

FINAL VERSION

MARKET CONSULTATION DOCUMENT TIDAL POWER STATION BROUWERSDAM

20 SEPTEMBER 2013



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu



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1. INTRODUCTION

This is the market consultation document for the project Tidal Power Station Brouwersdam. The goal of this project is to improve the water quality in the Grevelingen (a nature area located in the province of Zeeland in the Netherlands). This intention is for the water in Grevelingen to become tidewater once again, through an opening in the Brouwersdam. To create a financially viable project it will most likely be necessary to operate a tidal power station in the Brouwersdam.

The authorities involved (the Directorate-General for Public Works and Water Management (*Rijkswaterstaat*), the provinces of Zeeland and Zuid-Holland and the municipalities of Goeree-Overflakkee en Schouwen-Duiveland) are organising this market consultation to examine the feasibility of this project. These parties want to incorporate the results of this consultation in the Governmental Structure Vision (*Rijksstructuurvisie*) of Grevelingen and Volkerak-Zoommeer, and in the next phase, the competitive phase. In the latter phase the authorities involved will seek collaboration with one or more private sector parties for the possible renovation or construction and exploitation of the Brouwersdam.

Through this connection, the authorities involved are looking for answers to their questions. They would like to enter into discussions with parties who have experience with integrated large infrastructural projects and the exploitation of hydropower plants, and especially with tidal power stations. They also want to learn from other parties with potentially valuable contributions.

Currently, no public decisions relating to this project have been taken. Therefore, the authorities involved have a considerable degree of freedom to shape the project. The answers of the participants will provide guidance for the authorities involved while making such public and other decisions. Such decisions will relate to the scope of the project, the type of contract, the procurement methodology and obtaining the required public participation.

The market consultation is an informal 'technical dialogue' as referred to in the introduction of the European procurement directive (2004/18/EC). This is not a tender. Participation in this market consultation is non-committal and will not provide any rights to the participants. However, participation will be a good way get to know this project and to contribute to a more feasible business case, which will lead to more support. Participation in this market consultation is not a requirement for making a bid in the future tender for this project.

The market consultation will start with a phase in which the authorities involved wish to receive in writing answers to the questions), which is open for any party that is interested. After this phase an informative tour of the Grevelingen and consultation sessions will be organised for potential candidates for the project. This tour and these sessions will only be open for prequalified parties.

The project organisation has aimed to produce questions that are relatively easy to answer. The project organisation trusts that the cost of answering these questions will be manageable.

We thank you for your interest in this project and look forward to a constructive consultation process.

The Hague, the Netherlands, 20 September 2013

Ben Spiering, Project Director Tidal Power Station Brouwersdam

2. THE CONSULTATION

2.1 Contact details

This document describes the procedure for the market consultation Tidal Power Station Brouwersdam and provides background information.

The Project Organisation Market Consultation Brouwersdam will execute this consultation.

Contact details:

Project Organisation Market Consultation Brouwersdam
Attn Ir. Leon P.I.M. Hombergen
PO BOX 20.000
3502 LA Utrecht, the Netherlands
projectbureau.brouwersdam@rws.nl

The contact between the project organisation and the (potential) participants shall preferably be through e-mail.

The participants in this consultation shall bear their own costs. The project organisation shall not pay any compensation to the participants.

2.2 Authorities involved

The authorities involved are: the Directorate-General for Public Works and Water Management (*Rijkswaterstaat*), the provinces of Zeeland and Zuid-Holland and the municipalities of Goeree-Overflakkee en Schouwen-Duiveland.

The participants are requested to retain themselves from seeking contact with these public parties in respect of this market consultation, without involvement of the project organisation.

2.3 Background information

You will find an overview of relevant literature in Schedule 1. These sources are publicly available.

3. THE BROUWERSDAM

The Grevelingen

Until 1964 the Grevelingen was an estuarine tidal landscape with vast tidal flats and salt marshes. Salt water from the North Sea came in from the West and through the eastern connection to the Oosterschelde, and fresh water from the Rhine and Maas was fed through the Volkerak-Zoomlake. In 1964, the Grevelingendam, as part of the Delta works, was constructed. As a result the supply of fresh water to the Grevelingen from the Volkerak, and the supply of salt water from the Oosterschelde, were shut down. Only salt water came through the mouth, leading to the disappearance of the fresh-salt water ratio and creating an open estuary tide. In 1971 the Grevelingen was completely closed off by the construction of the Brouwersdam, which resulted in an isolated salt water lake without tides, namely the Grevelingenlake.

Due to the disappearance of tide, a lack of oxygen in the deeper parts of the water became one of the main concerns about the Grevelingenmeer. By disconnecting the Grevelingen from the North Sea, the dynamics of the area changed.

Thus, the levels of oxygen deficiency in the deeper parts of the Grevelingen has been rising in recent years. Anoxic conditions occur throughout the year in deep wells and expand to shallower parts of the lake in the summer. Increasingly this leads to problems related to water quality and the environment.

The Grevelingen is a Natura 2000 site with valuable salt water lake vegetation. The wet dune valleys contain the most of diverse range of species of vegetation in the Netherlands and house a large number of protected species. Following development, salty vegetation decreases as a result of erosion of the banks and desalination. Some types of vegetation in the wet dune valley are deteriorating. There is currently no intertidal area.

