

**INTERNATIONAL RENEWABLE ENERGY AGENCY**

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## Note of the Director-General

**Renewable energy auctions to meet deployment and development objectives****I. Introduction**

1. A global energy transition is underway, with the reality of a sustainable energy system based on renewables beginning to emerge. As of today, almost 170 countries have set renewable energy targets and have implemented innovative support policies to address market failures in order to reach the targets. These policies typically aim to promote the deployment of renewable energy while achieving a number of other objectives, including socio-economic benefits such as income generation and job creation.

2. Until recently, renewable energy deployment had been mostly supported by policy instruments such as feed-in tariffs and quotas with tradable green certificates. In the past five years, auctions have become more and more popular, often being the preferred policy to advance renewable energy deployment. The number of countries that adopted renewable energy auctions increased from 9 in 2009 to at least 55 by early 2014.

3. The increasing popularity of the auction scheme can be attributed to its potential to achieve deployment in a cost-efficient way and to its ability to bring out the real price of the product being auctioned by means of a structured, transparent and most importantly, competitive process. IRENA's 2013 report *Renewable Energy Auctions in Developing Countries* demonstrated the effectiveness of auctions in selected markets. Auctions allow policy makers to control both the price and quantity of renewable energy produced by providing stable revenue guarantees for project developers (similar to the feed-in tariff) while at the same time ensuring that the renewable generation target is met more precisely (similar to quotas and tradable green certificates). To reap full benefits from auctions, careful consideration of several design elements is required.

4. Building on its previous work, IRENA has developed the report *Renewable Energy Auctions, a Guide to Design and Best Practices* to analyse the different auction design elements and highlight best practice for policy makers and investors. The report shows that the level of competition needed to help bring down the cost can be achieved by means of opening the auction to different technologies, limiting the volume of the capacity being auctioned, increasing the participation of bidders in the auction and preventing collusion. However, the auction needs to also ensure that participation of bidders is only limited to those who can successfully implement the project as per the cost and the timeline proposed in their bid. These aspects are briefly addressed below.

### **II. Increasing competition in auctions to improve price reduction**

5. The level of competition in the auction impacts the price substantially. The competition is determined by the number of participants bidding in the auction, the volume being auctioned, the variety of competing technologies, and the prevention of collusion between participants.

- Increasing the number of participants in the auction by calibrating the qualification requirements and reducing the risk perception associated with the auction is one way of spurring competition. To reduce risks, the creditworthiness of the off-taker (buyer of renewable generation) and the contracting schemes selected are important considerations. In particular, contracting schemes where the government takes on equity in the project provide greater certainty to the developers (such as the Dubai solar power auction in 2014). Confidence can also be enhanced through the different methods of allocating financial risks related to exchange rate and/or inflation, as in the case of Chile, where contracts are denominated in US dollars and adjusted periodically to inflation, shielding the developers from financial risks.
- The level of competition in the auction is also influenced by the volume that is auctioned, and one of the challenges for the auctioneer is deciding on the number of rounds and the volumes to auction in each round. Even though auctioning a large volume would enable the introduction of large capacities at once, it might result in a lack of competition, especially in a market with a limited number of project developers (such as South Africa in 2011).
- The diversity of technologies that can compete depends on the type of auction. In the case of technology neutral auctions, different technologies compete among each other as opposed to technology-specific auctions. While technology neutral auctions enable the deployment of the least cost options (such as Brazil in 2011), auctions limited to selected technologies can support their local development, provide additional guidance to bidders, and enable the reduction of costs associated with the bidding process.
- To increase competition and reduce costs, collusive behavior needs to be avoided. This can be prevented by adopting explicit measures, such as the type of auction selected. The sealed-bid auction, for instance, hinders collusive behavior, since it makes the exchange of information and the explicit coordination between bidders more difficult.

6. Finally, other design elements can achieve further cost reduction, such as setting a ceiling price above which projects are not considered. Although effective at containing the price below a given limit, determining the price ceiling can be challenging.

### **III. Ensuring the participation is limited to bidders that can successfully complete renewable energy projects and meeting development objectives**

7. While auctions have been successful at triggering competition and ensuring cost effective renewable capacity additions, experience shows that certain auction design requirements are essential to limit participation only to bidders that can successfully deliver. These include appropriate qualification requirements and stringent compliance rules.

