



USAID CLEAN POWER ASIA

Renewable Energy Auctions Overview

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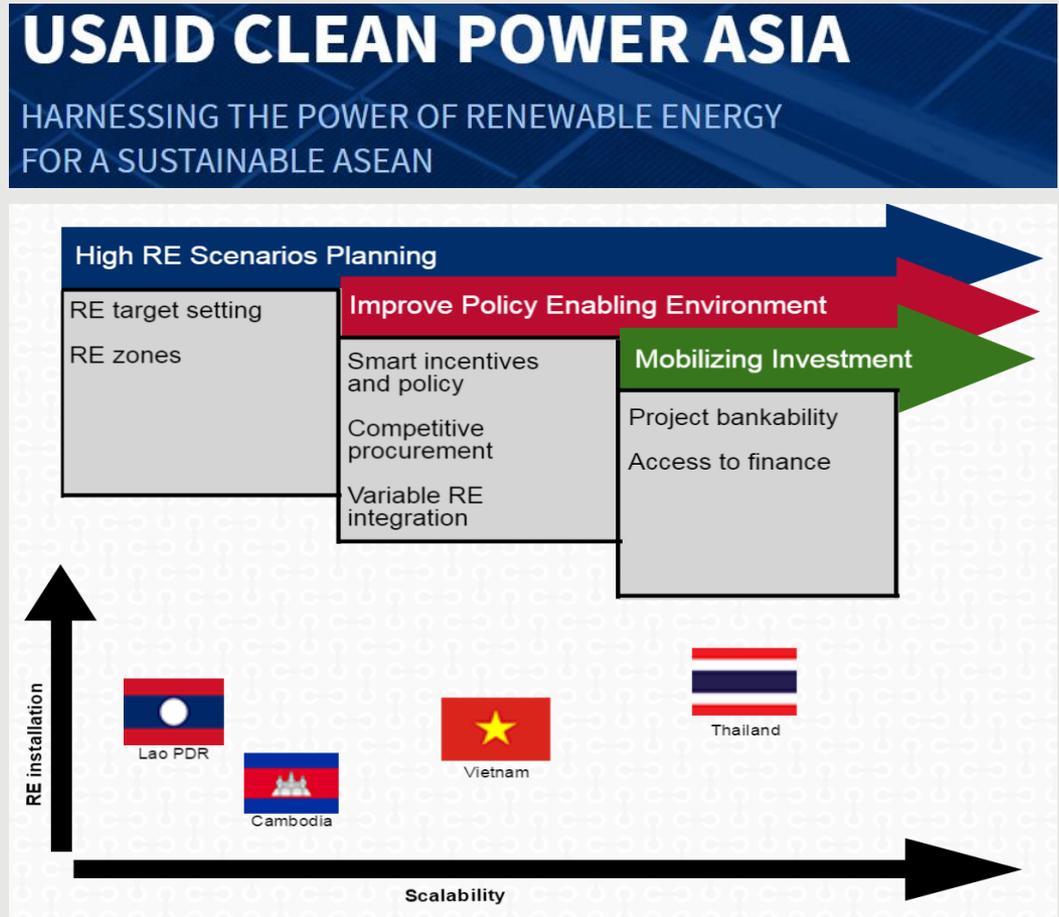
Prepared for the SETA conference in Bangkok

Agenda

- Introduction:
 - USAID Clean Power Asia program
 - Renewable energy capacity trends
 - Countries' adoption of RE auctions trends
 - Snapshot of renewable energy auctions worldwide
- Policies Supporting Renewable Energy
 - Feed-in tariffs
 - Renewable energy auctions
 - Factors influencing auction price
 - Auction design elements