Tidal energy has been used previously in the south western part of the delta: centuries ago there were tide mills in Zierikzee, Goes, Middelburg and Bergen op Zoom. Tidal energy, as a modern, sustainable source of electricity, has special advantages: it is predictable, multi-functional and not visually apparent.

As part of the Room for the River programme (*Ruimte voor de Rivier*), the water retention project in the Volkerak-Zoomlake has been prepared. The goal of this project is to create the possibility of temporarily storing water in the Volkerak-Zoomlake during times of extremely high water levels in the Rhine-Maas. In addition, the question arose whether it would be desirable to extend the water storage on a (medium) long term has arisen. This could be accomplished by including the Oosterschelde and/or the Grevelingen as storage area, located near the Volkerak-Zoomlake. Due to the presence of the Grevelingendam, there is currently no current between the salt water of the Oosterschelde and/or the fresh water from the Volkerak-Zoomlake. As a result, the Grevelingenlake lost its ability to flow water between the Maas and Rhine, and the North Sea in 1964. This function is now only performed by the Nieuwe Waterweg and the Haringvliet.

The attractiveness of the available tourism and leisure activities in the Grevelingen lies in the combination of water, nature, beaches, tourism and recreational facilities located on and around the Grevelingen, the Grevelingendam and the Brouwersdam, and on the islands of Schouwen-Duiveland and Goeree-Overflakkee. The tourist and recreational appeal of the area is under pressure due to several circumstances. The decline of nature and water quality has a direct impact on visitors' appreciation of the area.

The tidal power station Brouwersdam

The following are the five objectives of the plan for the tidal power station Brouwersdam:

1. **Climate Security** The future role of the Volkerak-Zoomlake as an emergency storage area for excess river water will be more effective when combined with an open connection to the Grevelingen. The emergency function of the Grevelingen will become more effective when an inlet is created in the Brouwersdam, allowing the water to run into the North Sea. In addition, the tidal power station could be used as a pumping station to increase the storage capacity and accelerate the discharge of the water. If it is technically and economically feasible, the power plant can operate as a pumping station with large capacity available to pump the water out of the delta.
2. **Water quality** The water quality of the Grevelingen is deteriorating. This will have environmental impacts on the area and will also affect its touristic and recreational qualities of this important area. Acting now will prevent irreversible problems in the longer term (also in relation to the Water Framework Directive and Natura 2000).
3. **Renewable energy and innovation agenda** Constructing a tidal power station will not only contribute to the national and regional targets for renewable energy: the innovative nature of such a station will also provide opportunities to export knowledge.
4. **Regional economy, tourism and leisure structure** The realisation of a waterway provides opportunities for substantial recreational and tourist area development on and around the Brouwersdam. These opportunities could be even greater if there is an open connection to the Volkerak-Zoomlake.

The tourism-related spin-off of innovations such as a tidal power station and the Grevelingen becoming a flowing river again will stimulate the economy, both in a direct sense by the increase of tourists but also indirectly, as companies will be challenged to connect to the sustainable and innovative image of Grevelingen.
5. **Opportunities for nature** The return of a flowing current and the open connection between Volkerak-Zoomlake and the Grevelingen will introduce new species to the Grevelingen. This may be of importance for the nature objectives (Natura 2000) of the entire delta. Moreover, the robustness of the restored dynamics provides opportunities for various forms of shared use.

These five objectives relate to important and interrelated issues on climate security, nature, water, energy and economic development.

The market consultation should provide information to enable the decision-making on the following five major operations:

1. a new and larger inlet through the Brouwersdam to restore a current in the Grevelingen;
2. an inlet through the Brouwersdam combined with the tidal power station, which may also be able to serve as a pumping station for the removal of large quantities of river water;
3. a connection in the Grevelingendam to increase the water storage for the south western part of the Netherlands;
4. a waterway connecting the Grevelingenlake directly to the North Sea; and
5. the identification of (potential) development space for nature, tourism and recreation and fishing.

Geographical demarcation

The plan for the Grevelingen covers the areas where direct action is required, including the Brouwersdam, the Grevelingenlake (including the banks) and the Grevelingendam. The field of study includes areas that could be affected by these operations, namely the area covered by the plan, the two adjacent islands (Schouwen-Duiveland and Goeree-Overflakkee), the Voordelta and the Volkerak-Zoomlake.

4. BACKGROUND MARKET CONSULTATION

The Ministry of Infrastructure and Environment, the provinces of Zuid-Holland and Zeeland, and the municipalities of Goeree-Overflakkee and Schouwen-Duiveland are working towards an integrated development of the Grevelingen, the Volkerak-Zoomlakes and the relevant infrastructure and areas.

A key point of this integrated development of the area is the inlet in the Brouwersdam, in combination with the Tidal Power Station. On 5 June 2013, the public parties agreed to organise a call for expressions of interest in an early phase of the project. This should mobilise the creativity from inside the market and enable the public parties to examine the willingness of private parties to invest. It is expected that private parties will have a better view on the commercial possibilities and the preconditions to enable such possibilities.

The first step in this call is this market consultation. The aim is to verify the feasibility of the business case of the project in an early stage and, if possible, to strengthen the business case and to get a clear picture of the required public preconditions (in a broad sense). The project organisation also wishes to discuss the manner in which the market should be approached.

The authorities involved are searching for a solution that:

- provides added social value in the form of improved water quality of the Grevelingenlake;
- contributes to long-term water storage opportunities in the south west region of the Netherlands; and
- generates commercial revenue.

