towards2030

Dialogue on a RES policy framework for 2030

Renewable electricity support policy in the context of climate policy in the EU: combinations and interactions.

Workshop: “Roundtable Towards2030”.
Den haag. March 2016.

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Main messages

- Combinations of climate and energy targets and instruments are necessary, despite conflicts.
  - Several goals and market failures which cannot be tackled with a single instrument.
- Issue is not “if” but “how”:
  - coordination
  - choice of instruments
- Analyses of the interactions between targets and instruments is needed.

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A crowded energy and climate policy space…

- **Several policies…**
  - The EU ETS
  - Support for RES deployment.
  - Energy efficiency regulations.
  - CCS
- Concerns, criticisms, inconsistency.
- Conflicts: Ineffective, inefficient.
- Does the policy mix make sense?

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A crowded energy and climate policy space

- Does the policy mix make sense?
- What is the rationale for policy mixes?
  - Several market failures.
  - Several policy goals (assessment criteria).
  - Other: political economy.

Multiple market failures / goals require multiple instruments.

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A crowded energy and climate policy space

- Does it make sense?
  - Dynamic efficiency.
    - A cost-effective approach to achieve short-term targets: not necessarily the most cost-effective approach to achieve 2050 targets.
    - Model simulations: promoting technological changes may be costly in the short term, but cheaper in the long-term (Huber et al 2007).
    - Putting technologies "on the shelf" vs. taking technologies "from the shelf" (Azar and Sanden 2011).

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A crowded energy and climate policy space

- Does it make sense?
- What is the rationale for policy mixes?
  - Several policy goals (assessment criteria).
    - Policy-makers have other goals apart from CO2 mitigation.
  - The combination: higher compliance costs with the CO2 target. Higher costs to reach all the goals jointly?
    - Price tag for other goals.

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A crowded energy and climate policy space

- What is the rationale for policy mixes?
  - Other: political economy.
    - Combinations may be justified if a less efficient instrument is more politically feasible.
    - Are credible carbon prices at sufficiently high levels politically feasible?

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A crowded energy and climate policy space

- What is the rationale for policy mixes?
  - Other: political economy.
    - Unless meaningful/binding emissions reductions are agreed at a global level, a second-best strategy based on strong support for RETs will lead to lower costs (Bauer et al 2012).
    - Strong RET deployment may provide a hedge against low stabilization targets (Lecuyer and Quirion 2013).

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How can the interactions be assessed?

- Several alternatives:
  - Theoretical approach.
  - Modelling:
    - CGE models.
    - Sectoral models.
- Each with pros and cons.
- Best alternative?

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What have been the results of the assessments so far?

- Our analysis in Towards2030:
  - Theoretical analysis. A qualitative ex-ante analysis of interactions.
    - RES support and EU ETS
    - RES support and EE.
    - RES support and CCS.
  - Several criteria to assess the interactions.
    - Effectiveness.
    - Static efficiency.
    - Minimisation of policy support costs.
    - Dynamic efficiency.
    - Social acceptance and political feasibility

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What have been the results of the assessments so far?

- Our analysis in Towards2030:
  - RES-E → EU ETS
  - RES-E → Energy Efficiency (EE)
  - RES-E → CCS

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What have been the results of the assessments so far?

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❖ RES-E → EU ETS

PRICE				QUANTITY					DISTRIBUTIONAL				INDIRECT	
Carbon price	Pw	Add-on	Pr	Elect. D	RES gen	Conv. gen	CO_2	RES I	Elect consumers	Conv gent	Ren gent	RES equip. man	EE	CCS
↓	↓	↑	↑	↓	↑	↓	=	↑	↓	↓	↑	↑	↑	↓

Effectiveness (CO_2 mitigation)	=
Static efficiency (CO_2 mitigation)	<
Dynamic efficiency (CO_2 mitigation)	>
Support costs (CO_2 mitigation)	<

Main findings:
-Effectiveness in CO_2 emissions reductions unaffected
-Innovation effects is the price tag for a lower cost-effectiveness and higher policy costs.
-Considerable distributional effects

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What have been the results of the assessments so far?

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❖ RES-E ⟹ EE

PRICE			QUANTITY				DISTRIBUTIONAL				INDIRECT		
Pw	Add-on	Pr	Elect. D	RES gen	Conv. gen	EE	Elect consumers	Conv gent	EE equip. man	RES equip. man	CO_2	Carbon price	CCS
↓	↑	↑	↓	↑	↓	↑	?	↓	↑	↑	=	↓	↓

Effectiveness (EE)	>
Static efficiency (EE)	>
Dynamic efficiency (EE)	>
Support costs (EE)	>

Main findings:
- A greater penetration of RES would tend to be beneficial for EE measures (mostly related to its *price impact)*.
-Beneficial in terms of the four criteria considered.

