

Empirical Analysis of the Impact of Auctions on the Supply Chain

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FACTOR

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Task 4.2. Empirical Analysis of the Impact of Auctions on the supply Chains



Objective: To empirically analyse the effects of auction design on RES supply chains

To estimate the perceived relative impacts of auction and auction design elements on two aspects of **Market Concentration (MC)**: the **number** of firms and their **diversity** (that is, the impact on small actors), with respect to other factors influencing these aspects (context conditions), focusing on two stages of the value chain (developers and manufacturers).

- Perceived impact of different auction design elements on the n^o and diversity of firms.
- Perceived relative impact of auctions as compared to other contextual factors influencing the value chain on the number and diversity of firms.

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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.

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Methodology (I)

- Structured interviews with key experts (stakeholders / actors) from the RES sectors of four countries. An Expert Elicitation-based approach.
- 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): *CSIC*.
 - UK (offshore wind): *University of Exeter*.
 - Peru (onshore wind, PV): *Factor*.
 - South Africa (CSP, PV and on-shore wind): *CSIC and Factor*.






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Methodology (II):

Key experts from the RES sectors of **ES, UK, PE & SA**. Focus on project developers and component manufacturers of **4 technologies** (on-shore wind, off-shore wind, solar PV and CSP).

Interview Structure:

- ▶ **Expert Self-Assessment**  *for validation and calibration*
- ▶ **Context Factors**  *to evaluate the impact of contextual factors*
- ▶ **RE Auction Design Elements** 

MAXIMUM PROJECT SIZE (vs. NO MAXIMUM SIZE LIMITS)

When there is a maximum project size, only projects of a size below a maximum limit may participate in the auction.

ADMS: Compared to the absence of a maximum project size limit, how would you rate the effect of **the existence of a maximum project size...**

a) on the number of project developers?

Strong Decrease Neutral Strong Increase

0 1 2 3 4 5 6 7 8 9 10

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b) on the number of component manufacturers?

Strong Decrease Neutral Strong Increase

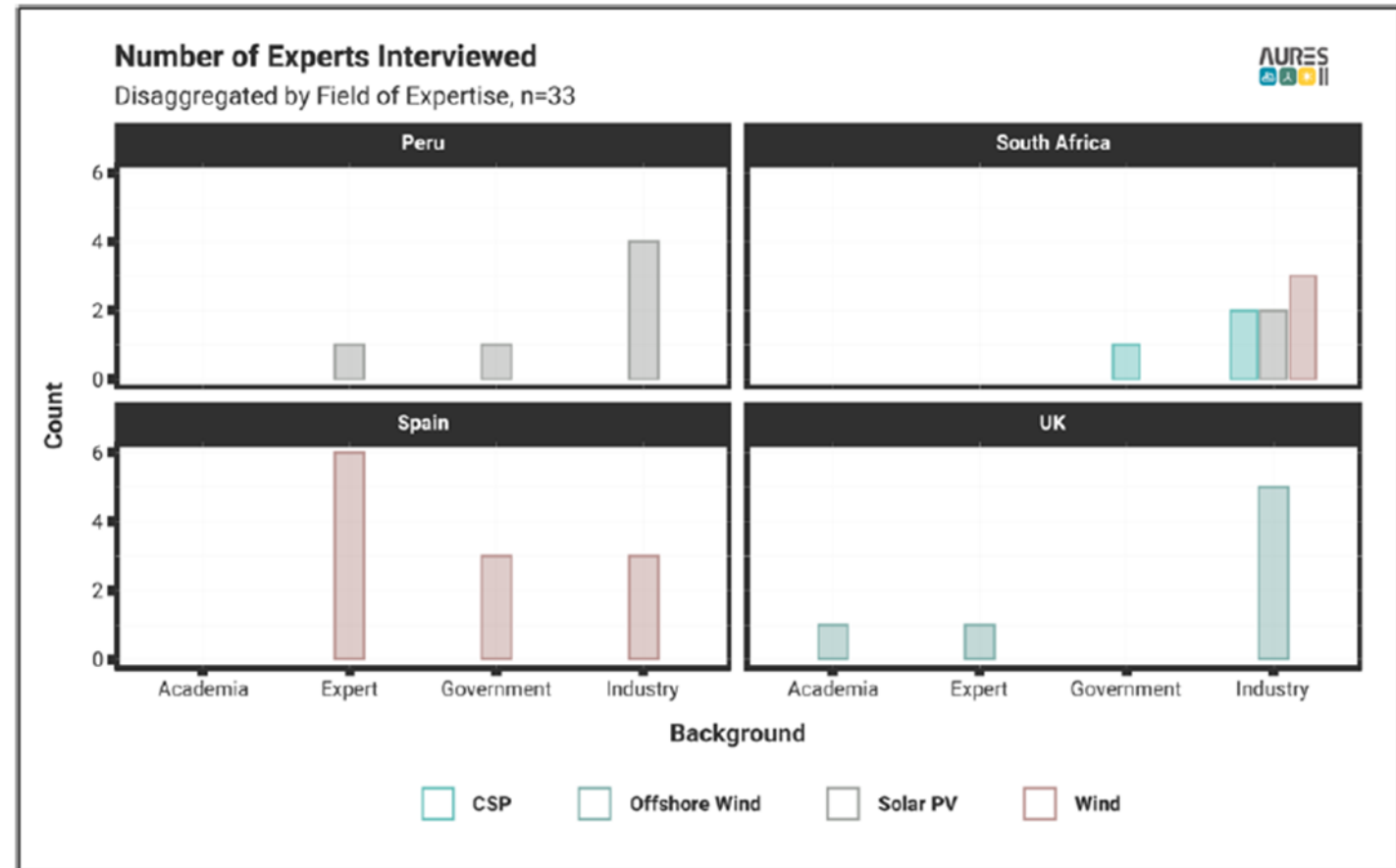
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Methodology (III):

