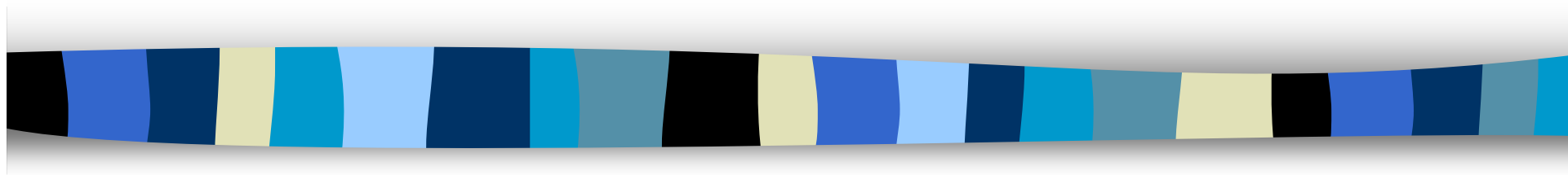


# Task Force smart grids expert group 1



Steering Committee meeting  
Brussels, June 22nd



# Mission of the group

## Functionalities of Smart Grid and Smart Meters.

The key deliverable is to provide an agreement among all actors involved on a set of minimum functionalities for Smart Grids and Smart Meters. The work will be focussed on the following topics:

- Adopt the defined services that the Smart Grids are expected to deliver to different network costumers
- Take into account and follow up the work of CENELEC, ERGEG, GEODE, and other position papers' and stakeholders' consultations on Smart Metering.
- Take stock of the smart metering implementation status in different MS
- Define concept of Smart Grid within the framework of the Task Force
- Define in which part of the Smart Grid concept Smart Metering plays a key part.
- When discussing functionalities, the following aspects of Smart Meters could be taken into account: demand metered data access for customers, demand meter data access for authorised third party, price signal to customer, remote meter management, remote demand reduction, remote connection/disconnection, quality of supply, price signal to customer.
- Ensure that functionalities take into account needs of all customers (including vulnerable customers)
- Define to what extend there is a need to have functionalities regulated
- Recommendations to integrate a standardisation strategy into the strategy for Smart Grids
- Define to what extend there is a need for a mandate on Smart Grids standards
- Agree on the minimum requirements on functionalities of Smart Grids
- Agree on the minimum requirements on functionalities need in Smart Meters or Metering Systems necessary for Smart Grids



# Work progress

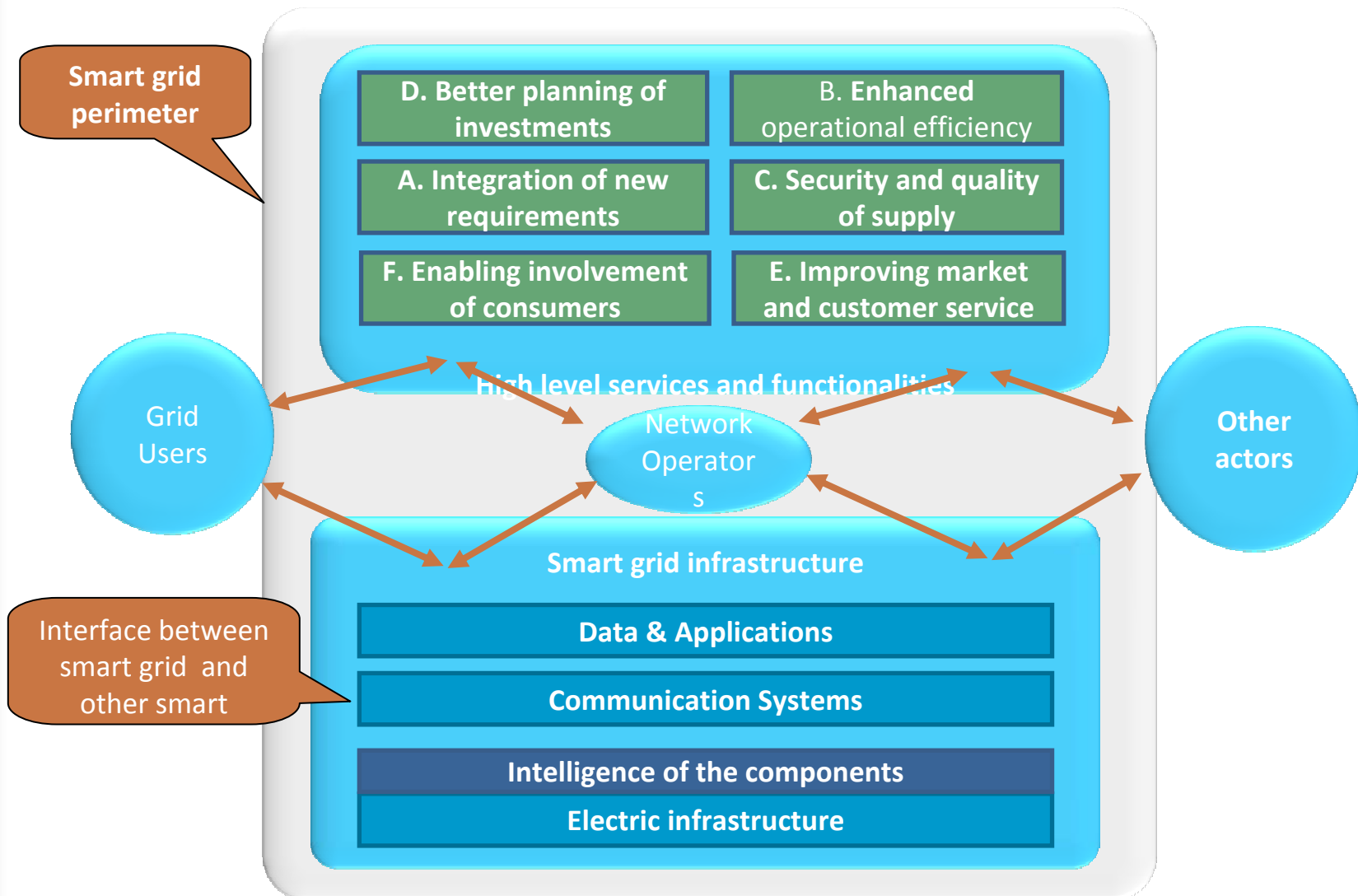
- 4 meetings of the expert group EG1
  - January, 27th : kick off meeting in Brussels
  - March, 2nd: second meeting
  - April, 15th : third meeting
  - May 26th : fourth meeting
- 2 subgroups:
  - SG1 : state of the art
    - Group chaired by ESMIG
  - SG2 : functionalities ( 4 meetings )
    - Group chaired by ERGEG
- A writing team ( 2 meetings )
  - For finalizing the report
  - Collecting final remarks from participants



