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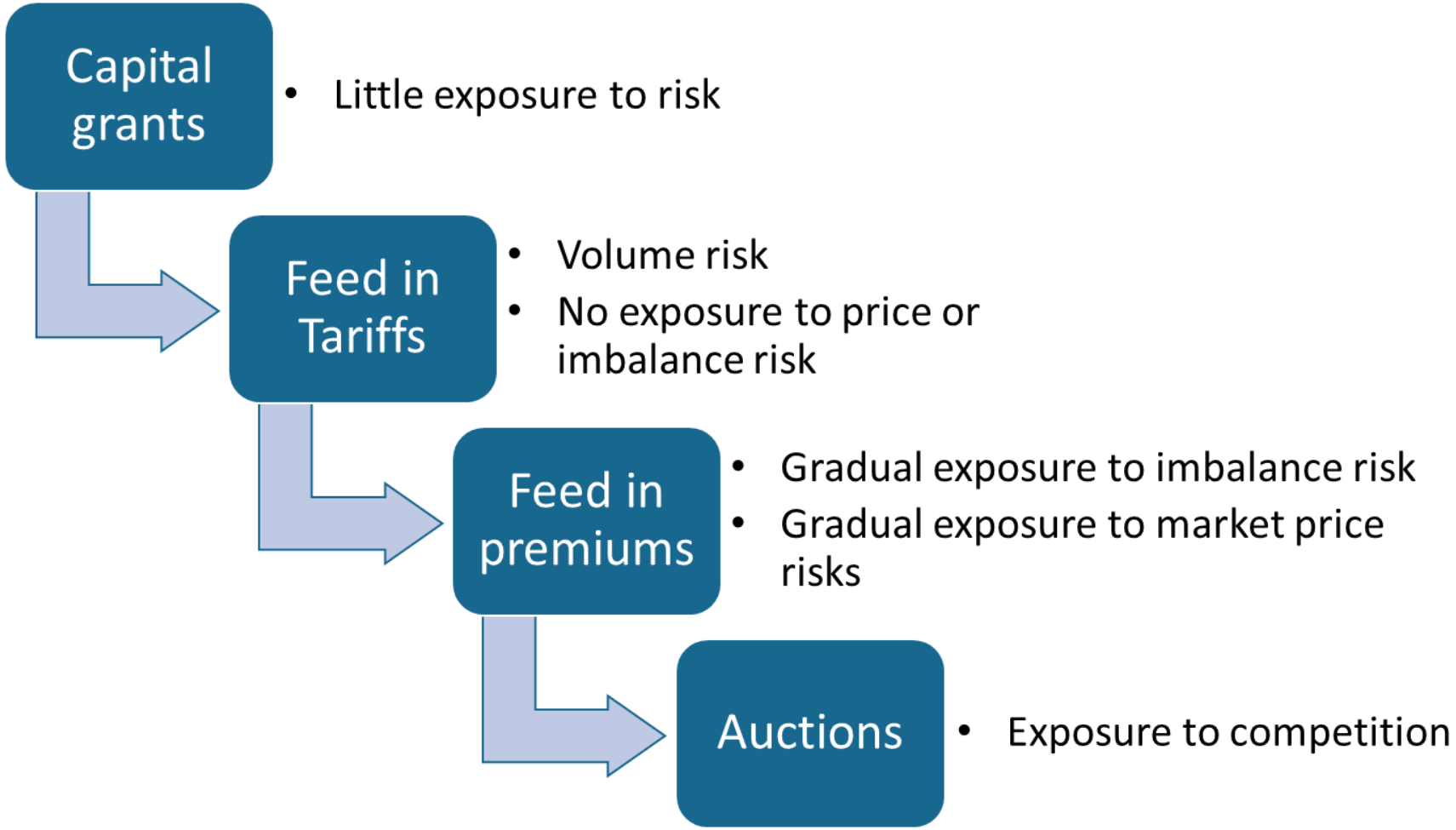
International Renewable Energy Agency

How to design an auction?

