Tenders for solar projects

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EXECUTIVE SUMMARY

This paper is looking at how a tendering scheme can be made ‘applicant-friendly’ while ensuring the cost-effective achievement of policy objectives. It results from the work of an international Task Force from SolarPower Europe’s membership. The following key recommendations are derived from the practical market experience and expertise gathered by solar energy players active in project development globally.

Overview of tender results

- While experience on solar tenders is growing internationally, with about 7 GW of awarded PV capacity reached by the beginning of 2016, the effectiveness of tender schemes in terms of realized projects is not proven yet. Although tenders have resulted in low prices, comparability between countries and selection rounds remains limited.

Before the tender

- In the short- to medium-term, technology-specific tenders are needed in order to allow for a targeted and diversified buildup of renewable energy technologies with their differing generation and cost profiles. These need to match national market conditions and system needs.
- Project developers and banks shall be offered a reliable tendering framework with a transparent, multi-year roadmap of auctions, thus publishing timing and auctioned volumes well in advance to allow for a proper portfolio planning.
- Projects smaller than 1 MW shall be permanently excluded from tenders and should continue to be eligible to other forms of support mechanisms.
- Pre-qualification criteria impeding speculative bidders are key for a reliable tendering framework. Overly restrictive criteria, however, hamper competitiveness. An advanced project shall be rewarded by lower bid bonds.

During the tender

- Price-only auctions shall be the standard tendering scheme. As an alternative, “limited-criteria” tenders can be considered using a limited set of simple and objective criteria.
- Intervening in the price formation process represents an additional entry barrier and distorts the “true” price.
- Whatever the winner selection process, Member States should remain free to choose between pay-as-bid or pay-as-cleared.

After the tender

- Penalties for delayed projects shall be introduced and consider the origin of the delay. The number of unrealized projects shall be reduced by a staggered liability approach.
- Awarded bids should be transferable, to allow a secondary market for awarded projects and thus increase the flexibility for project developers.
- Relevant auction figures should be made public. Re-submitting of refused bids shall be made possible at very low cost.

Outlook for a European roadmap for tenders

- Similar design characteristics of national tenders are a pre-requisite for a stepwise cross-border convergence. The revised Renewable Energy Directive could foster such convergence by reflecting the design parameters described in this paper. In addition, planning and reporting obligations of Member States should provide visibility both on the capacities tendered and on the realization rates achieved.

INTRODUCTION

Tendering renewable power generation capacity or production volumes can promote the effective development of renewable energy if providing a non-discriminatory and transparent allocation scheme that drives down public support. As a result, tenders promise to reduce societal cost by limiting government subsidies to the best performing plants. To achieve these promises, appropriate design of tenders from prequalification criteria to execution to after-tender regulation is key.

Tenders are increasingly being used as an allocation mechanism across the globe for newly built solar power capacity. Although the experience in Europe is more limited[1], the new EU Guidelines on State Aid for environmental protection and energy mandate Member States to implement tenders: after a transitional phase in 2016, all new PV plants above 1 MW will indeed have to compete for support in a bidding process starting from January 1st 2017. The European Commission requires that "Aid is granted in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria."[2]

Existing literature[3] provides overviews on the experience of countries that have already introduced tendering schemes as well as policy recommendations. These publications suggest that design parameters play a crucial role as they can heavily affect the number and structure of admitted bidders, which ultimately affects the tender's results. This paper wants to focus on key design criteria for solar tenders in Europe, drawn from the experience of sector companies which already have gained tendering experience. In essence, this paper is looking at how a tender scheme can be made 'applicant-friendly' while ensuring the cost-effective achievement of policy objectives.

For the sake of clarity, this document is structured along the three important phases in the tender process. One chapter will be dedicated to the pre-qualification phase ("before"), the bidding process ("during") and the realization period ("after") respectively. Before entering the discussion, a brief overview of existing tendering schemes for solar is provided.

EXEMPLARY OVERVIEW OF RECENT SOLAR TENDERS RESULTS ACROSS THE WORLD

While experience on solar tenders is growing internationally, with about 7 GW of awarded PV capacity reached by the beginning of 2016, the effectiveness of tender schemes in terms of realized projects is not proven yet. Although tenders have resulted in low prices, comparability between countries and selection rounds remains limited.