The authorities involved believe that combining functions and opportunities in this project will generate positive social and commercial value.

By combining social and commercial objectives, investments can be employed in multiple ways. In an earlier phase of the project it was thought that an inlet through the Brouwersdam would have a length of 200 meters, which would require an investment of EUR 200 million. Such an inlet would be sufficient to improve the quality of the water, but would not generate enough additional revenue to make the project feasible. By using the inlet to produce sustainable energy, the investment could create added value and provide commercial revenue. Presumably the inlet should be broadened to a maximum of 800 meters, in which case the investment would increase to approximately EUR 400 million. There are substantial uncertainties in estimating the costs and profits (30 - 50% or more, or 30 - 50% less than what is currently estimated).

As an indication: such a tidal power station would generate approximately 60 megawatt, according to preliminary studies. This is a substantial contribution to the production of sustainable energy in the Netherlands. The government wishes, according to its current policy, to increase the sustainable energy production to 16% of the entire energy production the Netherlands by 2023. At this moment sustainable energy production accounts for 4% of the energy produced.

The turbines can be used to generate energy, and to pump water. This means that the water system may be employed to drain and temporarily store water, even in extraordinary circumstances, such as high water discharges on the major rivers and high tides at sea. This could be an important contribution to water security in the Rijnmond area and the Drechtsteden. For this reason it is necessary to have contractual arrangements, in favour of the water storage function of the

Grevelingen, to address temporary shutdowns of the plant. (Wind) energy can be temporarily stored with this reduced pump function (pumped storage function, *pomp accumulatie functie*).

Improving the water quality and making the Grevelingen tidewater once again also provide opportunities for the regional economy, as for instance related to recreation and fishing.

Finally, this method of securing and utilising the Delta is an internationally appealing example of water management. This will strengthen the international position of the Netherlands on matters of water management.

Using a relatively untried but advanced system requires an integrated approach, combining functions, and an early involvement of the market with a "call for expressions of interest". This will also stimulate the necessary development of the required innovative technique.

The region is preparing for a Tidal Test Centre, an initiative related to the *Topsector Water*. Innovative turbines and pumps, which can produce electricity through tidal movement, and other functions and parameter can be tested in this centre. This reinforces and accelerates the development of multifunctional water works, which can be used for weirs, and displays the smart water management of the future.

Among others, the following aspects determine the feasibility of the project:

- the ability to connect the production of energy to the scope of the project, whereby the additional benefits outweigh the additional costs. Additionally, necessary investments in the grid, such as an investment in a "smart grid" and "fat cables" to transport the revenue to the grid, and opportunities to sell the energy locally, are also relevant;
- the ability to combine functions other than energy production (fishing, recreation, etc.) with the scope of the project, while the additional benefits outweigh the additional costs;
- the functionality of the solution in the context of long-term water security, in particular water security of the Drechtsteden and the Rijnmond area, while bearing in mind that innovative solutions at the Brouwersdam may contribute to reduce costs elsewhere. This is something that will be established in the Governmental Structure Vision (*Rijksstructuurvisie*);
- the functionality of the solution in the context of long-term water quality in the Grevelingen;
- the option to allow consumers to take a direct interest in this project and consumption of the energy;
- the prospect of attaching new major users of energy to this project with special arrangements;
- the potential to work with other energy producers in the area and to reach arrangements with them;
- the ability to temporarily store energy with the pumped water storage function;
- possible public contributions and subsidies;
- the possibility of lowering the life cycle costs of necessary investments; and

- to the extent allowed under European law, contributions involving the knowledge and experience of companies in the Netherlands.

Concluding

The following question is the key issue for this market consultation:

How can the authorities involved enable private sector parties to create a robust business case with the Brouwersdam? Especially, which preconditions must be met in the Governmental structure's vision for the Grevelingen and VolkerakZoommeer?

In addition, it is the goal of the authorities involved to make the whole project possible with:

- (a) preservation of the water security, with regard to the Delta Act (*Deltawet*);
- (b) a possible project investment of the government, that is as low as possible seen both the initial investment and the maintenance costs;
- (c) improving the water quality of the Grevelingen; and
- (d) water security in the entire Delta.

The questions that are mentioned in chapter 9 provide more information on the possibilities and the impossibilities of this project from a private perspective.

5. GOVERNMENTAL STRUCTURE VISION (*RIJKSSTRUCTUURVISIE*)

Climate-proof and safe, economically viable and ecologically resilient: these are the ambitions of government for the southwest Delta region, in which the delta waters are essential. For some time discussions have been taking place on the future of water management in the Grevelingen and Volkerak-Zoomlake. There has been additional discussion about the future of water management of Gravelines and the Volkerak. These discussions focus on three issues:

- Volkerak-Zoommeer: freshwater or saltwater?
- Grevelingen: a tide or not tide?
- Grevelingen: storage of water or no storage of water?

The three issues are the result of problems with water quality in both lakes, and the requirements for protection against floods in the southern part of Zuid-Holland (Rhine-Maas). The solutions intertwine in several ways. For this reason it was decided to make the water management choices for the lakes in conjunction with each other and incorporate these in a Governmental Structure Vision. The Governmental Structure Vision will be ready in 2014, and will then include the decisions on the issues mentioned above. It will be prepared within the same timeframe as Governmental decisions on flood protection, fresh water supply and the Rhine-Maas Delta (Delta decisions).

