

Policy Memo 2, October 2016

# Pre-qualifications and penalties



HORIZON 2020

## Short about the project

### **Auctions for Renewable Energy Support: Effective use and efficient implementation options (AURES)**

This project helps assessing the applicability of different auction types to renewable support under different market conditions. It also explores which auction types and design specifications suit particular requirements and policy goals in European countries. By establishing best practices and a knowledge sharing network, we contribute to informed policy decision-making and to the success of auction implementations across Europe.

**Target-oriented analysis:** Through analysis of empirical experiences, experiments and simulation, we will create a flexible policy support tool that supports policy makers in deciding on the applicability of auction types and certain design specifications for their specific situation.

**Capacity building activities:** We undertake specific implementation cases to derive best practices and trigger knowledge sharing amongst Member States. We strive to create a strong network with workshops, webinars, bilateral meetings, newsletters, a website that will serve as capacity building platform for both policy makers and market participants (including project developers, auctioneers, etc.). Wherever required, we can set up specific bilateral and multilateral meetings on specific auction issues and facilitate cooperation and knowledge sharing. Additionally, we offer sparring on specific implementation options, drawing from insights gained during the first phases of the project (empirical analysis of previous auctions in Europe and the world), conceptual and theoretical analysis on the applicability of specific designs in certain market conditions and for certain policy goals issues and facilitate cooperation and knowledge sharing. Additionally, we offer sparring on specific implementation options, drawing from insights gained during the first phases of the project (empirical analysis of previous auctions in Europe and the world), conceptual and theoretical analysis on the applicability of specific designs in certain market conditions and for certain policy goals.

**Project consortium:** eight renowned public institutions and private firms from five European countries and combines some of the leading energy policy experts in Europe, with an impressive track record of successful research and coordination projects.

This report deals with the use and design of pre-qualifications and penalties in auctions. It is one in a series of four Policy Memos published by the AURES project:

Policy Memo 1: Secondary objectives in auctions

Policy Memo 2: Pre-qualifications and penalties

Policy Memo 3: The effect of award types on auction outcomes

Policy Memo 4: The effect of competition levels on auction outcomes

Policy Memo, October 2016

Pre-qualification and penalties

Authors: Emilie Rosenlund Soysal (DTU)

With contributions from: Jaana Kurgpõld (DTU)



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# 1. Overview – introducing pre-qualification criteria and penalties in auctions

Pre-qualification criteria and penalties are two auction design elements that can have significant influence on the auction as a whole. In auctions for renewable energy support, the two measures can be used to ensure high effectiveness, i.e. a high project realisation rate, however, they may affect the resulting support levels as well. Pre-qualification and penalties may also be used to achieve secondary goals. The following list presents the different objectives that can be addressed by pre-qualification and penalties:

- High effectiveness:
  - o Ensure seriousness of bid
  - o Prevent strategic bidding
  - o Prevent delay
  - o Prevent non-compliance
- Secondary goals:
  - o Promote certain project characteristics
  - o Development of industry
  - o Secure local support
  - o Secure good relations

Section 2 of this report provides an introduction to the policy goals. Section 3 follows with a description of the variety of design measures regarding pre-qualification criteria and penalties, together with the possible impact on auction outcome and some examples from past implementations in auctions. Table 1 below provides the link between policy objectives and design measures to be considered.

*Table 1 – Possible objectives and list of measures (pre-qualification criteria and penalties), that can be used to reach them.*

Objective	Measure
<b>Secure seriousness of bid</b>	Pre-qualification criteria related to: <ul style="list-style-type: none"> <li>- Project development stage</li> <li>- Developer experience</li> <li>- Developer financial competence</li> </ul> Penalties <ul style="list-style-type: none"> <li>- Non-compliance and delay</li> <li>- Production related penalties</li> </ul>
<b>Prevent strategic bidding</b>	Penalties for non-completion
<b>Prevent delay</b>	Pre-qualification criteria related to: <ul style="list-style-type: none"> <li>- Project development stage</li> <li>- Developer experience</li> </ul> Penalties for delay <ul style="list-style-type: none"> <li>- Reduction of support period</li> </ul>

