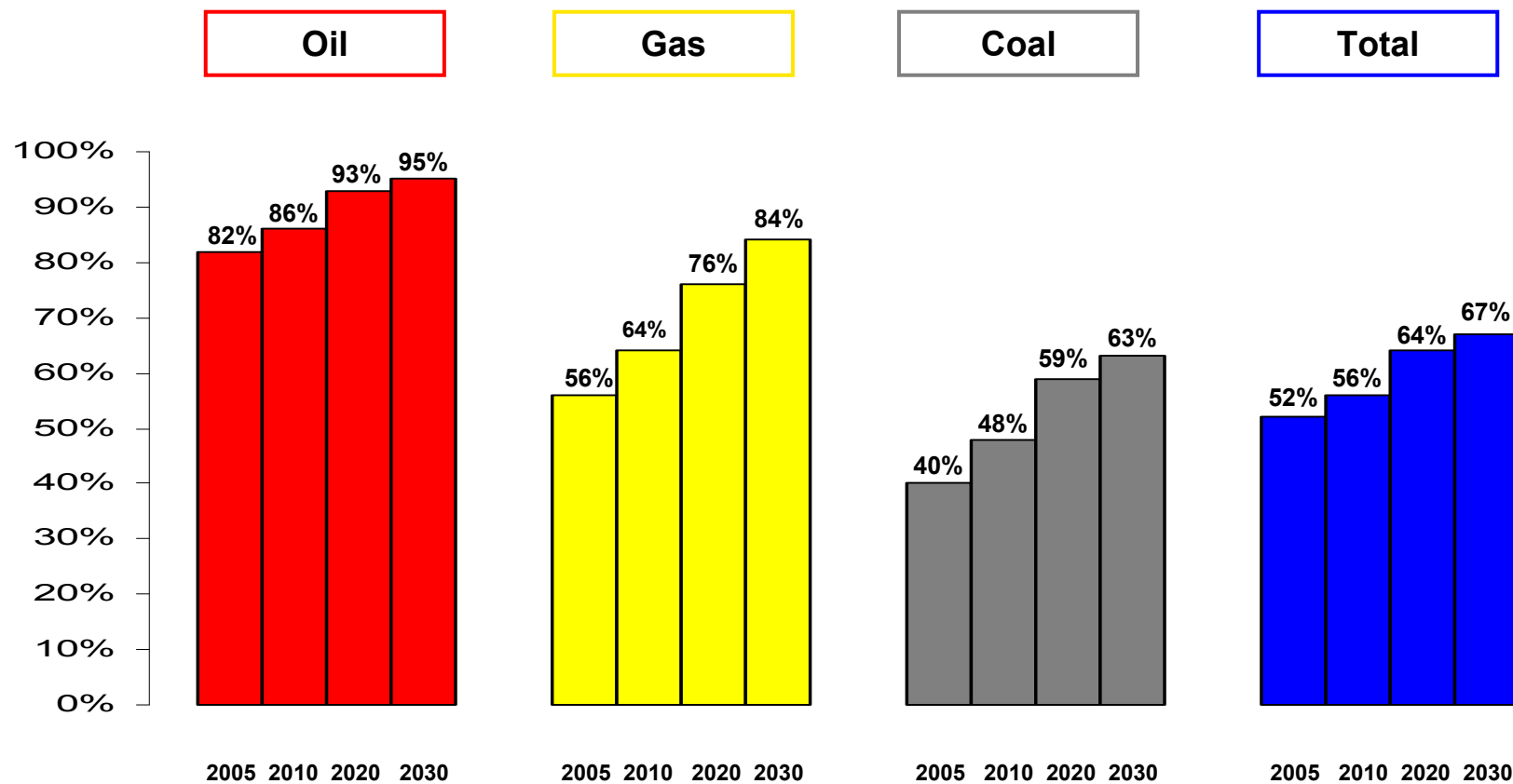
- DEBRIV - Deutscher Braunkohlen-Industrie-Verein e.V. (GER)
- GVSt - Gesamtverband Steinkohle e.V. (GER)
- COALPRO - Confederation of UK Coal Producers (UK)
- ZPWGK - Polish Hard Coal Employer's Association (POL)
- PPWB – Employer's Confederation of the Polish Lignite Industry (POL)
- PPC - Public Power Corporation (GR)
- ZSDNP – The Employer's Association of Mining and Oil Producers (CZR)
- CARBUNION - Federation of Spanish Coal Producers (ESP)
- MATRA - Matra Kraftwerk AG (HUN)
- Mini Maritsa Iztok EAD (BUL)
- PATROMIN - Federation of the Romanian Mining Industry (ROM)
- Hornonitrianske Bane Prievidza a.s. (SVK)
- VDKI - Verein der Kohlenimporteure e.V. (GER)
- Coallmp - Association of UK Coal Importers (UK)
- Swedish Coal Institute (SWE)
- Premogovnik Velenje d.d. (SLO)
- All-Ukrainian Coal Employers Association (UKR)
- TKI - Turkish Coal Enterprises (TUR)
- EPS - Electric Power Industry of Serbia (SER)
- RMU Banovici Coal Company (BiH)
- ISSeP - Institut Scientifique de Service Public (BEL)
- University of Nottingham (UK)
- Rock Mechanics Technology Ltd. (UK)
- Coaltrans Conferences Ltd. (UK)
- BRGM – Bureau de Recherches Géologiques et Minières (FRA)
- CERTH/ISFTA – Centre for Research and Technology Hellas/Institute for Solid Fuels Technol. & Applic. (GR)
- KOMAG Institute of Mining Technology(POL)