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What have been the results of the assessments so far?

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❖ EE → RES-E

PRICE			QUANTITY				DISTRIBUTIONAL				INDIRECT		
Pw	Add-on	Pr	Elect. D	RES gen and I	Conv. gen	EE	Elect consumers	Conv gent	EE equip. man	RES gent and equip. man	CO_2	Carbon price	CCS
↓	=	↓	↓	↓	↓	↑	↑	↓	↑	↓	=	↓	↓

Effectiveness	<
Static efficiency	>
Dynamic efficiency	<
Support costs	>

Main findings:
-Detrimental for RES-E deployment (in absolute terms).
-Cheapest RES technologies would be encouraged, but less incentive for innovation since a smaller RES market results.
-Lower RES-E support costs

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What have been the results of the assessments so far?

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❖ RES-E → CCS

PRICE				QUANTITY				DISTRIBUTIONAL				INDIRECT	
Carbon price	Pw	Add-on	Pr	Elect. D	RES gen and I	Conv. gen	CCS	Elect consumers	Conv gent	Ren gent	CCS equip. man	CO_2	EE
↓	↓	↑	↑	↓	↑	↓	↓	↓	↓	↑	↓	=	↑

Effectiveness (CCS)	<
Static efficiency (CCS)	=
Dynamic efficiency (CCS)	<
Support costs (CCS)	>

Main findings:
-Small and rather indirect effects

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What have been the results of the assessments so far?

- Does the empirical evidence support a negative interaction?
  - Costs/welfare losses:
    - Absolute value: not.
    - Relative terms: mostly not.
      (EC 2014, Bohringer et al 2009).
  - The socioeconomic benefits of adding a RES target to an ETS might compensate the additional efficiency costs (EC 2014).

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What have been the results of the assessments so far?

- Does the empirical studies confirm the negative interaction?
  - YES When only there is only one goal (CO2 emissions reductions), one market failure (env. ext) in a static setting.
  - NO When several goals, several market failures and a dynamic setting are considered.

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What have been the results of the assessments so far?

- Does the empirical evidence support a negative interaction?
  - Ex-ante studies: Yes
  - Ex-post studies: Modest impact of RES on the CO2 emissions reductions and low ETS prices in the last decade with respect to other factors (Spencer et al 2014).

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What is the role of coordination, instrument choice and design elements?

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- Coordination.
  - Could conflicts between policies be mitigated?
  - Different forms of coordination: ex-ante, ex-post, dynamic….
  - Ex-ante coordination:
    - The problem of reducing CO2 prices as a result of RES-E deployment would be mitigated.
    - there will still be a lower cost-effectiveness (equimarginality principle) to achieve the CO2 target than with an ETS-only
  - Have the targets been coordinated in the EU?

