AURES II – Auctions for Renewable Energy Support II

Final conference

Virtual meeting, 28 April 2022

Impacts of auctions on the renewable energy sector

Pablo del Río – CSIC

Impacts of auctions on the renewable energy sector

1. Effect of auctions on RES value chains.
2. Effects of auctions on RES communities.
3. Effects of auctions on technological innovation.

1. Impact of auctions on RES value chains

Objective:

To assess the perceived relative impacts of auction design elements (DEs) on two aspects of **Market Concentration (MC):** the **number** of firms and their **diversity**, with respect to **other factors** **(context conditions), focusing on two stages** of the value chain (developers and manufacturers).

1. Impact of auctions on RES value chains

Design elements

- Material prequalification requirements on projects.
- Material prequalification requirements on bidders.
- Financial prequalification requirements.
- Technology neutrality.
- Project size limitations (maximum/minimum).
- Schedule / high frequency
- Price-only auctions
- Uniform vs. PAB
- Remuneration type
- Realisation period.

1. Impact of auctions on RES value chains

Methodology

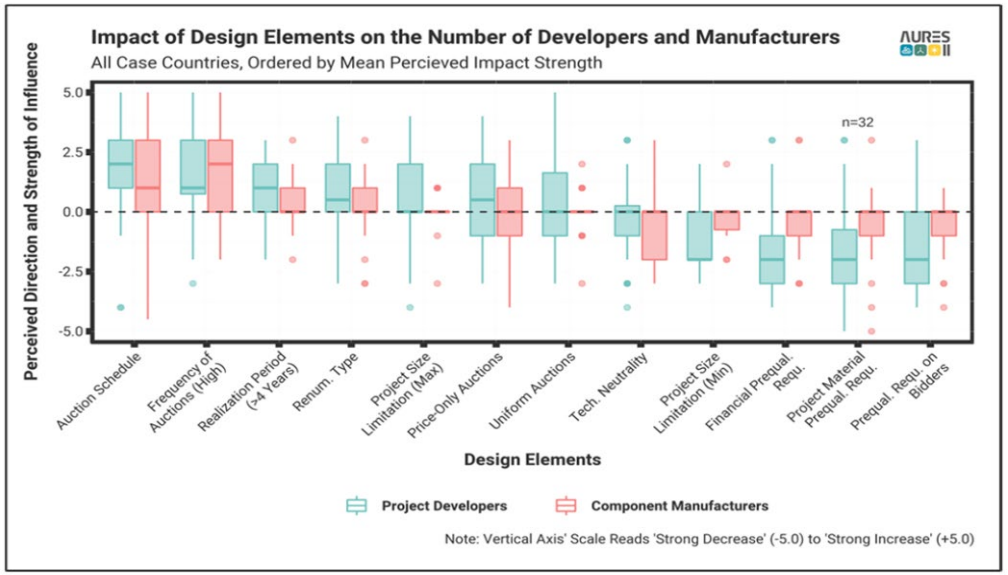
- Structured interviews with key experts (stakeholders / actors) from the RES sectors of four countries. An Expert Elicitation-based approach. Expert interviews were completed during March-July 2020.
- Focus on two stages (project developers and component manufacturers).
- Focus on four technologies (on-shore wind, off-shore wind, solar PV and CSP).
- Case studies:
  - Spain (onshore wind and PV).
  - UK (offshore wind).
  - Peru (onshore wind, PV).
  - South Africa (CSP, PV and on-shore wind).

