

The EU Energy and Climate Package



Interactions between EU Policies and Targets and Implications for CO₂ Price Uncertainty

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Agenda



- Overview of the EU Energy and Climate Package
- Policy instruments for the attainment of targets
- Interactions and market impacts of policies
- Impacts of uncertainty of meeting targets
- Implications for market participants
- Concluding remarks

20/20/20 Targets for EU Climate Policy



1. **CO₂**: 20% reduction relative to 1990 – 30% with international agreement
2. **Renewables**: 20% of total energy consumption – implying some 40% of electricity production
3. **Energy Efficiency**: 20% reduction in energy consumption relative to “business as usual”
 - Targets seem motivated mainly by climate change concerns
 - Other objectives include energy security

Mix of Policies and Approaches is in Place to Achieve Targets



- **CO₂** reductions mainly through proposed reformed EU ETS
 - Aim of predictability and stable CO₂ price through EU-wide and long-term cap
 - Increased scope, harmonisation, and elimination of "distortions"
- **Renewable Energy** through binding national targets and Member State policies
 - Patchy policy for transport and heat means focus on electricity
 - **Tradable green certificates** (PL, SE, BE, IT, UK, etc.) and **feed-in tariffs** (DK, NO, DE, FR, IR, etc.)
 - Potential EU-wide trade in certificates / guarantees of origin – but feasibility and relevance not clear (everyone's target is ambitious)

