Danish Energy Agency

July 3, 2013

Invitation to dialogue: Summary of the market response followed by an evaluation by the DEA.

This note summarizes the responses we received from potential bidders during the second round of dialogue on key requirements in the coming tenders. We thank all for active participation in the dialogue and for the many contributions. The DEA offers its evaluation of the input received and where possible presents the thinking that will guide the DEA in formulating the requirements of the coming tenders in the near future.

The note follows the structure of the dialogue paper "Invitation to dialogue" presented at the mini-conference May 13 in Copenhagen.

Conditions for prequalification and later entitlement to submit a tender

Questions:

Are there any comments or suggestions on the requirements under consideration for financial or technical capacity?

Reponses:

The dialogue highlighted several important issues:

- Most responses acknowledged the need to require a certain level of financial security from the tenderer. Some, however, also pointed to the risk of reducing the level of competition in the tenders if the requirements were either not proportional to the purpose or not in line with general market expectations.
- The asset or revenue requirement for instance was deemed to be excessive and expensive by some. The equity-ratio of for instance 20 percent as well as the credit rating requirement could also deter some from participating.
- Some suggested that a bank or parent company guarantee could replace the rating requirement which is either not always available or costly.
- It was also suggested that a SPV should not be submitted to the same requirements due to the fact that a SPV capsulate the funds for the offshore wind farm and protects the project from financial failure of e.g. a single company or consortium of companies. In this case a bank or parent company guarantee should be sufficient security.

- Several demanded the possibility to either introduce new or replace existent partners both during the tender process and after the award of the concession. The financial market for instance is rather unstable and a high degree of flexibility is therefore needed in order to continuously secure the best partners.
- The requirement for joint and several liability in the case of a consortium could risk making it more difficult establishing the consortium with partners who cannot take such a responsibility. Further, a consortium often replacing partners with new ones in the course of time and this fact should be reflected in the legal framework as a freedom to continuously re-organize a consortium under the condition of approval by the DEA.
- The technical requirements are in general deemed to be realistic and acceptable, but some suggested that other elements such as the capacity for cost and risk management should also play a role in the evaluation. The possibility of using subcontractors as a means to document the necessary minimum technical competence and experience was also recommended by some.

Evaluation by the DEA:

The Danish tenders must be well-balanced between the need for security in terms of high quality projects capable of delivering in time and broad competition in terms of the possibility to introduce new models of investments in the Danish market. At the same time the requirement should be targeting real concerns and not lead to unnecessary costs in the tender process.

The DEA aims to achieve this by revisiting the conditions for prequalification used in the previous Danish tender. Compared to the previous tender by the DEA (Anholt in 2010), the DEA will consider making important adaptations in order to take into account in particular new models of project financing. Together with other initiatives, including in particular an amendment of the timetable of the tendering procedures, the DEA will create a framework that will make it possible for new players to enter the Danish market.

The DEA considers defining more than one package of prequalification conditions in order to make it possible to enter different “doors of prequalification” depending on the special characteristics of the bidder.

Furthermore, in determining the technical requirements the DEA will be more specific compared to the previous tender and will also consider the use of subcontractors as a way of fulfilling the technical requirements.

The final prequalification criteria for Horns rev 3 will be published in the contract notice in October 2013 and not in September as previously announced. Due to the many input received during this round of dialogue the DEA needs more time for proper analysis and impact assessment before publishing the notice.

As for Kriegers Flak the contract notice will be published February 2013 in accordance with the timetable for the Danish tenders and is expected to follow the criteria for Horns Rev 3

Compliance with tenders

Question:

Will the model described on a compliance penalty, guarantee and obligations (including the compliance period) influence interest in tendering for building the farm? Will this affect the price offered?

Responses:

In general the participants of the dialogue understood the need for a compliance penalty. However, the consensus was that the amounts under consideration were too high compared with other similar penalties in Europe and further that the final tender documents needed to be more specific when stipulating the concrete conditions of the penalty's application. Several also requested flexibility in respect of the origin of the guarantee. A parent company guarantee for instance would be less costly.

DEA evaluation:

In light of the general critique of the considered requirement for a guarantee covering the eventual payment of a compliance penalty (used previously in the context of the Anholt tender) the DEA is considering amending the rules on the compliance penalty in several important ways:

- The DEA will be considering the possibility of lowering the size of the penalty for both projects. The exact amount will be published in the tender specifications.

- The conditions for the application of the penalty will be specified in detail in the tender documents.

