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RENEWABLE ENERGY AUCTIONS TOOLKIT

AUCTION DESIGN PROCESS

STRATEGICALLY TAILORING AUCTION DESIGN TO LOCAL CONDITIONS AND PRIORITIES

Renewable energy (RE) auctions have been implemented in countries with different degrees of electricity sector maturity and power sector size. The auction design process allows policymakers to align policy objectives early and tailor the auction to policy objectives, level of market readiness, and institutional capabilities. Countries may consider introducing a pilot auction to gain experience and kick-start a project pipeline.

UNDERSTANDING THE AUCTION DESIGN PROCESS

The auction design process allows government stakeholders (e.g., policymakers, utilities, regulators) to flexibly adapt their auction design to local framework conditions and priorities. At the beginning of the auction process, policymakers define their policy objectives and consider institutional capacities at their disposal to meet future auction requirements (see Figure 1). In a second step, stakeholders involved in the auction design process assess the level of market readiness in terms of market size, project development cycles, and the available project pipeline, and then analyze the existing regulatory framework.

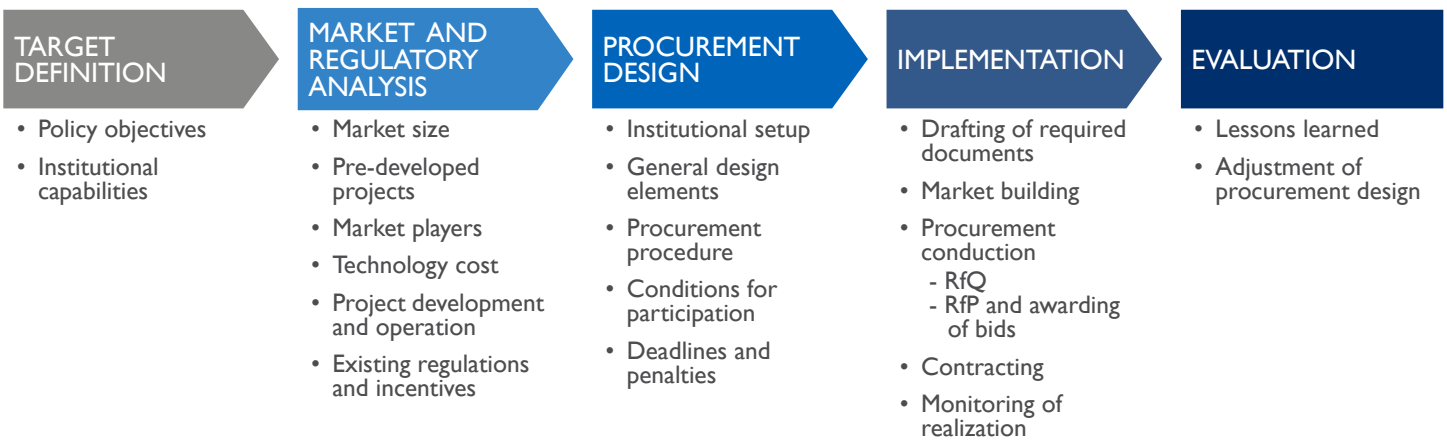
Countries pursue different, sometimes conflicting, objectives when scaling up renewable energy. Clearly defined policy objectives early in the auction design process create a transparent environment that leads to greater success.

Clarify policy objectives early in the process. The most common policy goal of RE auctions is the efficient and reliable allocation of available funding to achieve RE generation targets, such as Renewable Portfolio Standards (RPS). Countries using auctions can ensure effective control of procured volumes by matching power demand and supply. This requires sufficient competition as well as predictable RE auction volumes.

Countries can pursue additional goals when implementing auctions. For example, auctions can promote effective integration of RE into the power system by incorporating design elements that align the deployment of projects with current and planned grid capacities to avoid grid constraints or to minimize grid expansion costs. Countries may also adapt their auction design to support different degrees of local value creation, which can include contracting projects with a positive socioeconomic impact, such as the local sourcing of components, hiring of local workforce, or sharing ownership of the project with the local community. South Africa, for example, implemented a range of additional socioeconomic bid evaluation criteria related to job creation, ownership, and management control.