Mix of Policies and Approaches is in Place to Achieve Targets

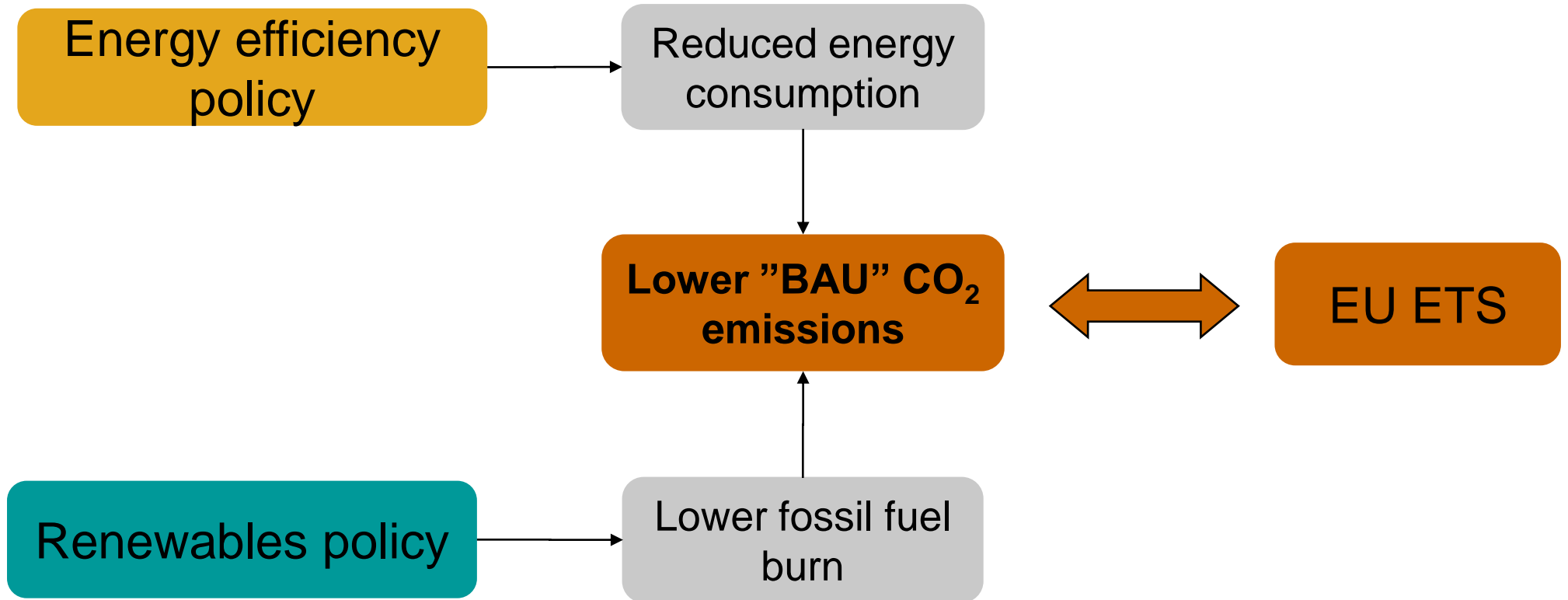


- **Energy efficiency** through “indicative” national targets and action plans
 - No agreement on EU-wide policy but interest in **tradable white certificates** (FR, IT, UK, etc.)
 - Key role in policy mix – but unclear evidence for low-cost savings and checkered policy history
- **Patchwork of other policy** indicate little consensus on “market-based” approach
 - CHP, CO₂ standards for cars, heat sector renewables, biofuels for transport, microgeneration, support for nuclear, etc.