	<ul style="list-style-type: none"> <li>- Reduction of support level</li> <li>- Fixed penalties</li> </ul>
<b>Prevent non-compliance</b>	<p>Pre-qualification criteria related to:</p> <ul style="list-style-type: none"> <li>- Project development stage</li> <li>- Developer experience</li> <li>- Developer financial competence</li> </ul> <p>Penalties for non-compliance</p> <ul style="list-style-type: none"> <li>- Fixed penalties</li> <li>- Exclusion from future auctions</li> <li>- Production related penalties</li> </ul>
<b>Promote certain project characteristics</b>	<p>Pre-qualification criteria related to:</p> <ul style="list-style-type: none"> <li>- Technical specifications</li> <li>- Geographical specifications</li> <li>- Environmental impact</li> </ul>
<b>Development of industry</b>	<p>Pre-qualification criteria related to:</p> <ul style="list-style-type: none"> <li>- Technical specifications</li> <li>- Job and cluster creation</li> </ul>
<b>Secure local support</b>	<p>Pre-qualification criteria related to:</p> <ul style="list-style-type: none"> <li>- Local involvement</li> <li>- Job and cluster creation</li> </ul>
<b>Secure good relations</b>	<p>Pre-qualification criteria related to:</p> <ul style="list-style-type: none"> <li>- Developer's history of good conduct</li> </ul> <p>Penalty:</p> <ul style="list-style-type: none"> <li>- Exclusion from future auctions</li> </ul>

## 2. Description of policy goals

In this section the policy goals which can be affected by pre-qualification criteria and penalties are briefly described.

### High effectiveness

#### Ensure seriousness of bid

Serious bids are those which make completion of the project possible and economically sensible. A serious bidder has a true intention of actually completing the project (or in case of tradable contracts, having someone to complete the projects). Therefore, the seriousness of bids is very important for the project realisation rate. For bidders to make a serious bid, they need a sound understanding of the project cost and execution. Pre-

qualification criteria can ensure that bidders collect sufficient information about the project. Furthermore, penalties can help to reduce the number of unserious bidders and bids.

## Prevent strategic bidding

Policy makers would like the bids to reflect the expected cost of the project. This is because higher bids would lead to higher support cost, while lower bids potentially could result in non-realisation of the winning projects. Strategic bidding, where project developers place bids that do not correspond to expected costs, should be avoided. Penalties for non-completion are one way of reducing strategic underbidding. The penalties increase the incentives for avoiding the situation of non-completion and therefore push the bidders towards higher cost-reflecting bids.

## Prevent delay

Delays in the realisation of the winning projects could potentially result in policy targets not being reached on time. Furthermore, delays can cause problems for the energy supply planning, for instance if the new installation were expected to cover an increasing demand, delays may result in reduced security of supply until completed.

One method for preventing delay is to increase the incentives for on-time completion by imposing delay penalties. It is important that the delay penalty creates motivation for finishing the project rather than pushing the developer towards non-completion. Another method to prevent delays is to require developers to have addressed possible causes for delay before qualifying for auction participation, for instance by having obtained relevant permits. Developer experience may also reduce the risk of delays.

## Prevent non-compliance

Non-compliance including non-completion of projects can cause problems similar to those of delays and should therefore be minimised. A developer may be reluctant to complete a project if it proves unprofitable, either because of changing price or cost estimates or if the winning bid was given too low in the first place. Pre-qualification criteria related to the project development stage or the developer's experience may reduce project cost uncertainties, which would result in bids with higher quality and more certain assumptions.

Furthermore, too low bid prices can potentially be prevented by a non-completion penalty. Also, penalties change the economic consideration of developers: if small changes in costs or prices would render the project slightly unprofitable, leading to a lower loss than the penalty level, then there is still an economic rationale in developing the project in order to minimise loss. However, in case of developer bankruptcy penalties will not be effective, lowering the incentive effect. This issue can be addressed with additional pre-qualification criteria related to the developer's financial competence.

## Secondary objectives

Please notice that a detailed discussion of secondary objectives can be found in Policy memo 1 on *Secondary objectives in auctions* (Steinhilber 2016b).

## Promote certain project characteristics

Renewable energy deployment targets or other national policies may prescribe certain characteristics of the projects, for instance with regard to technology or geographical distribution. Pre-qualification criteria can include these aspects by only allowing projects with the specific characteristics to participate in the auction.

## Development of industry

Alongside the goal of reaching RES deployment targets, the auctioned renewable energy support can be used to economically support the related industries. Secondary goals like sector or cluster development can be incorporated in pre-qualification criteria by for instance limiting the technology to that of the supported sector, or alternatively by including criteria related to job creation.

## Secure local support

Public acceptance is crucial for the success of a renewable energy policy, and policy makers would therefore like to address local support aspects in the policy design. This could be realised using pre-qualification criteria such as financial participation of local communities.

## Secure good relations

Besides promoting compliance with the conditions stated in the support contract, it is important to the contracting authority and the state offering renewable energy support, that the supported companies adhere to general legislation regarding financial management and social contributions, and to avoid that the public finances are used for bribery, fraud or similar. To mitigate the risk of such irregularities, pre-qualification requirements can emphasise good relations between state authorities and the bidder, for instance by referring to the bidder's historical tax payments, or by penalising deviating conduct through exclusion from the auction.