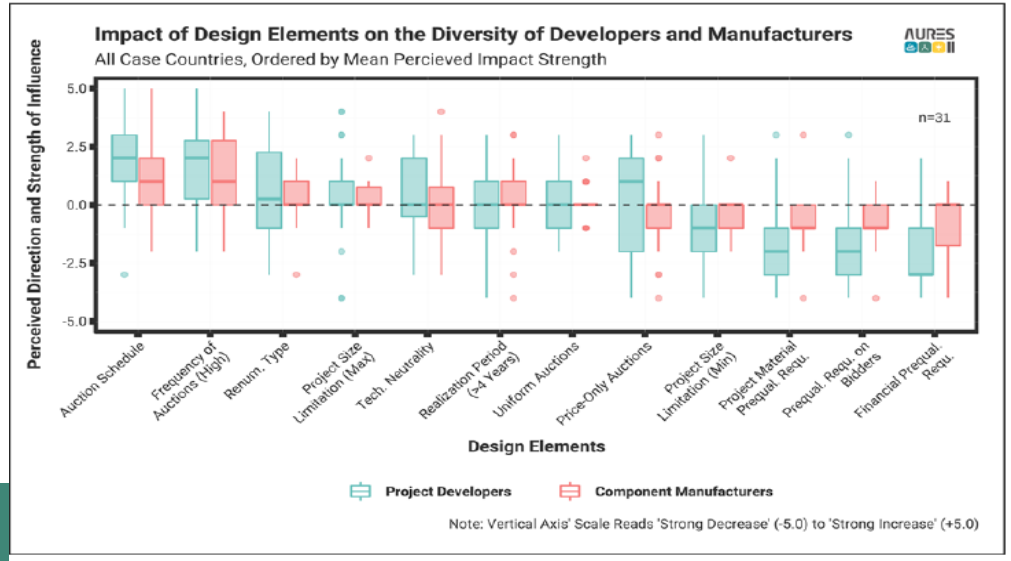
1. Impact of auctions on RES value chains

Results and overall findings

Impact of DEs on the nº and diversity of firms

- DEs have a marked effect on the number and diversity of project developers (PDs) and component manufacturers (CMs).
- Broadly speaking, DEs tend to affect the value chains of the four considered countries in quite similar ways.
- Impactful DEs: the frequency of auction rounds, existence (or not) of a transparent schedule, and prequalification requirements.

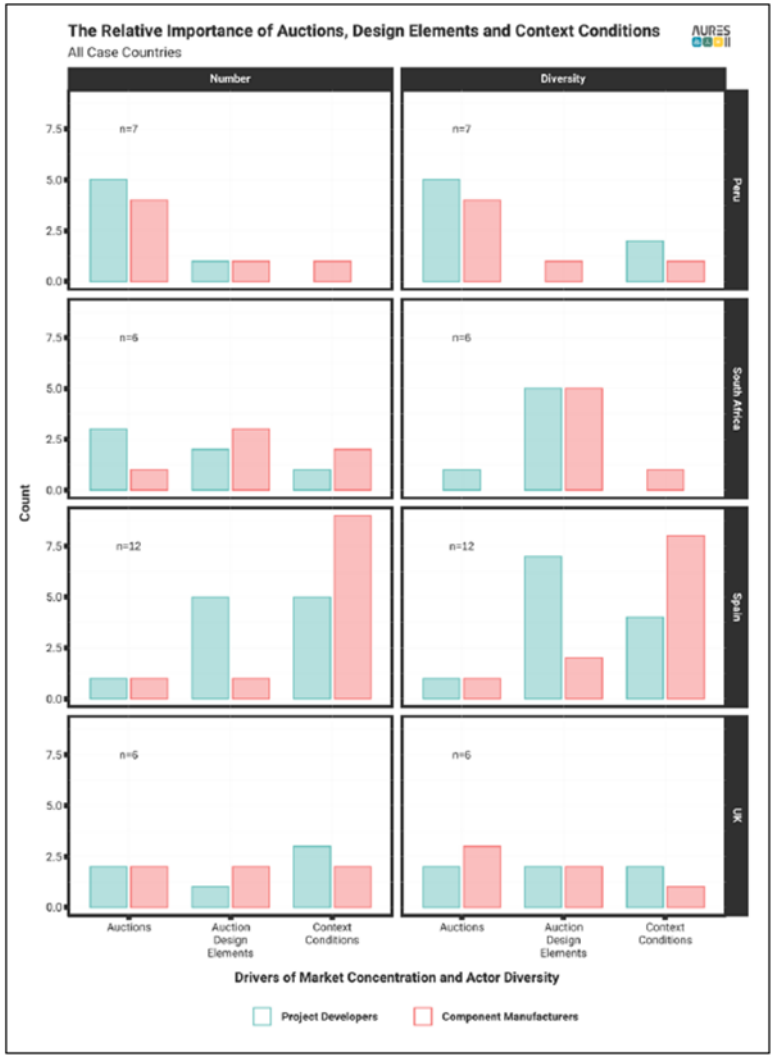




1. Impact of auctions on RES value chains

Results and overall findings (IV)

- The relative importance of auctions, design elements and context conditions
- Auctions themselves are not the major determinant of the nº and diversity of firms in the two considered stages of the value chain.
- Country-specific context (and other) factors can be expected to play an important role in this regard.