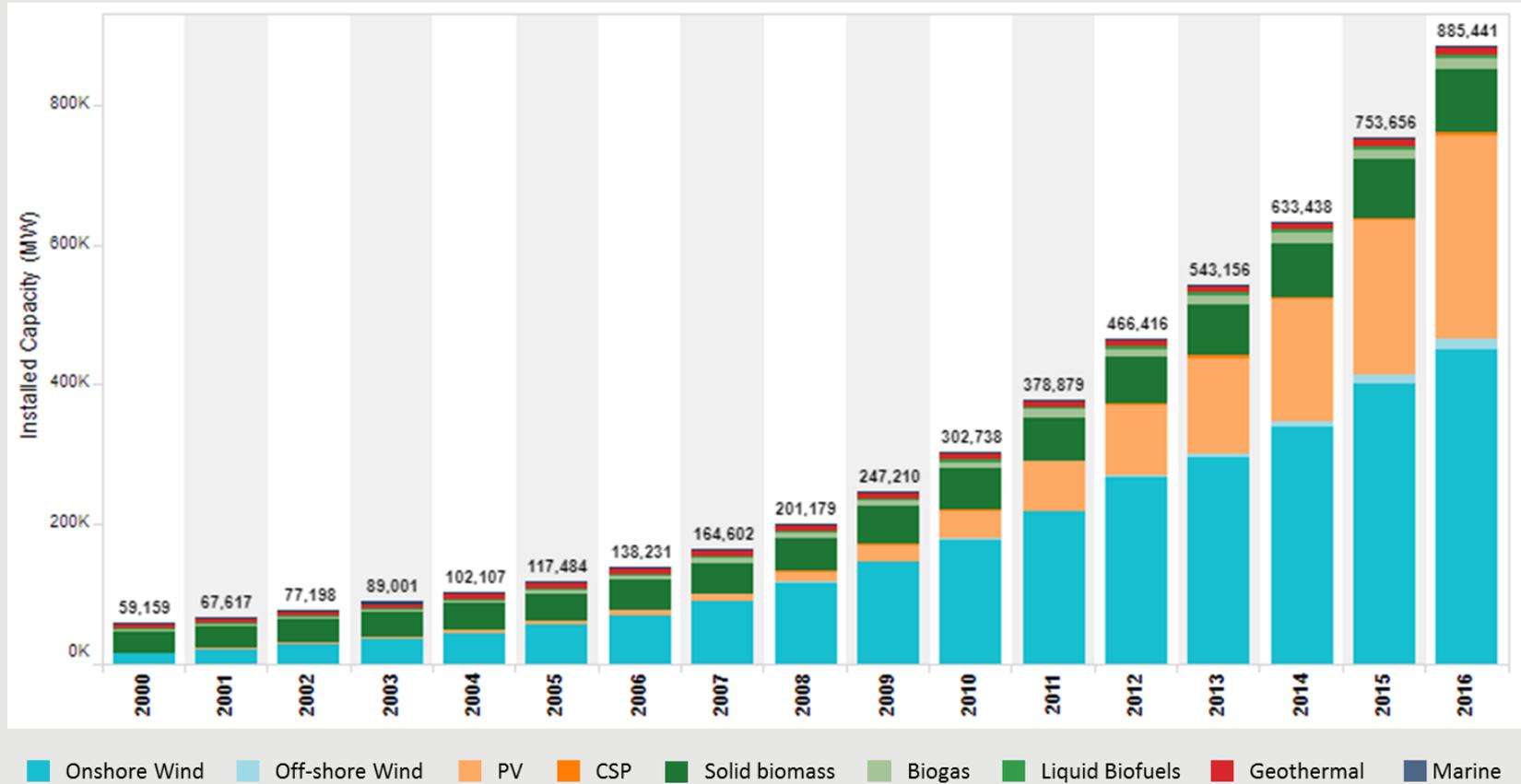
USAID Clean Power Asia program

- ❑ 5 years: June 2016 – June 2021
- ❑ Aims to increase deployment in 'grid-connected' renewable energy in Asia
- ❑ Focus on Cambodia, Lao PDR, Thailand, and Vietnam
- ❑ Goals:
 - ❑ 15 laws/policies/regulations
 - ❑ \$750 M USD investment mobilization
 - ❑ 500 MW of installed RE
 - ❑ 3.5 M tCO2e reduction
- ❑ Implemented by Abt Associates and partners
- ❑ Funded by United States Agency for International Development (USAID)