# 3. Assessment of measures

## Pre-qualification criteria

Requirements on the RES projects or project developers which must be fulfilled in order to qualify for participation in the auction are known as pre-qualification criteria. The impact on the auction outcome depends on how the criteria are designed. If the criteria are imposed as *restrictions*, the potential auction participants are reduced to only certain classes of bidders. In this case, the criteria do not cause any auction specific costs for the participating bidders; however, fewer auction participants may reduce competition, potentially resulting in higher support levels. Another type of pre-qualification rules is those occurring at a cost for the bidder. These are usually project specific and are often referred to as the *physical* or *material pre-qualification*. The cost occurring during this pre-qualification will be lost at least in case the bidder is not successful in the auction, thus winning becomes even more important to the bidder. Therefore, costly pre-



qualification may lead to more aggressive bidding behaviour, i.e. lower bids. The tendency is particularly prevalent when auctions are not to be repeated or no clear auction schedule exists. The third type of pre-qualification is *financial pre-qualification*, which requires bidders to present a financial guarantee. The financial pre-qualification is usually linked to penalties, as the guarantees can be retained in case the bidder does not live up to its contractual liabilities.

The documentation requirements related to each policy aspect should be coordinated with other documentation requirements in order to reduce unnecessary workload of the bidder. If, for instance, a building permission is required, and an environmental impact assessment (EIA) was needed in order to obtain it, then there is no need for an additional requirement of presenting the EIA separately during the pre-qualification.

In the tables below, possible aspects to be considered in the design of the pre-qualification criteria are presented. The design options are divided into those criteria related to the project itself and those related to the project developer.

### Project related pre-qualification criteria

<b>Technical specifications</b>	
<b>Description of the measure</b>	The technical requirements of the project define the technology focus of the auction scheme. Besides the generation technology, these pre-qualification criteria usually include a capacity range and plant efficiency requirements, but they may also prescribe any other technical aspect that is to be promoted by the auction scheme, for instance grid connection type, certain ramping rates, specific materials to be used, and so on. In order to pre-qualify, project developers will need to document that the project fulfils the requirements.
<b>Effects on auction outcome</b>	The technology focus and allowed capacity are core elements of the auction design and they naturally restrict the actors that can participate in the auction. If a scheme including mature technologies is chosen, a lower support level is expected than if only new, innovative technologies qualify for participation. Restrictive technical requirements may furthermore impede competition and lead to a higher support level.
<b>Examples</b>	GERMANY: The auction scheme for PV plants in Germany requires the installation to be ground-mounted and have a capacity between 100 kW and 10 MW. For more information on the German scheme please see Tiedemann (2015). CROATIA: (suggested) Biomass fired Combined Heat and Power technology needs to have an overall efficiency greater than 50% in order to participate in the auction. For more information regarding the proposed Croatian scheme see Rosenlund Soysal and Kitzing (2016).

<b>Geographical specification</b>	
<b>Description of the measure</b>	<p>Geographical specifications as a pre-qualification criteria impose restrictions on the physical location of the winning project. The location can be restricted to land with certain characteristics or to specific regions, which the auctioneer has pre-defined as feasible. A geographical pre-qualification criterion is only relevant for multiple-item auctions. In the case of single-item auctions, the site is pre-selected by the auctioneer.</p> <p>More information regarding geographical specifications can be found in Policy Memo 1 on <i>Secondary Objectives in Auctions</i> (Steinhilber 2016b).</p>
<b>Effects on auction outcome</b>	<p>Restrictions regarding location may lead to higher generation costs due to resource availability or land tenure prices, resulting in increased support levels.</p>
<b>Examples</b>	<p>GERMANY: The German auction scheme for ground-mounted solar PV only allows bids for projects on specified types of locations. The intention behind the restriction is to avoid using land with a high agricultural value for PV plants. For more information please see Tiedemann (2015).</p>

<b>Job and clusters creation</b>	
<b>Description of the measure</b>	<p>Pre-qualification criteria regarding job and cluster creation can be a good way of promoting industry development.</p> <p>When designing the job and cluster creation criteria, it should be kept in mind that the criteria cannot contain preferential treatment to local companies for instance by preventing companies belonging to industries abroad from participating in the auction. More information regarding local content can be found in Policy Memo 1 on <i>Secondary Objectives in Auctions</i> (Steinhilber 2016b).</p>
<b>Effects on auction outcome</b>	<p>An important consideration is how the job and cluster creation is included in the auction. For instance it may be sufficient to provide an assessment proving that these issues have been considered. Alternatively a minimum requirement can be imposed. It is also possible that the job and cluster aspects are included as a non-price criterion in the selection of the winning bid, and in this case documentation shall be provided during the pre-qualification.</p> <p>If the requirements for qualifying are high, resulting in significant additional cost for the project developer, the auction is expected to give a higher support level than if no requirements were imposed.</p>

