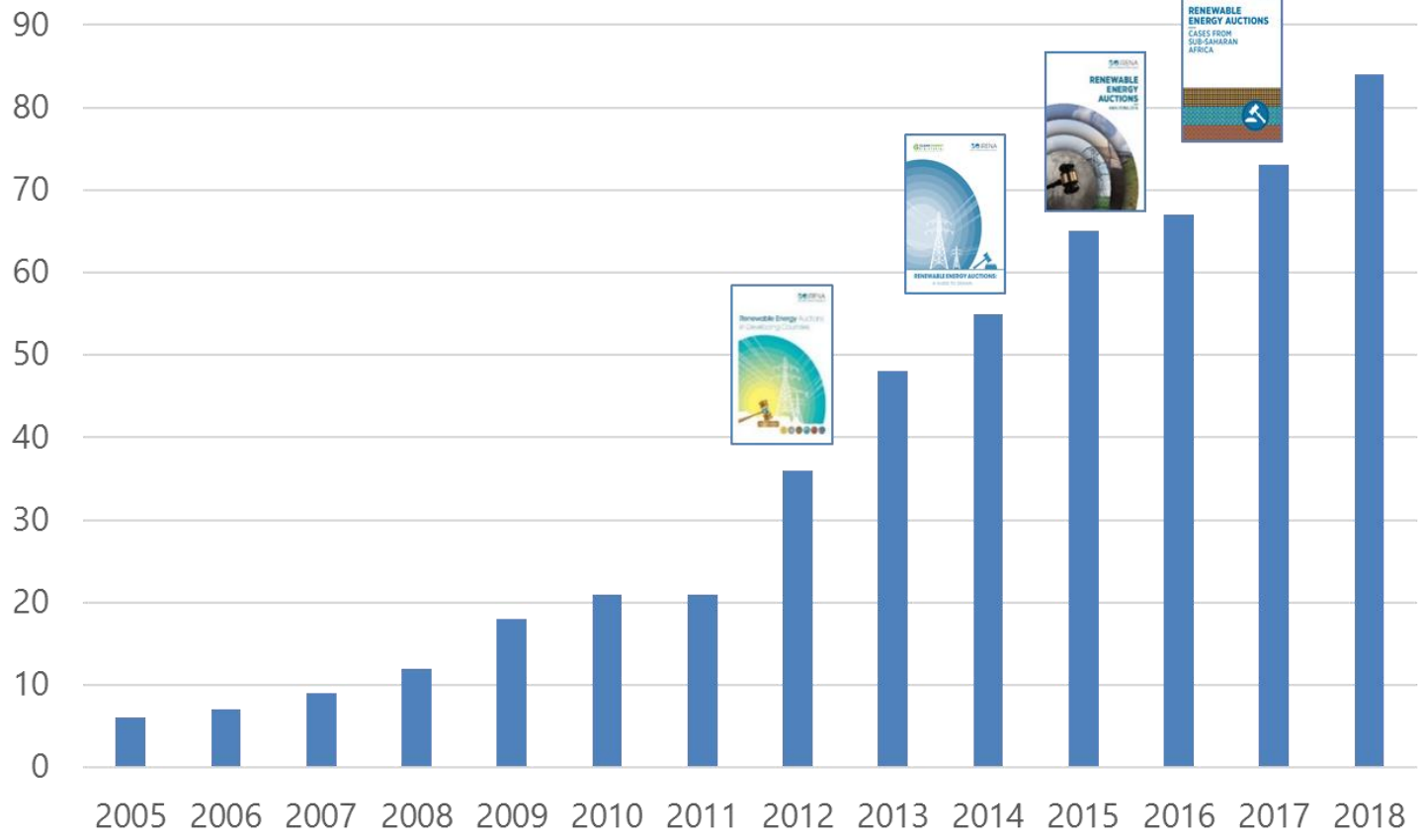
Renewable Energy Auctions

Design elements and trade-offs

Trends in renewable energy auctions

Number of countries that have adopted auctions (2005 – 2018)



Based on REN21 Global Status Report (2005 to 2016)

Auctions Strengths and weaknesses
Keeping pace with rapidly decreasing costs

IRENA
International Renewable Energy Agency

Auctions

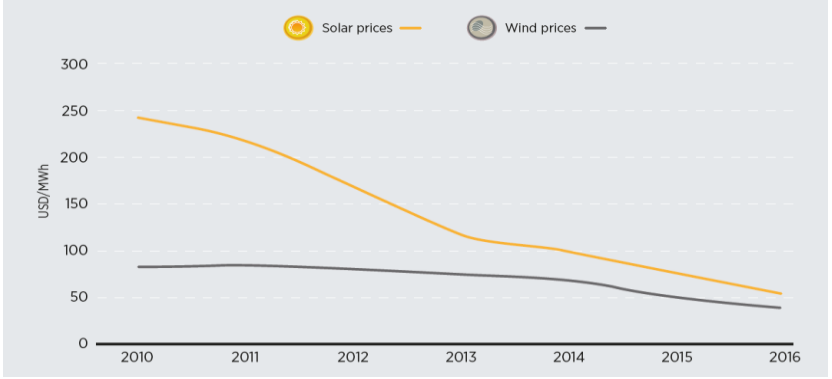
Strengths

- Flexibility in the design according to conditions and objectives
- Permit real price discovery
- Provide greater certainty regarding prices and quantities
- Enable commitments and transparency