(33) Expert Interviews were completed during March – July 2020



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Results and overall findings. Auction DEs.

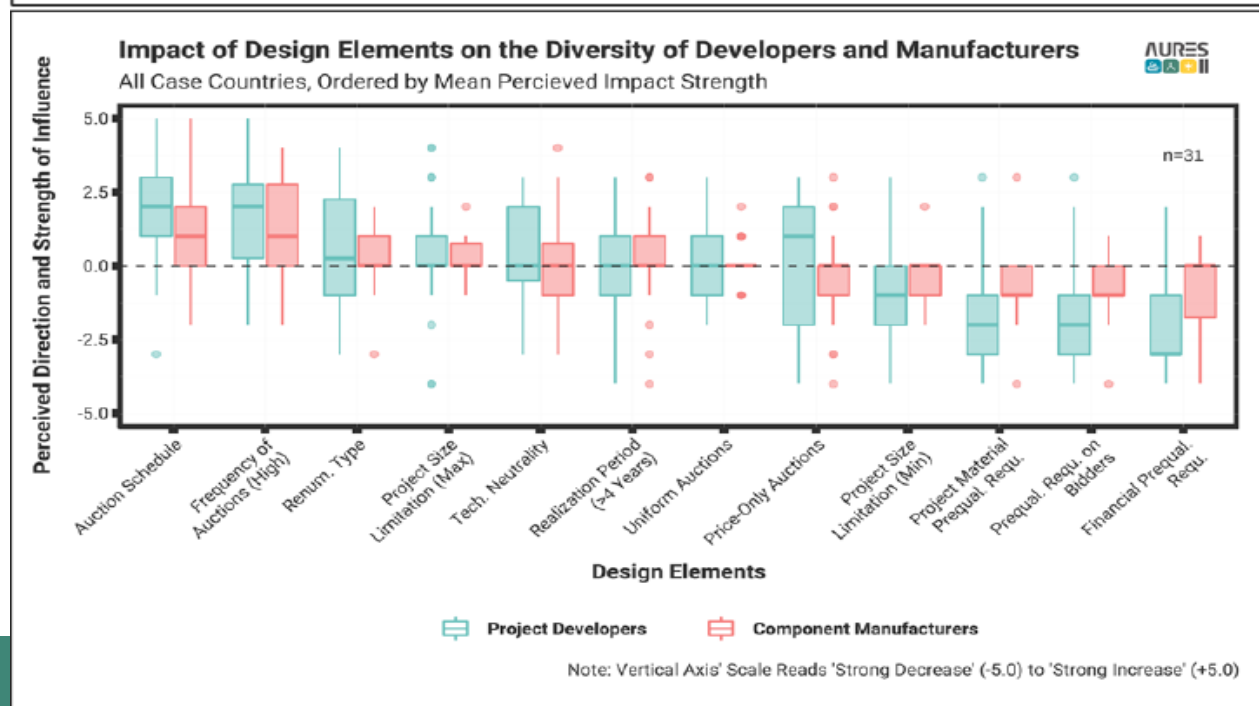
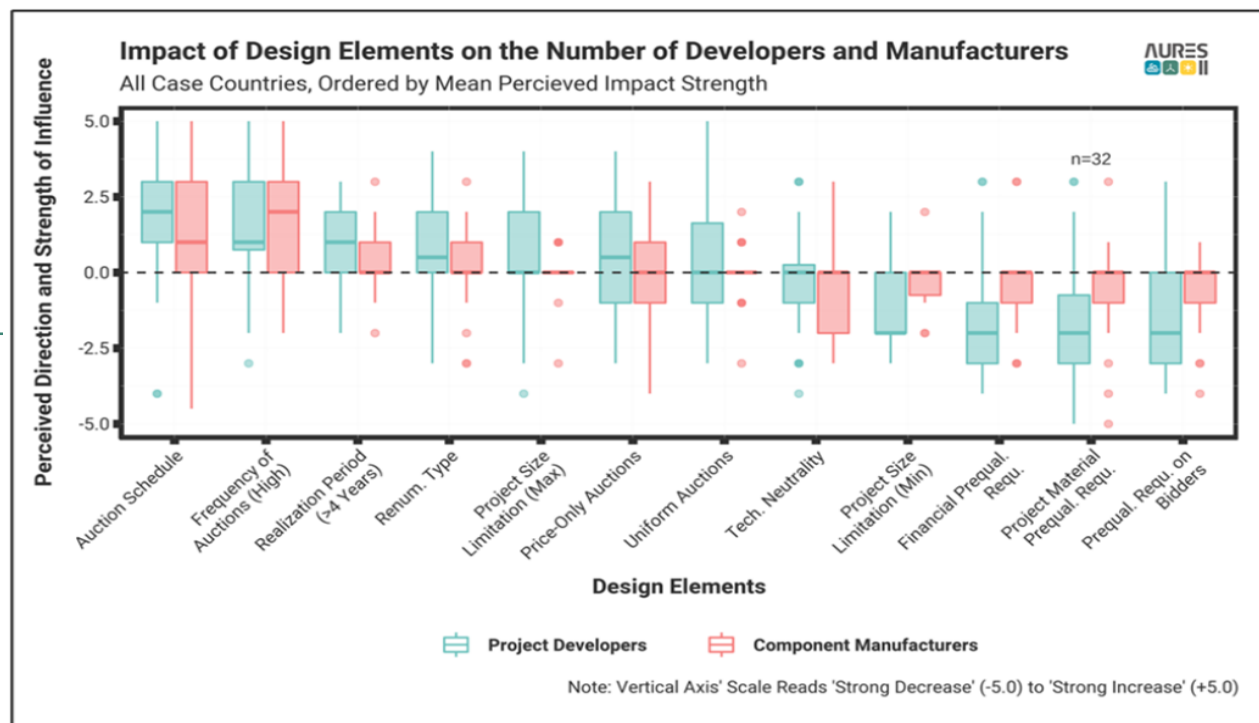
- Auctions and auction DEs have a marked effect on the number and diversity of project developers and component manufacturers.
- The expert elicitation process has established support for the existence of impactful DEs that are expected to affect the number and diversity of project developers and component manufacturers.
- Broadly speaking, DEs tend to affect the value chains of the four considered countries in quite similar ways.
- However, there are substantial technology and country differences, in line with our idea that the impact of auctions and auction DEs can be expected to be both RE technology-specific and country-specific.
- It is worthwhile underlining that the DEs which tend to affect the n° and diversity of firms to a greater extent (i.e. the frequency of auction rounds, existence (or not) of a transparent schedule, and prequalification requirements), are the DEs that are most likely to get tangled up with non-auction policy areas.