<b>Examples</b>	<p>DENMARK: In the third auction for offshore wind at Horns Rev (HR3) in Denmark a social clause on apprenticeships was included in the pre-qualification criteria. The clause ensured that a certain (individual) number of trainees are used in the construction of the wind farm. For more information about the Danish auctions, please see Kitzing and Wendring (2015).</p> <p>UK: In the UK auction scheme, bidding projects with installed capacity greater than 300 MW, needs to present a ‘supply chain plan’ in order to pre-qualify. The plan needs to contain details on how the project will promote competition, innovation and skills in the supply chain, and it must be submitted and approved. For more information on the auctions in UK, please see Fitch-Roy and Woodman (2016).</p>
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<b>Environmental impact</b>	
<b>Description of the measure</b>	<p>Environmental aspects can be addressed in the pre-qualification criteria by requiring for instance environmental impact assessment, product life cycle assessments or certification. Furthermore, a minimum requirement related to impact can be imposed. Alternatively, the environmental impact can be included as a non-price criterion when choosing the winning project. In both cases relevant documentation needs to be defined by the policy maker and presented by project developers in order to pre-qualify for participating in the auction.</p> <p>The environmental impact of the installation may affect the ability to obtain construction permits. If no construction permit needs to be presented during pre-qualification, it would be appropriate to require documentation that the project lives up to the environmental requirements needed for obtaining the construction permit. In this way the risk of non-completion due to lack of construction permit can be mitigated.</p>
<b>Effects on auction outcome</b>	<p>Strict environmental requirements may increase project cost, reduce the number of participating bidders, and potentially increase support levels. However, the cost of obtaining required assessments will appear as sunk cost in case the bidder does not win the auction, thus high costs of fulfilling the requirements may lead bidders to bid more aggressively in order to increase chances of winning.</p>
<b>Examples</b>	<p>FRANCE: In order to participate in the roof-mounted PV auction in France a <i>life cycle CO<sub>2</sub> assessment</i> for the installation had to be presented. The result of the assessment was then used as a non-price criterion in the selection of the auction winner. The CO<sub>2</sub> assessment was allegedly</p>

	<p>difficult to obtain and as a result many potential bidders chose not to participate in the auction. Furthermore, many bidders were disqualified because of errors in the assessment. In addition, bidders needed to present ISO 9001 and ISO 14001 certification (or equivalent) for the PV module and inverter manufacturers. The two standards deal with quality control and environmental management, respectively. For more information on the French PV auction scheme see Förster (2016).</p>
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<b>Local involvement</b>	
<b>Description of the measure</b>	<p>In order to increase local acceptance and support from communities wishing to engage in the development towards a greener energy sector, local involvement can be promoted through pre-qualification criteria. One way of including such criteria in the pre-qualification is to apply reduced requirements for certain bidders, for instance cooperatives. Alternatively, requirements on minimum amount of local ownership can be imposed. Strict requirements particularly regarding the financial capabilities or experience of the companies wishing to engage in the auction, can lead to exclusion of certain bidders, including local initiatives. To avoid this, reduced requirements can be considered for this group of bidders. More information regarding actor diversity can be found in Policy Memo 1 on <i>Secondary Objectives in Auctions</i> (Steinhilber 2016b).</p>
<b>Effects on auction outcome</b>	<p>Local opposition to new installations can result in delays or in the worst case to non-completion of projects. On the other hand, local involvement may secure a smooth project execution process and thereby increase the project realisation rate, even if pre-qualification criteria are more lenient than for other bidders. It can furthermore be argued that unlike private corporations, local communities do not engage in green energy for the profit, and they are therefore likely to expect a lower return on investment. This could result in lower support levels when citizens are involved, however, also in an inefficient outcome, as it may not be the projects with lowest cost that win the auction.</p>
<b>Examples</b>	<p>GERMANY: In Germany, reduced pre-qualification criteria in the onshore wind auctions are discussed for citizen cooperatives.</p>