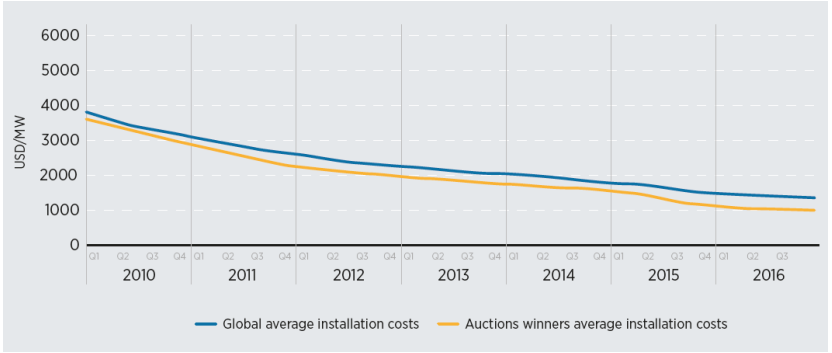
Weaknesses

- Are associated with relatively high transaction costs for both developer and auctioneer
- Risk of underbuilding and delays

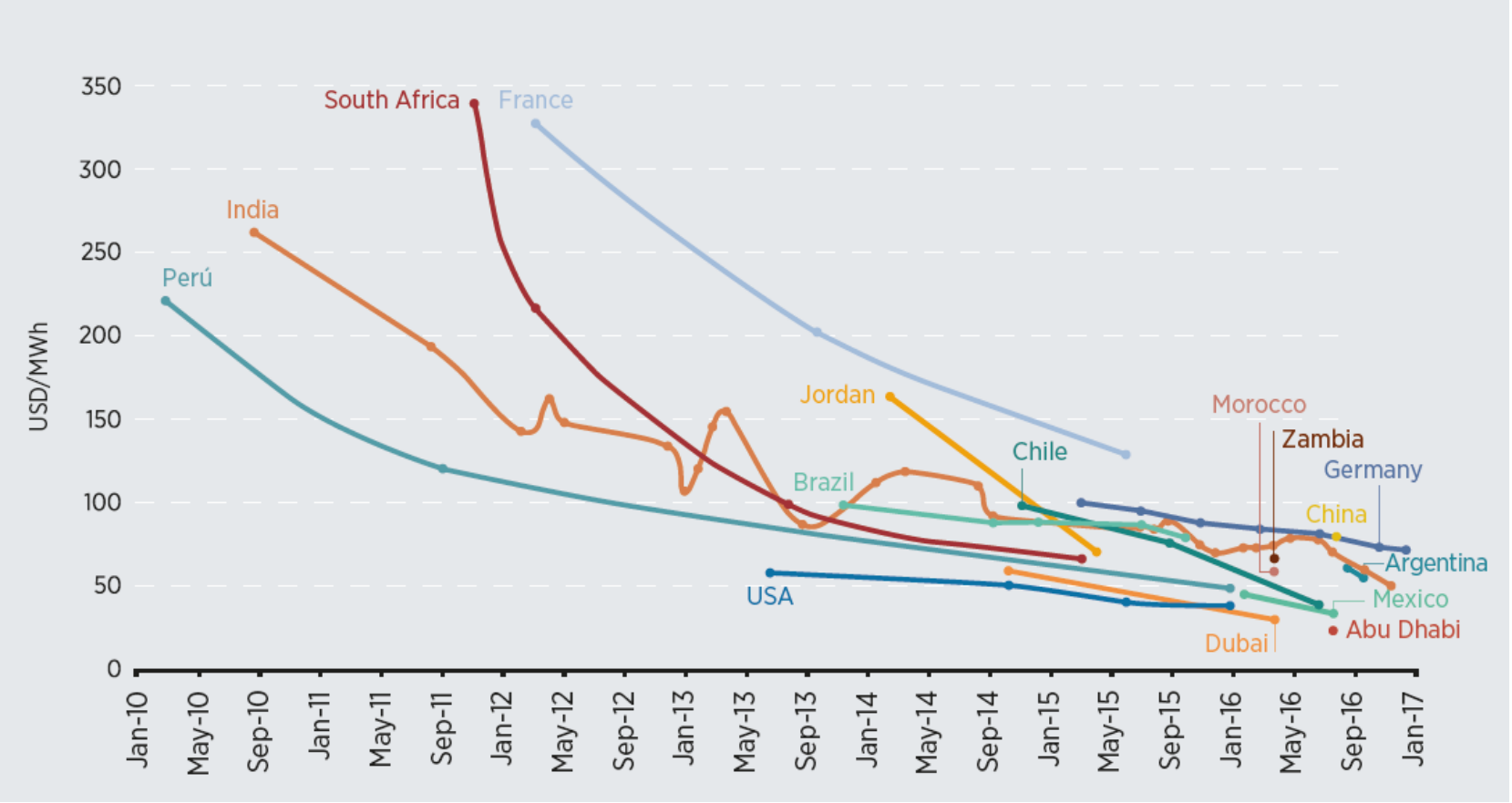
Average prices resulting from auctions, 2010-2016



