

**Contract notice: OJEU S 120-197431**

**Invitation to tender No. ENER/C1/427-2010 concerning**

**"Integration of renewable energy in Europe"**

*Time-limit for receipt of tenders: 23/08/2011*

**FREQUENTLY ASKED QUESTIONS**

**Updated 22/08/2011**

**Question 1.** Could you please provide the contact details for Eclaron who is mentioned on page 4 of the tender specifications "Grid management & development: DG ENER study (contact "Eclaron").

**Answer 1. The contact point for the above mentioned project is:**

**Eclareon Berlin  
Robert Brückmann (Head of Policy Department)  
[rb@eclareon.com](mailto:rb@eclareon.com)**

**Question 2** On page 5, you describe the various tasks to be performed. Included on the list is as tasks #2 and #3 the construction of a simplified grid model.

Our question is whether there are any constraints regarding the nature of this model. Does this model have to be handed over to EC staff at the conclusion of the project and does it have to function on a stand-alone basis without the need for any software licenses? Or, alternatively, can this model contain proprietary elements (algorithms, etc.) that either cannot be transferred to the Commission or would require an ongoing licensing arrangement?

**Answer 2 The only constraint associated with intellectual property rights, relate to the publication of the final report and *results* of the modelling and analysis as noted in I.3.3. of the tender specifications and Article II.8 of the draft contract. In other respects there are no requirements to hand over the model or maintain ongoing licensing arrangements.**

**Question 3** Could the same research centre participate in different proposals for this tender, which contribution is in the same tasks?  
Could the same research centre (but different departments) participate in different proposals for this tender, which contribution is in different tasks?

**Answer 3 Yes to both.**

**Question 4** I'm from a University and I would like to know if different groups from the same university (with different partners and, therefore, different consortiums) could participate in the above mentioned tender. The three groups within the university would join different consortiums with topics proposals (transmission, distribution and regulation). It is not completely clear for us if the same institution could participate in the same tender in different consortiums with different topics.

**Answer 4** **Yes, institutions are allowed to take part in different consortiums.**

**Question 5** In tasks 2 and 3 on page 5 of the tender specifications you refer to simplified models. Can you explain in more detail what you are envisioning by simplistic? Are you thinking of a simplistic representation of the economics of the solution (e.g. a spreadsheet with more emphasis on market analysts opinion and less emphasis on modeling methodology) or instead are you envisioning a robust modeling methodology that accurately represents the market structure and dynamics but with a rolled up representation accounting for the simplicity of the model (easy to visualize and understand but not compromising on rigor of analysis)? It would be helpful if you could describe how you would differentiate the simplistic from a full-production/full-scale model in tasks 2 and 3.

**Answer 5** **We would envisage a model sufficiently robust as to be able to represent the critical elements and relationships in creating an electricity grid system that can demonstrate how to best absorb the expected high shares of electricity from renewable energy sources.**

**Question 6** Referring to tasks 2 and 3, how flexible should the model be? Do you want the recommendations or the recommendations AND the model (for later use)?

**Answer 6** **The model would be used as part of the study to help produce analysis and recommendations. The model itself would not be required for later use.**

**Question 7** Referring to task 2, what is the purpose of the grid model? E.g. analysing main transmission corridors for renewable energy, or detailed analysis on on-shore, cross-border and internal grid bottlenecks?

**Answer 7** **Both really: it needs to contain information on and model transmission and distribution grid needs, including interconnector issues, and be able to simulate hourly spot markets in Europe.**

**Question 8** In task 2, are you envisioning a load-flow approach or economic modelling approach that represents the grid and other market components but with a rolled up (consolidated) structure?

**Answer 8** **The approach can be an economic modelling approach but it needs to be able to reflect the physical constraints and realities of the electricity market.**

**Question 9** In task 3, are you envisioning a load flow model dealing with the complex arithmetic of the power system? (e.g. voltage support, reactive power). As you know load flow applications don't integrate with economic models so how are you envisioning the interaction between the two approaches, if at all?

**Answer 9** See answer 8 above.

**Question 10** Are you looking for a modelling solution integrating the full operational and strategic aspects of increased renewables on the grid? Can you confirm that this is your intention in task 4?

**Answer 10** **To the extent possible, yes: we seek a meaningful quantitative analysis of these issues.**

**Question 11** The model may incorporate regulations, contracts, incentives and other rigidities. Can you please comment on the importance of these issues to the analysis you are seeking?

**Answer 11** **Again, to the extent it is possible to capture all these effects, or those that experts deem to be the most significant, sensitive, or relevant to the issue in question: the optimal grid structure (including operation) to facilitate high shares of renewable energy.**

**Question 12** **Distribution Networks.**

In our experience, Distribution Networks, by their very history, tend to have highly individual designs and configurations. Not only is each country unique, but each area (town, city or distribution zone) is also unique. To what level does the EC expect this study to understand local distribution network issues?

