

CHP for Future Electricity & Heat Supply: Interactions with Energy and Climate Policy

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This presentation is based on (some) results from the study

Öko-Institut / DIW Berlin

Ermittlung der Potenziale für die Anwendung der Kraft-Wärme-Kopplung und der erzielbaren Minderung der CO₂-Emissionen einschließlich Bewertung der Kosten (Verstärkte Nutzung der Kraft-Wärme-Kopplung)

commissioned by Umweltbundesamt

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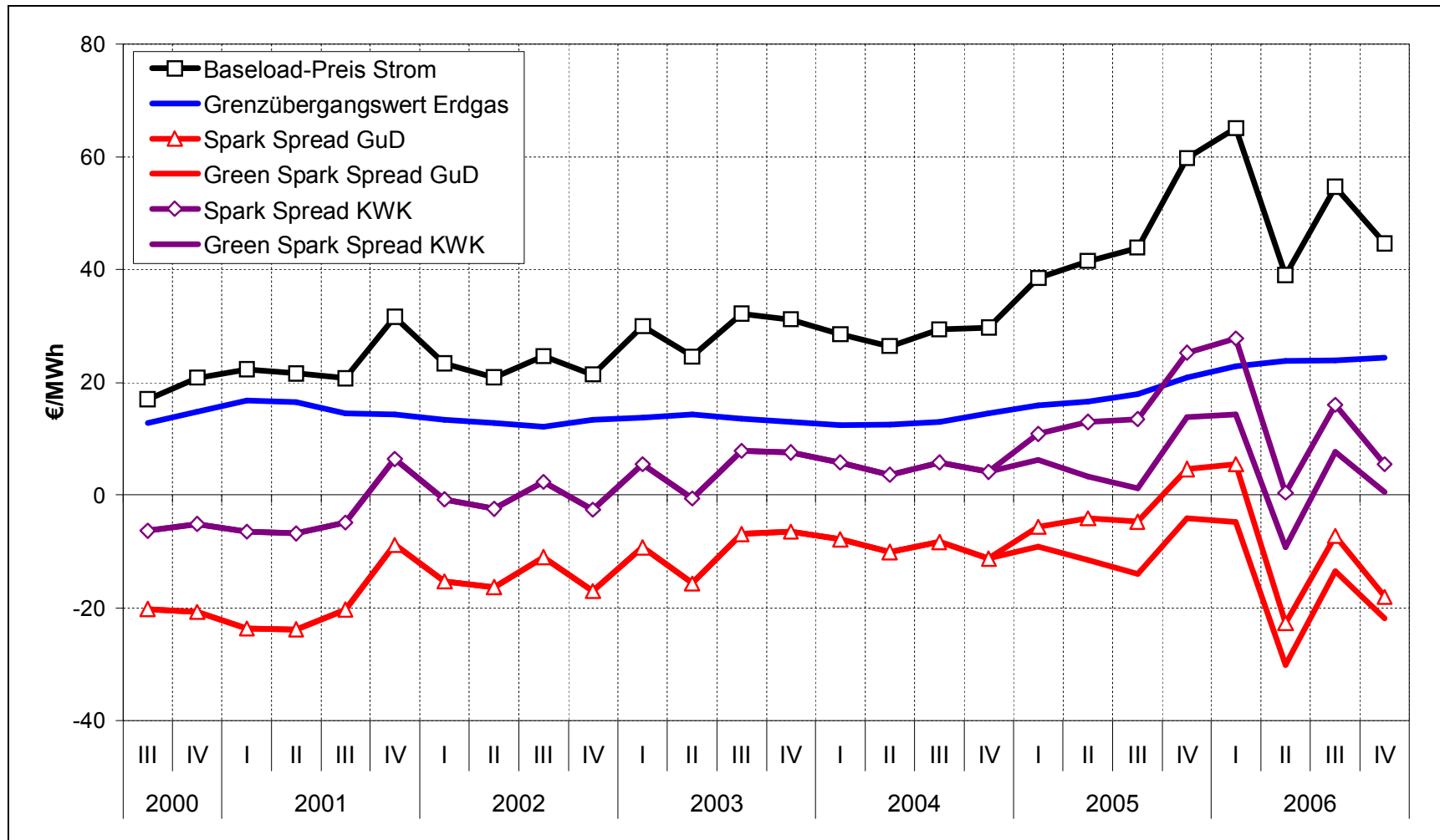
Heat and power from CHP