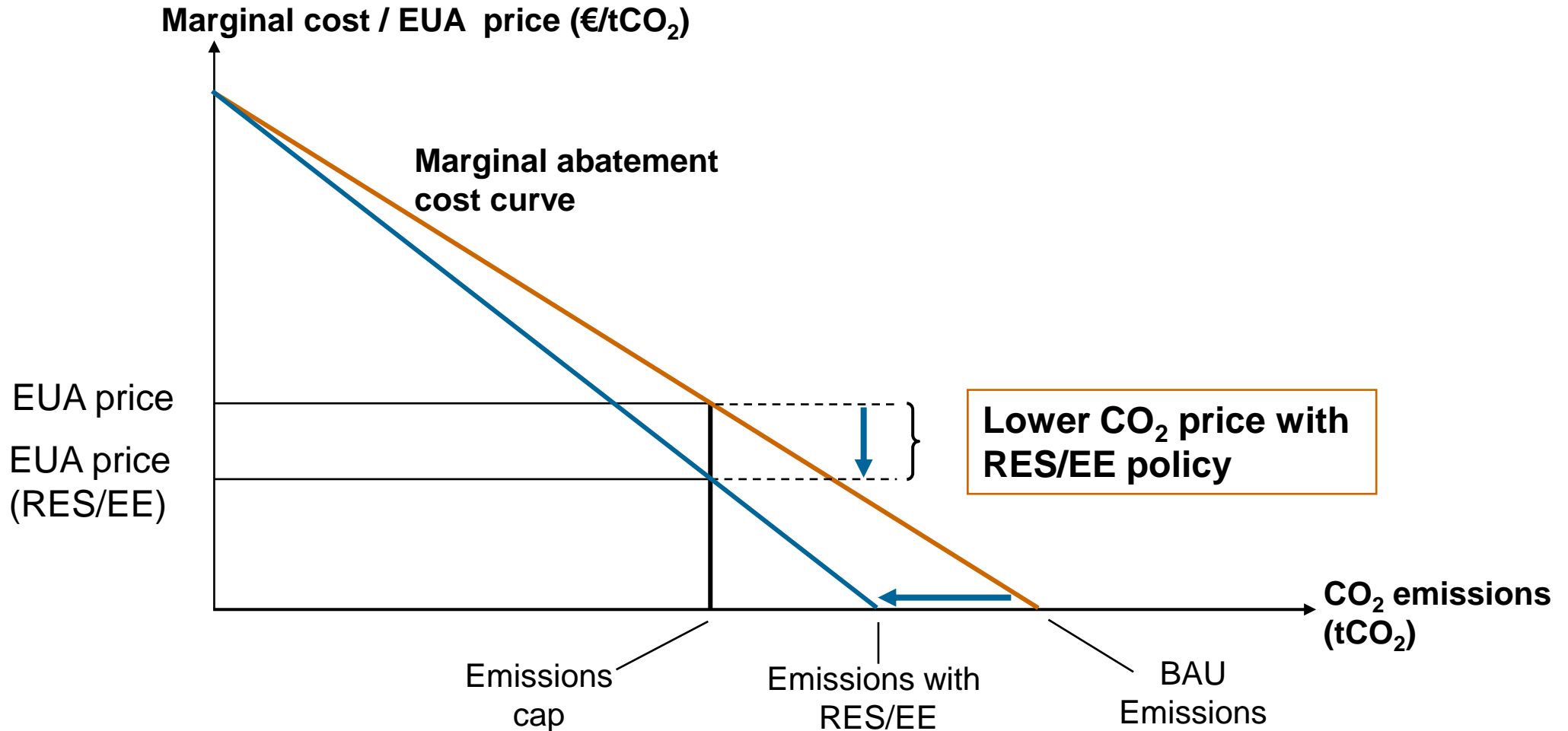
Multiple policies are in place

Interactions between policies add further complexity

Policy Interactions: Renewables and Energy Efficiency Affect the EU ETS

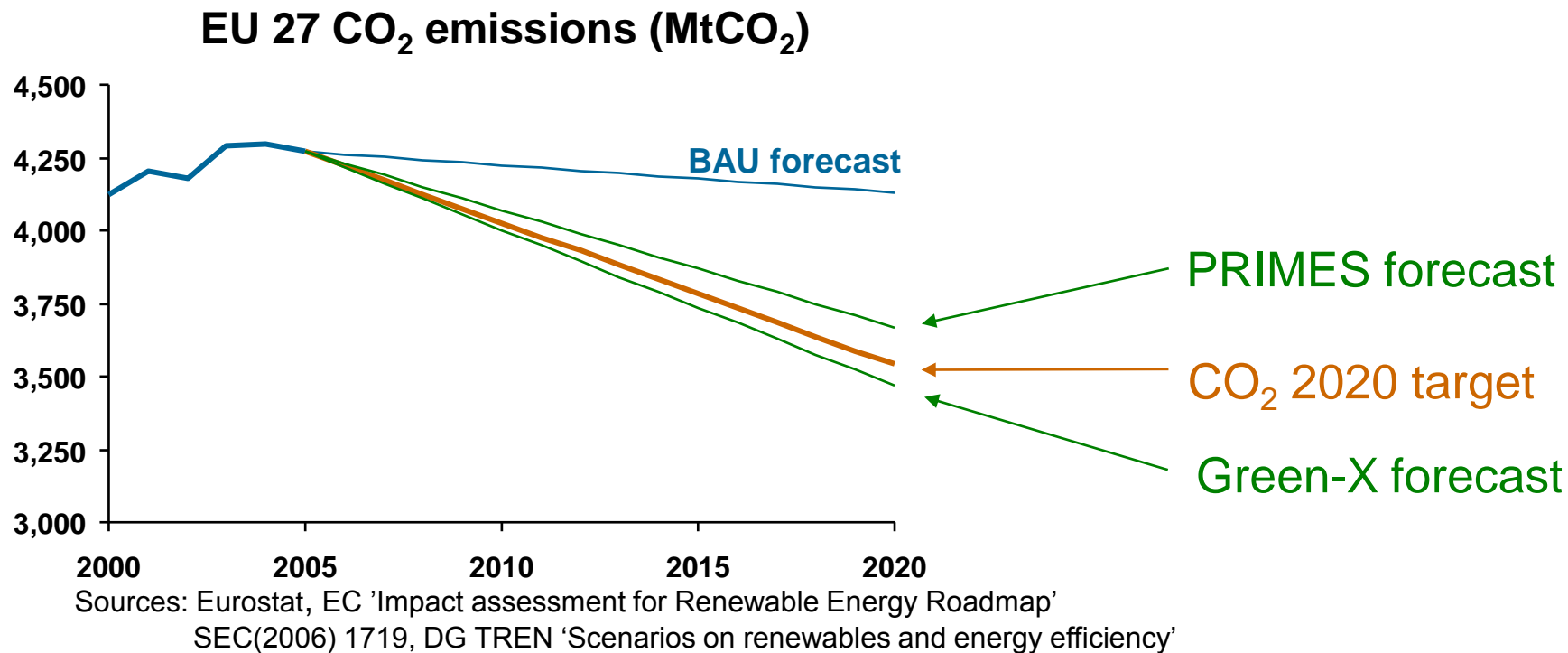


Impact of RE/EE on CO₂ (EUA) Market



RE/EE lowers emissions and cost of meeting given emissions cap
EUA price depends on success of renewables and EE policy