The government wishes to provide clarity on the direction of the development of the Grevelingen and the Volkerak-Zoomlake. Such clarity is relevant to take the following steps:

- making security and fresh water supply preparations in a timely manner to manage the consequences of climate change and to preserve the ecological sustainability of the area;
- complying with European legislation (EU Water Framework Directive) on the water quality of the Grevelingen and Volkerak-Zoomlake, by 2027;
- stipulating clear preconditions on economic developments, such as the production of energy and water-related recreation, including the fishing of shellfish;
- stipulating clear preconditions on freshwater supply in the region for the benefit of agricultural industrial and drinking water;
- managing, maintaining and replacing security, lock resources and other works in a cost effective and innovative way; and
- achieving multiple goals by combining financing resources, as agreed between the government and the region.

6. PLANNING

There are three distinct processes that shape the Brouwersdam project:

- the public process, with the preparation phase for the Governmental Structure Vision until 31 December 2013, resulting in the concluding of the Governmental Structure Vision in December 2014;
- the market approach, which contributes to the preparation phase of the Governmental Structure Vision operating until December 2013. A possible procurement will follow in 2014 - 2015; and
- the social process, involving consultation with all relevant knowledge institutions and stakeholders in the area.

This market consultation will help determine whether the Governmental Structure Vision will conclude that the Grevelingen will become tidewater once again: an essential condition for the project.

The preliminary planning for the project is as follows:

Date	Action
20 September 2013	Publishing the notice of the market consultation and starting with the first consultation phase
21 October 2013	Date on which the answers must be received and the interested parties must be signed up for the tour and the consultation sessions
No later than 1 November 2013	The project organisation informs the participants on the selection for the tour and the consultation sessions
Approximately 11 November 2013	Date on which the answers have been processed by the project organisation
18 November 2013	Tour along the Grevelingen (optional)
19 November 2013	Second consultation phase (plenary and consultation sessions)
21 November 2013	Date on which participants must have signed up for confidential discussions
30 November - 5 December 2013	Confidential discussions with the project organisation (optional)
January - February 2014	Informal consultation draft Governmental Structure Vision
Mid February 2014	Publishing the report of the market consultation
June 2014	Determining the draft Governmental Structure Vision
December 2014	Determining the Governmental Structure Vision

2014-2015	Commencement of the tender Brouwersdam project – also dependent on the choice of the structure of the project
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7. LAYOUT CONSULTATION

7.1 How does it work – general

This consultation is divided into two phases. These phases will proceed according to the steps that are mentioned in this chapter. The project organisation has made certain assumptions in respect of the layout of this consultation. Should these assumptions be incorrect, and should the proposed layout be inadequate, the project organisation can decide to amend the layout of the consultation. If the project organisation amends the layout, it will communicate this as soon as possible.

First of all, the project organisation is searching for answers to its questions, which can be provided by all interested parties. These questions are mentioned in chapter 9.

After this phase the project organisation will start the consultation sessions with the prequalified parties.

First phase

The first phase in the consultation is open for all interested parties and persons. The project organisation requests that participants provide their answers by 21 October 2013 at the latest.

The project organisation requests participants to limit the answer to each category of answers to approximately three A4 pages. The participants do not have to answer every question. If desired, the participants may provide their answers per category in the form of an essay.

The authorities involved will read all answers. Due to the anticipated number of answers the project organisation can not respond to all answers

Second phase

The second phase in the consultation consists of two parts:

- on 19 November 2013 a gathering will take place with a plenary part and various consultation sessions of each 1.5 hours. The subjects of the consultation sessions are related to the categories of the questions (please refer to Schedule 3);
- as preparation for this gathering, the project organisation arranges an optional bus tour along the Grevelingen to take place on 18 November 2013. In principal, the project organisation will organise the tour with one bus. The project organisation expects the capacity of that bus to be sufficient, provided every selected party sends no more than two persons. If the number of persons signed up exceeds the capacity of the bus only one person per selected party will be able to participate. Should this be insufficient, a second bus will be arranged.

At the consultation sessions the project organisation will discuss questions that arise from the first phase. The second phase is aimed at a constructive discussion. Most sessions will be in Dutch. If there is cause, there will also be sessions held in English.

Both parts of the second phase will be open to interested parties and individuals who meet the requirements specified in chapter 8. Parties wishing to participate in this phase are requested to

provide the project organisation with a completed version of the statement that is attached as Annex 2 to this document, no later than 21 October 2013 (for contact details see section 2.1).

In addition, the project organisation will also allow other parties to attend the second consultation phase if that would improve the quality of the consultation. More information can be found in chapter 8.

The project organisation will contact one or more Large Technological Institutions (*Grote Technologische Instituten*) and/or TNO for advice. The following organisations qualify as Large Technological Institutions: National Aerospace Laboratory, Dutch Energy Research Foundation, Maritime Research Institute Netherlands and Deltares (composed of, amongst others, Delft Hydraulics and GeoDelft).

Once the project organisation has selected the participants for both parts of the second consultation phase, the participants will receive additional information about the details of this phase. The project organisation will determine the topics that will be discussed, following the answers that are received.

Participants can indicate which specific consultation sessions (based on the different categories of questions) they wish to attend. As far as possible, the project organisation aims to honour such preferences.