The global dynamics regarding tendering PV projects have recently picked up significantly and have seen a significant decrease of price levels. In late 2014, the PV tenders in the United Arab Emirates have set a mark at 5.8 USD cent/kWh, which were surpassed in early 2016 in Peru, with 4.8 USD cent/kWh and later in Mexico with 3.5 USD cent/kWh. More recently, a consortium won the lowest bid observed so far for a PV project globally at 2.99 USD cent/kWh in Dubai. The map below presents a snapshots of the most recent tenders for solar across the globe.

However, one should be careful when comparing and assessing these tender prices: The time frame for which a tariff is granted (e.g. 20 years in France, 15 years in Mexico) as well as the taxation rules can be different from country to country. Also, in some countries, significant local content and community involvement requirements are to be covered with these tendering prices, while others have no such requirements attached to the tender. Hence, a lower auction price does not always reflect a cost reduction but rather the specifics of each national framework, and in particular the access to very low cost capital.

Our data suggest that since 2011 approximately 7 GW of solar projects have been awarded via tenders globally. It should however be noted that so far the visibility on the track record of actually delivered projects following a tender

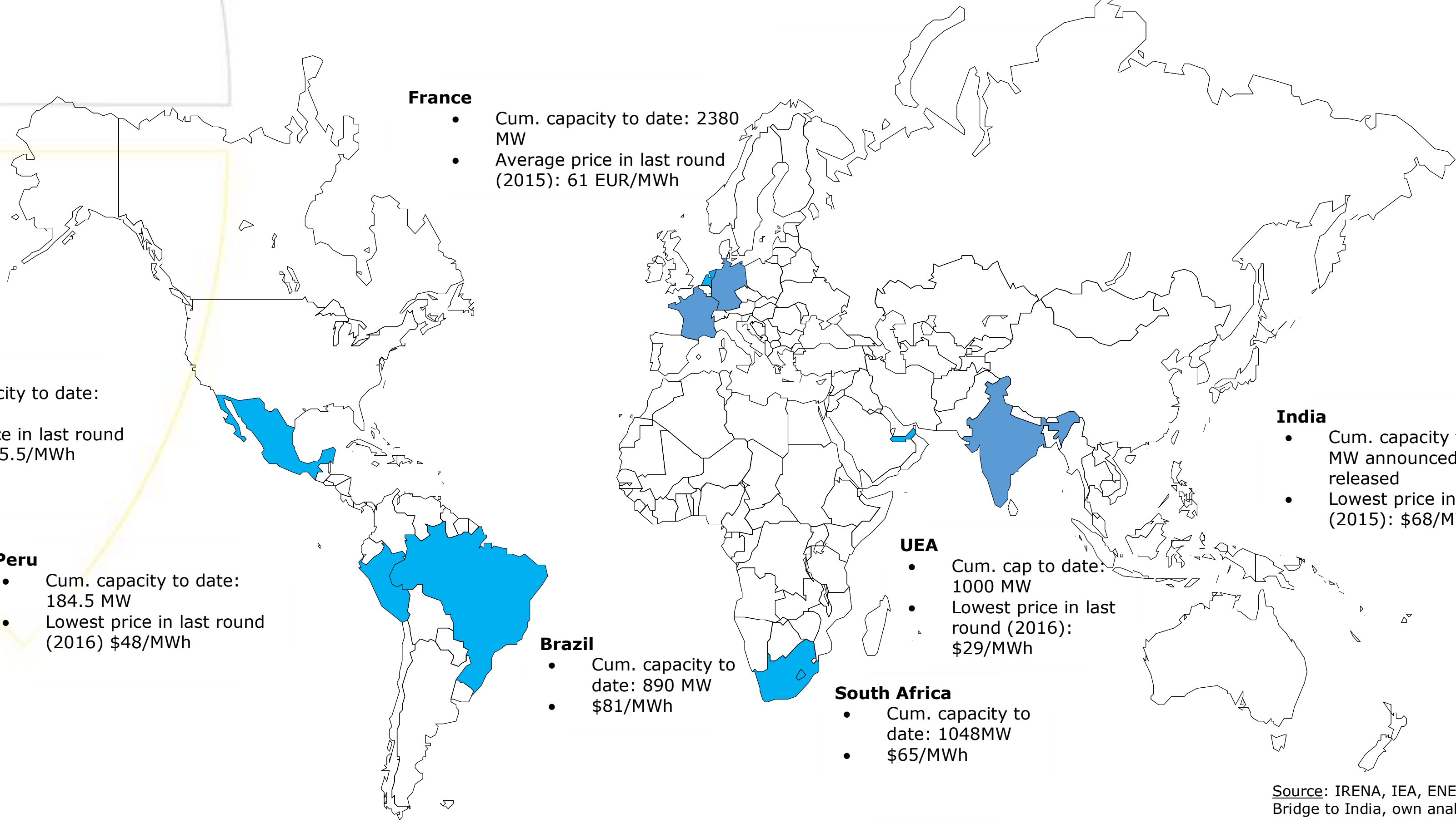
[1] See the Annex – Design parameters of solar tenders across the world.

