

# Competitive Auctions and Ultra-Low Solar Bids

The global record low tariff for a utility-scale solar PV project has been broken seven times since 2016, all within auction environments, with recent leading bids dipping below US \$0.02/kWh, and average prices pushing past the cost-competitive range with coal and gas.

## How have prices fallen so far so fast?

- Solar PV module costs have fallen by 74% since 2009<sup>1</sup>, largely due to manufacturing scale-ups in China, conversion efficiency gains, and local supply chain maturity.
- Auctions create bidding environments partially insulated from external market forces.
- As downstream demand for PV projects has accelerated in emerging markets with stable regulatory policies, market-specific savings in labor, land, taxation, materials have supported cost declines in otherwise riskier markets.<sup>2</sup>
- Many recent ultra-low bids depend on aggressive forward pricing assumptions and have distant completion deadlines.

**-71.4%**  
 CAPACITY-WEIGHTED  
 AVERAGE AWARDED TARIFFS  
 DECLINE FROM 2011-2017<sup>2</sup>

**Table 1:** Global Record Breaking Solar Bids since 2016

Project	Awarded Capacity	Contracted Price	Expected Commercial Operation Date
Location	MW <sub>dc</sub>	USD per MWh	Year
<b>Wilsona, United States</b>	34	\$36.8	2021
<b>Al Maktoum, UAE</b>	800	\$29.9	2018-2020
<b>Tarapaca, Chile</b>	125	\$29.1	2019
<b>Sweihan, UAE</b>	350	\$24.2	2019
<b>Sakaka, Saudi Arabia</b>	300	\$23.6	2019
<b>Antofagasta, Chile</b>	116	\$21.5	2024
<b>Aguascalientes, Mexico</b>	377	\$19.2	2020

## Why can't everyone get \$0.02/kWh?

- **Differences in selection criteria of an auction** shift incentives and risks between the issuer of the solicitation, the participants, and the off-taker. These impact the competitiveness and success of the tender.<sup>3</sup>

- **Issuers often have divergent priorities**, which are revealed by the design of the tender. Mature markets may use tenders to pace or cap market growth, and to avoid grid balancing issues. Conversely, high-growth markets use competitive procurement programs to strategically locate projects on weaker grids, provide credit or offtaker guarantees, and increase investor confidence to efficiently procure low-cost capacity.

99 COUNTRIES GLOBALLY HAVE EITHER ESTABLISHED AN AUCTION SCHEME OR ARE DEVELOPING ONE<sup>2</sup>

## Top factors for successful auction programs

- **Transparent communication and adherence to scheduled deadlines** for pre-qualification requirements, bid submission, shortlisting, bid selection, and commencing construction. These are necessary prerequisites to attract private capital to riskier emerging markets and drive prices down.
- **Multiple regularly-cadenced auction rounds** offer stability and allow developers to plan up the supply chain, influencing the industry’s learning curve and increasing bid volumes.
- **Offering bankable PPA contracts** with a creditworthy offtaker allow true price discovery, build investor trust, and maintain regulatory confidence in market prices. These PPAs can be shored up with preferential credit or stapled financing, political risk insurance or other contract enhancements, such as IFC’s Scaling Solar Program.<sup>4</sup>

SUCCESSFUL COMPETITIVE AUCTION PROGRAMS--LIKE SOUTH AFRICA, MEXICO, and MALAYSIA-- HAVE SEEN STEEP ROUND-ON-ROUND BID PRICE DECLINES

**Bottom Line:** When procurement criteria and execution appropriately allocate risks, competitive auction schemes may allow issuers in emerging markets to procure solar generation at true market prices.

**Table 2:** Competitive Procurement Process Design Criteria

Selection Criteria		
<b>Auctioned Rights</b>	Capacity Auction (MW)	Energy Supply Auction (MWh)
<b>Competitive Environment</b>	Technology Specific	Technology Agnostic
<b>Pre-Qualification Process</b>	Shortlisting	Direct Award
<b>Local Content Requirements</b>	Required	Open or Exempt Procurement
<b>Bid Award Process</b>	Sealed Bid	Descending Clock
<b>Contract Price Determination</b>	Pay-as-bid	Uniform Bid ('pay-as-cleared')

## Endnotes

1. [IRENA \(2018\), Renewable Power Generation Costs in 2017.](#)
2. [Benjamin Attia \(2018\), Making Sense of Ultra-Low Solar Bids: How Low Can Tendered Prices Go?](#)
3. [AURES \(2016\) Auctions for Renewable Energy Support: Lessons Learnt from International Experiences.](#)
4. [Dobrotkova, Audinet, and Sargsyan \(2017\), What Drives the Price of Solar Photovoltaic Electricity in Developing Countries?](#)