Confidential discussions

Participants may request to have one-on-one discussions with the organisation after the second consultation phase. The participant can pose confidential questions during such discussions. Should a participant require such confidential discussions, then this must be requested before 21 November 2013. The project organisation will attempt to organise all such discussions between 30 November 2013 and 5 December 2013.

7.2 No tender

This consultation is not a tender. This is a "technical dialogue" as referred to in paragraph (8) of the European Directive 2004/18/EC. Participants will not acquire any special rights by participating in this consultation. However, the participants are able to help further shape the process of this project. By participating, participants are not excluded from participation in the next, competitive, phase of this project. The project organisation will take great care to ensure that this consultation will not exclude competition in respect of non-participants.

7.3 Transparency and confidentiality

The project organisation wishes to use and publish all answers by the participants. That will happen in a final report following the consultation. Furthermore, the project organisation can use the answers to set the output specifications and draft other contract documents for a competitive phase. Finally, the Directorate-General for Public Works and Water Management may use the answers to draft the Governmental Structure Vision for the Grevelingen and Volkerak-Zoomlake.

The participants may submit confidential information during any discussion after the consultation sessions. The goal of such discussions is to protect the existing intellectual property rights or confidential solutions that a participant may have and want to use, and want to share in order to validate its (non-confidential) answer to a question. Participants must explicitly indicate which parts of such discussions are confidential, and why. The project organisation will not disclose such information without the consent of the participant, nor share it with other parties than the authorities involved.

For the decision making in this project it is important to have an open and transparent discussion. Therefore, the project organisation requests the participants to exercise due care when classifying information as confidential.

7.4 Information

Participants may ask the project organisation clarification questions for the purpose of clarification. The project organisation will provide clarification memoranda, in which it will respond to such questions, and through which it can provide additional information. The project organisation aims to answer such questions within a week.

If the participants wish to ask confidential questions, the project organisation will determine (after having discussed this with the participants) whether such questions are actually confidential, meaning the answer may not be provided to the other participants. The project organisation will verify whether keeping such answer confidential would eliminate the future competition, or would disturb the level playing field. If the question is actually confidential, the answer will be provided in a confidential manner.

7.5 Answering the questions

The questions are included in chapter 9. These can be amended as a result of and during the market consultation.

7.6 Next steps

The project organisation intends to stay in contact with the parties that are interested in this project in 2014. The manner in which such contact will take place will, among others, depend on the results of this market consultation and other matters.

8. MINIMUM REQUIREMENTS TO PARTICIPATE IN THE SECOND PHASE OF THE CONSULTATION

Only parties that satisfy the following requirements may participate in the second consultation phase. They must, either by themselves or through a partnership of any kind (belonging to the same group, cooperation agreement, have proven experience in the following areas:

- (a) as a shareholder in an SPV, partner in an EPC, O&M, or EPCMO consortium, adviser or lender, which is, or in the past five years has been involved, in a project financed infrastructure and/or energy project, with a net present value of at least EUR 100 million, and who has been involved until at least the closing of the contract; and/or
- (b) been involved as an operator, consultant or financier, or in the past five years participated in the construction and operation of a project with an alternative way of producing electricity, with a capacity of at least 30 MW, and who has been involved until at least the closing of the contract.

Participants should demonstrate this experience by providing a completed statement, of which a draft is attached as Schedule 2.

Participation parties and persons who do not meet these requirements

In addition, the project organisation reserves the right to request the parties and persons, who do not meet the minimum requirements, to participate in the second part of the consultation, at its own discretion. Such parties can show their interest by contacting the project organisation as mentioned chapter 2.1. The project organisation requests such parties and persons to provide information on their background (occupation, education, business), the reason for their interest and the contribution they intend to make to the project organisation. Based on that information, the project organisation will decide whether to invite such parties/persons. The project organisation hopes that the participation of such parties and persons will lead to innovative solutions, which have yet to be confirmed.

The project organisation also reserves the right to request parties and persons to participate in the first part of the consultation. No requirements apply for such participation.

9. QUESTIONS

The questions are set out in the following categories. Please note that you are not obliged to answer every question. These questions are elaborated on in Schedule 3.

9.1 Category 1 – Input for the Governmental Structure Vision Grevelingen and Volkerak-Zoomlake

The Government wishes to finalise the research in 2013, that is required to determine the Governmental Structure Vision by 2014. In this document the Government will describe the essentials of its spatial plan for this area. If the Grevelingen becomes a tidal water and a tidal power station can be realised in the Brouwersdam, then the Governmental Structure Vision should allow this. It is also possible that the Governmental Structure Vision could allow an inlet to be made in the Grevelingendam.

9.2 Category 2 – Input on the choice of project structure

This category asks questions about the feasibility of the (public) business case for the concession of a tidal power station, the associated risk involved, contract form and duration, and connection with other necessary works, such as the work that needs to be done on the dam itself. In addition, participants will be able to answer questions about the combination of the concession for the power station – with the works on the dam – whether or not its in DBFM(O) form and about the relevant interfaces.

9.3 Category 3 – Input on the output specifications and scope

It appears to be important to provide the operator of the power station with enough space to create a good plan and to enable an economically viable operation. By choosing the scope of the project well, the return can be optimised (lower lifecycle costs). What should the scope of the project be? Only the dam, and/or other facilities including the Grevelingen, the N57, as well as the facilities to achieve grid connection etc. At what level should the requirements be set, i.e. how much freedom should be given to create a design should be given during the tender?