<b>Project development stage</b>
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<p><b>Description of the measure</b></p>	<p>Pre-qualification regarding the project development stage are intended to secure that all bidders are serious and have a sound understanding of their project. Moreover the requirements can help prevent occurrences of unforeseen obstacles, which results in delays or non-realisation of the project.</p> <p>The required documentation is typically a detailed project description, grid access, land tenure, environmental permits and construction permits. For simple installations fewer requirements are also possible.</p>
<p><b>Effects on auction outcome</b></p>	<p>The project development stage is very important for the auction outcome. While high requirements generally improve realisation rates, they may lead to higher support costs because of lower uncertainties regarding project development cost. Low uncertainty prevents auction participants from bidding according to over-optimistic cost estimates.</p> <p>High pre-development requirements create sunk costs for the bidders, as they will not be able to recover the expenses for permits etc. if they are not awarded in the auction. If competition is strong, bidders will not price these sunk costs into their bids. In the long run, this will be problematic, especially for small bidders with small project portfolios. This problem will be particularly pronounced if there will be no new auction round before obtained permits expire.</p>
<p><b>Examples</b></p>	<p>IRELAND: The Irish AER III scheme suffered from high non-realisation rates. While part of the winning bidders had difficulty obtaining planning permission and were thus not realised, there were at the same time significant potential wind park capacities holding planning permission but not an AER contract. In order to address this problem the following auction round required all bidding projects to have secured planning permission. Later auction rounds also required bidders to hand in an indicative cash flow statement showing that the proposed project could at least break even. For more information on the Irish scheme see Steinhilber (2016a).</p> <p>NETHERLANDS: In the Dutch auction SDE+ scheme project developers are required to present a written permission of the owner of the location/land, a (technical) description of the installation, and a feasibility study in order to qualify for participating in the auction. Furthermore, an environmental permit, and for geothermal projects also an exploration permit and completed geological survey, is needed. For more information on the Dutch scheme please see Noothout and Winkel (2016).</p> <p>ITALY: In the Italian auction scheme bidders need to have a building permission or concession as well as a connection offer from the grid operator formally accepted by the plant owner. For more information please see Tiedemann, Förster, and Wigand (2016).</p>

## Project developer related pre-qualification criteria

<b>Developer's experience</b>	
<b>Description of the measure</b>	Requiring documented experience with similar projects may be a way to reduce risk of delay and non-completion. It is a typical pre-qualification requirement, in particular in auctions for large and complex projects. Developer experience can be expressed in terms of current installed or developed capacity, or educational level and tenure of the personnel.
<b>Effects on auction outcome</b>	Strict requirements related to the past experience of the developer specifically keep small actors and new market entrants from participating in the auction. This may reduce competition significantly and influence the bid level, in particular in countries with only few and large actors. If applying such criteria, a strategy for reaching international players could potentially be considered in order to keep competition at a reasonable level.
<b>Examples</b>	<p>DENMARK: In the Danish offshore auction for Horns Rev 3, bidders needed to present one reference of operation and maintenance of an offshore wind farm with an installed capacity of minimum 25 MW. Furthermore, reference of development and management of construction of offshore wind farms for at least one wind farm with a minimum size of 100MW was a requirement for qualifying for auction participation. As a result mainly large, experienced energy companies were taking part in the auction. For more information regarding the Danish offshore scheme please see Kitzing and Wendring (2015).</p> <p>PORTUGAL: In Portugal proof of technical capability was required for participating in the auction for RES support. Technical capability was presumed if the bidder had at least 30MW of installed capacity under exploitation, when the bid submission was made. For more information please see del Río (2016a).</p>

<b>Developer's financial competence</b>	
<b>Description of the measure</b>	A requirement regarding the financial robustness of the bidding company can be used to mitigate the risk of the winning bidder failing to find the necessary funding or even filing for bankruptcy before the project is realised. The criterion can be designed as a restriction, for instance by allowing only companies with a minimum credit rating or annual turnover to participate in the auction. Additionally, bid-bonds used as a financial