[2] *Guidelines on State aid for environmental protection and energy* (2014/C 200/01), European Commission, paragraph 3.3.2.1

[3] *Renewable Energy Policies and Auctions*, IRENA, 2015; *Auctions for Renewable Energy in Europe*, Agora Energiewende, 2014; *Design options for wind energy tenders*, EWEA, 2015.

is very limited. This is partly due to the fact that countries granted significant time after contracts were awarded for the realization of the project, which, given falling PV module prices, provides an incentive for investors to defer installation as a means to increase margins. Also, given the lack of experience of some players, some might have bid prices only to secure the option to build, but then decide against the investment at a later stage. This underlines the need for policy makers to not only design tenders efficiently and secure post-tender commitments, but also to improve data reporting and availability to enable a credible assessment of the overall effectiveness of the policy tool.

Figure 1 – Examples of tendering results for solar across the world: volumes auctioned and prices achieved to date (estimates)



Source: IRENA, IEA, ENEL, Bloomberg New Energy Finance, Bridge to India, own analysis

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CHAPTER 1. 'BEFORE THE TENDER': DEPLOYING VOLUMES AND ENSURING VISIBILITY FOR INVESTORS

A successful tender should drive competition in order to identify the best performing projects.[4] At the same time, it should ensure high realization rates. If one of those two performance indicators is missing, the cost-efficient optimum cannot be reached. As a result, costs for society as well as for projects developers who were outperformed by speculative bidders, are likely to increase.

Against this background and in view of reducing overall costs, applicants need visibility on the following elements before entering a bidding process:

- The exact composition of the targeted power mix for mid-and long term system transition
- The tender's geographical scope
- The capacity tendered as well as the tenders' frequency
- The pre-qualification criteria (site specification, project size constraints, financial health etc.)

1.3 The need for technology-specific tenders

In the short- to medium-term, technology-specific tenders are needed in order to allow for a targeted and diversified buildup of renewable energy technologies with their differing generation and cost profiles. These need to match national market conditions and system needs.

From a theoretical perspective, competition among renewable technologies via technology-neutral[5] tenders leads to a cost-efficient deployment of renewable power generation sources. Reality, however, calls for tenders where different technologies do not compete with each other. The following paragraphs explain the underlying reasons for favoring technology-specific tenders:

- The various technologies differ as to how they affect the respective power system. From a grid operation and planning perspective, it is important that Member States maintain a balanced mix between diversified competitive solutions. Promoting only one technology could create significant drawbacks for the power system (e.g. meteorological correlation).
- From a technological and policy-making perspective, implementing a technology-specific approach works best to achieve improvements along the cost learning curve. Although wind onshore or solar have already achieved cost competitiveness in some regions, the margin for improvement remains significant throughout Europe.[6] Solar, for instance, would never have reached its current level of development and cost-competitiveness if it had been forced to compete with onshore wind a decade ago.
- From an auction efficiency perspective, technology-specific tenders avoid the risk that certain technologies can benefit from an "overcompensation" if the volume tendered is so large that more expensive technologies will for sure be awarded winning bids. In other words: if there are not enough projects of the least cost technology to cover the tendered volume, bidders of this most competitive technology will raise their bid.