- Requirements for qualification encompass evidence of past track-record in developing projects that are intended to demonstrate that the company has the required capability, technological know-how and adequate permits such as those associated with grid access. Such requirements have been successful in many jurisdictions (California, 2011). In some cases, however, it has been noticed that too stringent qualification requirements has increased transaction costs and hindered the participation of new entrants especially small players.

Policy makers can also impose specific conditions that can help fulfil overall socio-economic development objectives. For example, South Africa has designed its auction in a way that promotes job creation, local enterprise development, and empowerment of marginalized social groups and local communities.

- Stringent compliance rules are meant to ensure that once the winners are selected, contracts will be signed, projects will be completed on time and the risk of under (or over) performance is reduced. They include bid bonds (or guarantees) from winners, rules related to project development timeline, and penalties for delay or underperformance. Several countries have implemented stringent compliance rules and associated penalties, including Brazil and Peru.

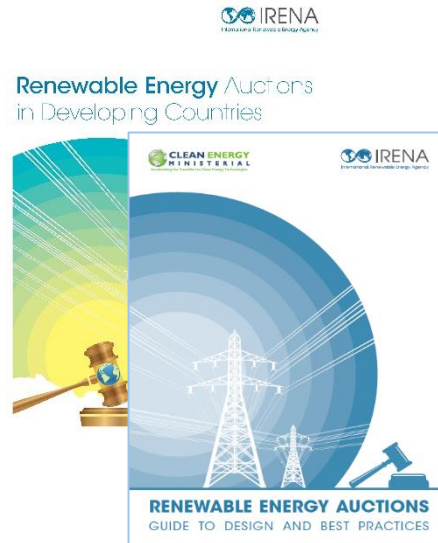
8. In conclusion, auctions have gained importance in the new generation of policies due to their ability to support deployment while increasing transparency and fostering competition. In order to best achieve those results, the design choices must be made according to the country context (maturity of the power market and level of renewable energy deployment) and broader development objectives. Although some design elements can limit participation, enforcing bidding requirements and compliance rules are essential to ensure that projects are completed in a timely manner. All these design elements, along with others, are analyzed in IRENA's study on *Renewable Energy Auctions, a Guide to Design and Best Practices* (see box on the following page).

#### **IV. Guiding questions**

- What are the main motivations for countries to introduce auctions as opposed to using other policy instruments?
- What are the key country-specific challenges that are faced by policy makers in the design and implementation of auctions schemes?
- What have been key success factors in the deployment of renewable through auctions?
- How can IRENA further support its Members to benefit from its workstream on Auctions? What other related topics could be further explored?

### Renewable Energy Auctions, a Guide to Design and Best Practices (IRENA, 2015)

The guidebook contextualizes auctions within the larger realm of renewable energy policy instruments and it elaborates on their strengths and weaknesses, structured around the key design elements for a successful auction implementation. The analysis is supported by specific country experiences, representing different contexts, and aims to gather lessons learnt and best practices on how governments can design and implement auctions in the most cost-efficient and timely way while fulfilling the overall policy objectives. The guidebook serves to support policy makers in the design of auctions by covering:



- **The auction demand**, namely the choice of the volume auctioned and the way it is shared between different technologies and project sizes. There are a variety of arrangements, from technology neutral auctions to technology and project specific auctions, from standalone to systematic auctioning schemes that can define how the penetration of renewables in the generation mix will take place. Other criteria addressed include the allocation of costs and responsibilities among the different stakeholders.
- **The qualification requirements** determine which suppliers are eligible to participate in the auction, including the conditions they must comply with and documentation they must provide prior to the bidding stage. This category encompasses requirements related to reputation, which relates to the capability of the bidding company to develop the project; technology; production site selection; securing grid access; and instruments to promote local socio-economic development.
- **The winner selection process** is at the heart of the auction procedure itself, and it involves the application of the bidding and clearing rules, as well as awarding contracts to the winners. This category addresses the bidding procedure, the requirements of minimal competition, the winner selection criteria, the clearing mechanism and marginal bids, and the payment to the auction winner.
- **The seller's liabilities** chiefly associated with the characteristics of the product being auctioned, along with certain responsibilities and obligations spelled out in the auction documents. This class of design elements involves commitments to contract signing, the contract schedule; the remuneration profile and financial risks, the nature of the quantity liabilities, the settlement rules and underperformance penalties; and the delay and underbuilding penalties.