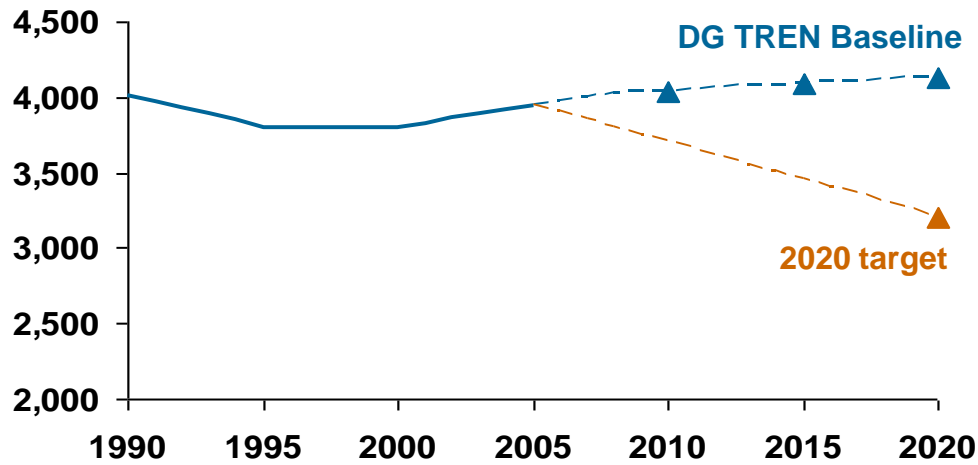
Policy Interactions Could Be Quantitatively Significant



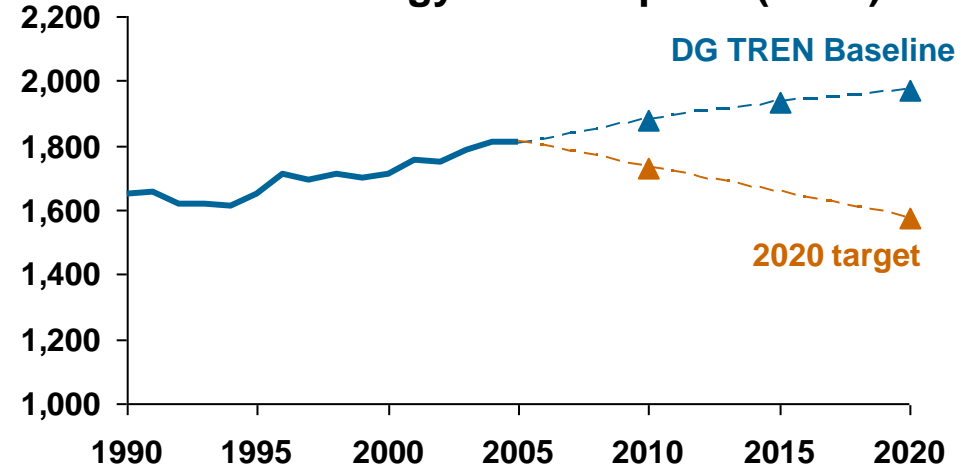
- Commission modelling suggests EU 2020 CO₂ target could be met **entirely** through renewables and energy efficiency
- Implication / unintended consequence: "**No need for CO₂ price**" ?