[4] Here, the expression "best performing" reflects also countries where cost-effectiveness is not the only allocation criteria.
[5] In this paper, the expression of technological neutrality describes an auction where renewable technologies compete for one quantity target. The expression does not cover auctions where renewable technologies compete with conventional generation types.
[6] *The future costs of photovoltaics*, Agora Energiewende, 2014.

1.3 The need for long-term visibility

Project developers and banks shall be offered a reliable tendering framework with a transparent, multi-year roadmap of auctions, thus publishing timing and auctioned volumes well in advance to allow for portfolio planning.

Visibility and predictability are by far the most important criteria to ensure a successful tendering process as well as an effective development of renewable power generation. Uncertainty, however, limits the number of project developers, which in return reduces the cost-efficiency of the tendering process.
While construction time for solar projects usually remains quite short (3 to 4 months on average), the preliminary efforts during the development phase are significant: teams need to be organized, land needs to be prospected, studies need to be realized. From origination up to a "ready to tender"-stage several years may go by. Obviously, not every project considered will turn into a realized solar plant. Some projects will reveal non-feasible or will be outperformed during the tendering stage. These projects will then create sunk cost for the developer. These risks are common to all auction participants.

Project developers enjoy long-term visibility, if three aspects are fulfilled:

- The volumes to be tendered need to be clearly defined in advance in order to attract a large number of projects and participants. The announcement should be made as early as possible and later deviations from the announced volumes shall be excluded. From our experience, a 3 to 5 years planning ability on the tendered volume is needed with remaining volumes from under-subscribed auctions being transferred to the next tender. A reliable framework helps Member States monitoring their goals and facilitates the access to capital for project developers.
- In addition, a long-term roadmap up to 2030 should be included in the upcoming national climate and energy plans. In this roadmap, estimates shall be given as to the capacities per technology needed to reach the EU-wide 2030 renewable target.
- Frequency is another important parameter for a successful tendering process. Frequent tenders for small projects, e.g. on a quarterly basis, and (bi-) annual tenders for larger projects set the base for a competitive environment. In such way, investors could participate in several rounds and policy-makers would be obliged to promptly react to the tendering results, e.g. through volume transfers between tenders or incremental process improvement. Respecting this trajectory is of utmost importance for developers and banks. In several countries, directional or retroactive changes have profoundly damaged the investors' confidence. This situation must not be repeated, because the short-term savings (from a public budget perspective) are much lower compared to the cost needed afterwards to re-mobilize investors and capital.

1.3 Size of systems included in the tender

Projects smaller than 1 MW shall be permanently excluded from tenders and should continue to be eligible to other forms of support mechanisms.

The EU State Aid guidelines contain a "de-minimis" rule stating that plants smaller than 1 MW may be excluded from tenders. Whereas countries like Germany currently make use of this exception, France has already conducted tenders for roof-top installations above 100 kWp.
Despite the technical feasibility of tenders for small plant sizes, this paper opposes tenders for systems below 1 MW for several reasons:

- Plants below 1 MW are mainly acquired by individuals and businesses. For these groups, tenders represent additional complexity and therefore disincentivize any possible investment.
- Installer companies, who usually sell and set up the plants, would face an additional sales challenge. Given their pure technical focus, most installer companies are not capable to work as an intermediary between the small and mid-size investor and the tender process.
- Furthermore, the right to self-consumption is often pivotal to an investment decision of these groups. However, integrating self-consumption into auction schemes would add significant complexity to the auction design. As a result, small-scale auctions schemes often prohibit self-consumption. Given that individuals and businesses are crucial for decentralized power supply, such a development is not tolerable.

In sum, the costs associated with tendering small-scale plants exceed the benefits, especially since competition and cost-efficiency in that sector are already very pronounced.

1.3 The need for well-aligned pre-qualification criteria

Pre-qualification criteria impeding speculative bidders are key for a reliable tendering framework. Overly restrictive criteria, however, hamper competitiveness. An advanced project shall be rewarded by lower bid bonds.