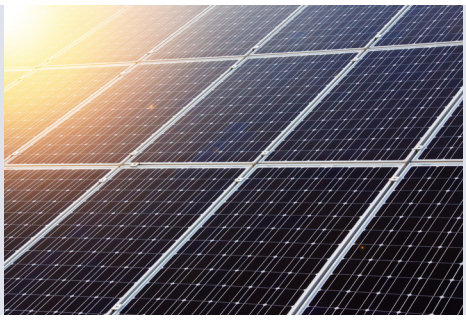
Consider trade-offs between policy objectives. Recognizing the trade-offs between policy objectives is an integral part of the auction design process. Therefore, it is important to map trade-offs and agree on the prioritization of policy objectives and then ensure they are adequately reflected in the auction design. For example, while a technology-neutral design promotes efficiency by awarding technologies with the lowest generation costs, this may limit the procurement of more system-friendly alternatives. Moreover, integrating local value requirements could increase the bid price.

Figure 1. Overview of the auction design process



BOX 1. THE EFFECT OF LOCAL CONTENT REQUIREMENTS ON BID PRICES IN SOLAR PV AUCTIONS IN INDIA

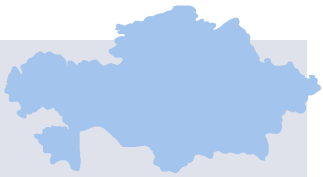
Between 2014 and 2017, India organized solar PV auctions with local content requirements – obliging bidders to source locally manufactured cells and modules – and without such requirements, as part of an "open category." Auctions were often conducted simultaneously in the same state or even the same solar park. Evidence suggests that including local content requirements resulted in average bid prices that were between 5.7 and 7.1 percent higher than in the open category.[1]



Consider existing project pipelines and the local RE market. Assessing the project pipeline can help determine the level of competition expected in the auction, but may present challenges. A project pipeline may already exist due to previous feed-in tariff systems or projects developed based on bilaterally negotiated contracts between producers and the government.

For example, several countries in the Balkans had feed-in tariffs in place before implementing auctions. Serbia considered allowing projects in development that could no longer receive access to the feed-in tariff to participate in the planned auction.

However, some pipeline projects may have expired permits, be expensive, or not viable to participate for another reason. In countries with few existing projects (e.g., Laos), the auction itself is creating the conditions for the development of project pipelines.



BOX 2. ACCOUNTING FOR LOCAL FRAMEWORK CONDITIONS IN KAZAKHSTAN

The first two RE auctions in Kazakhstan were tailored to the priorities and characteristics of the country's power sector. Kazakhstan started auctioning relatively low RE volumes to account for its surplus generation capacity. The auction also set capacity limits at multiple nodes of the system to ensure the system could absorb the procured volumes.

In cases of high market concentration between only a few developers, measures against collusion must be prioritized in the auction design.

Project development cycles inform auction design. Knowing the project development duration and risk of project failure allows policymakers to decide which permits should be required before the auction takes place. In many countries, the time needed to secure land rights and grid connection permits can present significant challenges to successful development. Adequate time for the assessment of permits must be built into the project development schedule to ensure on-time project realization.

Enhance project bankability in project agreements. Assessing factors that influence revenue certainty in project agreements, such as power purchase agreements (PPAs), can improve project bankability. Key questions concern how to ensure sellers get paid for energy delivered and how risks are split between the offtaker and the seller when regulatory changes affect the project over its lifetime.

In particular, the right balance in the allocation of foreign exchange risk between investors and the offtaker must be struck. Denominating PPA revenue streams in a global currency such as USD, or indexing a local currency to it, implies higher foreign exchange risks for the offtaker, while the disbursement of PPA payments in local currency without indexation to a hard currency usually entails higher risks for investors.

When determining the specific allocation of foreign exchange risk between investors and the offtaker, countries should be aware of which project costs must be paid in local currency and which in international.