Installation costs of utility-scale PV projects, global versus auction winners, 2010-2016



Price trends: solar PV auctions



Factors that impact the price

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

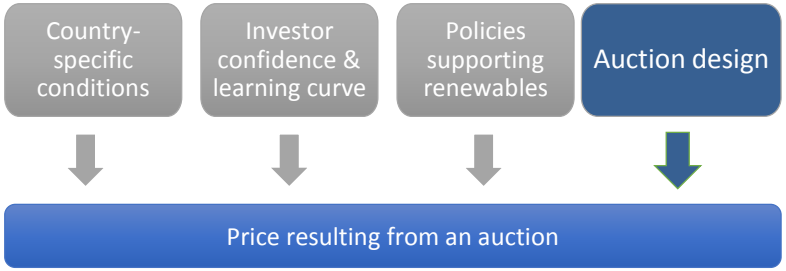
- Auction demand (auctioned volume, technologies, off-taker, regularity of auctions)
- Qualification requirements
- Winner selection method and criteria
- Sellers' liabilities (compliance rules, remuneration profile, distribution of financial and production risks)

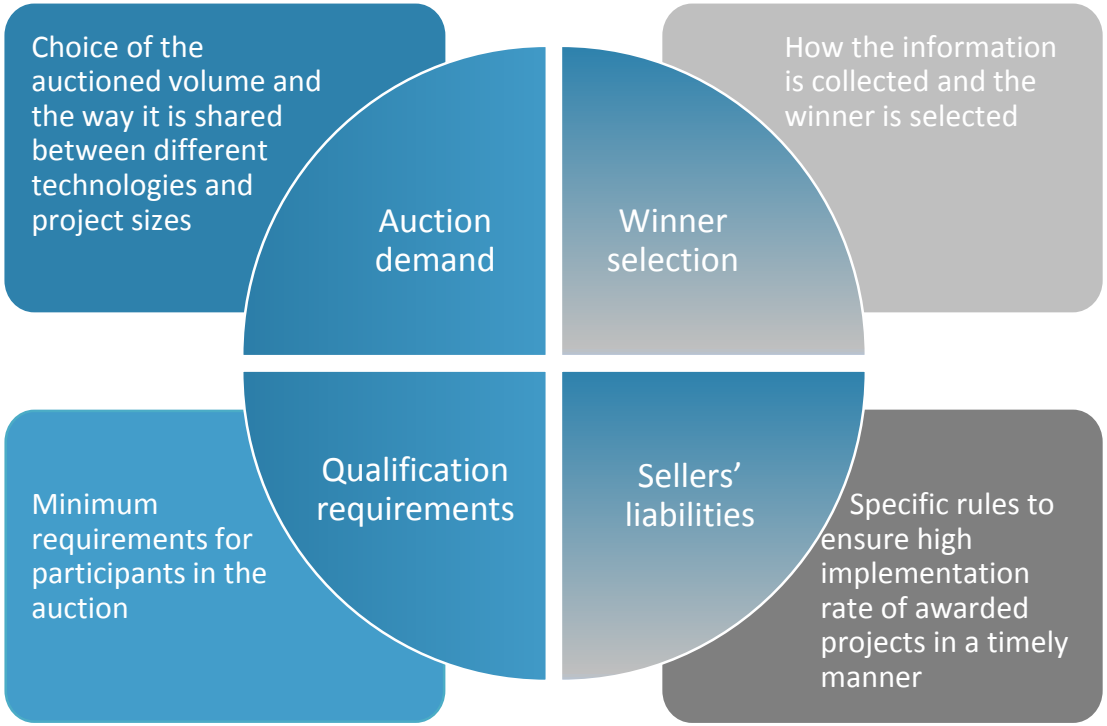
Price resulting from an auction

Auction design elements to consider

The design of the auction considering trade-offs:

- Ensuring project delivery and price
- Fulfilling development goals and price
- Encouraging small/new players and price





IRENA and CEM, 2015

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

Winner selection

How the information is collected and the criteria for the 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

The way forward in planning and designing auctions

- Understanding the reasons behind the low prices is important to make informed policy choices.
- Auctions may underestimate the true costs of renewable energy (e.g. balancing costs) or lead to overly aggressive bidding.
- Risks of underbuilding and delays can be reduced with solid contracts and penalties. Stringent compliance rules may deter the participation of small and new players.
- 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.
- The value of renewable energy goes well beyond the energy services it provides. Therefore, trade-offs between cost competitiveness and other development objectives (such as jobs, industry development) should be carefully examined.

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Download IRENA reports on Auctions

www.irena.org/REAuctions

Thank you!