**Answer 12** **The intention of this analysis will be to be able to make some recommendations regarding the adaptation or reform of distribution networks to improve their ability to facilitate the growth of distributed electricity generation from renewable energy sources. This could be on the basis of best practice examples; if generic results, practices and reforms are feasible and useful, then the coverage can be generic. If circumstances differ widely, then the analysis should be as detailed as possible to still provide useful, workable conclusions and recommendations.**

**Question 13** **Transmission grid extension modelling.**

One of the key topics is understanding the requirements for transmission grid extension. Carrying out detailed line-by-line transmission modelling is highly complex and time-consuming task, and one that is typically carried out by transmission system operators (TSOs) who have the detailed technical data and methodology to calculate system security standards and hence reinforcement requirements. Although less detailed DC load flow modelling is possible (by zone, for example), the data required to get realistic flows is difficult to obtain and the resulting flows are often unsatisfactory.

An alternate approach that is more consistent with market models is to use the existing NTCs (Net Transfer Capacities) published by TSOs and ENTSO-E, and plan capacity additions based on the extent to which these become congested over time. This makes the assumption that 1GW of transmission reinforcement provides 1GW of additional NTC.

Does the study envisage that load flow modelling (DC or AC) is required or is an approach using current NTCs sufficient?

**Answer 13**    **The study is neutral regarding this choice, but either approach could be used. The approach would need to be explained and justified in the tender offer.**

**Question 14**    **Years to be included**

Can the EC provide guidance as to how many years on the way to 2030 the study would be expected to include?

**Answer 14**    **The tender specifications are neutral in respect of modelling interval; five year periods could be sufficient if explained and justified in the tender offer.**

**Question 15**    **Definition of optimal**

The study purpose asks the questions "... and what are the optimal solutions on both a European and regional level?" Does the EC have a view at this stage as to how optimal will be determined? Is it optimal to minimise cost, or minimise CO2 emissions, or maximise the likelihood of achieving targets?

**Answer 15**    **For this study, the focus is more the optimal system for integrating the expected levels of renewable energy foreseen for 2020 and beyond - 35, 40, 50% of electricity... exploring the combination of grid development, maintenance, grid operation (grid codes etc), market coupling & integration, what combination results in the most cost effective integrated system?**

**Question 16**    **Demand**

We note that the EC requires the generation patterns to be based on the NREAPs, but does the EC have any particular views on the choice of the changing pattern and nature of demand? For example, does the EC envisage scenarios where there is extensive electrification of heating and/or for electric vehicles, or scenarios where extensive demand-side flexibility is introduced?

**Answer 16**    **The Commission will publish a 2050 roadmap by the end of the year, where a number of low carbon energy sector scenarios will be explored. As with current, published scenarios, considerable reliance is placed on energy efficiency measures, demand manage, and growing electrification (of heating and to a lesser extent, transport). Having said that, this study has a shorter time focus and is more grounded in the practical advances possible over the next decade to ensure the system is optimised to integrate 34%+ RES E by 2020 (to 2030).**

**Question 17 Long-run marginal cost recovery.**

One of the tasks in the ITT is:

“Analysing the price formation in the spot market assuming perfect competition, each generator bidding at short-run marginal cost of production and an efficient market coupling in the whole Europe?”

Typically in electricity markets, there are hours when generators bid/contract above their short-run marginal cost – usually hours when the system is tight. This additional element of pricing is often called the ‘scarcity price’, ‘value of capacity’, ‘capacity element of price’ or the ‘missing money’. Does the EC have a view as to whether they would like short-run marginal cost bidding only (in which case investment in any plant may become difficult) or whether recovery of fixed costs through higher bids is possible? If the latter, does the EC have a view on the methodology required to recover the fixed costs?

**Answer 17 The methodology should be chosen to reflect as closely as possible actual price formation, which can include MCp+. In fact, one of the issues to explore (task 6) is how a spot market based system can still generate long term investment signals given the rise in more capital intensive technologies (with low operating costs).**

**Question 18 Geographic scope of study**

Does the study need to cover all 27 members of the EU in full, or is there scope to focus the geographic area? In particular certain countries (such as Malta, Cyprus) are isolated from the Continental power system, and additionally some countries are anticipating much lower levels of renewable penetration than others.

**Answer 18 The study is to help construct a more integrated EU electricity market/grid and identify practices which improve the scope for integrating RES (even in markets with currently low levels of RES penetration). However the degree of detail of all 27 Member States may vary if the reasoning is explained and justified in the tender offer.**

**Question 19** For the Cover letter which must accompany the Tender/s and must be signed by the tenderer or his duly authorised representative who should I address the cover letter?

**Answer 19 The cover letter should be sent to the address mentioned in the Invitation to Tender and can be addressed simply to Dear Sir/Madam.**

**Question 20** On page 5 of the tender specifications, under the heading ‘Consulting stakeholders’, you state: “Up to two 1 day meetings with Member State representatives in Brussels will be required, to discuss specific topics or scenarios”. Does this imply that either (a) the Client – i.e. DG ENER – will organize these meetings and that the Contractor only has to attend these meetings, or (b) besides attending the meetings, the Contractor has to organize these meetings (including, e.g., inviting MS representatives and/or other participants, arranging accommodation and catering, preparing presentations, organizing discussions/consultations, and/or making minutes, etc.). If the

answer is (b), can you please specify which tasks are the responsibility of the Contractor (and which of the Client)?

**Answer 20** **DG ENER will organize these meetings.**