Crucial determinants for the future

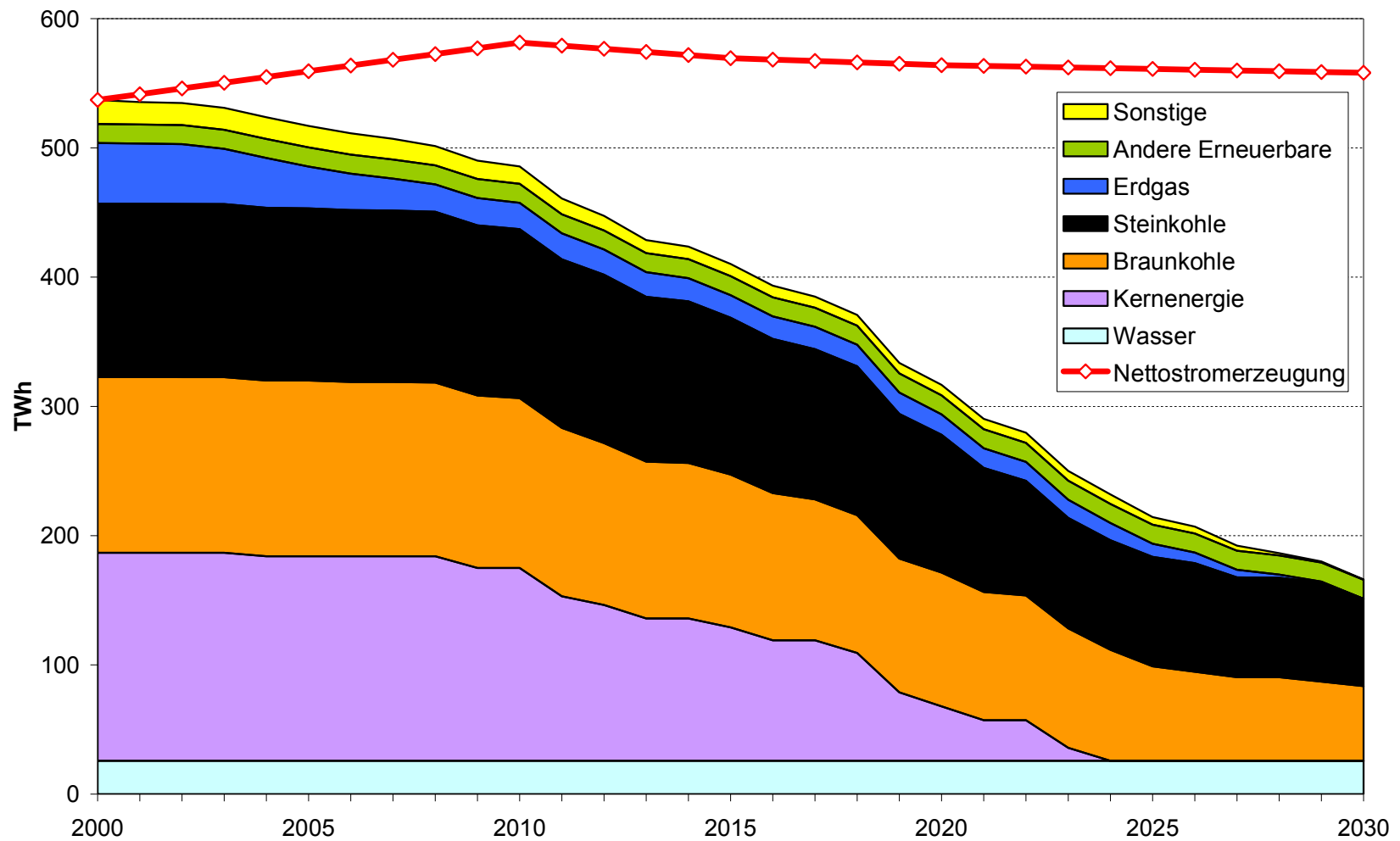
- **Without any doubt, high efficient CHP is a key technology for increasing resource productivity and decreasing greenhouse gas emissions**
- **These advantages in terms of resource productivity will lead to competitive advantages**
 - **if not compensated by (generic) higher investment costs**
 - **if (full) advantages regarding CO2 will be monetized**
 - **if the framework of liberalized and competitive power and heat markets does not create other distortions**
- **Heat sinks for CHP are not the crucial restriction for CHP in general, however**
 - **implications for the fuel used exist (decentral – natural gas, access, security of supply concerns)**
 - **infrastructure and its costs are key**
- **a clear distinction should be made between economic feasibility and economic attractiveness**