Design elements and their influence on the investor confidence

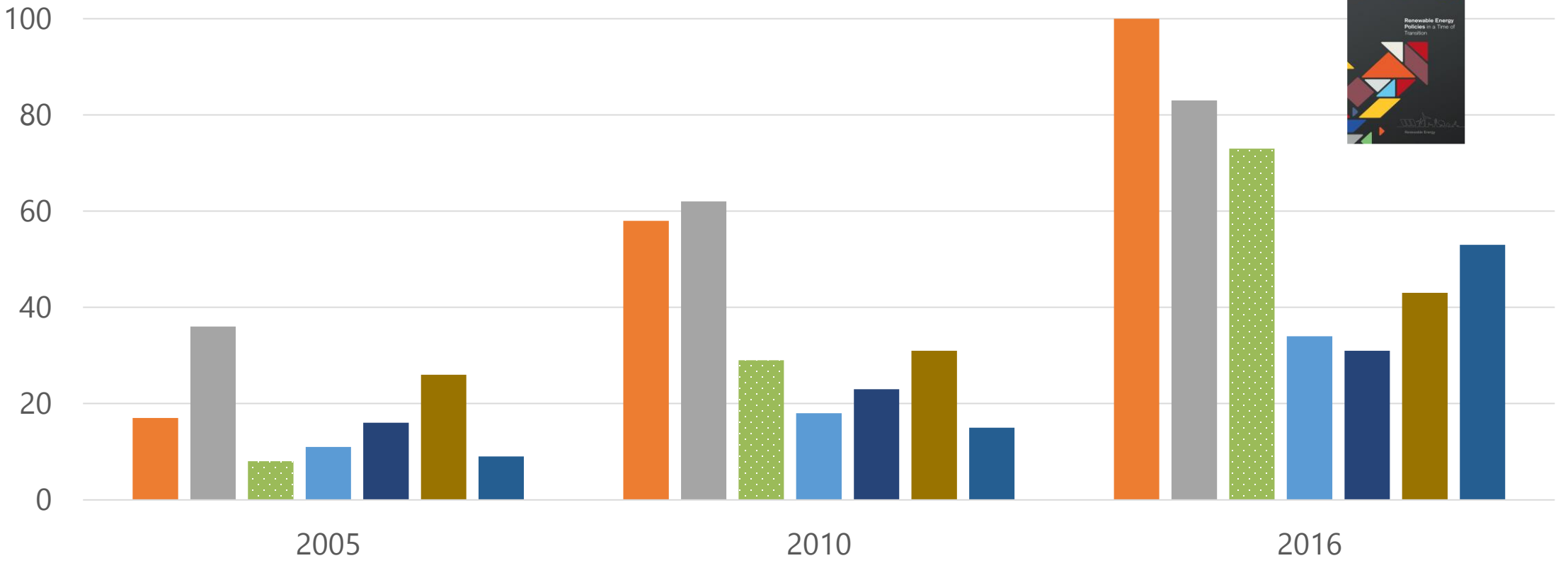
Da Nang, May 2019

Power sector: RE policies are evolving

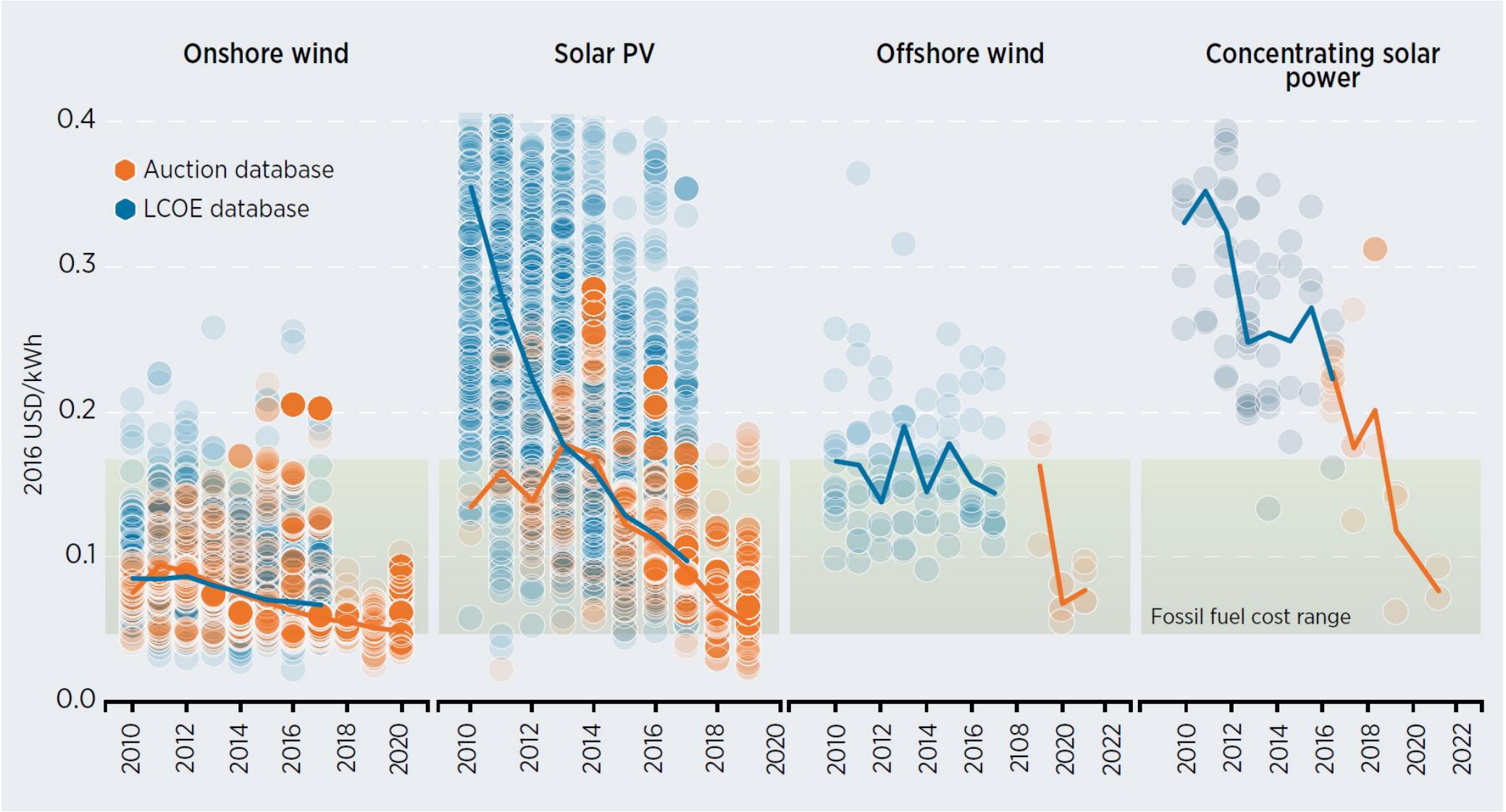


A growing number of countries (both in the developed and in the developing world) are implementing auctions, although usually combined with other instruments.

Trends in renewable energy policies



Solar & Wind: LCOE/Auction Price Evolution



Factors that impact the price

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Country-specific conditions

- Potential of renewable energy resources
- Financing costs
- Installation and building costs (land, labour, energy, etc.)
- Ease of access to equipment
- Foreign exchange rates
- Fiscal and labour legislation

Investor confidence and learning curve

- Credibility of the off-taker and additional guarantees
- Presence of a stable and enabling environment that is conducive to market growth
- Regularity of auctions
- Past experience with auctions for both auctioneer and developers