Pre-qualification criteria are important to guarantee the reliability of competing project developers. Tenders that accommodate unreliable players are detrimental to serious developers. Speculative bids are jeopardizing reliable projects and may even decrease overall competition as some developers would simply not participate in auctions where such practices are tolerated. At the same time, pre-qualification criteria should not be too restrictive in order not to limit competitiveness. Notably the participation of smaller players shall not be hampered through ambitious de-selection at the beginning of the tendering process.

Besides monetary criteria (e.g. bid bonds), non-monetary criteria exist that help proving the "physical" pre-conditions necessary for successful project realization at a later stage (e.g. construction permits). We welcome auction designs where an advanced project stage is rewarded by having to provide a lower level of bid bonds. For instance, bid bonds in Germany get reduced from EUR 4 per KW to EUR 2 per KW in case the project developer is in possession of a land development plan. This corresponds to 0.4% or 0.2% of investment volume respectively. Moreover, the right to transfer a commitment in a secondary market shall be granted in order to foster flexibility and limit the risk associated to non-deliverability. In particular, the secondary market should allow:

- The transfer from one project to another project among the portfolio of the same project developer;
- The transfer of a project from one developer to another one who also fulfills the preselection requirements.

<u>NB</u>: for specific situations (e.g. non connected areas), additional pre-qualification criteria (e.g. combination with storage) may be considered if duly justified.

2

CHAPTER 2. 'DURING THE TENDER': APPLICANT-FRIENDLY WINNER SELECTION PROCESS FOR COST-EFFECTIVE TENDERS

Project developers who have successfully gone through the pre-selection process then compete for support for their project. Transparency and simplicity should be the main guiding principles of this stage. This chapter evaluates winner selection processes, as well as existing clearing mechanisms.

2.3 Winner Selection Process

Price-only auctions shall be the standard tendering scheme. As an alternative, "limited-criteria" tenders can be considered using a limited set of simple and objective criteria.

The selection of winning bids can be done by exclusively considering the price of the bid ("price-only") or, alternatively, by adding other criteria to the price, usually devising a "point-system" to compare projects. Such "soft" or non-monetary qualification requirements were introduced by several countries which thus address other policy goals such as employment, community involvement or innovation as well. Such a tendering design is called "multi-criteria tender".[7]

From an economic standpoint, price-only tenders lead to a lowest-cost outcome since they incentivize bidders to demand less support. Also, a single-criterion mechanism allows for a fast and obvious selection of the winners. In such price-only tenders, qualitative criteria such as minimum product quality standards or local involvement requirements in a project, could be defined as part of the prequalification criteria for eligible bids.

Multi-criteria tenders allow for including other policy aspects in the selection process. While it enhances the complexity of the selection procedure, it does allow policy-makers to reward projects which for instance provide additional benefits in terms of environmental impact, innovation or other quality-related aspects.

Against this background, we recommend to define price as the key selection criteria in all auctions. If policy-makers want to include additional criteria, these criteria shall be of limited number, remain simple and easy to assess objectively and shall be directly linked to the project itself. Such a "limited-criteria tender" could therefore be considered as an alternative to price-only auctions.

Limited-criteria tenders can for example be justified in cases where the price-only winner selection process would likely impact the power system negatively or where innovative technologies should be fostered. For example, tendering processes could incorporate weighting criteria incentivizing east/west orientation to alleviate peak production problems. Regional integration criteria to avoid grid congestion might be another example. The combination of solar PV and storage could be used as a criterion in tendering procedures on islands as can the provision of ancillary services if there is no alternative market for obtaining remuneration for the provision of such services.

2.3 Price ceiling/floor

Intervening in the price formation process represents an additional entry barrier and distorts the "true" price.

