Summary of consultation 'Market Design'

This report provides a brief summary for results of a public consultation survey which was carried out for about 2 months. There were 18 questions in total, covering various topics related to (ancillary service) market design.

1. Overview of participants

In total, 12 participating institutes provided their feedbacks for the survey. Figures 1 and 2 show the distribution of participants by country and sector, respectively.
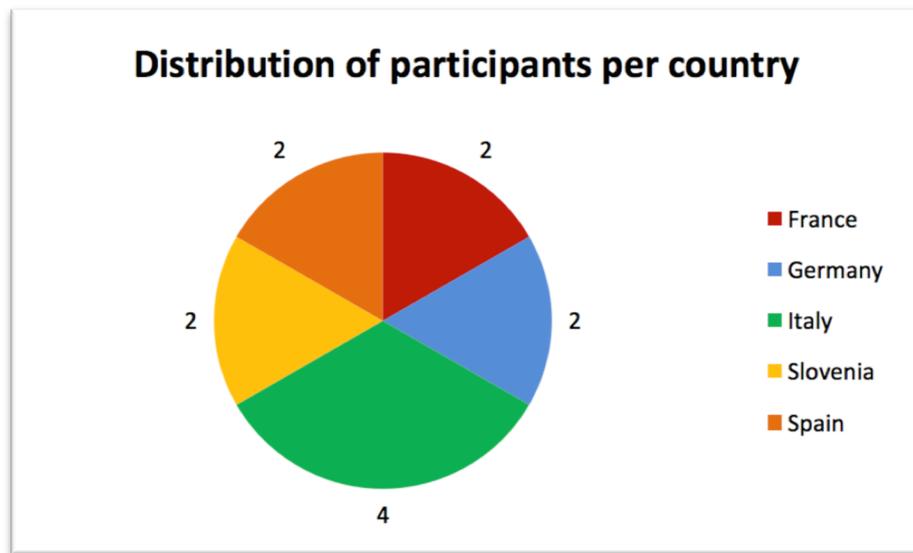

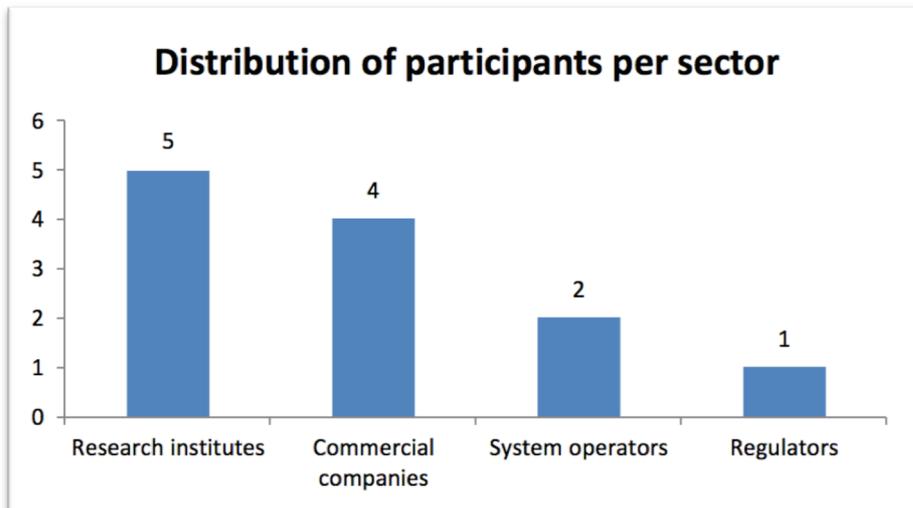*Figure 1. Distribution of participants by country (of affiliated institute)*

Figure 2. Distribution of participants by sector (of affiliated institute)

2. General feedback

In general, the majority of participants believe in an ancillary service market which is more dynamic, more extensive, and economically efficient. The questions were grouped in five categories, each of them is discussed separately in the next sections.

