Summary consultation 'Ideas and alternatives for the cost-benefit analysis performance'

1. Overview of respondents

A consultation was organized with the aim to support the decision-making process for the system-wide cost-benefit analysis. In particular, the metrics to be considered, their monetization methods and the relevant ICT costs were the main attention points for the consultation.
Respondents could provide answers via the website or by email for a period of 2 months and a half (4 August 2017-17 October 2017). Three answers were received in total, but all of them were incomplete. Therefore, the conclusions in this report may have been extracted from only one or two answers in some cases. The answers came from 3 different countries. Figure 1 gives an overview of the respondants per country.

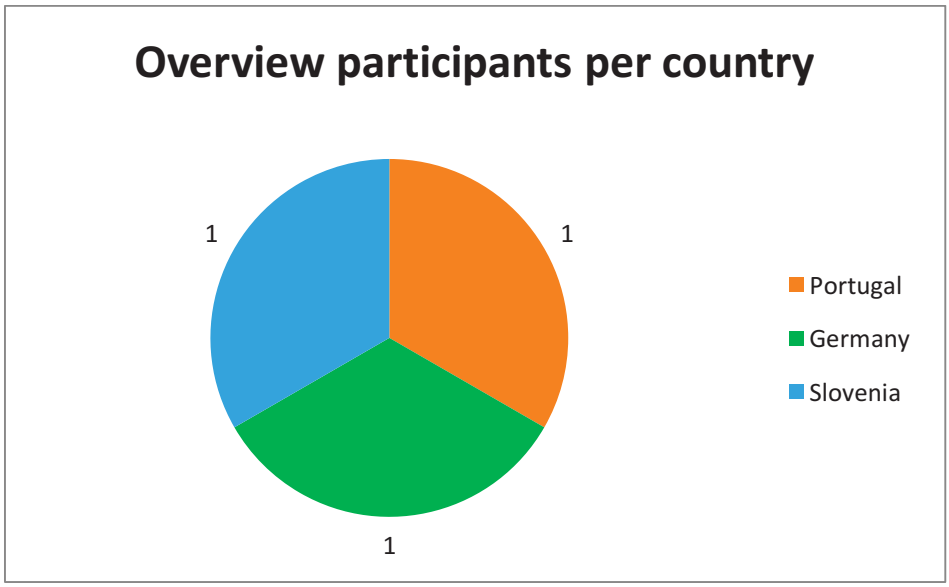

Figure 1 Overview participants per country

The background of the respondents was mostly from the consulting sector (2), being the third respondent the R&D centre of a TSO.

2. Main feedback from respondents

The consultation asked specific questions related to the baseline to be considered, the different indicators that may be included in the cost-benefit analysis (CBA) and the relevant costs of the information and communication technology (ICT). A summary of the answers is presented in the sections below.

2.1 Baseline

Although not clearly stated by respondents (no one responded directly to the question about the option they prefer), the answers to the potential problems in each option showed a preference for considering Coordination Scheme A as the baseline for the CBA, rather than the case in which only the resources connected at transmission can provide ancillary services. The main reason for this is that the increased contribution by distributed energy resources (DER) in the future will result in higher balancing needs and in the decommissioning of several traditional power plants. Therefore, the balancing resources at transmission level only may not be enough to guarantee the required stability for the system.

However, there is no answer to how to consider, in the system-level CBA, the cost synergies[1] between coordination schemes if Coordination Scheme A is taken as the baseline.

2.2 Metrics

In general, respondents agree with the proposed metrics and monetization methods, except for "Reduction of unwanted measures adopted by network operators in order to solve congestions", which is rejected by two respondents. This metric is further discussed below.

When asked about potential overlapping between them, repondents did not know what to answer, although one of them identified a likely interdepence of prices for the different indicators.