If governments assume that closing prices do not reflect the true costs – i.e. the price level is too high or too low – they may set price ceilings or price floors. Beyond this pre-determined price level, no offer will be accepted. Price

[7] *Renewable Energy Policies and Auctions: Winner Selection Process (S.33)*, IRENA, 2015

floors may be justified if a monopolistic player is likely to win all capacity tendered. Price caps are introduced if the bids received clearly exceed the costs.
Yet, this paper clearly opposes the introduction of both price ceilings and price floors. As long as the degree of competition is sufficient, bidders are not incentivized to bid prices, which are totally disconnected from their true cost. Public intervention in the price level undermines the price formation process, especially since project developers know their business better than policy-makers. Moreover, price intervention may often lead to inefficient outcomes if it is set too low or too high. As soon as one project developer theoretically could underbid the price floor, societal cost turns out higher than necessary. Analogously, if the price ceiling is set too low, accepted projects have a high risk of non-realization since their bid level had to be lower than their true costs.

2.3 Clearing mechanism

Whatever the winner selection process, Member States should remain free to choose between pay-as-bid or pay-as-cleared.

The two widely used clearing mechanisms are "pay-as-bid" and "pay-as-cleared". The latter is also known as "uniform pricing" or "marginal pricing".

If the auction winners are payed according to the uniform pricing mechanism, their remuneration is equivalent to the most expensive offer accepted. In economic theory, this mechanism is very efficient since it incentivizes bidders to reveal their true cost. If they bid higher than their true cost, they run the risk of not being accepted. In pay-as-bid mechanisms the remuneration for accepted projects equals the level of the submitted bid. Therefore, participants may tend to bid higher than their true costs – ideally at the price of the most expensive offer accepted.

In a world of rational players, the results of these two clearing mechanisms would be the same. Yet, reality shows that underbidding strategies have occurred thus impeding project realization. It is difficult to prevent participants from underbidding. Pre-qualification requirements such as bid bonds can help to reduce this default probability, though.

Finally, it should be noted that the clearing mechanism chosen probably has a lower impact on the final outcome of the tender compared to the other parameters described in this paper. This is why no specific position is taken in this matter.

3

CHAPTER 3. 'AFTER THE TENDER': ENSURING PROJECT FULFILLMENT

After the tender, is before the next tender. It is key for market participants to learn about the results of previous tenders to inform their project calculations and prepare new projects for future tenders. Hence transparency and timeliness of result publication is an important consideration for the overall process. Also, all is nothing, if after "successful" tenders, the winning projects are not being built within a reasonable timeframe as policy objectives only get fulfilled by realized projects. The rules and timing for building and possibly trading project rights and the consequences of not delivering in time or at all are thus crucial considerations for the overall effectiveness of a tendering scheme.

3.1 Time to delivery / Penalties

Penalties for delayed projects shall consider the origin of the delay. The number of unrealized projects shall be reduced by a staggered liability approach.

The realization of a selected project shall be accomplished at a maximum of two years after the publication of the results. Delayed projects shall not be penalized if project developers can proof that the delay has been caused by external events hindering them from advancing in the project development. The term "external events" embraces events in the scope of *force majeure* such as public opposition or vandalism. In contrast, problems that the project developer encounters with service providers or distributors during the realization phase are self-inflicted. In such cases, the amount of the penalty shall consider the project developer's effort to make up for the delay.

In order to limit the number of unrealized projects, a staggered liability approach is suggested. That way, project developers need to secure a first guarantee at the pre-qualification phase and a second – more important one – once the project has been selected.

The level of penalties can also be adjusted over time in case the realization rates observed are too low.

3.3 Publication of the results

Relevant auction figures should be made public. Re-submitting of refused bids shall be made possible at very low cost.

The publication of the results should be realized in a timely manner. Furthermore, the characteristics of the winning projects need to be revealed to the public. Especially for pay-as-bid auctions, relevant key figures of the price distribution (minimum, maximum, median, average) shall be published.

A high degree of transparency supports public acceptance and helps project developers better calibrating their projects and business plans. Unsuccessful bidders are enabled to conduct an ex-post analysis of their bid provided that they get to know an overview on the sites that have been selected and a rough idea of the price distribution of successful projects. Additional knowledge about the winning projects may increase the likelihood of submitting a successful bid in the next tendering rounds, and thus increasing the overall efficiency of the result.

As long as the tendering scheme does not vary, project developers should be authorized to re-submit their bid as well as to adjust their price in the next tendering round. Furthermore, the institution running the auction has to make sure that these projects do not have to go through the pre-qualification phase a second time. Analogously, registering fees shall only be paid once.