2.1 Bidding dimension

In this category, there were 4 questions about allowing complex products, the responsible grid party, and the type of complex products.

Regarding the introduction of complex products, only two participants opposed the fundamental idea. Half of the answers suggested that such advanced products/bids may be allowed, with the concern that it would create a tradeoff between reflecting the market needs, market liquidity, and complexity of computations. Finally, four participants approved the idea by reasoning that such products will enhance the integration of distributed energy resources (DERs).

The majority of participants are leaning towards the idea that the "aggregator" should handle the dynamic and economic aspects of DER constraints. Only two respondents suggested that the market should take care of such constraints, without providing a strong argument.

Regarding the list of suggested advanced market products, 5 participants selected products which are implemented as a part of SmartNet project. Furthermore, all the additionally recommended market products (as the answer to a separate question) were already a part of SmartNet market design.

2.2 Timing dimension

There were 4 questions in this section. The question covered the topics of more frequent market clearing (closer to real-time), rolling-horizon optimization, and imbalance forecasting.

There was no opinion against a more frequent market clearing, which supported this fundamental idea implemented in SmartNet as a 5-minute auction market. Furthermore, more than half of the participants confirmed that it is feasible to manage the inputs and outputs within 5 minutes. Some were skeptical about such a fast clearing scheme, arguing that the system is not ready for this change yet, or claiming that it will not create any benefits for the market. In average, the answers were more supportive than opposing.

Regarding the rolling-horizon optimization, we received a 100% of positive feedback, which was very heart-warming. Although some participants had concerns about challenges with imbalance forecasting and transparency of decisions.

The possibility of imbalance forecasting was another questioned topic. The answers in this regards were split. While a first group believed that it is possible and even already existing, the second group doubted that it is technologically feasible and/or will be soon available. Some believed that imbalance forecasting will be available for the transmission grid, but not for distribution nodes. In

general, we would like to assume that such forecasts will be available in near future and that the market would be able to take advantage of them.

2.3 Network Modeling dimension

We had 5 question in this category.

First, the general opinion about the integration of Transmission and Distribution grids in the market was questioned. We received equal numbers of positive and negative opinions, with some neutral feedbacks. The optimistic participants believed that these models can be added gradually, while the pessimistic reviewers argued that it would introduce complexities and that we should take the network models out of the market clearing problem.

The next 4 questions concerned the availability of data for building the model and for providing information on nodal injection at transmission and distribution levels. We receive mixed answers: On one hand, some participants believe that the required data is available (at least for TSO) in order to make the models and that injection forecasts are possible. On the other hand, we have participant which believe such model data or forecast are difficult to collect and that it is still not possible to ask for such data. One participant claimed that imbalance forecasts are not even needed. In general, our take from these questions is that the possibility of having access to such data is high, while we should also consider scenarios when they are not available.

2.4 Pricing dimension

In this category, there were 4 questions, regarding the type and distribution of prices.

Firstly, participants were asked whether they think that marginal pricing or pay-as-bid should be the methodology for pricing. There was not a single vote in favor of pay-as-bid, which was in full agreement with the current implementation in the SmartNet project. They were participants which hesitated to choose, arguing the selection should be made based on the number of bids, frequency of clearing, etc.

Secondly, the feasibility and benefits of nodal pricing was put into 3 questions. Majority of respondents confirmed that nodal prices can be implemented from a technological point of view, while not many think that it is economically advantageous. The reasoning behind is that further analyses should be carried out before opting to one method or another. Also, most of the participants believe that nodal pricing is acceptable from a regulatory point of view.

2.5 Other questions

Finally, one question was raised about the type of objective function to be used. The options were maximization of social welfare, and minimization of activation costs.

The majority of participants who answered this question (around 55%) believe that maximization of social welfare has to be used. This is justifiable from several points of view, including system security, operational and investments costs, etc. However, one participant argued that it will increase the cost of balancing. In general, we believe that the best objective function to be used is a combination of two approaches.