Our website link: <http://usaidcleanpowerasia.aseanenergy.org/>

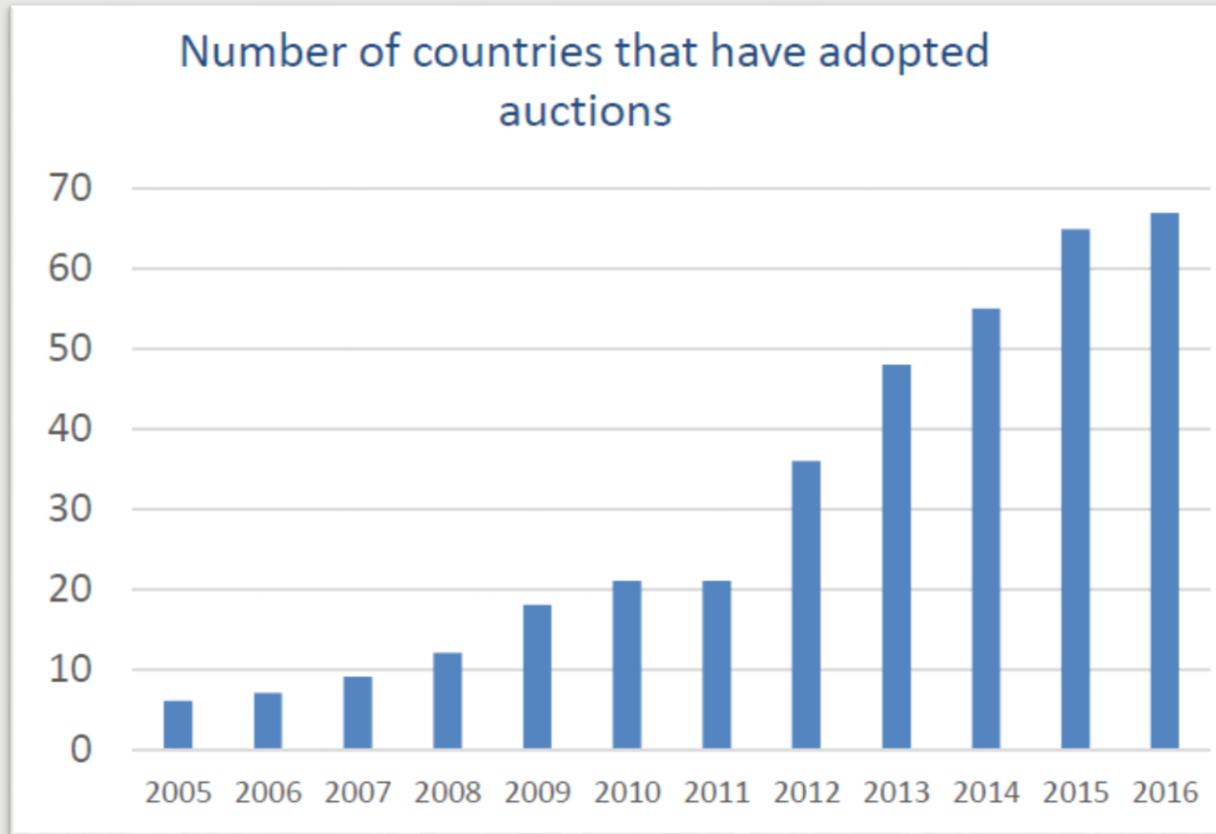
Global renewable energy trends



Source: IRENA (2017). Renewable capacity statistics 2017

Solar PV and wind have experienced the largest capacity increase among all major RE energy sources

