Future applications of auctions

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Auctions for the energy transition

• Auctions for renewable are established and have proven to be a viable instrument for allocating scarce support

• Energy transition includes many other areas where auctions might play a role:
  • Heating and cooling: e.g. renewables in district heating, serial building renovation
  • Transport: e.g. charging infrastructure for electric mobility
  • Industrial applications: e.g. CCFDs, innovation fund
  • Emission reduction: e.g. multi-technology auctions across sectors
  • Hydrogen: e.g. auctions for electrolysers
First assessment of auctions for the energy transition

<table>
<thead>
<tr>
<th>Sector</th>
<th>Potential applications</th>
<th>Existing examples</th>
<th>Main challenge</th>
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<tbody>
<tr>
<td>Heating</td>
<td>New RES/heat pumps in district heating systems an industry; new district heating systems/ concepts; potentially serial renovation programs</td>
<td>• CHP: DE, PL, SL&lt;br&gt;• RES plants: EE, LV ;&lt;br&gt;• DH systems: municipality level, several MS</td>
<td>Diversity of the sector; framework conditions, e.g. third party access to DHC</td>
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<tr>
<td>Transport</td>
<td>Infrastructure; charging infrastructure, overhead lines</td>
<td>Charging infrastructure: DE, PL, RO</td>
<td>No specific challenges</td>
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<td>Industry</td>
<td>Investment grants, operational support or combination across industries; potential focus on energy-intensive industries</td>
<td>EU: Innovation Fund, MS discussing CCfD programmes</td>
<td>Diversity of sectors and technologies</td>
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<tr>
<td>Hydrogen</td>
<td>Electrolyzers, hydrogen imports, demand-side auctions</td>
<td>DE: H2Global, NL: SDE++</td>
<td>Chicken and egg problem: synchronized ramp-up of supply, demand and infrastructure</td>
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<tr>
<td>Integrated decarbonisation</td>
<td>All low-carbon technologies</td>
<td>NL: SDE++</td>
<td>Diversity of sectors and technologies</td>
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First assessment of auctions for the energy transition

• Many potential applications for competitive bidding and auctions across sectors

• Use of auctions beyond renewable electricity not very wide-spread

• Challenges differ between sectors

• As always: No one-size fits all approach but auctions need to be tailor-made to specific objectives, markets, technologies and framework conditions
Initial considerations on auctions for renewable hydrogen (H2) support allocation

- Auctions for renewable H₂ can work with no infrastructure and little demand/supply
- We developed four near-term options to meet specific aims
  - Option 1: Demand-side auction for H₂
    - Ramp-up H₂ demand to help achieve the proposed RFNBO target for industry (RED II revision)
  - Option 2: Double-sided auction for H₂ derivatives
    - Support the supply of derivatives and the build-up of a demand market
  - Option 3: Supply-side auction
    - Help move towards EU H₂ strategy capacity target of 40 GW
  - Option 4: Joint auction for hydrogen and renewable energy
    - Support the joint deployment of RES and electrolysers

Options take account of current key issues:
1. no demand & supply
2. no infrastructure

Options were developed for short-term implementation. With developed markets and infrastructure, options may need to be adapted.
Overview on H2 auctions

Demand-side auction

- Bilateral contract determined ahead of auction
- H2 consumer A: Production cost, Willingness to pay
- H2 consumer B: Communicate bid (+ price difference)
- H2 consumer C: Communicate bid (+ price difference)
- Government
- H2 transport
- H2 derivative consumer A

Supply-side electrolyzer auction

- Bilateral contract determined ahead of auction
- H2 producer A: Production cost, Willingness to pay
- H2 producer B: Communicate bid (+ price difference)
- H2 producer C: Communicate bid (+ price difference)
- Government
- H2 transport

Double-sided auction for H2 derivatives

- H2 producer A: Communicate price
- H2 producer B: Communicate willingness to pay
- H2 producer C: Communicate willingness to pay
- Intermediary entity
- Covers the difference between the price and willingness to pay
- H2 derivative consumer A
- H2 derivative consumer B
- H2 derivative consumer C

Supply-side joint electrolyzer- RES auction

- Bilateral contract determined ahead of auction
- H2 & RES producer A: Production cost, Willingness to pay
- H2 & RES producer B: Communicate bid (+ price difference)
- H2 & RES producer C: Communicate bid (+ price difference)
- Government
- H2 transport
- Electricity transport
- H2 derivative consumer A
- H2 derivative consumer B
- H2 derivative consumer C
Auctions for hydrogen support

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