Coal's contribution to security of energy supply in Europe

Agenda

- European coal potential
- Energy risk management – advantages of coal
- Coal's challenge: climate protection policies
- Looking beyond 2020

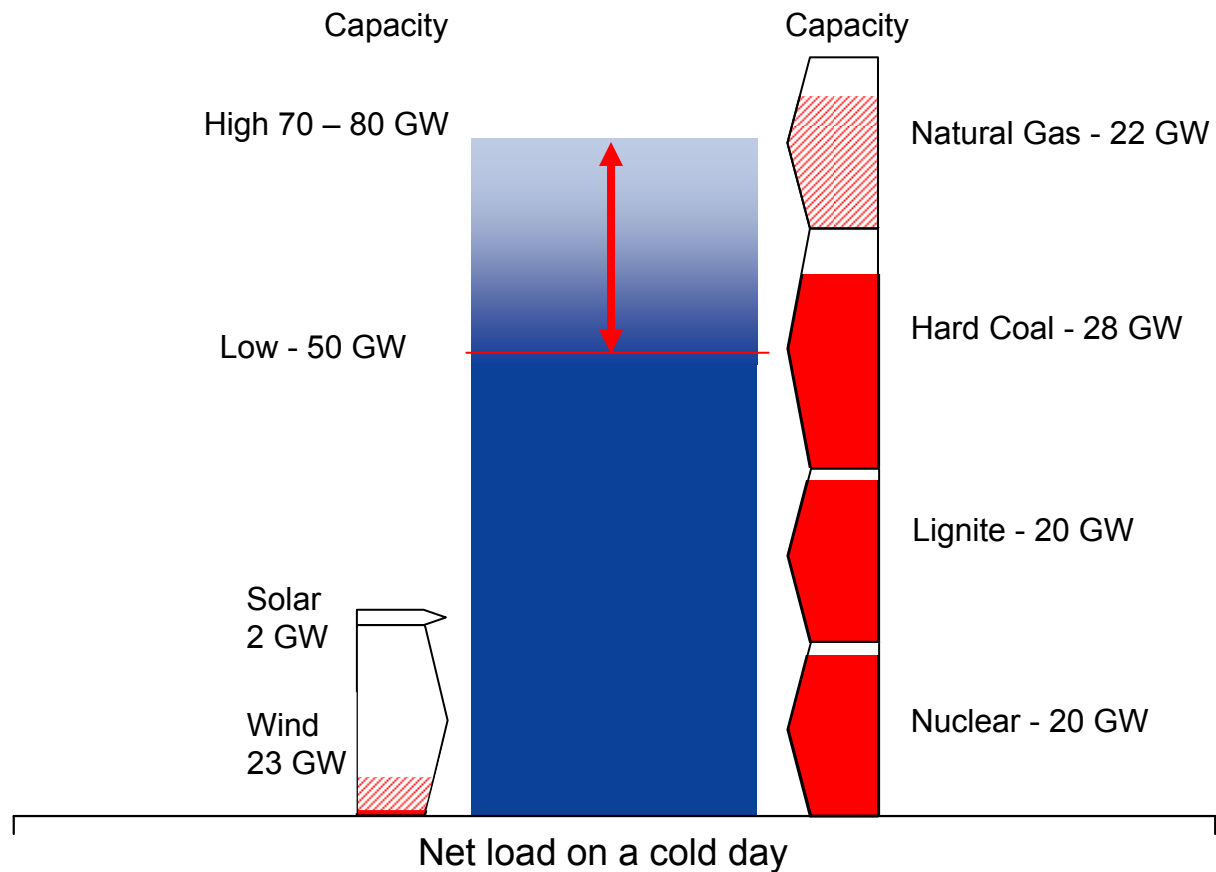
Projected EU energy import dependence



Source: European Commission, EU Trends to 2030, update 2007

The use of coal reduces import dependence.