- The possibility to also use a parent company guarantee as a substitute for a bank guarantee will be considered by the DEA. The issuer will be required to testify to a certain level of financial rating. The level of the rating required will be published in connection with the prequalification for Horns Rev 3.

- In the process of prequalification and bidding a letter of intent will be sufficient. The awarding of a concession will be conditioned on the issuing of the required guarantee.

Award criteria

Questions:

Is there agreement that broad competition is best ensured by allowing "lowest price" to be the only criterion for awarding the concession agreements? Or would it be better for broad competition if the award criterion were " the most economically advantageous tender" judged on the basis of price and one or more other criteria (e.g. security of supply)? What criteria, other than lowest price, could be relevant?

Responses:

All participants in the dialogue agreed that lowest price should be one of the most important award criteria. Other criteria could be added such as the capacity to deliver in time, a well-documented track-record of risk-management, quality of execution and financial strength. New models of investments and the ability to attract new players to the Danish market could also be considered as new criteria in order to promote broader competition. In general the replies expressed the concern how award criteria can be formulated and applied in a transparent way.

DEA evaluation:

The Danish tenders must be well-balanced between the two goals of securing low costs on the one hand and tenders that provide the basis for broader competition on the other hand.

While the DEA considers the ideas for other criteria to be valuable input, the DEA intends to maintain price as the only award criterion in the Danish tenders. The DEA believes that this approach will also ensure the highest level of transparency and thrust in the Danish tendering procedures.

The DEA aims to achieve broader competition through the use of other instruments such as international marketing targeting the entire offshore market and a strong emphasis on open dialogue in several stages of the preparatory work on the tenders. This will help reduce the risk for new potential tenderers and thus make it easier to access the Danish market.

As another way of broadening competition the DEA is also as a direct result of this dialogue considering making important amendments in the tender requirements themselves. These will be made with a view to take into account new models of investments and to introduce more flexibility. This includes amendments of the criteria of prequalification and the compliance penalty. The timetable for the tenders will also be revisited in an effort to promote broader competition

Financial Terms

Questions:

Are there any comments on the proposed scope of production entitled to subsidy of 20 TWh for Horns Rev 3 and 30 TWh for Kriegers Flak, respectively? Is this scope appropriate, or would it be better to increase the subsidy for at shorter period or have a lower subsidy for a longer period? Are there other financial conditions which also give rise to comment or suggestions?

Responses:

There was no consensus on the subsidy period required. A longer period would lower the risk of fluctuating market prices. A shorter period could on the other hand lower the financial costs.

Several responses highlighted the need to clarify the conditions of application of the compensation scheme. The scheme should explicitly cover the costs of delayed constructions in case the grid connection was not operational in accordance with the timetable set out in the tender conditions.

In relation to negative prices on the spot market some participant deemed it too high to set a maximum of 300 hours per year where the subsidy would be discontinued. Lowering the limit would reduce the price.

DEA evaluation:

The DEA is considering maintaining the proposed subsidy periods as a standard period in the tenders. However we are still assessing the possibility of applying other periods.

The compensation scheme is an important part of the Danish grid connection guarantee and the DEA will make all necessary efforts to ensure that the scheme provides both clarity and sufficient coverage. The proposed compensation scheme will be made public when the tender material is published.

As a standard requirement the DEA is considering to maintain the 300 hours maximum. As part of the on going analytical work and impact assessments the DEA will investigate other options as the DEA recognizes that negative prices are not prevalent in the Danish market.

Timetable for tendering procedures

Questions:

- As a guarantee for grid connection for Kriegers Flak's offshore wind farm cannot be guaranteed until 1 July 2018, there will be a relatively short period for building the farm itself. Therefore, the owner of the concession must have sufficient time to prepare the establishment prior to this date. However, if too much time passes from making the tender until the farm can be connected to the grid, this could lead to uncertainty about establishment costs for the farm and the risk of higher tenders. To balance these concerns, the Danish Energy Agency suggests that the tendering procedure for Kriegers Flak be decided in September 2015. Will this date provide the best possible framework for establishment of the wind farm?

- Prequalification will be carried out as described above. It is not certain whether it will be possible to fully establish all consortia early in the process. A premature prequalification date may thus risk leading to the exclusion of consortia which might meet the requirements later in the process. The Danish Energy Agency proposes that submissions of applications for prequalification for Horns Rev 3 be no later than 29 November 2013, whereas applications for prequalification for participation in the tendering procedure on Kriegers Flak should be submitted no later than 29 April 2014. The Danish Energy Agency is interested to know what potential tenderers would consider the most appropriate process for prequalification, including whether a deadline of about three months will suffice.