9.4 Category 4 - Input for the choice of a tender procedure

The participants will be able to provide input on the structure of the tender procedure: the competitive dialogue. The question is how to deal with the interdependence between the required public co-operation and the design of the installations. Do the participants prefer a parallel tracks (tender and zoning and planning) during the procurement phase (such as in the A2 Maastricht project), or do they prefer the zoning and planning during the contract phase? In the latter mentioned option financial close may only be able to occur during the contract phase, as the capex investment and final pricing can only be determined once the public law framework is established. This problem however could be solved through the regulation of contract changes. Perhaps there are also participants who feel that it is unnecessary to organise a tender procedure as a result of the concessional nature of the project.

9.5 Category 5 – Input for public co-operation and the provision of information

Starting point: From a joint public project organisation, the Directorate-General for Public Works and Water Management, the provinces of Zeeland and Zuid-Holland and the municipalities of Goeree-Overflakkee en Schouwen-Duiveland organise the governance for the development of the tidal power station in the Brouwersdam.

The Directorate-General for Public Works and Water Management and the province of Zuid-Holland provide the connection with the Ministries of Infrastructure and the Environment and of Economic Affairs. The project consists of an administrative steering committee (five authorities), a coordinating process group (three authorities: the Directorate-General for Public Works and Water Management and both provinces) and four thematic working groups (five authorities) aimed at:

- (a) governance;
- (b) private sector approach, PPP;
- (c) development of knowledge: interaction between public preconditions and requirements, and private creative design;
- (d) social support, co-creation with stakeholders in the area.

What do the participants require of the public side? It relates to the organisational structure of public side, and the required public commitment.

9.6 **Category 6 - Input for determination of the public business case**

Please provide a rough estimate of the NPV of a negative difference between the costs of construction and maintenance of the dam, and the expected operating profits, to be calculated over a period of 20 years, with a discount rate of 5% and an average indexation of the operation costs of 1.5% per year. Perhaps some participants believe that another operation period should be used, in which case we would like to know which term would be preferable in their vision and what the impact is on the aforementioned rough estimate of the NPV. The authorities involved would like to learn about the views of the participants on the financial sustainability of the project.

- 9.7 The authorities involved may decide to add an additional category of questions at any moment, if the need arises during this market consultation.

SCHEDULE 1

LIST OF SUGGESTED RELEVANT LITERATURE

- **Chart of the Brouwersdam** with the options of creating an inlet of 200/600/800 meter
- **Memorandum on the scope and level of detail on the Governmental Structure Vision**
- **Memorandum Rebelgroup**
- **Tidal Power Plant Brouwersdam**
Project Outline
MIRT project Lake Grevelingen
With a preliminary exploration on the technical requirements in chapter 3.
- **MIRT-exploration Grevelingen May 2012**
- **Tidal Power Plant in the Brouwersdam**
Study on variants by Haskoning
- **PPP Tidal Power Plant Brouwersdam**
Plan of action, working group conditions private sector parties
Draft November 2012
This is a list of the permits that are most likely required
- **Costs and effects of the storage of water in the Grevelingen**
Programme of the south western part of the delta and
Rijnmond-Drechtsteden
Deltares

Please note that these document are only available in the Dutch language.

SCHEDULE 2

STATEMENT

The [party who has signed/parties who have signed¹] this statement

- (1) _____, located in [●] at the [●], registration number local chamber of commerce [●];
- (2) _____, located in [●] at the [●], registration number local chamber of commerce [●];²
- (3) _____, located in [●] at the [●], registration number local chamber of commerce [●];³

[declares that it/declare that (together) they⁴] [complies/comply⁵] to the requirements as set out in chapter 8 of this consultation document Brouwersdam. The projects that [it shows/they show⁶] as evidence are:

- (A) Project [●], (details of the project and its involvement)
- (B) Project [●], (details of the project and its involvement)

[place], [date]

Signature

¹ Only if more than one party is involved

² Idem

³ Idem

⁴ Idem

⁵ Idem

⁶ Idem

SCHEDULE 3

QUESTIONS – TIDAL POWER STATION

CATEGORY 1 - INPUT FOR THE GOVERNMENTAL STRUCTURE VISION GREVELINGEN AND VOLKERAK-ZOOMLAKE

The Government wishes to finalise the research in 2013 that is required to determine the Governmental Structure Vision by 2014. In this document the Government will describe the essentials of its spatial plan for this area. If the Grevelingen becomes a tidal water and a tidal power station can be realised in the Brouwersdam, then the Governmental Structure Vision should allow this. It is also possible that the Governmental Structure Vision could allow an inlet to be made in the Grevelingendam.

Questions for the first phase

1. In your opinion, what are the most important aspects of the Governmental Structure Vision in respect of the tidal bore, and which restrictions should be avoided?
2. At the moment we foresee the following minimum preconditions for the tide in the Grevelingen:
 - (a) tidal range of 50 cm;
 - (b) middle level (-0.10 cm) Amsterdam Ordnance Datum (NAP); and
 - (c) tidal cycle within a range follows the natural cycle (2x challenge tides).
 - (i) Are these appropriate preconditions for an optimal business case? Which preconditions are required in relation to the speed at which the tide may/can move?
 - (ii) In your opinion, what is the expected optimum flow capacity of the tidal power station and the space it requires in the Brouwersdam? Can you give an estimate of the minimum by load capacity (with or without a bandwidth)?
3. How do you feel about broadening the scope of the tidal power station, and including additional features on/near the Brouwersdam? What additional features/functionalities do you foresee, and which do you believe are feasible? Please also refer to question 1 of category 3.
4. Do you consider broadening the scope of the Grevelingendam (inlet Grevelingen/Volkerak-Zoomlake, increasing the basin) to be promising for the project, and in particular the tidal power station?