Although respondents would not propose different monetization methods, they proposed different approaches for the analysis in some indicators:

- In "Enhanced provision of ancillary services", one respondent states that it would be interesting to evaluate the impact of coordination schemes in the provision of reactive power / voltage control services or other ancillary services. They also state that it would be important to assess the improvements in the liquidity of balancing markets (*"higher liquidity means that if a part of aggregators cannot participate in balancing markets, the prices will still not vary significantly because there is still additional supply from DER at lower prices"*). As a final remark, one of the respondents highlighted the need to explain very well why we are not considering "social welfare", because regulators tend to be in favour of maximizing it.
- In "Reduction of unwanted measures adopted by network operators in order to solve congestions", one respondent requests to avoid unwanted measures through a market for

[1] For instance, let's assume that the costs of implementing a control system for coordination scheme A is 100 and the costs of implementing a control system for coordination scheme B is 130. Since these control systems are not scalable, it is not immediate to state that passing from A to B would cost 30 but, in principle, it can be any value between 30 and 130.

specific grid services. They also propose that, instead of blocking activation signals, network operators should provide in advance grid state information to flexibility providers.

- In "Reduced network losses", repondents prefer to split the costs of congestion management and losses, for greater transparency and for having additional information. In addition, one respondent proposes to use long-term prices (at least one month or even one year), because the losses can be statistically well forecasted.

Regarding the pricing for the services, there is wide variability among answers and among metrics:

- For "Enhanced provision of ancillary services", pay-as-bid is the preferred option, although it is also mentioned the interest of performing a comparison between this method and marginal pricing.
- For "Reduced network losses", two respondents prefer average price and another one marginal price.
- For "Emissions savings", average price is preferred.

The major discrepancy is for the metric "Reduction of unwanted measures adopted by network operators in order to solve congestions", which is rejected by two respondents. The main reason for this seems to be that the consultation document did not clearly explain how the SmartNet market works, because they think that these unwanted measures should be avoided by means of a market approach (which is the case of SmartNet). Regarding the monetization method, one answer prefers flexibility cost (the cost of the resource(s) affected), another one the average imbalance price and the third one the free market, although a flexibility cost with a random premium could be used for simulation purposes.

2.3 ICT costs

Based on one of the answers, the ICT costs to be included (both in capital and operational expenditures) are:

- SCADA:
  - Main control center software, licenses, etc. for SCADA, Energy Management System (EMS) and Distribution Management System (DMS).
  - Operator Training Simulator (OTS), either in-house or outsourced.
  - Remote Terminal Units (RTUs) and local substation hardware.
  - Telecommunication systems between substation RTUs and disctribution control centre.
  - Front-end at control centre.
- Operational planning applications:
  - Network applications.
  - Market applications - system services.
  - Forecast applications.
  - Regional coordinator (which can be outsourced).
- Metering cost (if needed):
  - Meters, either at consumers' or producers' facilities.
  - Telecommunications (dial up).
  - Database.
  - Applications.
- Other costs:
  - Building (€/m2).

- Staff in ICT team for maintaining the database and applications.
- Staff in ICT team for development of new applications.
- Uninterrupted Power Supply.

In general, there is a preference for outsourcing ICT services, especially as the importance of DER grows. One critical point is cyber-security and, thus, although ICT may be outsourced, DSOs must be really aware of this challenge.

When changing from one ICT solution to another, the most important issues of concern are the lack of interoperability between ageing and new systems, the need to ensure continuity of supply and security concerns. Howevwer, if ICT service is outsourced, the DSO only needs to care about the service received and not about the underlying technology.

One respondent expects cyber-security and interoperability to be the most critical aspects to be considered in ICT cost, another respondent thinks that ICT systems are easier and cheaper to adapt than the traditional DSO business (ICT systems are more flexible than power systems) and the third one thinks that, due to the difference of characteristics of DSO core business and ICT, it is better to outsource this service. However, only one provides an estimate of ICT costs when compared to the overall energy network/service investments: 25 % today and 60 % in 2030.

Regarding redundant systems, the three answers are different. One respondent thinks that "*ICTs that ensure communication with TSOs and other energy market entities must be uninterruptable to not compromise security of supply and ensure adequate quality of service to energy consumers*", another one thinks that redundancy is only required for the transition phase if there is a major ICT system change and the third one thinks that outsourcing allows the DSO to forget about it (even if the subcontractor will need to have redundant systems to ensure the continuity of supply of the ICT service).