3.3 Transferability/ Tradability of successful bids

Awarded bids should be transferable, to allow a secondary market for awarded projects and thus increase the flexibility for project developers.

Successful bids constitute a right to a certain level of remuneration, which a winner should be able to transfer. For large scale projects with significant pre-qualification criteria the right may stay with the specific project company (usually referred to as SPV, "special purpose vehicle). This SPV can then be sold onward to players fulfilling possible pre-qualification criteria. However, this implies that an SPV has already been founded, which usually assumes a mature level of project development stage.

For smaller projects, if included in an action scheme at all (compare section 1.3) the right to feed in at a certain rate should be transferable among projects. This would allow private or small commercial investors in a PV system to overcome the investment barrier associated with participation in an auction for only a comparatively small and one-time investment. In this case, transferability of won bids would enable aggregators such as installers or system providers to procure a portfolio of won bids, which they can then sell together with the system to small investors. Of course, such a scheme also opens various questions around speculative bidding and control of bid results, which is why we prefer to stick to the 1 MW threshold for participation in auctions, thus avoiding a "mass market" for tradeable bids.

4

CHAPTER 4. OUTLOOK FOR A EUROPEAN ROADMAP ON TENDERS

Similar design characteristics of national tenders are a pre-requisite for a stepwise cross-border convergence. The revised Renewable Energy Directive could foster such convergence by reflecting the design parameters described in this paper. In addition, planning and reporting obligations of Member States should provide visibility on the capacities tendered as well as on the realization rates achieved.

Project developers shall be given the opportunity to reduce their development and transaction costs for tender participation. Yet, as of today, European tendering schemes heavily vary in all three tender stages described in the previous chapters and render multiple participations costly. In theory, one single European-wide tender would ensure uniformity in the treatment of bidders and promote the most attractive projects on a European scale. Yet, this is an unrealistic option in the short to medium-term because, at this stage, compatibility with national energy policy, system integration requirements and public acceptance call for a direct control by the Member States. Such a uniform "cross border tender" is at the very end of the European tendering convergence progress (phase 3). Given the current situation of very heterogeneous tendering schemes, Member States should make first harmonization efforts (phase 1) before opening their tenders to projects outside of the national boarders (phase 2). All three stages are depicted in the figure below.

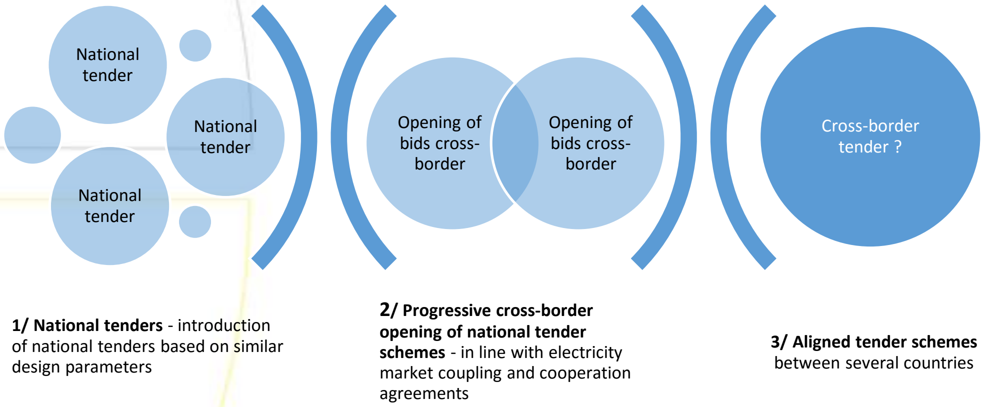
Getting to the first phase of having (similar) national tenders would translate into a larger number of participants. Such a common ground is crucial for preparing a long-run convergence of cross-border or even EU-wide tenders and should thus be introduced in the upcoming Renewable Energy Directive.