But ... Achieving the Targets Looks a Tall Order

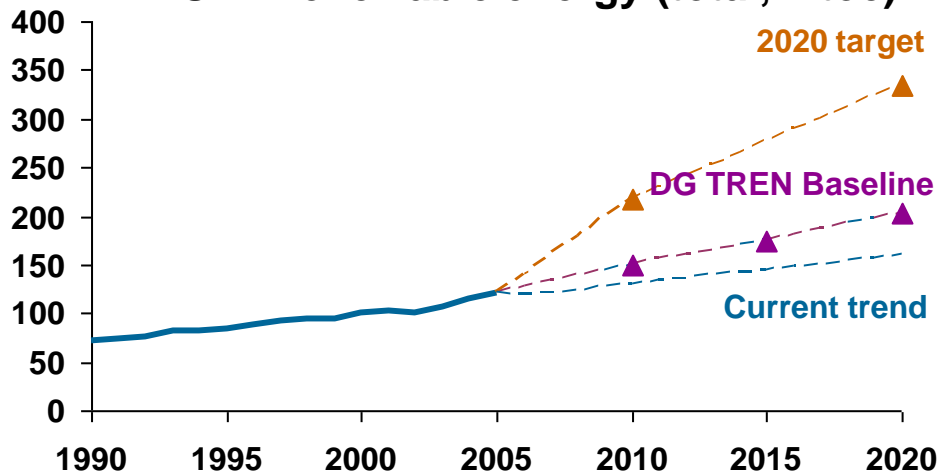
EU27 CO₂ emissions (MtCO₂)



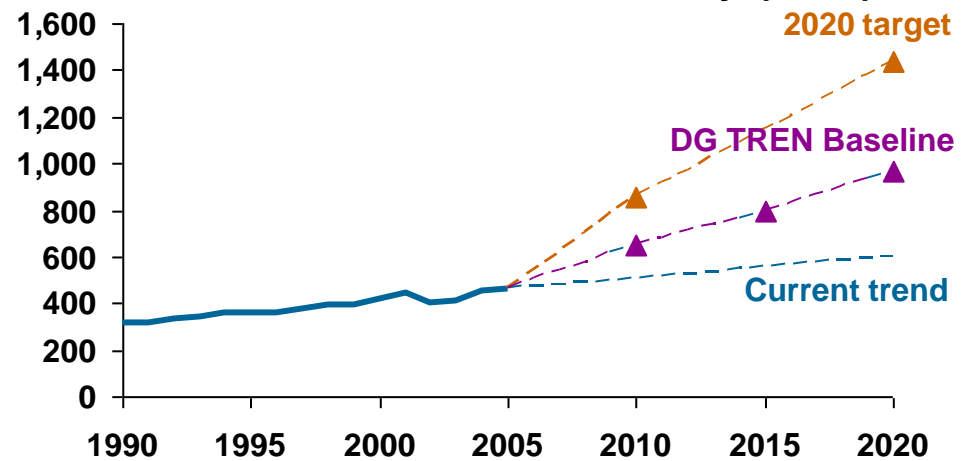
EU27 Energy Consumption (Mtoe)



EU27 Renewable energy (total, Mtoe)



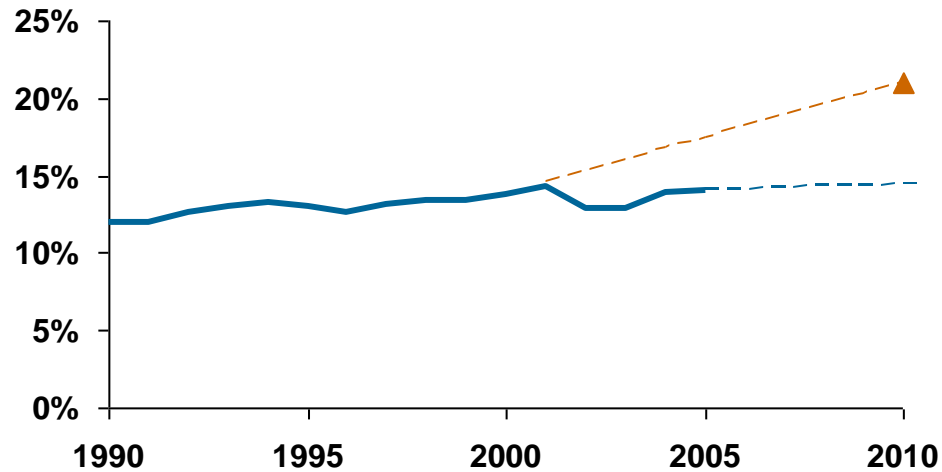
EU27 Renewable electricity (TWh)