Preliminary questions for the second phase

5. How do you feel about the coherence of the various decisions relating to the Governmental Structure Vision and how you see your role in the following decisions:
 - (a) a flowing current in the Grevelingen;
 - (b) salt in the Volkerak-Zoomlake, and
 - (c) water storage in the Grevelingen?

6. How do you see your role (if applicable) in involving local stakeholders and convincing them of the value of the project, in order to achieve a broad local support? How do you see your role and contribution with regard to sustainability, corporate social responsibility and social return?
7. Which currently prevailing preconditions are, in your opinion, obstructing the realisation or exploitation of the tidal power station, regarding, for instance, spatial, environmental and energy policies?

CATEGORY 2 - INPUT ON THE CHOICE OF A STRUCTURE OF THE PROJECT

We currently envision the following possibilities to structure the project organisation:

- (a) a newly incorporated entity in which the authorities hold the shares, which puts the works out for tender, and operates the project;
- (b) a concession is put out for tender by the authorities concerned, (which can be awarded to a consortium), including the obligation to finance, build, maintain and operate the project for a period of 30 years, with an agreed residual value;
- (c) a D&C or DBFM(O) contract is put out for tender;
- (d) private energy production through an SPV. This SPV contributes to the investment and/or pays an annual fee; and
- (e) the government selects a partner (whether or not a consortium) through a tender procedure, with which it will co-operate to build, maintain and operate the project for 30 years, with an agreed residual value.

Questions for the first phase

1. Which of the above structures do you prefer and why? What interface risks do you observe?

If you choose a DBFM(O): What three main changes to the standard DBFM contract of the Directorate-General for Public Works and Water Management do you feel are necessary and/or advisable (also taking into account possible alternative financing methods)?

Do you see any other public/private partnership model?
2. Do you feel private financing is possible in case of model (b) and (d)? What kind of financiers (equity, debt) could be interested, and how can their interest be aroused?
3. What role should or could the energy producers, suppliers and other parties that are active on the energy market fulfil in this project?
4. In your opinion, what are the main risks, and which party could bear these risks the best? In what way can these risks be managed?
5. Do you feel the project could be divided into multiple contracts? If so, how would you like to see it divided? Is that desirable, or would that result in a higher public contribution and additional interface risks? Who do you feel should become the owner of the structure, the turbines and other equipment?
6. How can local stakeholders be persuaded to participate in the project, and to strengthen the business case and the local social support? Please also refer to question 6 of category 5.
7. How do we ensure the security of the dam, in case of a private or semi-private operation (model (b) or (d))? The turbines can, in some scenarios, be considered part of the primary weir.

Preliminary questions for the second phase

8. What role is most suited for the government and local authorities, and why?

9. The area that is managed by the contractor is adjacent to areas that are managed by an authority. This includes areas such as the beach, the delta, fish stocks, the Grevelingen itself and the roads. What do you expect to be the impact of that management on both areas? It is desirable that the contractor agrees on certain arrangements with the authorities that govern these adjacent areas? If so, what are the subjects of such arrangements and what arrangements do you expect in general?
10. It is possible that public objectives may conflict with the private objectives under certain circumstances. The situation may arise that the client wants to control the tide in such a way that the ability to generate power is limited, or that the less water is refreshed. It is also thinkable that priority is given to protection against flooding, rather than the production of energy. The agreement between the parties must provide for such situations, and perhaps also provide for compensation for the contractor. In your opinion, what should be the main points of good arrangements on this topic?

Please note: The feasibility of the above types of project structures is still under study at present.

CATEGORY 3 - INPUT FOR THE CHOICE OF A STRUCTURE OF THE PROJECT

Questions for the first phase

1. What opportunities (both public and private) are available for further shaping the scope (in time, capability, and a physical point of view)? Consider the possibility of a basic inlet through the Brouwersdam with a tidal power station, with the aim of optimising both the public and private business aspects of this project. Could you please provide an outline of the several options present? Perhaps such opportunities are related to wind power, pumped storage function, recreation, visitor centres, improvement of the water quality, other facilities operating on or near the Brouwers (sky is the limit) etc. What preconditions are relevant in this respect? Please also refer to question 3 of category 1.
2. What is the optimal way to connect the tidal power station to the grid? Can a smart grid approach play a role?
3. What opportunities are available, in your opinion for securing the existing functions of the Brouwersdam, i.e. traffic (both N57 and local traffic), primary weir, recreation? What (social) risks are present for the realisation and operation of the tidal power station, and what opportunities do you see to mitigate such risks?
4. The Brouwersdam fulfils an important function of preventing flooding in the delta. How can you guarantee the water security during construction or maintenance? Is a building shut down during the storm period feasible, or do you have other alternative preconditions for this? What is the expected lead time between contract award and operation?
5. What are your answers to the above questions if a pump function is added allowing optimisation of a water storage function in the Grevelingen? Can this pump function be realised within the same facilities as the turbines, or are dedicated pumps preferable?
6. What is the approximate investment expected in a dam with a tidal power station; what do you expect the economic and technical durability of both the civil construction dam and technical installations to be? What is the optimal duration for the contract?
7. Which technique of producing energy from water is, in your opinion, the optimal way, given the following functions, and why:
 - (a) fish passage;
 - (b) energy generation, and
 - (c) pumps?
8. What alternative technology to produce energy is more efficient and/or produces energy in a more effective manner, and when will such techniques be available to you (for instance, siphoning)? Do you feel that such new techniques are of great importance for the success of this project?