	<p>guarantee to be provided when entering the auction are typically required. Bid bonds are often connected to the penalty level, and can be retained by the auctioneer in case of project delay or non-completion. Instead of requiring a bid bond of the full amount in the beginning, a two-step approach can be taken: A first bid bond can be paid upon entering the auction. In case the bidder wins the auction but then withdraws from signing a support agreement with the contracting party, the first bid bond is retained. A second bid bond can be paid by winning bidders upon signing the construction and support agreement with the contracting authority, and can be enforced in case the bidder fails to complete the project within a certain pre-specified time frame.</p> <p>Finally, a proof of funding in terms of loan commitments can also be used as a pre-qualifying criterion ensuring efficient means of the bidder to complete the project.</p> <p>Financial pre-qualifications are often combined with material pre-qualifications related to the project development stage. When the auctioneer sets high material pre-qualification requirements, financial qualification requirements can be set lower, and vice versa.</p>																								
<p><b>Effects on auction outcome</b></p>	<p>Strict requirements regarding rating and turnover can reduce the number of especially small project developers in the auction. In this way competition may be reduced resulting in higher support levels. If significant amounts of capital need to be deposited upon signing of the support contract the support level is likewise expected to increase, as the support also has to cover the opportunity cost of the deposited capital, alternatively the cost of bank guarantees. It may be beneficial to consider the timing of the deposition of the financial guarantees – if the bidder has some time for negotiating with the banks, the cost of financing are likely to be reduced. Furthermore, bid bonds which can be retained in case of non-compliance increase the risk of the bidders, potentially leading to higher bid-prices. Penalties are, however, expected to increase project realisation rates.</p>																								
<p><b>Examples</b></p>	<p>Examples for bid bond sizes applied in different auction schemes:</p> <table border="1" data-bbox="539 1630 1425 2004"> <thead> <tr> <th>Country</th> <th>Technology focus</th> <th>First bid bond</th> <th>Second bid bond</th> </tr> </thead> <tbody> <tr> <td>Portugal</td> <td>Wind and biomass</td> <td>€10 per kW</td> <td>€25 per kW</td> </tr> <tr> <td>Germany</td> <td>Solar PV</td> <td>€4 per kW</td> <td>€50 per kW</td> </tr> <tr> <td>Spain</td> <td>Onshore wind and biomass</td> <td>-</td> <td>€20 per kW</td> </tr> <tr> <td>Italy</td> <td>Multi</td> <td>5% of estimated investment costs</td> <td>10% of estimated investment cost</td> </tr> <tr> <td>Croatia</td> <td>Multi</td> <td>HRK 50 per kW (approx. €6.5)</td> <td>HRK 300 per kW (approx. €40)</td> </tr> </tbody> </table>	Country	Technology focus	First bid bond	Second bid bond	Portugal	Wind and biomass	€10 per kW	€25 per kW	Germany	Solar PV	€4 per kW	€50 per kW	Spain	Onshore wind and biomass	-	€20 per kW	Italy	Multi	5% of estimated investment costs	10% of estimated investment cost	Croatia	Multi	HRK 50 per kW (approx. €6.5)	HRK 300 per kW (approx. €40)
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	<p>DENMARK: In the offshore wind power auction Horns Rev 3 in Denmark a letter of intent was required from a financial institution of a demand guarantee of DKK 100 million. Moreover, the project developer needed to have a minimum annual average turnover of DKK 15 billion (€2 billion) over the last 3 years. Finally the bidders were required to have an equity ratio of 20% or above, alternatively have a long term debt rating of BBB or above (Standard and Poor's and Fitch) or Baa3 or above (Moody's). For more information on the Danish auction scheme please see Kitizing and Wendring (2015).</p>
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<p><b>Developer's history of good conduct</b></p>	
<p><b>Description of the measure</b></p>	<p>Pre-qualification related to good conduct of the developer may include many different aspects. For instance, the auctioneer may require that the bidder has no (or limited) tax debt or that the project managers have a clean criminal record.</p> <p>Another way of promoting good conduct is to require certain management certification.</p>
<p><b>Effects on auction outcome</b></p>	<p>Requirements regarding the history of good conduct may work as a restriction for auction participation, reduce the number of participants and, potentially lead to increased support costs. If, however, the requirements can be fulfilled at a cost for the bidder, it would add to the pre-qualification costs, hence increase the sunk cost in case the bidder loses the auction. To increase chances of winning the bidders may bid more aggressively.</p>
<p><b>Examples</b></p>	<p>DENMARK: In the Danish offshore auction scheme potential bidders were disqualified if their public debt was more than DKK 100,000. For more information on the auction scheme in Denmark, please see Kitizing and Wendring (2015).</p> <p>CROATIA (proposed): In order to participate in the proposed Croatian scheme a bidder must document that they have paid all required taxes, health insurances and pensions for employees, as well as produce a certified statement, ensuring that the person responsible for the bid has not been convicted of bribery, fraud or similar crimes. For more information please see Rosenlund Soysal and Kitizing (2016).</p>



## Penalties

*Penalties* can be imposed on the project developer in case the project is delayed or fails to comply with the requirements stated in the support contract, including non-realisation of projects. The penalties are often linked to *financial pre-qualification*, where financial guarantees are presented upon entering the auction.

The distinction between delay and non-realisation should be defined in the auction material. While non-realisation of a project generally leads to the cancellation of contracts and payment of fixed penalty (often by retaining of the bid bonds), there are more penalty design options for delay penalties, for instance reduced support level or period. The fairness of the penalty can be considered in the design - for instance, a policy maker may want to apply special rules in case the delay is neither caused nor influenced by the project holder. Finally, it is important to design delay penalties in a way that they promote completion of the project and do not introduce greater risk of non-realisation of the projects.