Economic situation of CHP

Power prices and fuel costs in DE

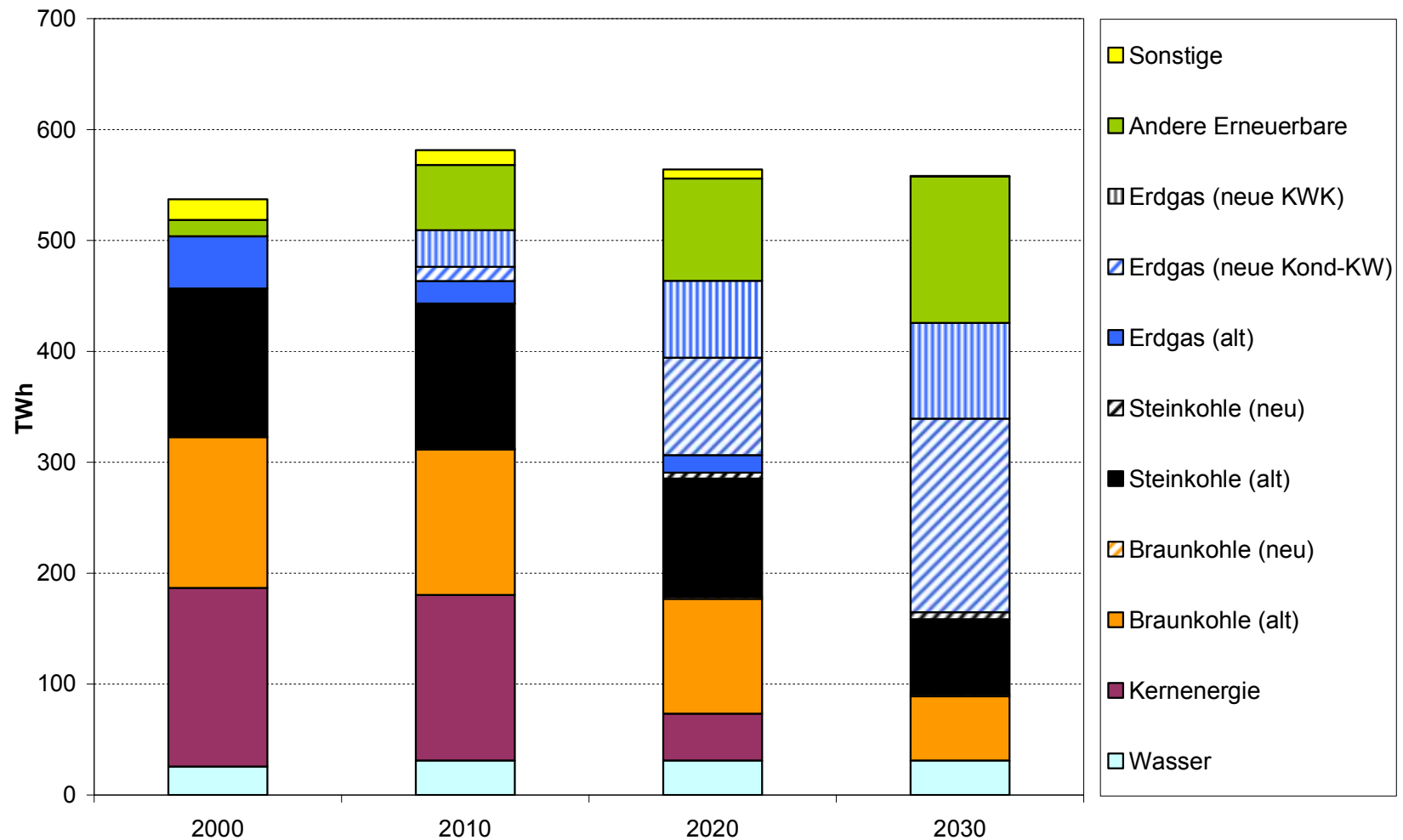


Key challenge for the power sector Upcoming modernization