Responses:

The dialogue highlighted several important time-related issues:

- For both projects the period of three months designated for negotiation was deemed too limited. In order to conduct the negotiations in a transparent manner one should consider expanding the period with for instance 3 months.

- For Horns Rev 3 the timetable for construction and grid connection was deemed realistic and flexible. However some pointed to challenges in the tendering process:

    a) The deadline for prequalification came too early considering that the deadline for making the first preliminary bid is not scheduled until 2 September 2014.
    b) Tenderers need to receive the geotechnical data in time in order to make a timely decision on the design of the project and start procurement. Some suggested that geotechnical data such as CPT surveys and reports were published continuously, not waiting for the final geotechnical reports.

- The timetable for the construction of Kriegers Flak is deemed technically feasible but also very tight. This will have an effect on the bidding price as it increases project risks. The lack of installation flexibility may also lead to a situation where Kriegers Flak is competing with other projects in the pipeline. The consequence could be a higher price or even the decline to bid.

- Some pointed out that the time-span between the tender for Horns Rev 3 and the one for Kriegers Flak was too limited. More time between the two tenders would enable bidders to re-use the same internal resources for both projects and would result in a better design and hence price for Kriegers Flak.

DEA evaluation:

In light of the responses the DEA has decided to amend the tender timetable with a view to provide more flexibility in the bidding process:

For *Horns Rev 3* the following amendments are planned:

- The contract notice is postponed to the beginning of October 2013 in order to make it possible to consider all the valuable contributions from the dialogue process.
- The deadline for prequalification is postponed with three months. The new deadline is March 3 2014.
- The period of negotiation for Horns Rev 3 in 2014 will also be prolonged with 3 months. The new period is September 1 (preliminary bid) to February 2 (final bid). The award of the concession will take place shortly thereafter.

Furthermore, the decision has been made to make important amendments of the Horns Rev 3 timetable for the publishing of data from the geophysical and met-ocean studies undertaken by Energinet.dk:

- Geo-technical data will be published sooner than previously announced. Instead of end of December 2013 the results will be made available two months earlier that is in the beginning of November 2013.
- Furthermore, CPT-results (raw data) will be published continuously not waiting for the processing of the data. The dates will be announced.
- Met-ocean studies will also be published much earlier than anticipated. Instead of late December 2013 the studies will now be published at least three months earlier that is in the middle of September 2013.

A separate explanatory note on the geological pre-investigation timetable has been prepared by the Energinet.dk and published on the homepage of the DEA.

The other dates in the tender timetable for Horns Rev 3 will not be amended.

***The amended timetable for Horns Rev 3 is as follows*:**

2013

- Met-ocean studies will be published in the middle of September.
- In beginning of October the contract notice will be published.
- Geo-technical data will be published in the beginning of November.

2014

- The new deadline for prequalification is March 3.
- No later than April 30 the final results of the environmental impact assessments (EIAs) and other preliminary surveys will be published.
- The deadline for submitting the preliminary tender is September 2.
- After this negotiations with tenderers will be conducted.

2015

- The deadline for the final tender is February 2.
- Soon after the concession and construction permit will be awarded.

2017

- Guaranteed grid connection as of January 1.

2020

- The entire wind farm is producing as of January 1.

For *Kriegers Flak* there will be amendments of the timetable as a consequence of the dialogue. The DEA consider postponing the tender process with a number of months, and has decided to plan for more time for the negotiation. As far as the deadline for completion of the construction of the farm before 2020 is concerned, the DEA recognizes that while it is technically feasible to construct the farm before the deadline, the timetable does not provide bidders with the requested flexibility. DEA expect to publish the new timetable for Kriegers Flak before the end of the year.

The decision to publish the geotechnical and met-ocean results for Horns Rev 3 at an earlier stage has positive implications for Kriegers Flak too, as the investigations are conducted more or less simultaneously:

- Geotechnical data will be published sooner than previously announced. Instead of end of December 2014 the results will be made available end of October 2013.
- Furthermore, CPT-results (raw data) will be published continuously not waiting for them to be processed.
- Met-ocean studies will be published much earlier than anticipated. Instead of late December 2013 the studies will be published at least three months earlier in the middle of September 2013.