The alignment of the design parameters which have been touched upon in the previous chapters should be at the core of harmonization efforts, in particular:

- Similar process designs (before, during, after the tender);
- Comparable participation requirements;
- Streamlined and harmonized administrative procedures and tax regimes;
- A stepwise opening to cross-border bidding (phase 2) which goes hand in hand with a fully interconnected electricity system and coupled electricity markets

In addition, project developers and investors shall be offered medium- and long-term visibility. The planning and reporting obligations of Member States between 2020 and 2030 should therefore include a multi-year, technology-specific roadmap for the auctioned renewable capacities. This planning dimension should be supported by a proper reporting process of the capacities which have been really connected to the grid following the selection of bids. These planning and reporting obligations should be enshrined in the upcoming revised Renewable Energy Directive.

Figure 2 - Illustration of progressive convergence of tenders' design parameters



This paper essentially provides guidance on how to prepare the first phase of convergence (similar design parameters of national tenders). However, as illustrated above, the progressive alignment of tendering schemes across Europe will require additional steps: a real market coupling and a fully interconnected electricity grid will be needed before a second phase of convergence can be envisaged.

ANNEX: DESIGN PARAMETERS OF SOLAR TENDERS ACROSS THE WORLD

	Auction design	Volumes (MW)	Pre-qualification	Conditions after awarding contract	Connected installations as of Q2 2016 (estimate)
Germany	Pay-as-bid/pay-as-cleared Biddings are arranged from lowest to highest. The lowest bid obtains the remuneration. Contracts will be awarded until the capacity limit is achieved or there are no further bids.	• 2015: 500 MW • 2016: 400 MW • 2017: 300 MW (Volumes currently under review in 2016 revision of renewable energy law)	Projects between 100 kW & 10 MW. Valid approval, disclosure or a decided B-plan. First securement of 4 €/kW could be reduced to 2€/kW after certain state of development.	Participants with a contract must leave a security of 50€/kW (reduction possible). Applications for retroactive grants can be submitted after the deposit of the security. This allows the participant to sell electricity at the respective bidding price.	36 MW
France	Simplified tenders for systems beetween 100 and 250 kW on buildings Contracts will be awarded until the capacity limit is achieved. Price and carbon foorprint are the two main selection criteria.	• 2011:300 MW • 2013: 120 MW • 2015:240 MW The March 2015 tender was made up of three application periods: • May – September 2015 • September 2015 – March 2016 • March 2016 – July 2016.	Guarantee of 10 K per project.	50% of the guarantee is released once the works starts. FIT for 20 years	360 MW
	Tenders for large rooftops and ground-mounted instlallations above 250 kW Contracts will be awarded until the	• 2011: 520 MW • 2013:400 MW • 2014:400 MW (enveloppe increased to 800 MW in 2015)	Guarantee of 30 K for projects below 1 MW. Gurantee of 50 K per MWc for projects above 1 MW.	50% of the guarantee is released once the works starts FIT for 20 years	

	capacity limit is achieved. Price account for 50% of the weigthing in the selection process. Others selection criteria for teh remaining 50% are slpit among: • Environmental impact (integration into the envirvonement; site valorisation, simplified carbon footprint) • Innovation				
	PV systems for self-consumption	Trial tenders should be launched before the end of 2016			
The Netherlands	Technology neutral scheme with gradually increasing remuneration (EURct/kWh) per phase but with fixed annual budgets. Scheme running until 20203	• 2014: annual budget of 3.5 bn EUR for all RES technologies • 2015: idem • 2016: 8 bn EUR allocated	Only PV above 15 kWp are eligible	Contract for 15 years	NA
Mexico	Pay-as-bid with a nodal price adjustment	March 2016: 1718 MW		Contract for 15 years	None
Peru	Pay-as-bid mechanism	2016: 184.5 MW in the 4th round of auctions			None
UAE	Pay-as-bid mechanism	2014: 200 MW 2016: 800 MW			None
South Africa	Pay-as-bid with a ceiling price 2 stages selection process: • Stage 1: bidders have to meet minimum criteria related to legal, financial, technical and	2011 and 2012: 1048 MW		PPA for 20 years	NA

	environmental requirements. • Stage 2: price 70%, economic development including local content 30%				
Brazil	Hybrid system: • Stage1: descending-block mechanism • Stage 2: sealed-bid auction (pay-as-bid)	2014: 890 MW 2015: pending		PPA for 20 years	NA

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