<b>Fixed penalties (one-off payments)</b>	
<b>Description of the measure</b>	Fixed penalties can be enforced in case of delays or non-completion of the contracted project. In order to secure the payment of the penalty, a security usually has to be provided by the bidder, either in terms of bank guarantees or cash in a designated bank account. If security is provided it is usually referred to as <i>financial pre-qualification</i> . In case of multi-item auctions, it is common to set the fixed penalties as an amount per kW capacity offered in the bid, while the fixed penalties in single item auction can be set regardless of project capacity.
<b>Effects on auction outcome</b>	Fixed penalties can improve realisation rates, however, they increase the risk of the bidders. Non-compliance penalties without guarantees affect small and large players differently – on the one hand, it can be argued that in case the penalty exceeds the company’s assets, the company may declare bankruptcy and in this way fully or partly avoid paying the penalties. In this way the penalty size affect small companies (e.g. single-project companies created by larger companies as a part of their risk strategy) less than large companies, who do not have this default option. As a result small companies may bid more aggressively than large ones, potentially leading to an inefficient auction outcome. On the other hand, the credit risk of small bidders increases with the penalty level, leading to increased cost of financing the project, higher project cost and therefore potentially higher bids.  In case financial guarantees (bid-bonds) have to be provided, the additional cost of guarantees may result in higher project cost and therefore higher support levels.

	<p>Too large penalties may reduce interest in participating in the auction and thereby reduce competition. Furthermore, if a delay penalty is to be paid before the completion of the project, it may be a burden in the liquidity budget and increase the risk of non-realisation and default. Furthermore, too low a penalty level may lead to a more aggressive bidding behaviour and in the worst case to underbidding, leading to non-completion of projects.</p>
<b>Examples</b>	<p>SPAIN: In the Spanish auctions, in case of non-compliance by the agreed date (48 months after being awarded), the contracting authority would enforce the bank guarantees of 20€/kW. For more information on the Spanish auction scheme please see Río (2016b).</p> <p>DENMARK: In the Danish offshore wind auction of Anholt a fixed penalty was charged in case of delayed grid connection of the <i>last</i> turbine. The penalty was between DKK 100 and 400 million (€ 13.4 and 53.7 million) depending on the timing of the delay announcement. Combined with a reduction in support level in case of delayed grid connection of the <i>first</i> turbine, the penalty has been considered the main reason for poor auction participation (auctioneers received only one bid). For more information on the Danish offshore auctions please see Kitzing and Wendring (2015). For examples of bid bond levels please see the section on Pre-qualification criteria, Developer's financial competence, page 10.</p>

<b>Reduction of support level</b>	
<b>Description of the measure</b>	<p>When a project is delayed, an alternative to fixed penalties can be a reduction of support level. In this way the penalty payment is postponed until the installation starts generating revenue, and it is furthermore spread out throughout a longer period of time.</p>
<b>Effects on auction outcome</b>	<p>With a reduction of support level the negative impact of a fixed penalty on the company's liquidity can be avoided. The postponement of the penalty payment is therefore less likely to result in default and non-completion of projects; however, like fixed penalties, the reduction of support level is likely to increase bid levels.</p> <p>Setting the support level reduction appropriately can be challenging. On the one hand, a too high support reduction in case of delay can render the project unprofitable, and the bidder may choose non-completion instead of realising the project with delay. On the other hand, a too low reduction will have no effect.</p>

<b>Examples</b>	<p>ITALY: In the Italian multi-technology auction schemes the awarded FIT or alternatively FIP are reduced by 0.5% for each month of delay. After a tolerance of 12-24 months, the FIT and FIP contracts are withdrawn. For more information on the Italian auction schemes please see Tiedemann et al. (2016).</p> <p>GERMANY: If projects winning the German auction scheme for ground-mounted solar PV are not commissioned within a period of 18 month, the FIT decreases by €0.3 cent / kWh. More information regarding the German auction scheme can be found in Tiedemann (2015).</p>
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<b>Reduction of support period</b>	
<b>Description of the measure</b>	<p>An alternative to fixed penalties or reduction in support level is the reduction in support period. Like fixed penalties and reduction of support level, support period reduction creates incentive for completing the project on time, however, the penalty payment is postponed even further than in the case of support reduction. The support period reduction can be defined for instance relative to the delay period, or by setting a fixed date for discontinuation of support payments, implying that late completion will lead to an overall shorter support period.</p>
<b>Effects on auction outcome</b>	<p>Due to the postponement of the financial implications of the delay penalty, reduction of support period has less negative effect on the liquidity of the project developer in case of delay. This penalty type is therefore less likely to cause default before completion of project. The penalty creates incentives for completing the project because the project developer would still like to avoid delay penalty, but is less likely to reduce the number of bidders compared to fixed penalties enforced when delays occur.</p>
<b>Examples</b>	<p>FRANCE: In the French auction scheme for solar PV, support duration is reduced by the delay, multiplied by 2. The installation has to be connected 18 months after publication of the auction results. For more information please see Förster (2016).</p> <p>IRELAND: In Ireland, the 15-year PPAs offered under AER V and AER VI schemes will not extend beyond the end of 2018 and 2019, respectively. Projects which came online too late will therefore not be able to make use of the full duration of the contract. Similarly, the 10-year PPAs given to biomass CHP projects cannot exceed the end of 2016. For more information please see Steinhilber (2016a).</p>