Concession for Kriegers Flak

Question:

Is there an interest in splitting Kriegers Flak into two concessions or should it only be possible to tender for the whole 600 MW farm?

Responses:

The responses are themselves split. Some maintain that Kriegers Flak should be treated as only one tender as it will ensure the lowest cost for society because of the economy of scale involved in such a large project. Splitting Kriegers Flak will also increase the costs of tendering itself, and will lead to a long row of practical complications. Other participants of the dialogue propose to split Kriegers Flak in order to achieve broader competition (both in the short and long term). Smaller projects will be easier to manage financially.

DEA evaluation:

The DEA has carefully considered all responses and recognizes that broader competition evidently could be achieved by tendering Kriegers Flak as two smaller concessions. Competition in the short term may be crucial to securing long term competition on the Danish offshore wind market. Splitting Kriegers Flak however could inflict extra short term costs on Danish consumers compared to a scenario where Kriegers Flak is tendered as only one concession.

The final decision will be made prior to the publishing of the contract notice.

Capacity and size of the farms

Questions:

Would a smaller area than 44 Km^2 per 200MW be acceptable and if so, how small could the area be?

Response:

An area of 44 Km^2 per 200 MW was deemed acceptable by most participants, and a majority advised strongly not to reduce the area. A larger area, though, could have a positive effect on price depending on

the size of the turbines and soil conditions. The participants were in general in favour of as much flexibility as possible.

Some also pointed out that flexibility in terms of raising the maximum installation capacity could have a positive price effect.

DEA evaluation:

On basis of the very clear and convincing answers to this question the DEA has decided not to reduce the maximum area from 44 km^2

As far as the requirement for *installed capacity* is concerned the DEA is considering allowing for more flexibility in the instalment of extra capacity which exceeds the capacity of the grid connection (Still the concession owner will not be entitled to export more than the maximum of 400/600 MW). The flexibility is expected to be:

- 390-410 MW for Horns Rev 3
- 590-610 for Kriegers Flak.

Location of transformer platforms and export cable

Question:

Are there comments on the specific locations of transformer platforms etc. at the locations proposed above, as well as on the turbines being placed such that the transformer platforms are located on the perimeter of the wind farm?

Responses:

In general influence on the design of transformer platform and grid connection, and possibility to get more information on the design is wanted. More flexibility will lower the price. The specific coordinates of the OSS and the export cable corridor, as well as the requirements to the shape of the wind farm around the OSS (minimum distance to OSS and export cable corridor) are demanded.

One participant suggests that the Energinet.dk postpones the decision on transformer platform, till the tenderers have received a minimum of data.

For Horns Rev 3 the location of the transformer platforms will limit the possible layout for the proposed wind farms, as the proposed location could be within an efficient wind farm layout. It needs to be moved to the perimeter of the area in order to allow for an efficient wind farm layout based on the not yet revealed met-ocean data, geotechnical results, soil conditions, and geophysical reports as well as for inter-array cabling. As an alternative Energinet.dk can allow for a corridor around the platform, both for access and to avoid damages to the export cable.

The suggestions for Kriegers Flak have less negative outcome, as they allow for full utilization of the areas in question. However for Kriegers Flak the location will result in more internal cabling and thereby increased

costs. Participants prefer the location of the transformer stations to be more optimized. If the stations are placed on the periphery of the concession areas of KF, it is the assumption that the export cables will be routed through the exclusion zone. What measures are intended to be taken to ensure that the integrity of these cables is maintained, given the fact that sand extraction is licensed in the central part of this area? Will the statutory safety zone around these cables be increased?

DEA evaluation:

The chosen locations for the platforms will be fixed as the design of the foundations has to start in September 2013 and geotechnical investigations have been carried out for the design.

Energinet.dk allows that the Horns Rev 3 platform is surrounded by wind turbines if a zone around the platform and a corridor along the export cable is kept free of turbines. Around the platform a zone of 1000 m shall be kept free of obstacles. The export cable corridor shall be 500 m on each side of the cable and must not be crossed by array cables.

For Kriegers Flak the export cable will be located along the exclusion zone but outside the wind park area. Around a platform a zone of 1000 m shall be kept free of obstacles to allow for a helicopter corridor.

In the appendix to this paper Energinet.dk (responsible for construction and operation of the transformer platforms and export cables) has posted concrete answers to the range of detailed technical questions and comments received during the dialogue on among other things the position of the platforms. We recommend you read the appendix.