The gas crisis – power generation 5th to 11th January 2009 - example Germany

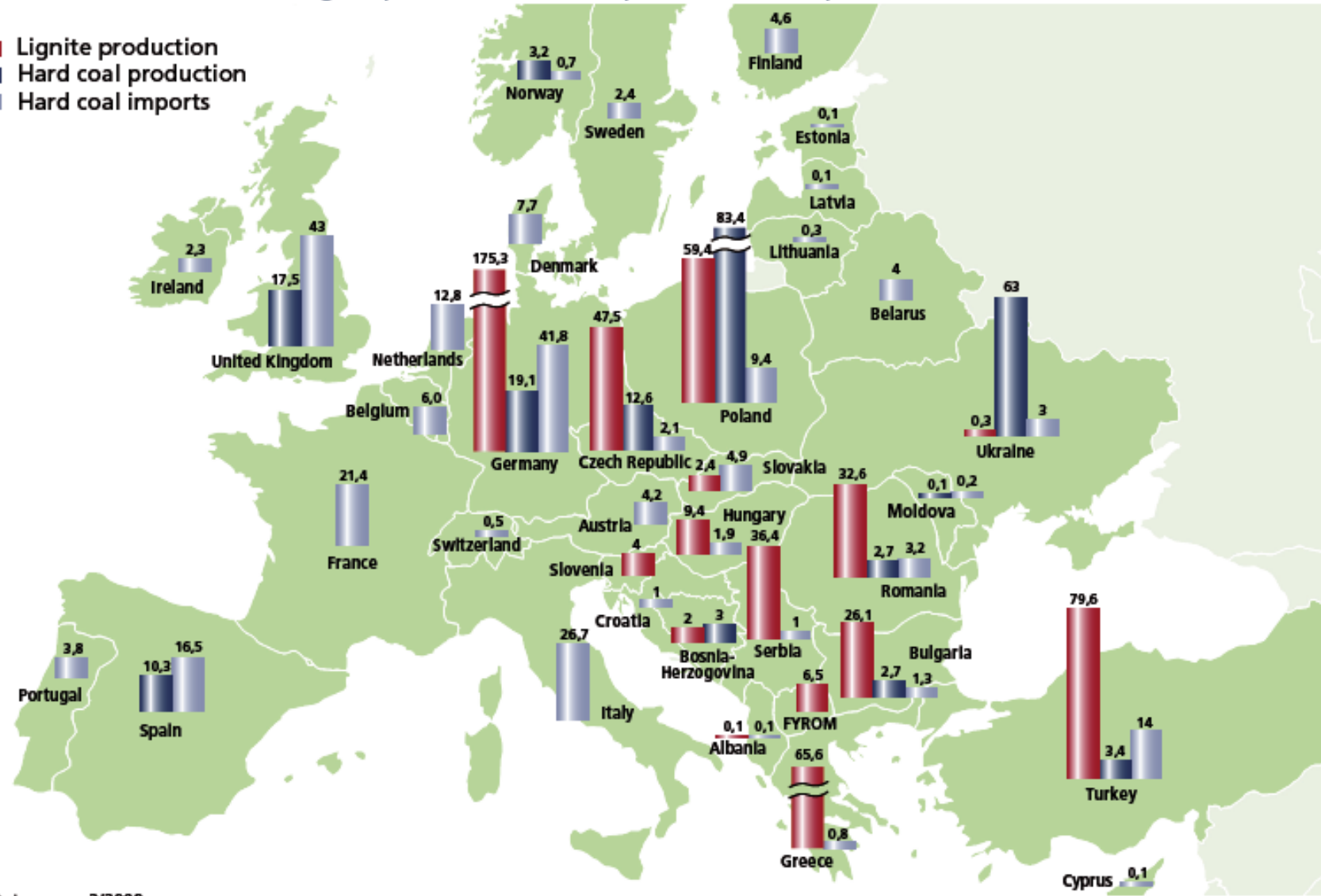


Coal generation helped in the crisis, renewables did not.

Coal in Europe

Lignite production, hard coal production and imports in Mt in 2008

- Lignite production
- Hard coal production
- Hard coal imports



Data as per 2/2009

Hard coal - European potential (Mt)

Country	Reserves	Resources	Potential
Czech Republic	3,112	21,106	24,219
Germany	118	82,947	83,065
Hungary	276	5,075	5,351
Poland	12,459	167,000	179,459
Romania	14	2,373	2,387
Spain	868	3,363	4,231
United Kingdom	432	186,700	187,132
Other EU	770	7,468	8,231
TOTAL EU	18,049	476,032	494,081
Turkey	413	793	1,206
Ukraine	32,039	49,006	81,045