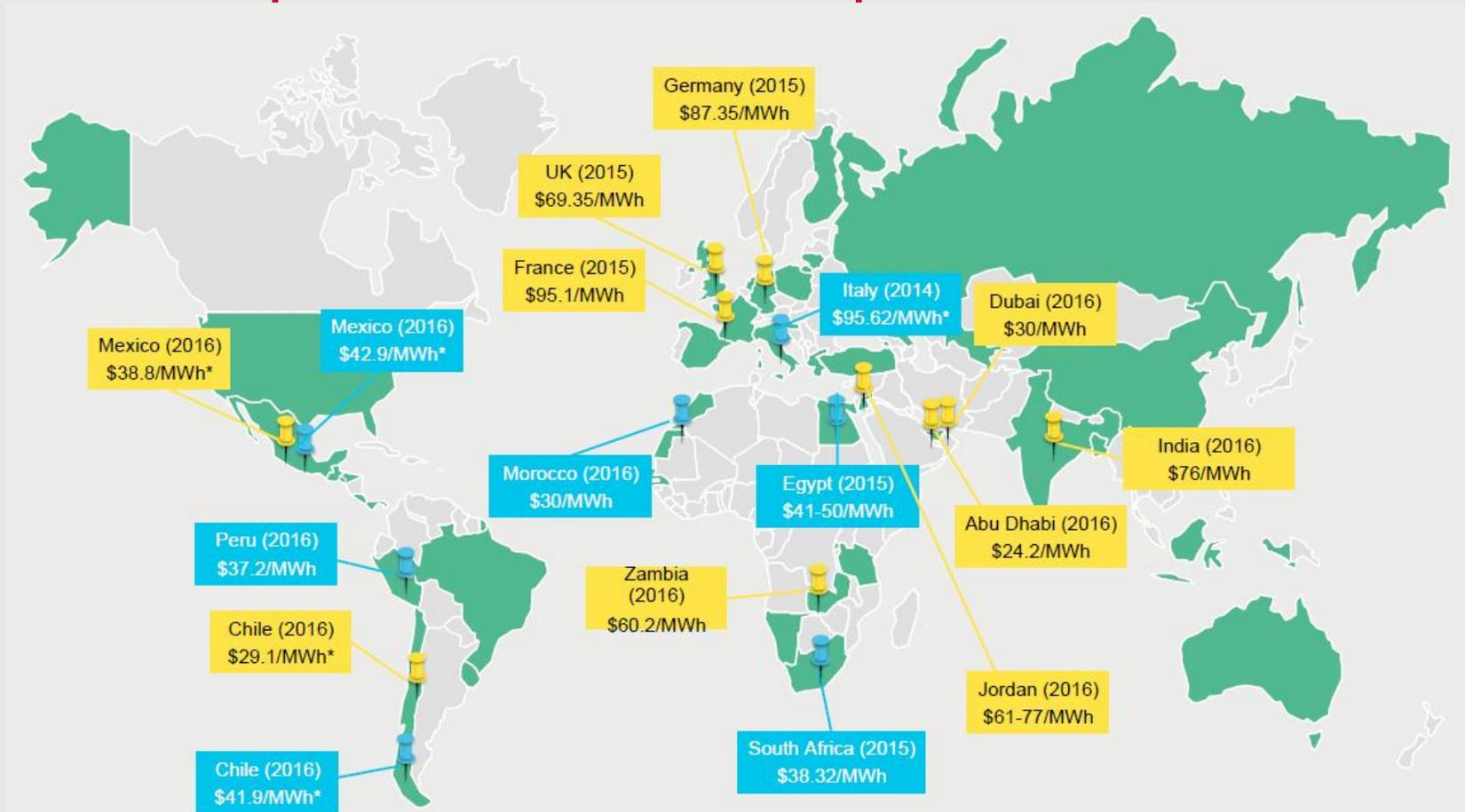
Countries' adoption of RE auctions trends



Source: IRENA (2017). Presentation on Renewable Energy Target Setting and Support Schemes. Data is based on REN21 Global Status Report

The trend of increasing number of countries adopted RE auctions, especially for solar and wind, supporting global renewable energy capacity growth