Preliminary questions for the second phase

9. How definite/fixed should the scope be, before you feel you can participate in a tender?

10. Which risks related to this project would you consider to be too great? What role do you expect from the government in this respect?
11. Can you quantify the financial revenue relating to the multiple variants of the tidal power station? If this is not possible, can you outline a process for quantifying such revenue? In your opinion, what prevents the realisation of the different options? Which criteria (technical, legal, budgetary contribution from the government, interests of other stakeholders) must be met to enable the realisation of such option?

CATEGORY 4 - INPUT FOR THE CHOICE OF A TENDER PROCEDURE

Questions for the first phase

1. Which procurement procedure should be followed, in your opinion? What would the ideal set up of such a procedure be? What should the main focus of the tender be?
2. What do you believe are the appropriate selection and award criteria, and what would be the ratio between the respective criteria? In case of the competitive dialogue: which criteria are adequate to create a short list of the candidates?
3. Do you have a preference for (incorporating ideas from) public participation and the design of the installations during the procurement procedure? If so, to what extent and in what way?
4. Which public decisions should, in your opinion, be irreversible:
 - (a) at the moment the tender is launched; and
 - (b) during the different stages of the tender (and especially at the time of submission of Best and Final Offer)?
5. What would lead you to the decision to refrain from submitting a bid? And what is necessary for your participation in a tender?

Preliminary questions for the second phase

6. What information do you require to make an investment decision for this project? At what stage of development of your design, can you take the investment decision?
7. To what extent is the implementation of this project dependent on innovations, projects and other tenders, such as the Tidal Test Center?
8. Are there any relevant issues that you feel the Large Technological Institutions can answer?

CATEGORY 5 - INPUT FOR PUBLIC CO-OPERATION AND THE PROVISION OF INFORMATION

Questions for the first phase

1. What conditions should the authorities involved create to realise the tidal power station in the Brouwersdam in a PPP form?
2. Which essential public decisions should be taken and at what stage of the tender? Which decisions should especially not be taken? Please also refer to question 4 of category 4.
3. What criteria should the authorities involved require in relation to the design, construction, financing, operation, maintenance and/or major maintenance/renovation and transfer? Which criteria should especially not be set? What are the main focus points?
4. How can the spatial planning and permit process be best organised by the public project organisation? Please also refer to question 2 of category 4.
5. What is your view on commitment, involvement and support of local residents and other stakeholders in the process aimed at the realisation of the tidal power station? Please also refer to question 7 of category 2.
6. Which public barriers (eg regulations) will stand in the way of your intended approach and how should such barriers be addressed?
7. How can an open development of the project be organised, and how should the authorities involved steer towards references and preconditions?
8. How can the Tidal Test Centre be employed for the verification and validation of proven technology for the tidal power station in the Brouwersdam? Under what conditions would you like to make use of the test centre?

Preliminary questions for the second phase

9. Which interaction between the public project organisation and you/your consortium is the most essential, and how should this be organised during: the development phase, contract formation and construction, operation and maintenance?
10. In your opinion, what are the essential preconditions for the realisation of the Brouwersdam and the tidal power station? Can you specify your preferences for each contract that could likely be used during this project?

CATEGORY 6 - INPUT FOR DETERMINATION OF THE PUBLIC BUSINESS CASE

Questions for the first phase

Questions on scope

1. How should the scope of the whole project be adjusted to:
 - (a) reduce the required public contribution;
 - (b) increase the efficiency of the private business case, and
 - (c) strengthen the public goals?
2. Is it necessary to periodically (every 3-5 years) provide the possibility of amending the scope during the duration of the contract/concession to enable the parties to adjust to current developments (relating to, for instance, wind, leisure facilities, ship's passage, and participation by other stakeholders)?

Questions on public contribution

3. In your opinion, is a public financial contribution required to achieve a profitable business case of the project, and if so:
 - (a) in which form (*à fond perdue*, guarantees, regular contribution, otherwise), and
 - (b) (European?) subsidy or claims to MIRT-moneys?Or are you better served by measures of public side (eg):
 - (i) leading to an acceleration in decision-making;
 - (ii) removing barriers in laws and regulations; and/or
 - (iii) leading to different consequences?

Questions re risk allocation public-private sector

4. In what way can the responsibilities and costs of management and maintenance of the Brouwersdam and tidal power station be best divided between public and private parties?
5. By what rationale can the risks between public and private be distributed optimally?
6. What are the biggest risks to the success of the project tidal power station?

Questions on bankability

7. Which public security is required for the private party to limit the risk premium in the discount rate?
8. What financing options are available to reduce the project risk during the duration of the contract/concession and what are the relevant preconditions?
9. Which financial preconditions are essential for you?