Source: BGR

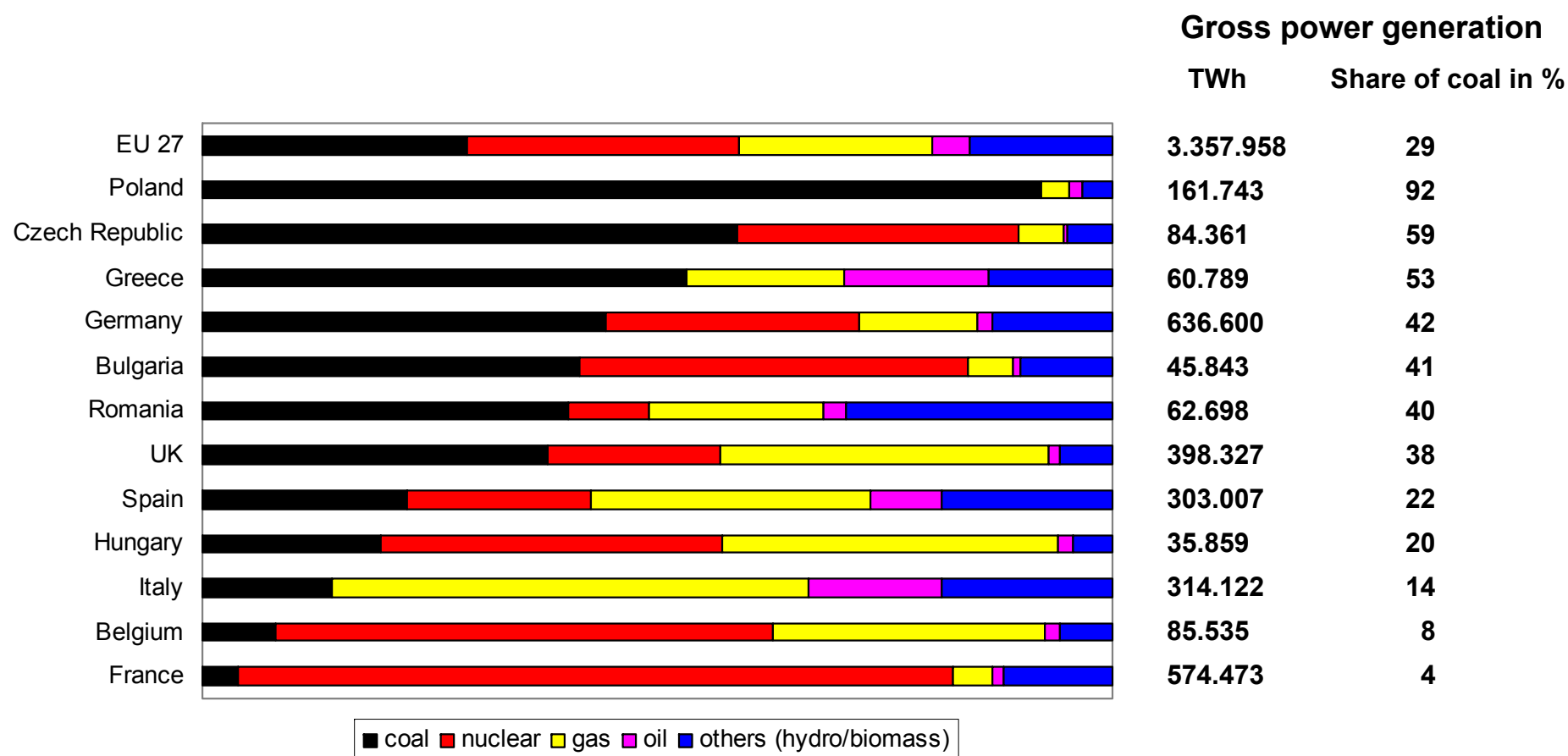
Lignite - European potential (Mt)

Country	Reserves	Resources	Potential
Bulgaria	1,928	4,194	6,122
Czech Republic	185	772	956
Germany	40,818	36,760	77,578
Hungary	2,633	2,704	5,337
Greece	2,876	3,554	6,430
Poland	3,870	41,000	44,870
Romania	408	7,947	8,355
Slovakia	83	525	609
Slovenia	315	341	656
Other EU	359	1,502	1,861
TOTAL EU	53,475	99,299	152,774
Bosnia-Herzegovina	2,369	1,814	4,182
Serbia	7,523	3,750	11,273
Turkey	1,814	7,176	8,990