2. Impact of auctions on renewable energy communities (RECs) & measures

Scope

- Relevance of community energy
- Definitions of “RECs”
- Impact of auctions on RECs
  - Measures to address the impact of auctions on RECs
  - Inside auction: DE + FR
  - Outside auction: DNK
- Lessons learnt

Results: challenges

- Risks are higher than for non-community actors due challenges:
  - Expertise of REC (new to the market / one-time actor vs. experienced actor)
  - Activity of REC in project lifecycle (development, operation, ownership)
  - Level of cooperation with professional project developers and/or financiers

Results: measures

Measures within auction

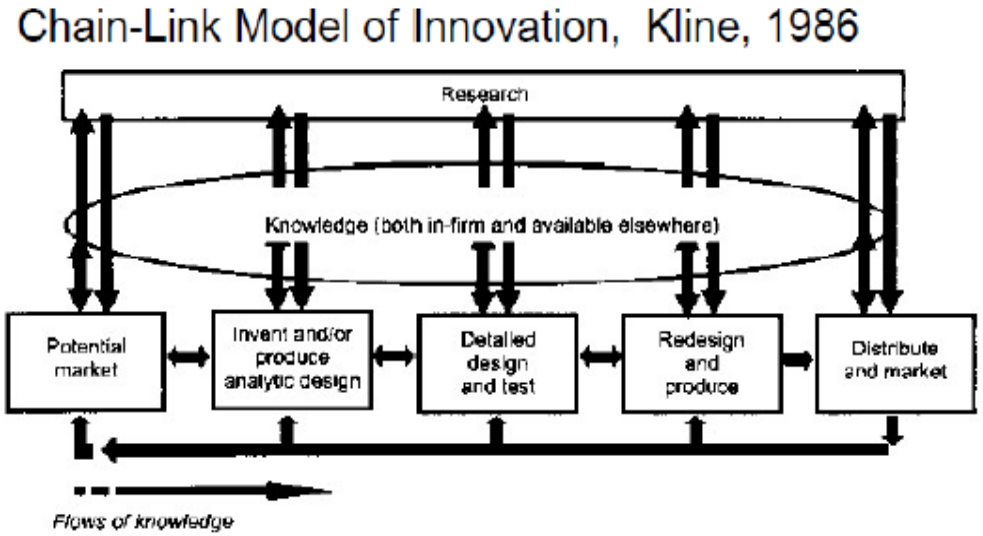
	Other conditions for participation	Bonus or quota	Different pricing rule
Example	Lower pre-qualification requirements in Germany	Citizen participation bonus in France	Uniform pricing rule in Germany
Financial risk			
Risk of not being awarded	✓	✓	
Price risk			✓
New-bidder risk			
Penalty risk	✓		

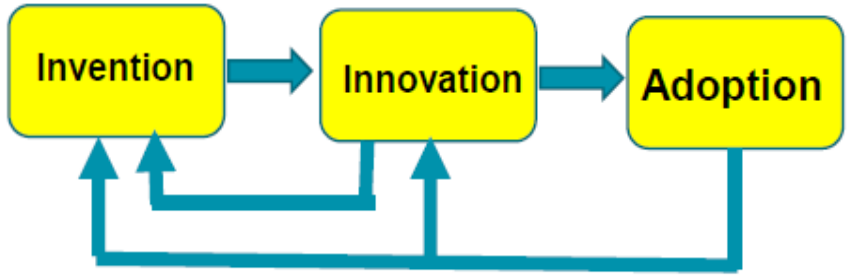
Measures outside auction

- Measures outside the auction interfere less with auction outcomes compared to measures within the auction.
  - Challenge: how effective in reversing a trend towards overall actor consolidation?
- Exemptions from auction is at odds with overall transition to auction-based support schemes.
  - Challenge: Finding an appropriate legal definition