Another consideration when discussing risk is that investors can be incentivized to minimize foreign exchange costs if they have to bear part of these risks. In Kazakhstan, for example, the PPA tariff paid to bidders was denominated in local currency, 70 percent of which was indexed to USD with the remaining 30 percent indexed to the consumer price index accounting for local inflation.[2]

A clear legal framework defining the rights of independent power producers vis-à-vis state-owned utilities or grid operators also supports project bankability.

ENSURING INSTITUTIONAL CAPABILITIES MEET AUCTION REQUIREMENTS

The required institutional capabilities to design and implement auctions depend on several factors, such as the type of auction, its implementation timeline, and the desire for auction scalability. Consultation between key stakeholders, for example as part of dedicated task forces (e.g., the Auction Working Committee in Ukraine), including the ministry of energy, the regulator, the grid operator, and permitting authorities at the local and national levels in the early stages of the auction facilitates cooperation, aligns auction requirements with existing regulations, and avoids delays in the process.

RENEWABLE ENERGY AUCTION DESIGN PROCESS

Consider pilot auctions. While countries have pursued different strategies to scale up RE based on their market maturity and power sector size, defining future auction volumes and the frequency of the procurement rounds increases investor confidence, promotes learning among stakeholders, and contributes to discovering RE costs.

In countries with very new RE markets such as Russia and Turkey, starting with smaller volumes through pilot auctions helps policymakers and industry to learn from auctions while controlling budget risks. This approach also limits stranded costs, concentrates demand, and allows the market to confirm that the country will fulfill its obligations.

Adjust the design if auctions have failed. Failing auctions can result in high bid prices, under-subscription, bidder collusion, and low realization rates. In this case, the auction design needs to be adjusted. For example, Brazil revised its qualification requirements to improve project realization rates.

In the first eight auction rounds only 14 percent of awarded wind projects were completed on time. Delays in the transmission grid expansion and environmental feasibility permits led to most of the awarded capacity being delayed.[3] Brazil now requires bidders to include preliminary grid access authorizations with their bids to improve the coordination of the country's transmission grid with generation capacity additions.

Similarly, low project realization rates were observed in the Non-Fossil Fuel Obligation (NFFO) auctions in the United Kingdom during the 1990s. The lack of penalties and loose qualification requirements led to only 38 percent of selected projects and 26 percent of the contracted capacity being built.[4] In Greece, the auctioneer canceled a solar PV auction in 2018 due to suspected bidder collusion. Prequalified projects appeared to be owned by a few companies that seemed to coordinate their bids in the dynamic auctions to drive up bid prices.

Set clear auction schedules. Setting a clear auction schedule can increase competition levels. For example, India committed to a regular auction schedule as part of its National Solar Mission introduced in 2010, which contributed to its success. Between the first and second auction rounds, the total capacity offered doubled, the share of projects realized in time increased from 89 percent to 100 percent, and the price dropped by 28 percent.[5]

Ideally, auctions should be planned and announced well in advance to create investor interest and allow investors time to obtain the documentation they need to participate. For example, before implementing its first technology-neutral RE auction in 2019, the Colombian Ministry of Mines and Energy presented its auction plans to 90 investors and financial organizations in Bogotá and 60 in New York in 2018 to inform them and encourage their participation in the auctions.

[1]https://www.strommarkttreffen.org/2019-04-12_Anatolitis_Empirical_insights_on_LCR_from_RE-auctions_in_India.pdf; [2]http://ptfcar.org/wp-content/uploads/2020/01/Report-on-Kazakhstan-Renewable-Energy-Auctions-2018_2019_Eng_15012020-for-print-GD.pdf; [3]https://www.iass-potsdam.de/en/output/publications/2018/experience-auctions-wind-power-brazil; [4]Mitchell, C. The non-fossil fuel obligation and its future. Ann Rev Energy Environ 2000; 25: 285–312; [5]https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/Jun/IRENA_Renewable_Energy_Auctions_A_Guide_to_Design_2015.pdf.

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SCALING UP RENEWABLE ENERGY

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