Source: BGR

Power generation structure in selected EU 27

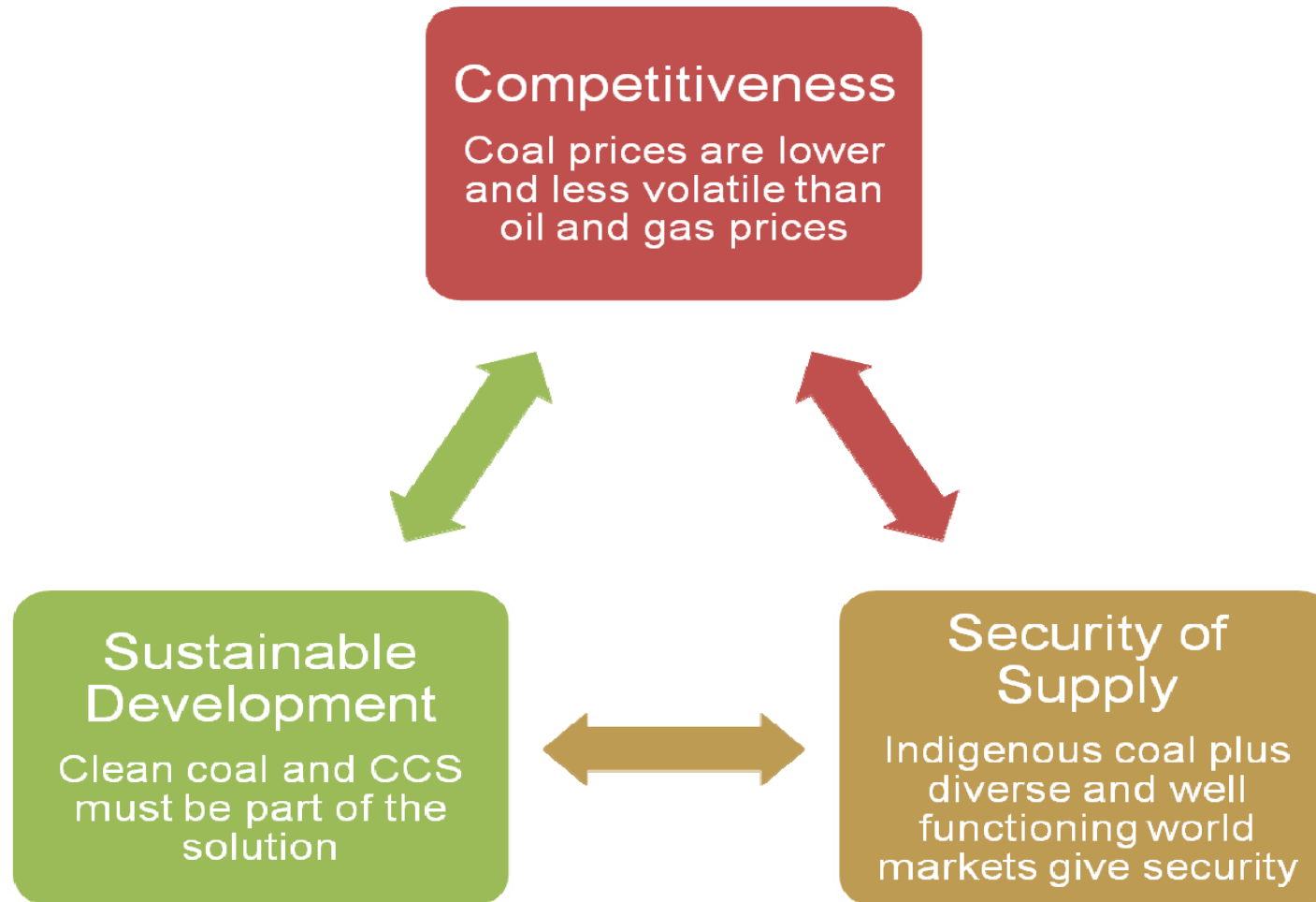
Member States



Source: EUROSTAT – Energy / Yearly Statistics 2006

As at 9/2008

What we want to achieve - the EU energy policy triangle



Major risks - a combined energy, climate, foreign and economic policy is needed

Major risks to be managed by society*

1. Energy sources, transport and transit risks
2. Technical risks (infrastructure, new technologies)
3. Economic and business risks (trade, investment price volatility)
4. Geopolitical risks (strategic options, objective function of governments and other actors)
5. Environmental risks (emissions, climate)

* Gretschmann, VIII. EWI/FAZ Energiekonferenz , Köln 2009.

**Coal has advantages compared to other fuels regarding items 1 to 4
– the challenge is item 5.**

Important coal policy issues (I)

Coal extraction: Access to Resources

- Member States should emphasize that assuring access to resources is a common task of the EU, Member States and industry in order to secure energy supply
 - No hasty closing down of mines on the basis of short-term considerations
 - The legal system must ensure that access to resources (opencast and underground) remains possible also in practice – this refers mainly to regional planning as well as environmental approval procedures

The challenge for coal is the environment – **EU decisions concerning climate protection**