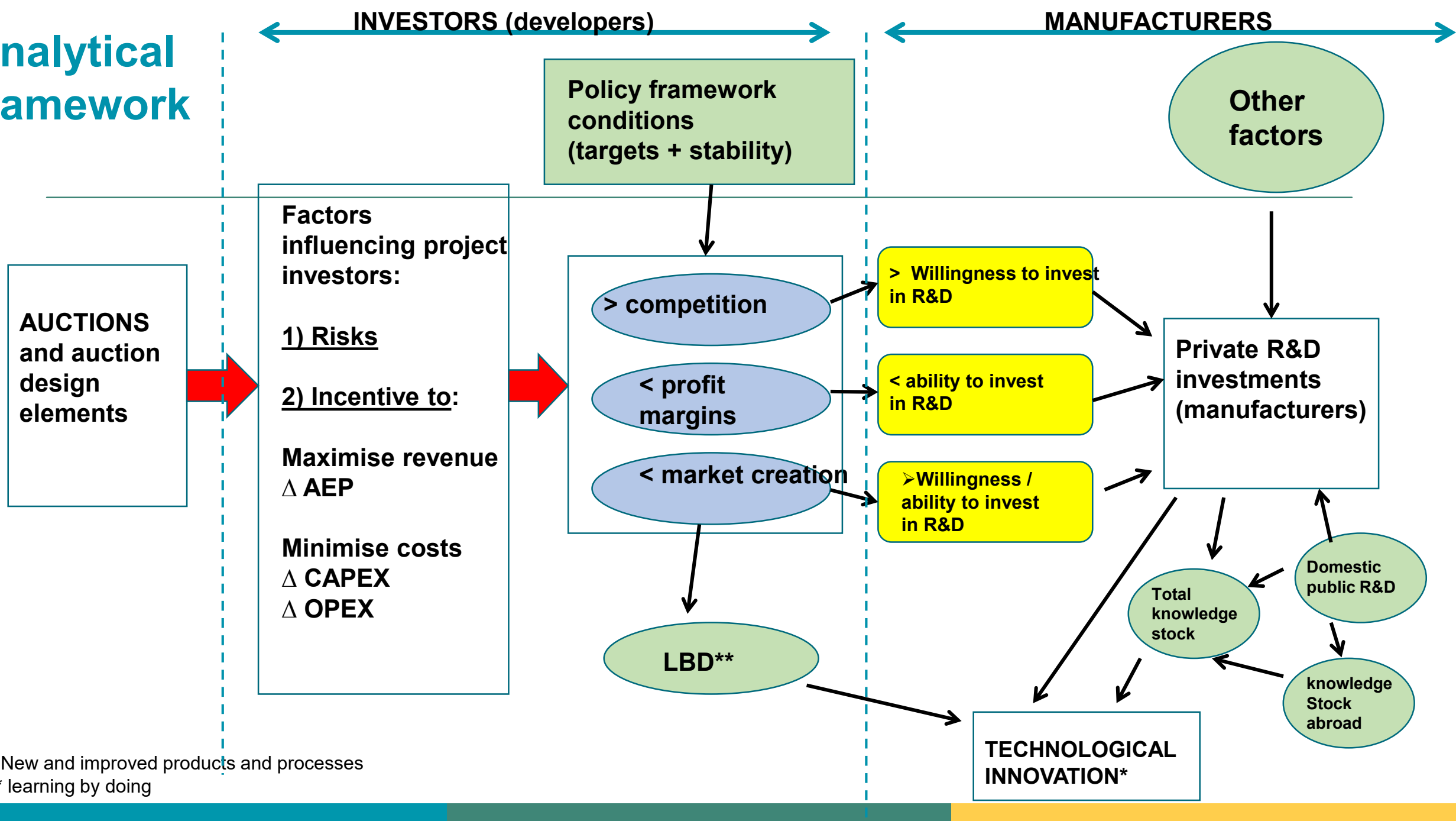
3. Impact of auctions on technological innovation

- **Starting point**: Auctions can have an indirect impact on innovation in RETs through their effects on the diffusion of these technologies.
- An **analytical framework** on the mechanisms linking technological innovation and auctions and their design elements is built.
- **Some research propositions** are derived.
- An **exploratory study.**