Policies supporting renewables

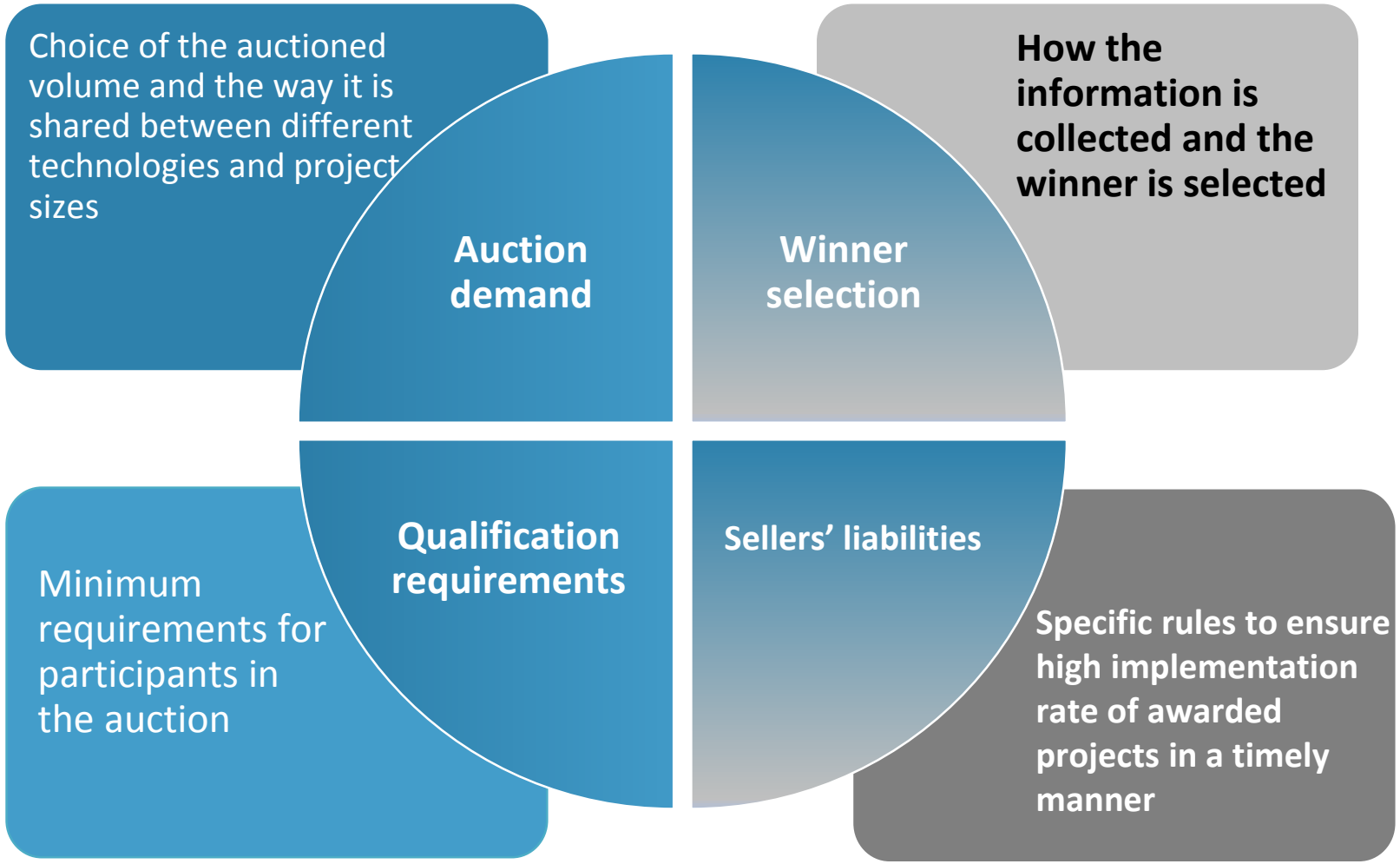
- Renewable energy targets and national plans that provide a trajectory for the sector
- Fiscal incentives
- Grid access rules
- Risk mitigation instruments
- Policies to promote socio-economic benefits