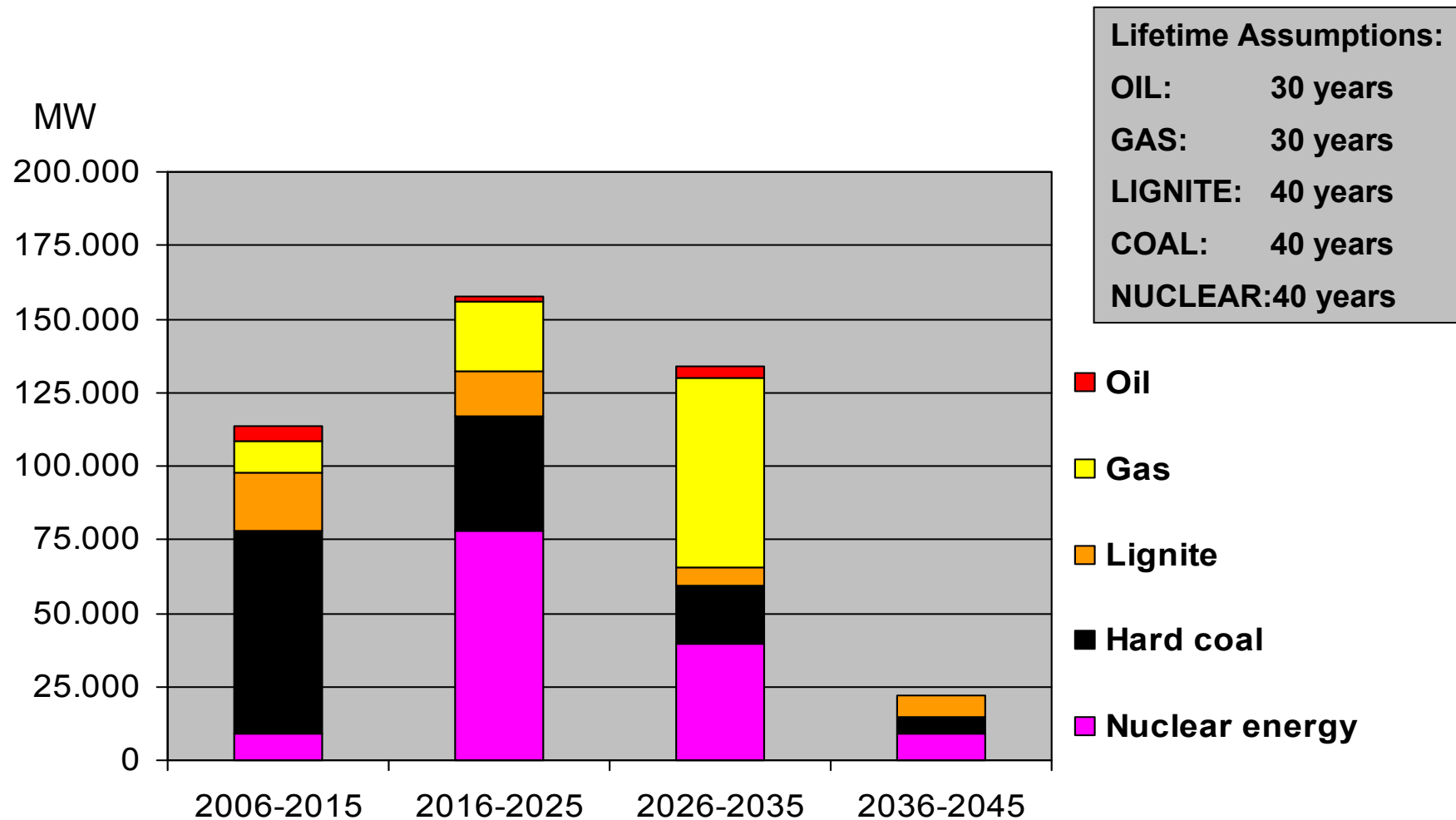
EU objectives till 2020:

- 20 % renewables, 20 % energy savings; 20 % less GHG

Possible objectives till 2050:

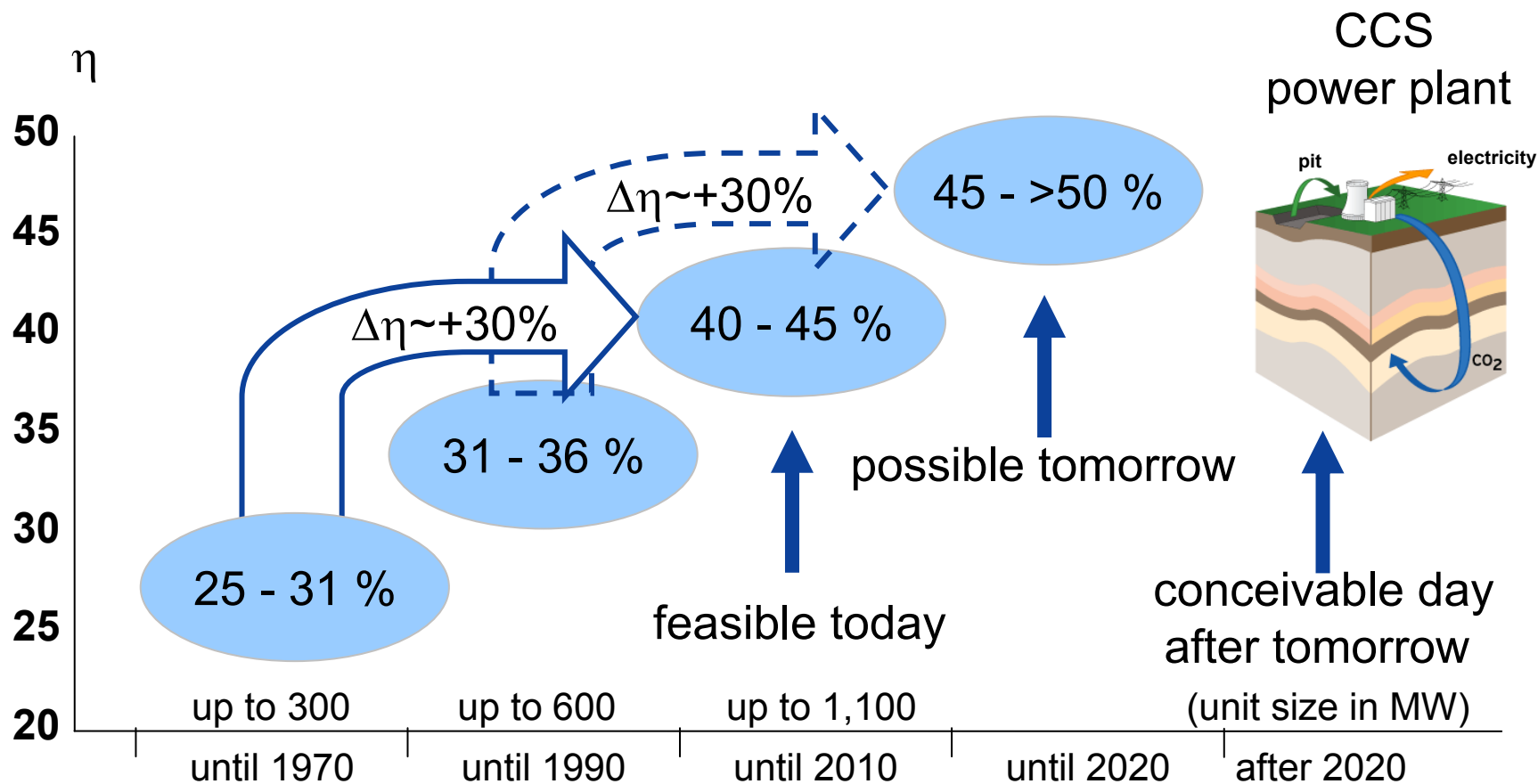
- Limit global rise in temperature $\leq 2^{\circ}\text{C}$;
objective ≤ 450 ppm CO_2 in atmosphere
- Worldwide reduction of anthropogenic GHG emissions to 50 % of 1990 level
- Fair burden sharing, i. e. industrialised countries reduce over-proportionally, i. e. 80 – 95 % with 1990 as base year. Fairness at ≈ 2 t GHG emissions per capita per year

Electricity generation: significant capacity needs to be replaced in the short to medium term



Source: Prognos, here: EU-25

Important coal policy issues (II) - Modernisation and increased efficiencies



The right base: continuous power plant modernisation/renewal

Continuous modernisation remains important

Germany – STEAG AG / EVN AG

DUISBURG - WALSUM 10



- New 750 MW hard coal-fired power plant
- Efficiency: > 45%
- 2010



Continuous modernisation and efficiency increase are a precondition for CCS.

Important coal policy issues (III) - CCS

- CCS is a **highly promising technology** within climate protection policies
- The demonstration **project network** proposed by the Commission and industry / the ZEP Technology Platform must be put into practice as soon as possible, best by 2015
 - Project selection - criteria and modalities to be definitely established in the Comitology procedure
 - Encourage Member States to co-finance the projects from emissions trading auctioning revenues
- Retrofit with CCS after 2020: in some places, top efficiencies may be the best option; any retrofit is subject to proportionality
- Capture-readiness as defined in the CCS Directive is backed