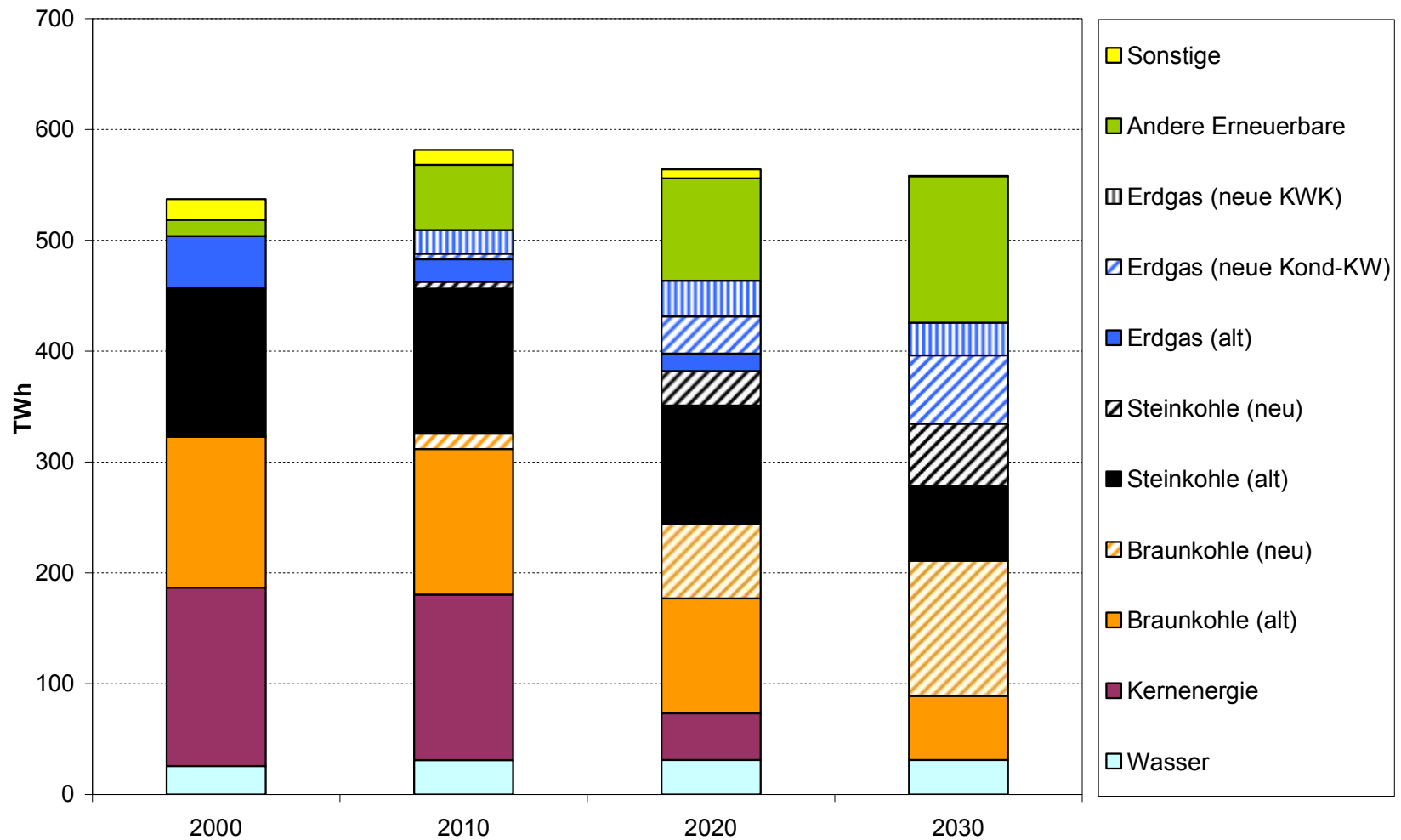
CHP in the first-best world

Full costs of CO₂ reflected



CHP in the real world (in DE, by 2012 ...)

ETS switched off – add'l policies needed



Conclusions (1)