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Results and overall findings

Impact of DEs on the n° and diversity of firms

- Some DEs appear to induce large impacts on the n° and diversity of firms, whereas others have a very modest influence.
- The positive and negative impacts of specific DEs on the number and diversity of firms are perceived to be more pronounced for project developers, than for component manufacturers. The opposite is true for all kinds of prequalification requirements.

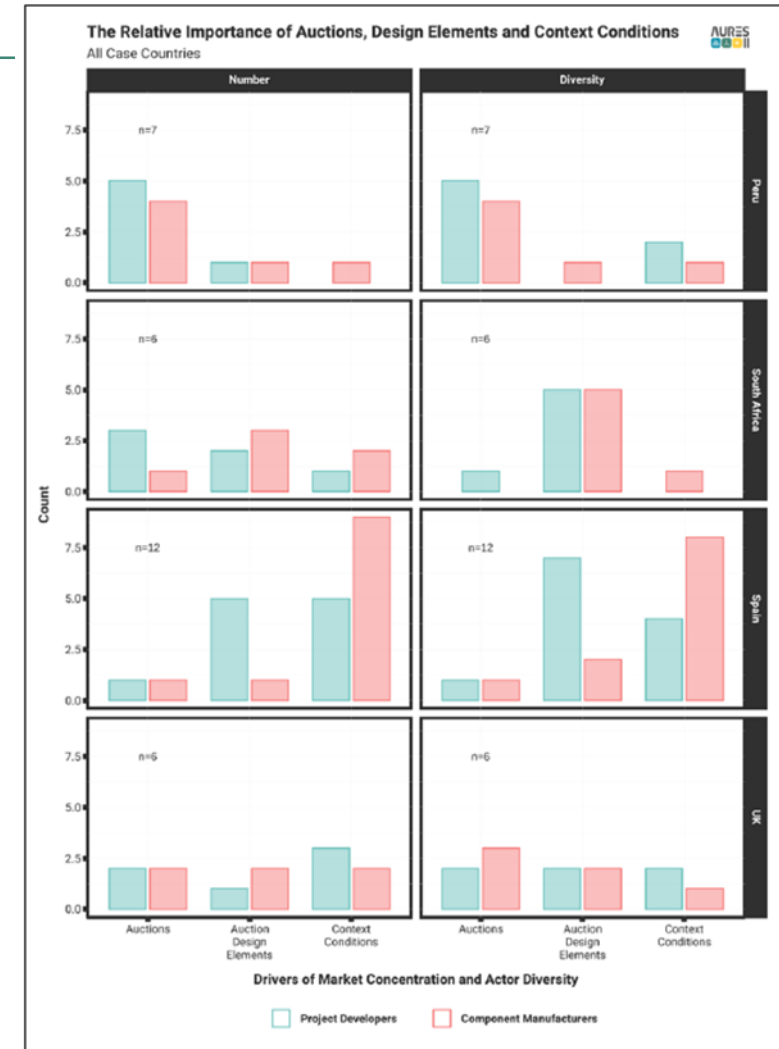


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Results and overall findings (IV)

The relative importance of auctions, design elements and context conditions

- Interviewed experts held a range of diverging views as to whether auctions, auction DEs, or context conditions, are most important in terms of shaping the number and diversity of actors in the two value chain segments of interest
- The perceived relative importance of auctions, as compared to specific auction DEs and context conditions, varies considerably between countries with respect to their impact on the n° and diversity of firms.
- Confirms the assumption that auctions themselves are by no means the major determinant of the n° and diversity of firms in the two considered stages of the value chain. Country-specific context (and other) factors will always also play a certain role in this regard.





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