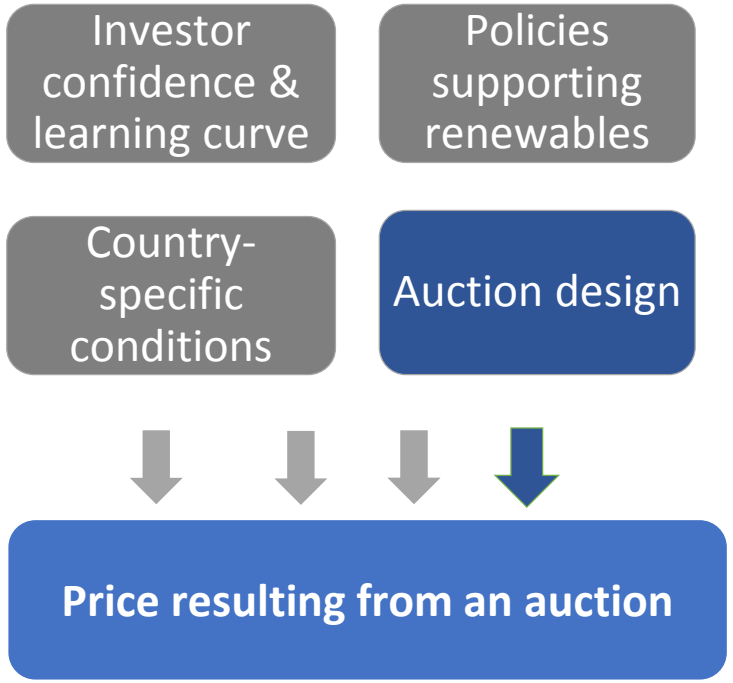
Auction design

- Auction demand (auctioned volume, technologies, off-taker, regularity of auctions)
- Qualification requirements
- Winner selection method and criteria
- Sellers' liabilities (compliance rules, remuneration profile, distribution of financial and production risks)

Price resulting from an auction

Auction design elements to consider





IRENA and CEM, 2015

Key considerations in designing and implementing auctions: Trade-offs in Auction Demand

Choice of the auctioned volume and the way it is shared between different technologies and project sizes

Auction demand

Technology development and cost-efficiency

- Introducing a technology in the electricity mix (technology-specific)
- Identifying most cost-efficient technology (technology-neutral)

Schedule of regular auction or standalone

- Increasing market confidence with a fixed schedule
- Adjusting designs or ensuring fast supply through standalone auctions

Guarantees to increase off-take credibility

- Increasing investor confidence with government guarantees
- Passing the risks on to the auctioneer or the consumers

Key considerations in designing and implementing auctions: Trade-offs in Qualification Requirements

Qualification requirements

Minimum requirements for participants in the auction

Permitting and documentation

- Demanding to ensure timely project completion and delivery
- Transaction costs result in higher prices

Extensive track record and financial capability

- Demanding to ensure project delivery as per the bid
- Limits participation to traditional and large players

Ensuring global socio-economic development goals

- Ambitious to maximize domestic benefits
- Higher prices on the short term

Key considerations in designing and implementing auctions: Trade-offs in Winner Selection

How the information is collected and the criteria for the winner selection

Winner selection

Winner selection criteria

- Based on price only results in cost-efficiency
- Based on other objectives (location, benefits, etc.) can result in higher price

Ceiling price

- Lower ceiling price can ensure low prices
- Suboptimal and can lead to rejection of reasonable bids

Project size

- No limits on the size can lead to low prices through economies of scale
- Size limits diversify portfolio of generators and reduce risks

Key considerations in designing and implementing auctions: Trade-offs in Sellers' Liabilities

Sellers' liabilities

Specific rules to ensure high implementation rate of awarded projects in a timely manner

Currency, inflation and production risks

- Limit developer risks to reduce prices
- Risks would be passed on to the off-taker

Compliance rules

- Reduced to encourage participation and increase competition
- Risks of underbidding and delays

Key considerations in designing and implementing auctions

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Increasing competition for cost-efficiency

- Increased participation of bidders
- Prevention of collusion and price manipulation

Limiting participation to bidders who can meet goals

- Project delivery
- Deployment goals

Ensuring global socio-economic development goals

- Qualification requirements
- Multi-criteria selection

The way forward in planning and designing auctions

- Understanding the reasons behind the low prices is important to make informed policy choices.
- The extent to which the results are affected depends on choices regarding the design elements and how well adapted they are to the country's specific context (economic conditions, maturity of the power market and level of deployment).
- The complex and dynamic environment of renewable energy auctions motivates constant innovation in the mechanisms' design.
- Investors' confidence can be achieved with properly designed auctions.

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IRENA Policy Day

27 June, 2019 - 09:00 to 17:00

Sheraton Corniche, Abu Dhabi


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