Snapshot of auctions adopted worldwide



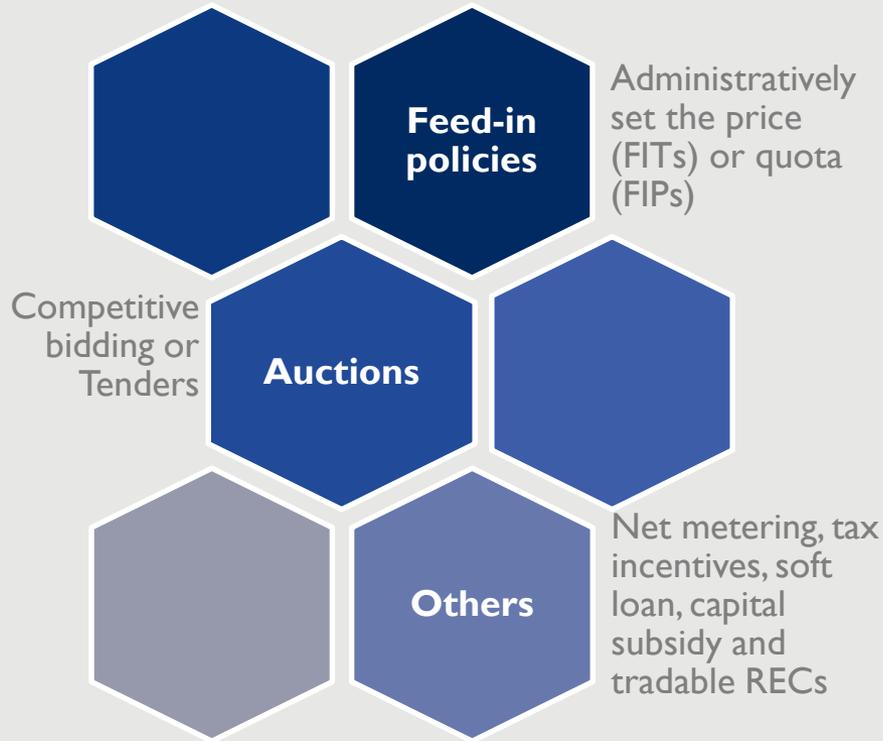
* Pay-as-bid auctions

Source: USAID (2017). Presentation on “Scaling up renewable Energy: Building Blocks and Reverse Auctions”. Compilation from Bloomberg Energy Finance

- Countries with auctions programmes or renewable energy tenders
- Onshore wind bids
- Solar PV bids

Biomass auctions: Argentina (1.2 MW, biogas), Brazil (198 MW), Peru (4MW), Thailand (SPP hybrid, 300 MW)
 Geothermal Auctions: Indonesia (410 MW)

Policies supporting renewable energy

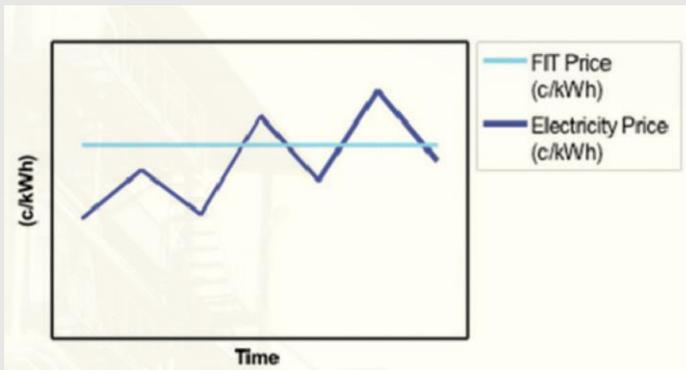


- At least 126 countries have promoted RE in the power sector through policy support
- **Feed-in policies** remain in force by most countries (83 countries in 2016), but declining rate of adoption by new countries.
- **Auctions** has been adopted by an increasing number of countries (67 countries in 2016), becoming a preferred policy tool with remarkable rate of adoption (34 countries issued new tenders in 2016)
- Others – net metering (55 countries)

Source: REN21 database

Feed-in tariffs

- Government-set price and market determines volume
- FITs offers a guaranteed purchasing price for a specified period of time.
- For example, a fixed tariff is set for the purchase rate of electricity at a certain constant level which is independent from the fluctuation of market price for electricity throughout the support duration (e.g. 20 years)
- With rapid decreasing costs of RE technology (i.e., solar and wind),
 - Costly with high deployment rates
 - Challenging to set tariff rate and adjust tariff rate.
- **Degression** rates (a regular reduction in the FIT payments to reflect the declining costs of an RE technology) were widely applied and **transition to tendering** is emerging. For example,



Europe- Germany, UK and France applied FIT degression mechanism for PV. UK reduced its FIT for all technology by 65% in 2016,

Asia- FIT for solar was reduced in China, Japan, Pakistan, the Philippines in 2016. Several rounds of degression rates in Malaysia, which moved to solar auctions in 2016

Africa - modifications of feed-in policies, Kenya announced to transition to tendering instead

Renewable energy auctions

- Government-set volume, market determines price
- Referred by various terms such as “competitive bidding”, “tendering”, “reverse auctions”, “sealed-bid auctions”, “demand auctions” or “procurement auctions”



“1 Buyer”

Call for tender or request for proposal



“Several sellers”

Bid down the price. The lowest bid wins.