## Exclusion from future auctions

<b>Description of the measure</b>	In case of non-compliance or misconduct, bidders can be excluded from future auctions for a certain period of time. The exclusion can either be of the bidding projects or the developers themselves. If exclusion is used as a penalty, it is important that exclusion together with pre-qualification requirements are defined in a way that does not offer a possibility to circumvent exclusion by for instance redefining project or transferring project ownership.
<b>Effects on auction outcome</b>	Exclusion provides incentive for avoiding non-compliance; hence it promotes increased seriousness of bids. In case pre-qualification costs are very high, exclusion can be very costly to the project developer, as it can prevent them from reusing the same project in following auction rounds. However, compared to the case of fixed penalties, exclusions are less likely to reduce the number of potential bidders, as it can be more difficult to quantify the value of exclusion. It is therefore less likely to increase support level compared to fixed penalties.
<b>Examples</b>	<p>UK: In the auction scheme in the UK, the primary penalty is the exclusion of any project on the same physical location from future auctions for a period of thirteen months. The project developers can be penalised either if being offered a support contract and refusing to sign it or if signing a support contract and failing to deliver the project. For more information regarding the British auction scheme please see Fitch-Roy and Woodman (2016).</p> <p>NETHERLANDS: In the Dutch auction scheme, the SDE+, project loses its support right and is excluded from participating again for a period of 3 years, if the project is not operational within the realisation period (3-4 years). However, in some cases it is possible to work around this exemption by “redefining” the project (e.g. by changing the capacity or the location) and apply again. For more information on the SDE+ please see Noothout and Winkel (2016).</p>

## Production related penalties

<b>Description of the measure</b>	Production related penalties can be imposed in cases where the production of contracted and finalised installations deviates from what was indicated by the project bid, e.g. in terms of quantity. Situations where contracted installations produce less than expected, the security of supply in the power system can potentially be challenged. On the other hand, if
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	<p>remuneration is awarded by generated kWh, too much production may lead to support budgets being exceeded.</p> <p>The penalty level can be either fixed or for instance based on the deviation from expected/contracted production or support costs, and may include exclusion from future auctions. The duration over which the production deviation is calculated is an important parameter to consider when designing the penalty.</p> <p>Another variation of production related penalties are those enforced when deviations from the contracted production method occur. This is relevant for instance in biomass based power generation, where penalties can be imposed if the consumed fuel does not live up to the fuel mix specified in the pre-qualification criteria.</p>
<p><b>Effects on auction outcome</b></p>	<p>Penalties for lower than expected power generation increases the risk of the investor and is therefore likely to increase support levels. This is particularly valid in auctions for Variable Renewable Energy (VRE) installations such as wind farms and solar PV, where the generation is greatly dependent on local conditions and may vary from year to year.</p> <p>Likewise, penalties for excess production increase the risk of the bidder and may also increase support level.</p> <p>Production related penalties give incentive for bidders of VRE projects to obtain a proper understanding of the location, for instance wind speeds and duration which are needed to determine the output of wind power plants. While this may reduce the number of interested bidders, the quality of the bids is increased.</p>
<p><b>Examples</b></p>	<p>POLAND: The Polish onshore wind power scheme includes a penalty for production deficit, i.e. failing to deliver the full contracted electricity volume. Delivering less than 85% of the offered volume in a settlement period of 3 years will result in a financial penalty at the rate of 50% of the awarded price times the total undelivered electricity. For more information please see Kitzing and Wendring (2016).</p> <p>CROATIA (proposed): Fines of HRK 1,000.00-50,000.00 can be imposed in case the contracted producer fails to maintain the technological requirements needed for obtaining the status as eligible producer, fails to submit the required documentation, fails to maintain metering equipment, or conducts changes in installations without prior consent. For more information on the proposed Croatian auction scheme please see Rosenlund Soysal and Kitzing (2016).</p>

## 4. Conclusions

Pre-qualification criteria and penalties are important design parameters and can be used to obtain a wide range of policy objectives. While pre-qualification criteria that restrict participation can result in reduced competition leading to increased support levels, those criteria met at a cost would generally result in more aggressive bidding. Penalties increase the risk of the bidders and can potentially increase the bid prices. Pre-qualification and penalties promote high realisation rates, however, as the design of the parameters can have significant impact on the auction outcome and support level, careful evaluation of the potential design measures are advisable.

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AURES is a European coordination and support action on auction designs for renewable energy support (RES) in the EU MS.

The general objective of the project is to promote an effective use and efficient implementation of auctions for RES to improve the performance of electricity from renewable energy sources in Europe.

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