# Major issues

- Share a common view on what are smart grids,
- Define services offered by smart grids,
- Define functionalities related to these services,
- Define work to do now to allow implementation of smart grids in the next years, based on the above.

# Smart grids seen from the point of view of EG1





# Structure of the deliverable

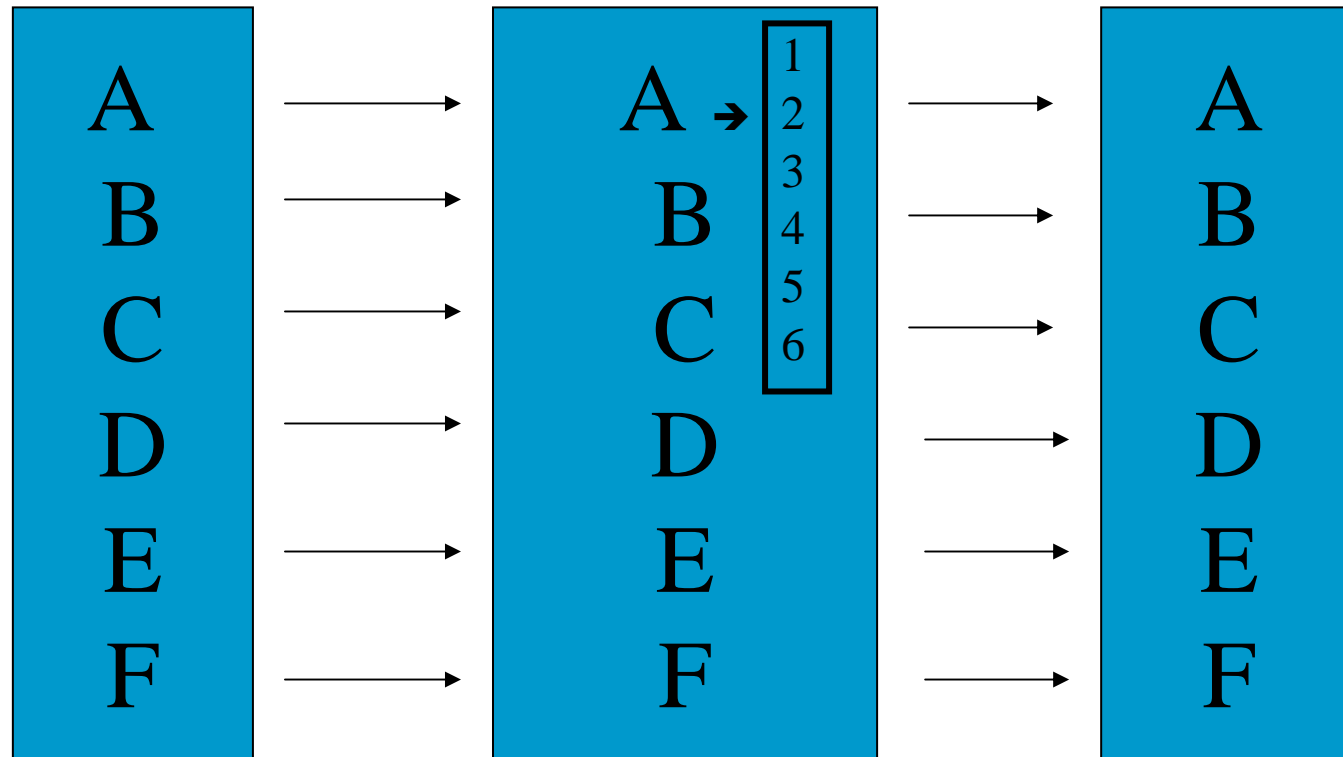
- Scope and mission
- Introduction
- Smart grid concept and definitions
- Optimization of transmission networks
- Enhanced interaction and coordination between Transmission and Distribution
- High level services of smart distribution grids
- Functionalities of smart distribution grids
- Functionalities of smart metering
- State of the art of demonstration projects and available industry solutions
- International initiatives related to smart grid standardization : state of the art
- Standardization : recommendations and priorities
- Conclusions and further recommendations