- Main features of auction scheme

The government issues a **call for tenders or RFP** to procure a certain capacity or generation of renewables-based electricity.

Project developers need to **meet the requirements to participate** in the bid

Project developers typically **submit a bid** with a price per unit of electricity (USD/kWh).

The auctioneer **evaluates the offers** based on price and other criteria and **signs a power purchase agreement** with the successful bidder.

Renewable energy auctions

Advantages

Flexibility in design to meet policy objectives

Price discovery in changing environment (declining PV costs)

Commitment and transparency

Greater certainty regarding prices and quantities

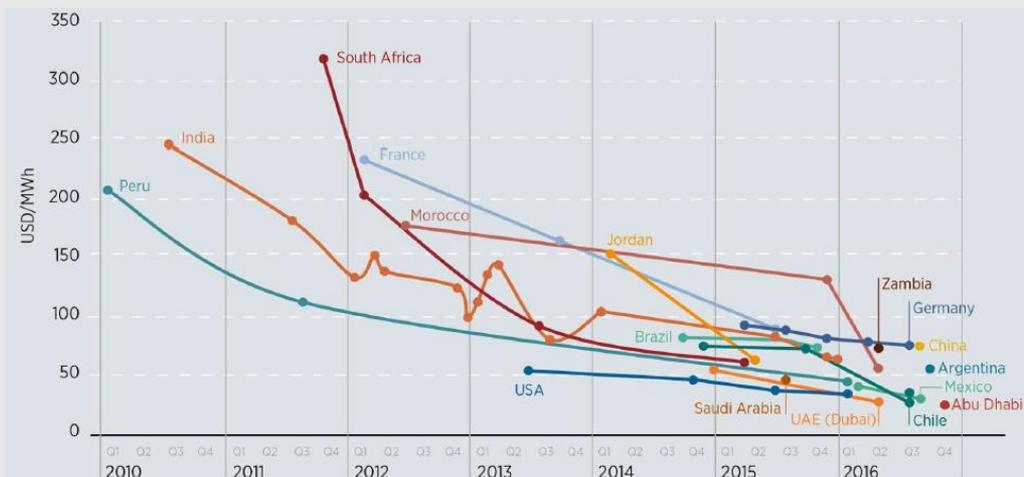
Disadvantages

Associated high transaction costs (e.g., up-front transaction costs such as feasibility studies, land use permit)

Risk of underbidding and delays (e.g., developers bid too low to actually be able to realize the project)

Factors influencing the auction price

Price trends – solar PV auctions



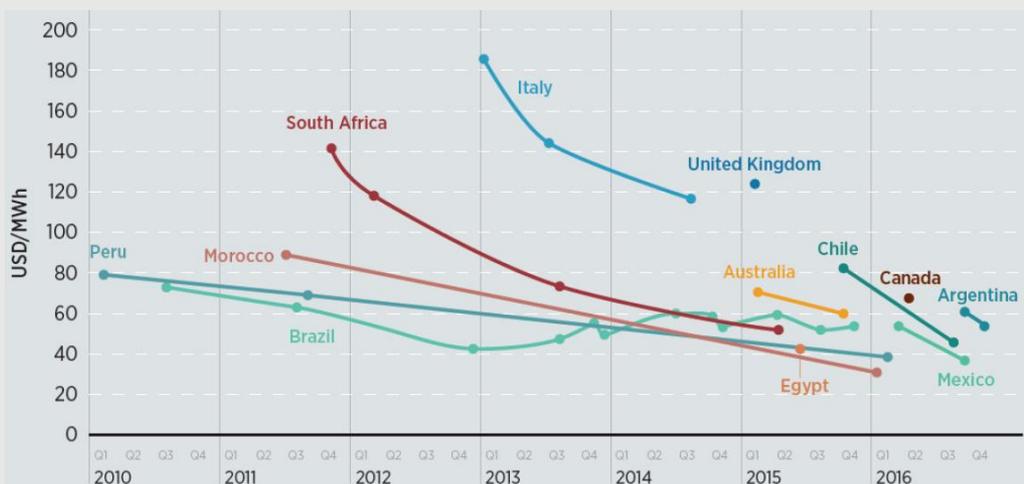
Country-specific conditions

- Cost of finance, cost of labor and land, resource ability
- Ease of doing business