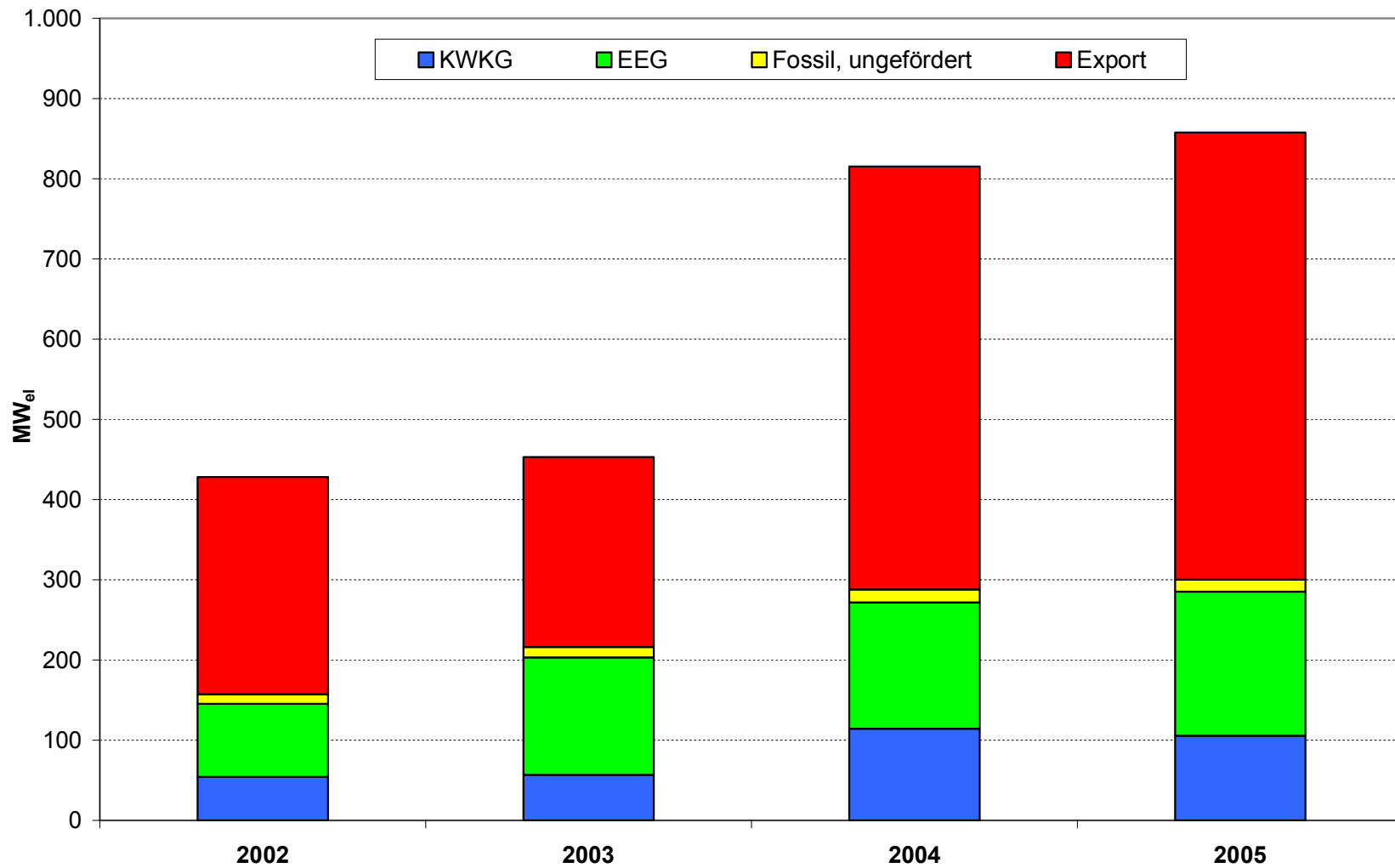
- **Economic situation for existing CHP plants has improved significantly since 2000 – new efforts for support schemes not necessary in DE**
- **New investments in CHP are not attractive in the recent framework, especially for medium and small installations serious economic problems arise**
- **Large uncertainties on oil and natural gas price trends exist, higher revenue streams from heat sales are essential (infrastructure burdens)**
- **EU ETS tends to favour CHP in principle, however, some problems remain (competition with heat plants and decentral installations not covered by the EU ETS)**

Conclusions (2)

- In the framework of full CO₂ pricing and the mainstream of fuel and power price projections and from real world investor's perspective the optimal share of power from CHP in DE is about 25 to 30%
- The recent design of the EU ETS (in DE, by 2012 ...) does not lead to monetization of the resource advantages of most CHP
- Comprehensive monetization is first choice, CHP support scheme(s) as *second best* approach
 - Transition towards a CHP quota?
 - In which time frame?
 - Consistent with the EU ETS if design multi-national?
 - Amendment of the recent CHP support scheme?

- **Key elements of an effective CHP support scheme in DE**
 - **Phase-out of the support for existing installations**
 - **Support for efficient power production from CHP production instead of feed-in from new installations**
 - **benefits for fixed periods**
 - **30.000 hours for installations > 50 kW**
 - **10 years for installations < 50 kW**
 - **Differentiated bonus levels**
 - **about 1.5 ct/kWh**
 - **about 2.5 ct/kWh for small CHP (50 kW – 2 MW)**
 - **about 5 ct/kWh for micro-CHP (< 50 kW)**
 - **Eligibility**
 - **without deadline or for those installations commissioned before the end of 2012?**

Interesting detail: Sales of small-scale CHP in DE



**Thank you
very much**

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