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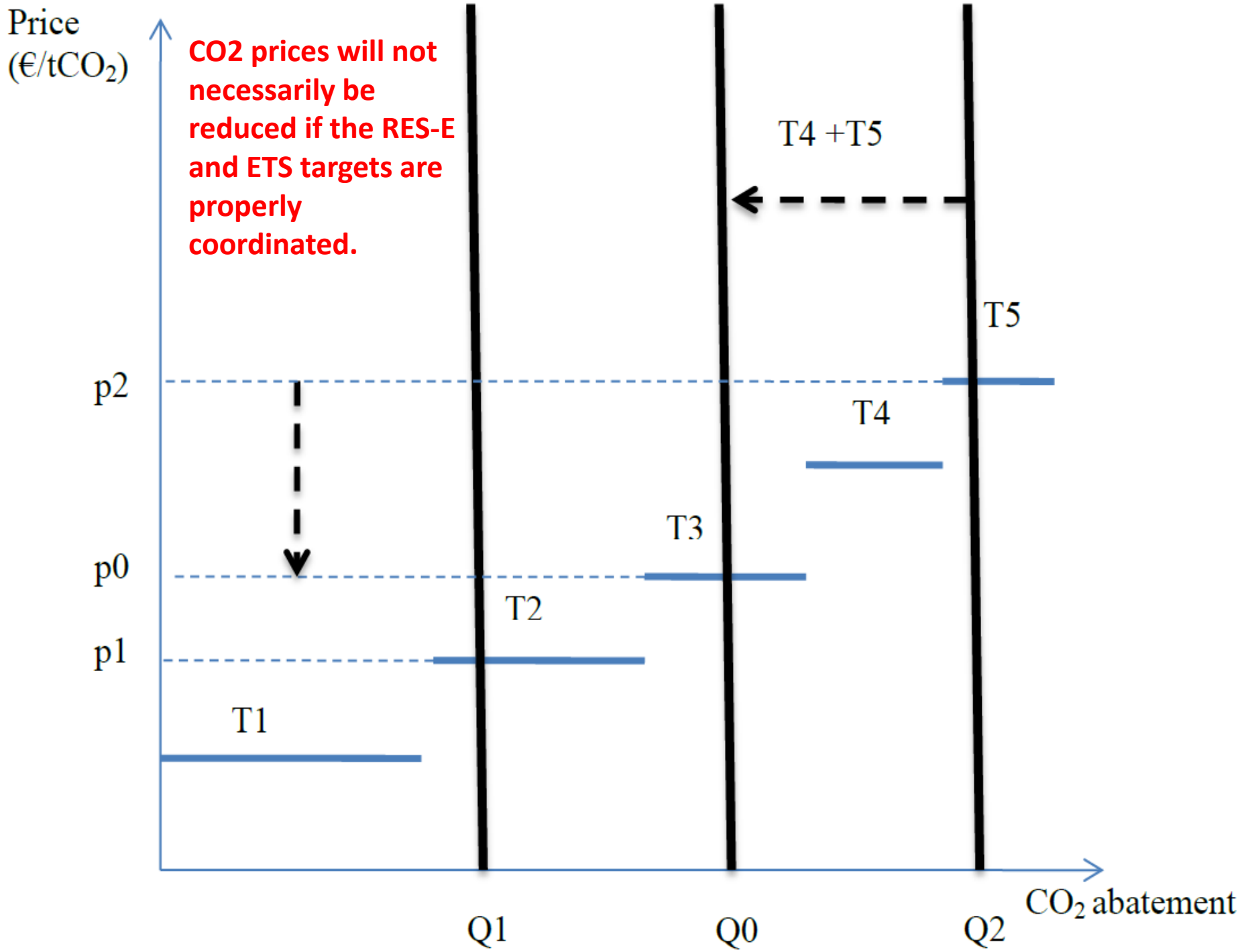
Price
(€/tCO2)
CO2 prices will not necessarily be reduced if the RES-E and ETS targets are properly coordinated.
T4 +T5
T5
T4
T3
T2
T1
p2
p0
p1
Q1
Q0
Q2
CO2 abatement

What is the role of coordination, instrument choice and design elements?

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- Instrument choice.
  - The results of the interactions depend on whether the instruments are quantity-based or price-based.
    - CO2 mitigation instruments:
      - Tax.
      - ETS.

      Negative interactions are mitigated with a carbon tax compared to an ETS.
    - RES-E support instruments :
      - FITs.
      - FIPs.
      - Quotas with TGCs

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Conclusions

- Combinations of climate and energy targets and instruments are necessary.
- Combinations are not a panacea.
  - Conflicts.
- The interactions: an inherent feature of the climate policy mix in the EU.
- Conflicts: more likely under some instruments and than under others.
- Role of coordination.

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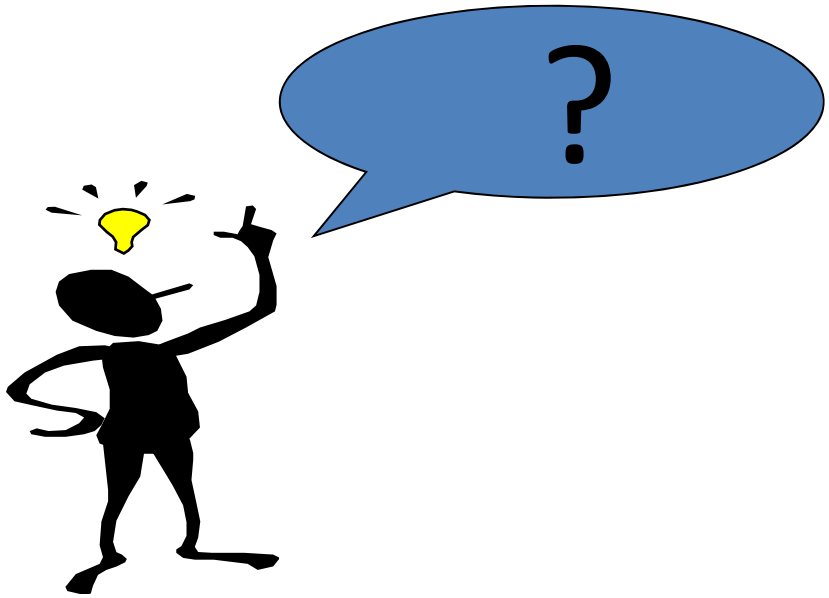

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