Analytical framework



* New and improved products and processes
** learning by doing

3. Impact of auctions on technological innovation

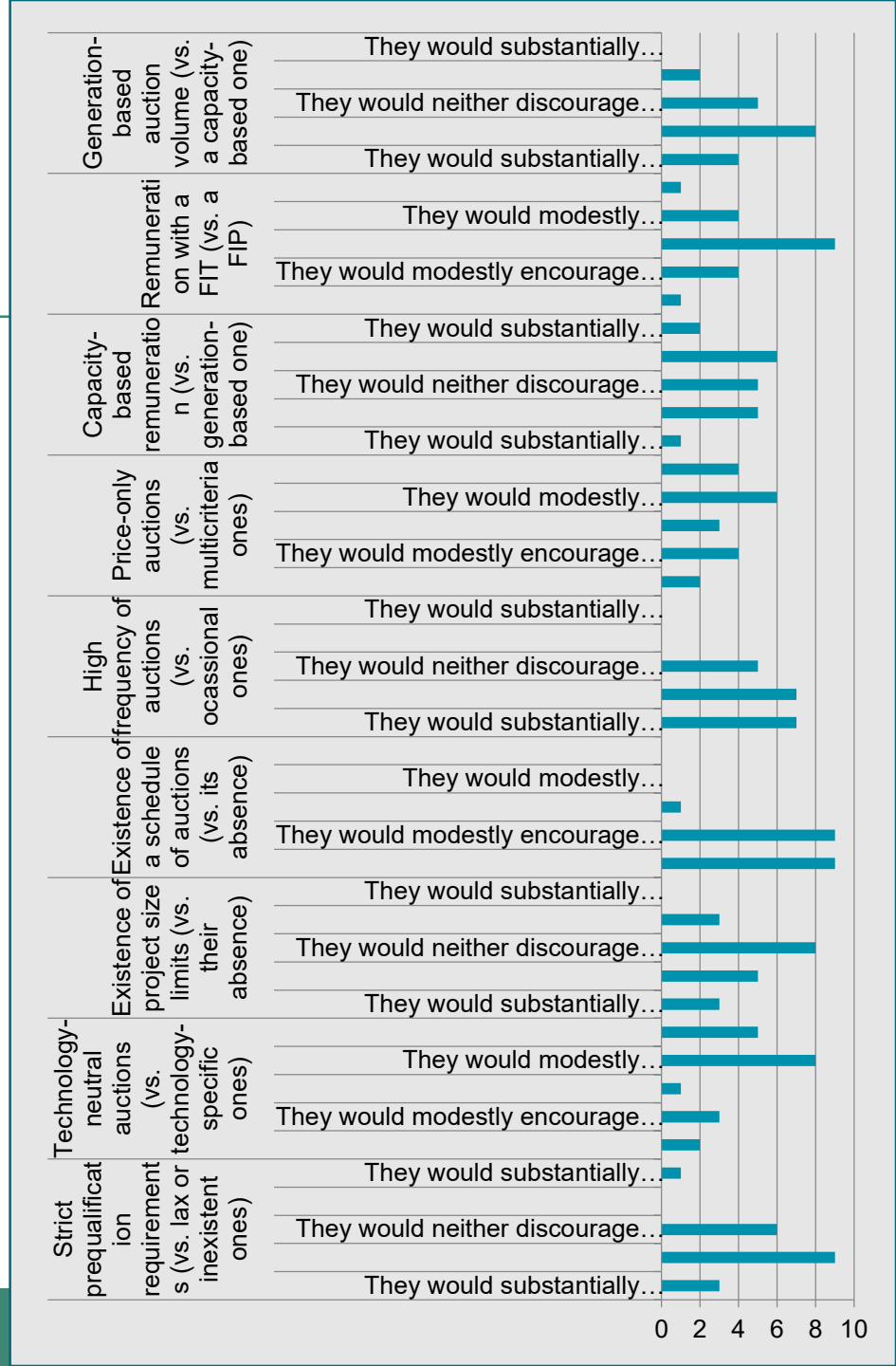
Research propositions:

- Auctions and auction design elements influence innovation through their indirect impact on manufacturers and technology developers.
- Four main channels:
  - (i) impact on private R&D through a greater/lower profit margin.
  - (ii) the expectation that there will be a market for the technology (i.e., where manufacturers and technology developers can sell their technology),
  - (iii) impact on technology diffusion and
  - (iv) impact on the competitive pressures faced by manufacturers and technology developers to reduce costs or increase revenues.
- Opposing effects (market creation/profit margins vs. competition effects).
- Auctions will be one of the factors influencing innovation in RETs, but probably not the main one. Many other non-policy and policy factors influence innovation (technology-push policies, international competition in a globalised sector).
- Different design elements in auctions have different impacts on innovation….

3. Impact of auctions on technological innovation

Overall, the most influential design elements on technological innovation:

- the stringency of prequalification requirements,
- technological neutrality,
- a schedule of auctions,
- highly frequent auctions.



Pablo del Río
CSIC
Pablo.delrio@csic.es

AURES II

Website:	http://aures2project.eu/
LinkedIn:	AURES II
Twitter:	@auctions4res
Newsletter:	http://eepurl.com/gd42zz

AURES II has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817619