# From services to standards

Services

functionalities

standards





# The six high level services

- **Enabling the network to integrate users with new requirements**
- **Enhancing efficiency in day-to-day grid operation**
- **Ensuring network security, system control and quality of supply**
- **Better planning of future network investment**
- **Improving market functioning and customer service**
- **Enabling and encouraging stronger and more direct involvement of consumers in their energy usage**





# Functionalities : an example

## **B. Enhancing efficiency in day-to-day grid operation**

5. Improved automated fault identification and optimal grid reconfiguration after faults reducing outage times:
  - using dynamic protection and automation schemes with additional information where distributed generation is present;
  - strengthening Distribution Management Systems of distribution grids.
6. Enhanced monitoring and control of power flows and voltages.
7. Enhanced monitoring and observability of network components down to low voltage levels, potentially using the smart metering infrastructure.
8. Improved monitoring of network assets in order to enhance efficiency in day-to-day network operation and maintenance (proactive, condition based, operation history based maintenance).
9. Identification of technical and non technical losses through power flow analysis, network balances calculation and smart metering information.
10. Frequent information on actual active/reactive injections/withdrawals by generation and flexible consumption to system operator.



# Main assumptions and principles

- Focusing on electricity networks
- Focusing on distribution networks
- Links between smart metering and smart grids functionalities
- HAN out of scope but interface between HAN and Local Networks inside
- Neutral vis à vis market model
- Business model must then be implemented
- Smart grids will not remove the need for traditional investments
- Acceptability of services and interest for customers not yet well known
- Smart grids will also help network operators and national regulatory authorities to focus network investment in the most efficient way



# Recommendations (1)

- Consensus, then communication and standardization process to launch
- Services and functionalities : the basis offered to all customers, implementation deployed according to the present situation of each MS
- National assessment based on multi-criteria analysis with project indicators
- Smart metering : a key factor for smart grid. SG deployment can start without SM deployment
- Coordination between T&D to be enhanced
- Acceptability for customers to be measured through demonstrators



## Recommendations (2)

- Communication and education of citizens
- To involve all types of customers in DSM programs : residential, commercial, industrial customers
- Cybersecurity
- Interoperability
- Interface between HA and local network
- Level of performance for each functionality to be defined
- Updating and implementation of new technologies



## Recommendations (3)

- System security and quality of supply to be safeguarded
- Collaboration between standardization bodies
- Prioritise standardization key issues : fast track solutions for core set of standards
- Reuse of existing standards
- Common interfaces between all domains concerned
- M/441 includes the necessary requirements for smart grid implementation
- Top down approach for standardization process
- Parallel work has to be done on industry/market rules, codes and regulation



## Next steps

- Develop a draft for a mandate for the European standardisation bodies on Smart Grids in collaboration with the *joint smart grids focus group* under the auspices of relevant European standardisation bodies CEN-CENELEC- ETSI
- Collaborate on defining the multi-criteria method for cost/benefit analysis
- Use the feed-back of demonstrators to update functionalities

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Thank you