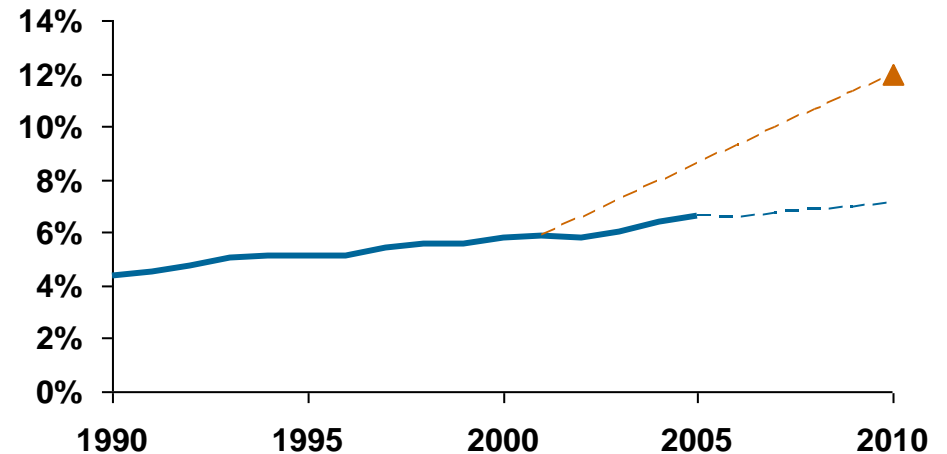
Attainment of Past Targets Is Proving Elusive



2010 Target EU27 Renewable electricity (TWh)



2010 Target EU27 Renewable energy (TWh)



Additional Reasons Attainment of Targets Looks Uncertain



- Much of past emissions reductions have been a cheap ride (e.g., “dash for gas”), but costs are increasing
- Hope of low or even “negative-cost” reductions through energy efficiency may prove unrealistic
- Resigned acceptance of high costs not universal in the EU
 - Challenges to Phase II NAPs (modest cuts only), “Hungarian proposal” for EU ETS, “Polish proposal” for auctioning

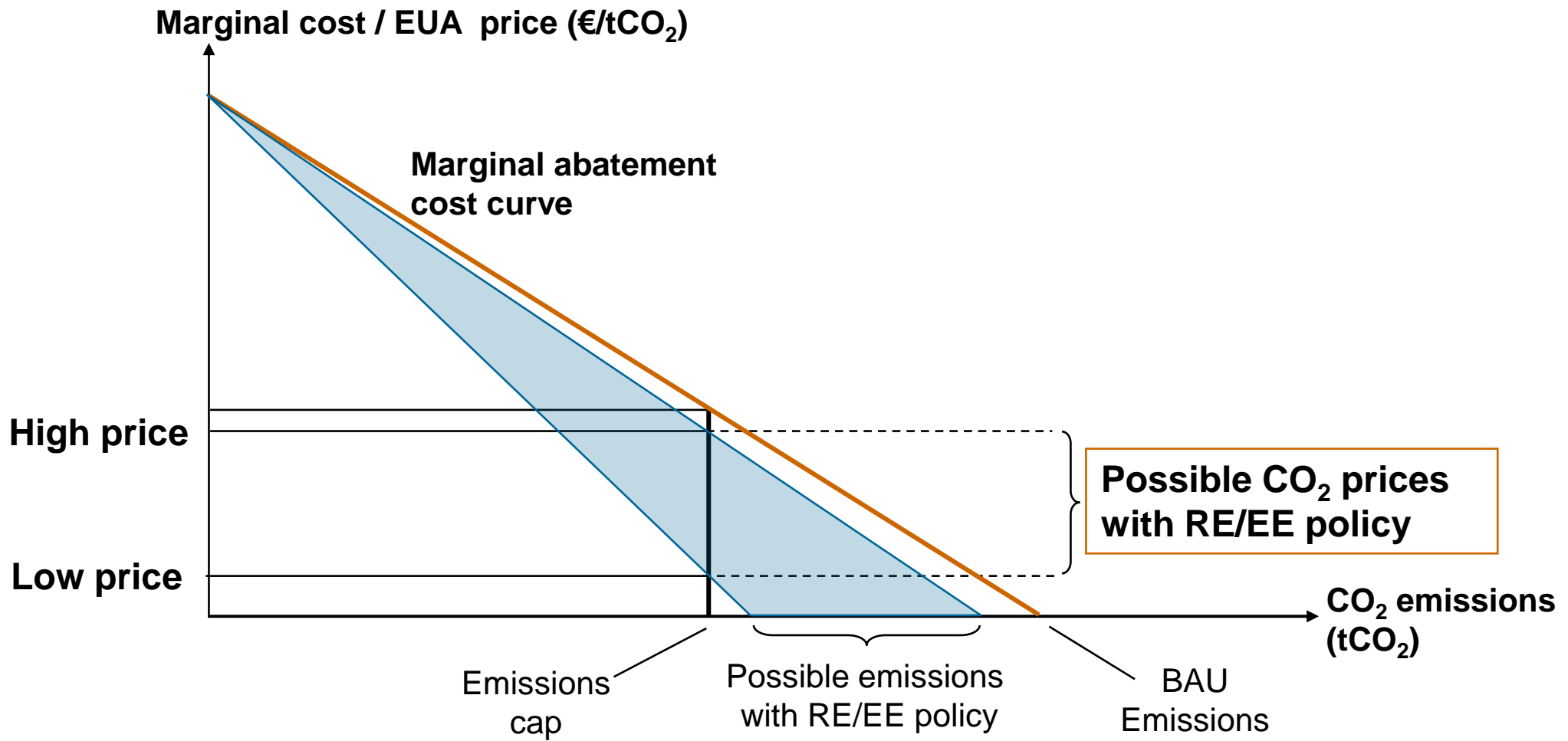
Additional Reasons Attainment of Targets Looks Uncertain (contd.)