Investor confidence and learning curve

- Credibility of off-taker and guarantees
- Lessons learned from past auction

Price trends – onshore wind auctions



Policies and measures for RE development

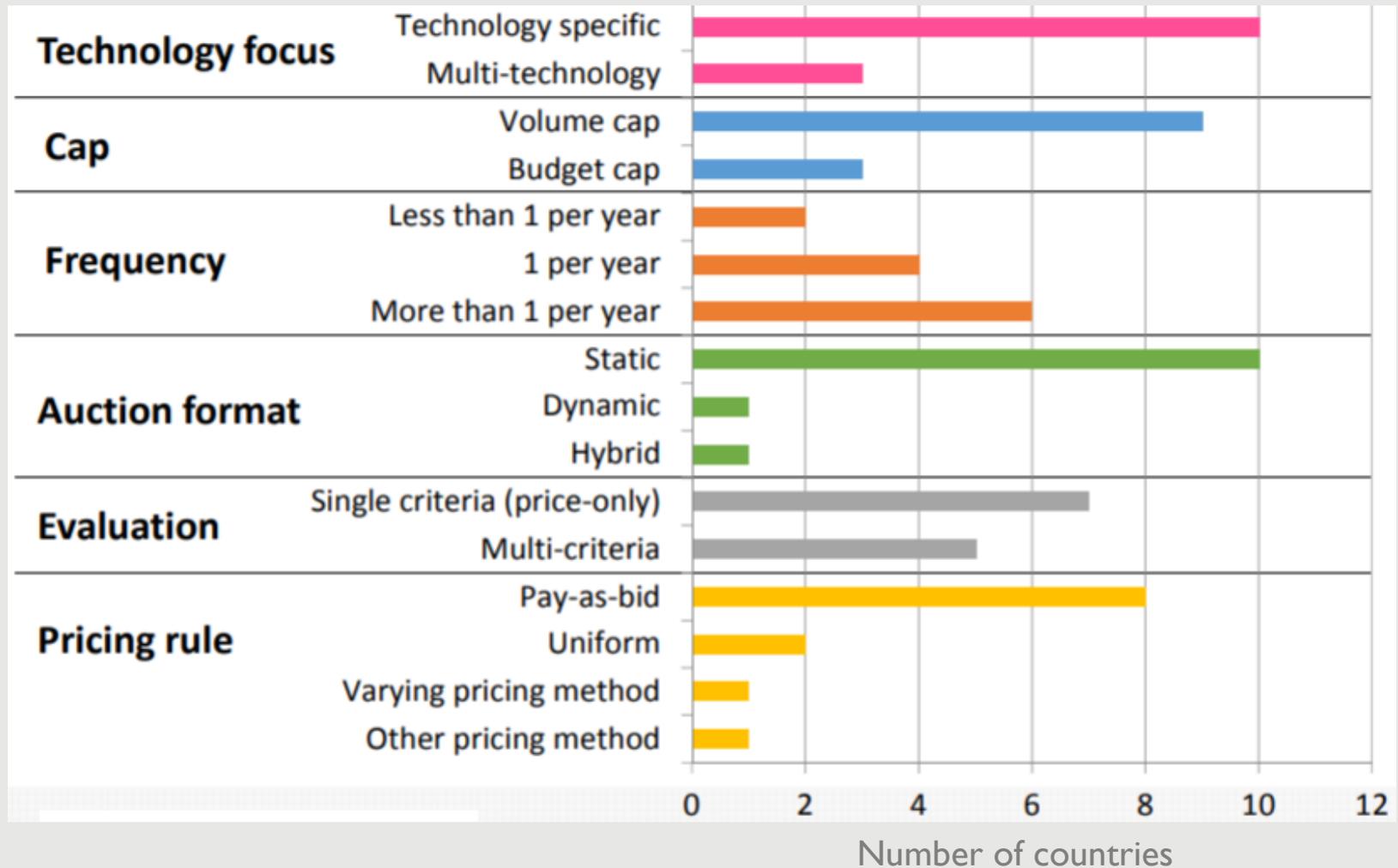
- National targets and plan
- Tax credits, exemption
- Socio-economic benefits

Auction Design

- Ensuring project delivery and price
- Fulfill development goals
- Encourage new players