A number of CCS demonstration projects -

Example UK

KINGSNORTH POST-COMBUSTION

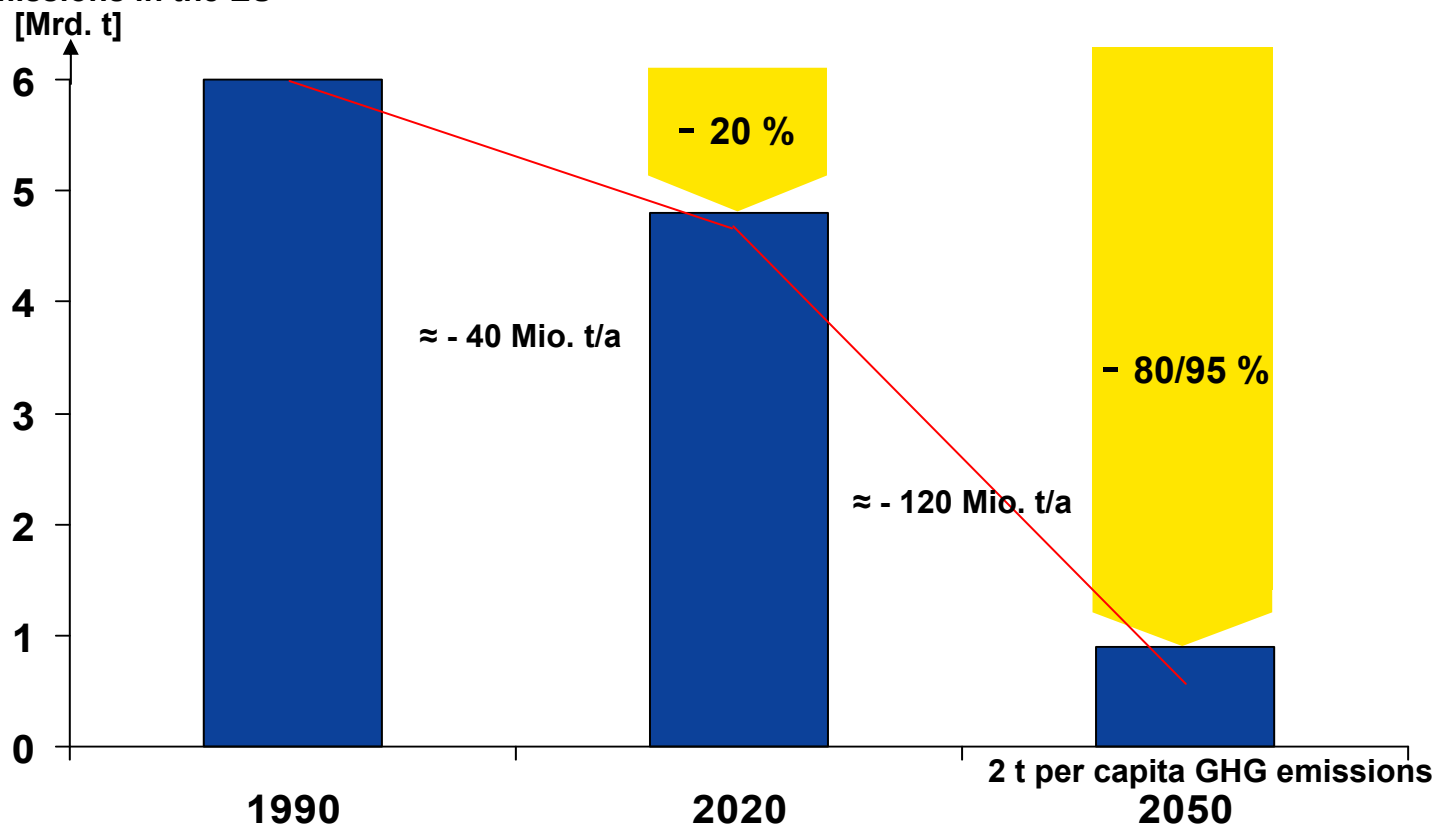


- Kingsnorth, e.on, 300 MW new post-combustion, 2014
- Ferrybridge, Scottish and Southern Energy, 500 MW retrofit, 2015+
- Tilbury, RWE nPower, 1600 MW new post-combustion, 2016
- Hatfield, Powerfuel Power, 900 MW new pre-combustion, 2012-14
- Teesside, Centrica etc., 800 MW new pre-combustion, 2013
- Killingholme, e.on, 350 MW new pre-combustion, 2016+

Climate protection in the EU

Two phases – two speeds

GHG emissions in the EU



Conclusion: For the EU, this means that GHG emissions of 5,8 billion t/a in 1990 must be limited to ca. 4,6 billion t in 2020 and ca. 1 billion t/a in 2050.

The minus 80-95% CO₂ - case

- All fossil fuels to be used in industrial installations with CCS only; CCS becomes a general obligation for industry in Europe
- Operators of installations must pay for capture, transport and storage, independent of the fossil fuel type used
- The CCS infrastructure (transport and storage) is needed at around 2020 and becomes an issue of secure energy later
 - It creates planning security
 - It secures industrial activity in Europe and may become a production factor for Europe
 - Its construction is therefore of general interest; a single user cannot afford it; a common effort is needed

Conclusions

- Security of energy supply remains important
- Hard coal and lignite represent 80 % of the EU-27 domestic fossil fuel resources
- In the decades to come,
 - access to coal resources,
 - continuous modernisation of coal-fired power plants and
 - carbon capture and storage (after 2020) for all fossil fuels, including the respective infrastructure,

will be essential for a secure, competitive and sustainable energy supply.

Coal will remain a part of the solution to Europe's energy supply.

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**Thank you for your
attention!**

Photos courtesy of:

- E.ON
- STEAG

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