- Revision of transport renewables targets likely given controversy over biofuels
- Unease about industrial competitiveness implications of continued EU unilateral approach
- Unclear consumer / voter tolerance of higher energy prices – *cf.* recent commodity price increases
- Unclear how legally “binding” targets can be enforced on EU level (*cf.* budgetary rules)

Despite strong apparent current commitment, the attainment of the 20/20/20 targets is highly uncertain

Interactions and Uncertain Attainment of Targets Lead to Uncertain CO₂ Price



Uncertain attainment of RE/EE targets leads to uncertain EUA prices
Note: Price uncertainty greater with firm CO₂ cap

Implications: Long-Term CO₂ Price Certainty May Be Elusive



- Major apparent aim of recent (Jan 2008) EC proposals to reform EU ETS is to *increase* price EUA certainty
 - Longer phases, set cap until 2020
 - Introduce full banking and some borrowing
 - Lay out rules for CDM/JI or similar credits
 - Pre-defined allocation schedule until 2020
 - 20/20/20 interactions may undermine these efforts:
 - Modelling suggests very low CO₂ prices possible if RE/EE targets were met
 - Current trends, past performance, high cost suggest targets may not be met—but gulf between targets and results highly uncertain
- **Wide range of CO₂ prices possible under 20/20/20 approach**

Implications: Challenges for Current Assets and for Investment



- Impacts on asset values, especially coal
 - Renewables and energy efficiency imply shrinking market for conventional generation – but by how much?
 - Uncertain CO₂ price leads to uncertain generation and net revenues

- “Caveat investor”
 - Significant new capacity required in EU, but unclear how much will be met by renewables
 - Planning for new fossil generation? Amount? Technology?

- Auxiliary market effects also complicated by interactions
 - E.g., competition for biomass resource, interaction with fuel prices

Concluding Remarks



- Interactions of renewables/energy efficiency targets and policies with EU ETS risk compromising objective of CO₂ price stability
 - Attainment of RE/EE targets highly uncertain, leading to CO₂ price uncertainty
- Effects in “other direction” add further complications – level of CO₂ prices influences attainment of RE and EE goals
- General lesson: interactions of market-based and “command-and-control” approaches can yield unexpected results
 - Relevant to a number of current policy proposals (EU, California, etc.)
- Further analysis in NERA study of policy interactions
 - http://ec.europa.eu/environment/climat/pdf/ec_green_final_report051117.pdf
 - http://ec.europa.eu/environment/climat/pdf/ec_green_summary_report051117.pdf

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