Further, notice that at the request of participants in the dialogue Energinet.dk will organize a technical dialogue meeting in September 10 2013 where Energinet.dk will give detailed technical information about the medium voltage switchgear and the platforms. Please register on our homepage.

Choice of grid voltages in the wind farms etc.

Questions:

What kind of grid connection voltage is expected to be used in connection with building Horns Rev 3 and Kriegers Flak, respectively?

Are there comments on the solution to allow Energinet.dk to procure switchgear, which will subsequently be taken over by the owner of the concession?

Does the owner of the concession have special requirements, wishes or reservations concerning the procurement of MV switchgear if such is delivered by Energinet.dk?

Response:

Several participants stressed that due to the early tender dates in autumn 2014 and spring 2015, both projects will have to be developed based on existing technology. Currently there are no commercial

available turbines with 66kV. Technically of course tenderers would like to use 66 kV to decrease the costs (smaller losses and shorter length of cables) but this could harm the competition from the manufacturers and thereby increase the cost. And in worst case be a “showstopper”. On the other hand some preferred 66 kV since 66 kV is considered the future standard for offshore wind farms.

There were no objections to allowing Energinet.dk to procure switchgear, which will subsequently be taken over by the owner of the concession. It was acknowledged that the current timetable does not give any other option. It was recommended by some to allow representatives of the tenderers, on a non-disclosure basis, to evaluate the technical specifications, the short listed vendors, and the final bid evaluation by Energinet.dk

DEA Evaluation:

The DEA welcomes the valuable input on the decision of the voltage level. The DEA expect to make a decision in September, 2013 at the latest.

As a result of the dialogue the DEA will allow Energinet.dk to procure switchgear, which will subsequently be taken over by the owner of the concession. Energinet.dk will ensure a transparent process of procurement.

In the appendix to this paper Energinet.dk (responsible for construction and operation of the transformer platforms and export cables) has posted concrete answers to the range of detailed technical questions and comments received during the dialogue on among other things the design of the platform and the interface between the concessionaire and Energinet.dk. We recommend you read the appendix.

Further, notice that at the request of participants in the dialogue Energinet.dk will organize a technical dialogue meeting in September 10 2013 where Energinet.dk will give detailed technical information about the medium voltage switchgear. Please register on our homepage.

Do the technical specifications for the EIA cover the need?

Question:

Will the current draft EIA project description ensure the flexibility necessary to select technical solutions for projects on Horns Rev 3 and Kriegers Flak?

Response:

Several suggested to expand the technical scope of the EIA and proposed to increase the maximum rotor diameter to 172m to account for all potential turbines and suppliers. Turbines sizes should range from 3 to 10 MW. In the foundations concepts section, several asked to include the jacket with suction bucket foundations as an alternative foundation type to piled jackets,

It was underlined by some that it is important to get an indication of the tentative turbine size limits as soon as possible, as this will affect the preliminary commercial calculations. Other again asked questions about the legal scope and implications of the EIA. What will for instance happen, if the final design or final solution does not fit into this considered range? To what extent is a developer limited by the proposed/likely layouts presented in the technical project descriptions?

DEA evaluation:

The DEA together with Energinet.dk has taken due notice of the suggestions to expand the technical scope of the IEA. As a consequence the Technical Project Description will be including turbines from 3 MW to 10 MW. The maximum rotor diameter is now 190m. The jacket with suction bucket is also included as a result of the dialogue. The revised technical specifications will be published on the DEA homepage soon.

The DEA understands the importance of the EIA with regard to the choice of turbines and has therefore from the beginning put forward an ambitious timetable for the completion of the EIA. The EIAs for both projects are scheduled to be published in April 2014 followed by a public hearing. It is not possible to provide realistic indications of the implications of the EIA at an earlier stage.

The DEA would like to underline that the developer it not limited by the layouts presented in the technical projects descriptions. These are just used as examples of how the wind farm layout could be. The developer can suggest any layout inside the investigated areas. The technical project description thus provides the framework which a concessionaire can navigate within. A future concessionaire may wish to deviate from the framework. Whether deviations from the framework can be contained within the EIA permit/authorization for establishment must be determined individually by the authorities on a case by case basis.

In the appendix to this paper Energinet.dk, responsible for all pre-investigations and the EIAs, has posted concrete answers to the many detailed questions and comments received during the dialogue on the design, content and implications of the Technical Project Description/EIA. We recommend you read the appendix.