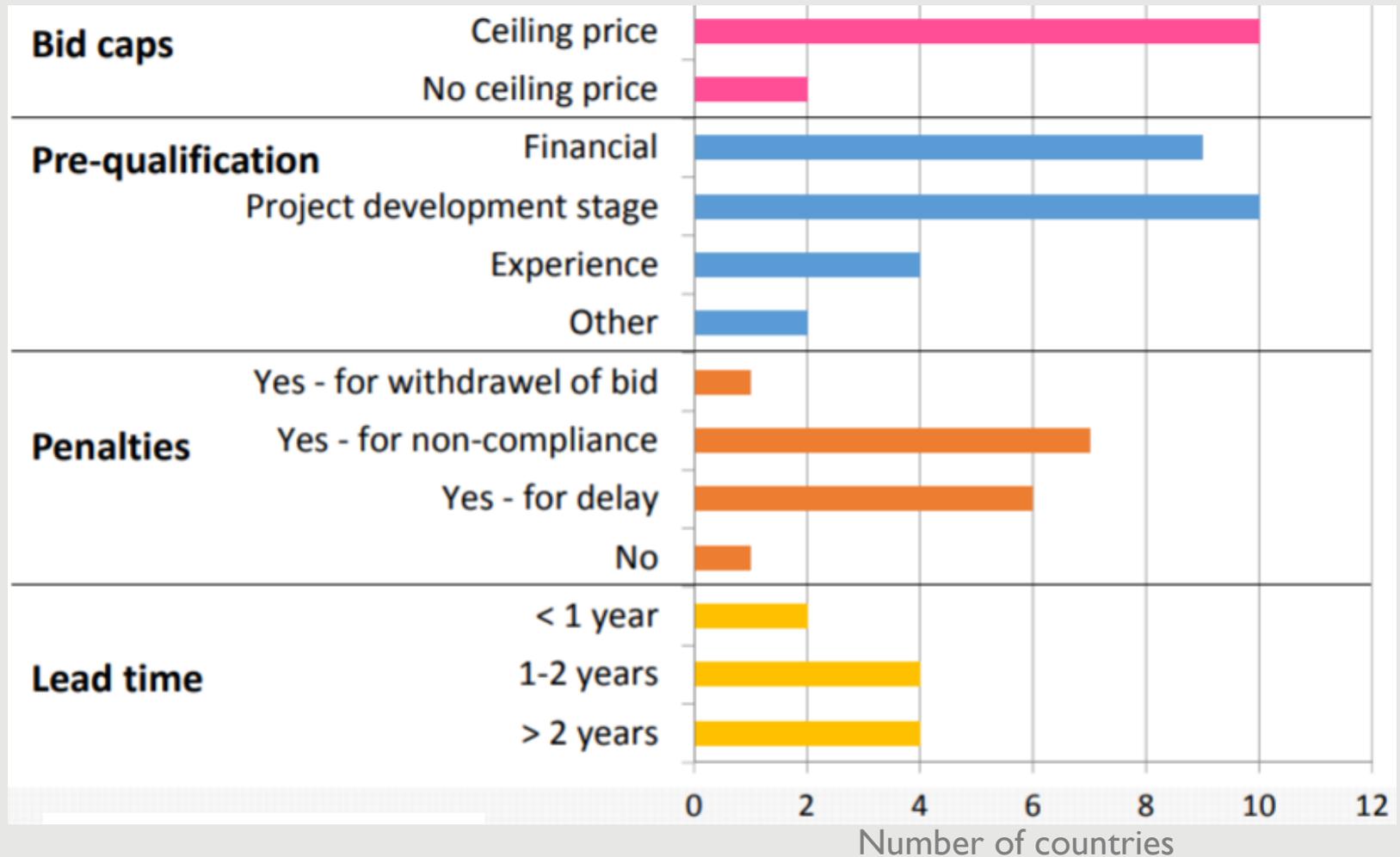
Source: IRENA (2017). Renewable Energy Auctions

Auction design elements: Adopted examples (1/2)



Source: Klessmann (2016). Overview of design elements of RES-E auctions

Auction design elements: Adopted examples (2/2)



Source: Klessmann (2016). Overview of design elements of RES-E auctions

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