

IEA Demand Side Management, Task XVII Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages

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Workshop
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Objectives of the Task

The main objective of the Task has been

□ to study how to achieve the optimal integration of flexible demand with Distributed Generation, energy storages and Smart Grids, and thus increase the value of Demand Response, Demand Side Management and Distributed Generation and decrease problems caused by intermittent distributed generation (mainly based on RES) in the physical electricity systems and at the electricity market The Task deals with distributed energy resources both

- at local (distribution network) level and
- at transmission system level where large wind farms are connected.

□ The Task will also provide the integration based solutions and examples on successful best practices to the problems defined above.

Approach

The first step in the Task was to carry out a scope study collecting information from the existing IEA Agreements, participating countries and other sources (research programmes, field experience, information collected through Cigre working groups, etc), analyse the information on the basis of the above mentioned objectives and synthesize the information to define the more detailed needs for the further work.

Especially information exchange and coordination with Wind and ENARD IAs was organised.

Subtasks

Four subtasks were executed during the Phase 1:

- ❑ Subtask 1: Information collection on the characteristics of different types of DER in the integrated solutions
- ❑ Subtask 2: Analysis of the information collected and preliminary conclusions (state of the art)
- ❑ Subtask 3: Feedback from the stakeholders: Workshop
- ❑ Subtask 4: Final conclusions and the detailed definition of the further work

Participating countries in Phase 1: Austria, Finland, Korea, the Netherlands, Spain and USA

Results of the phase one

□ The final reports were reviewed by the experts and published in the web-site (<http://www.ieadsm.org>) as the key publications:

➤ Task XVII - Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages - Final Synthesis Report vol 1.

➤ Task XVII - Integration of Demand Side Management, Distributed Generation, Renew-able Energy Sources and Energy Storages - Final Synthesis Report vol 2.

Vol I. includes the main report and Vol 2. is the annex report with country descriptions, analysis tools etc.

In spite of these public reports the secure web-site includes the answers to questionnaires of the experts and descriptions of about 50 case studies.

□ The plan for the task extension was also prepared

Task extension (1)

Assessment the effects of the penetration of emerging DER technologies to different stakeholders and to the whole electricity system

The emerging DER technologies to be discussed include

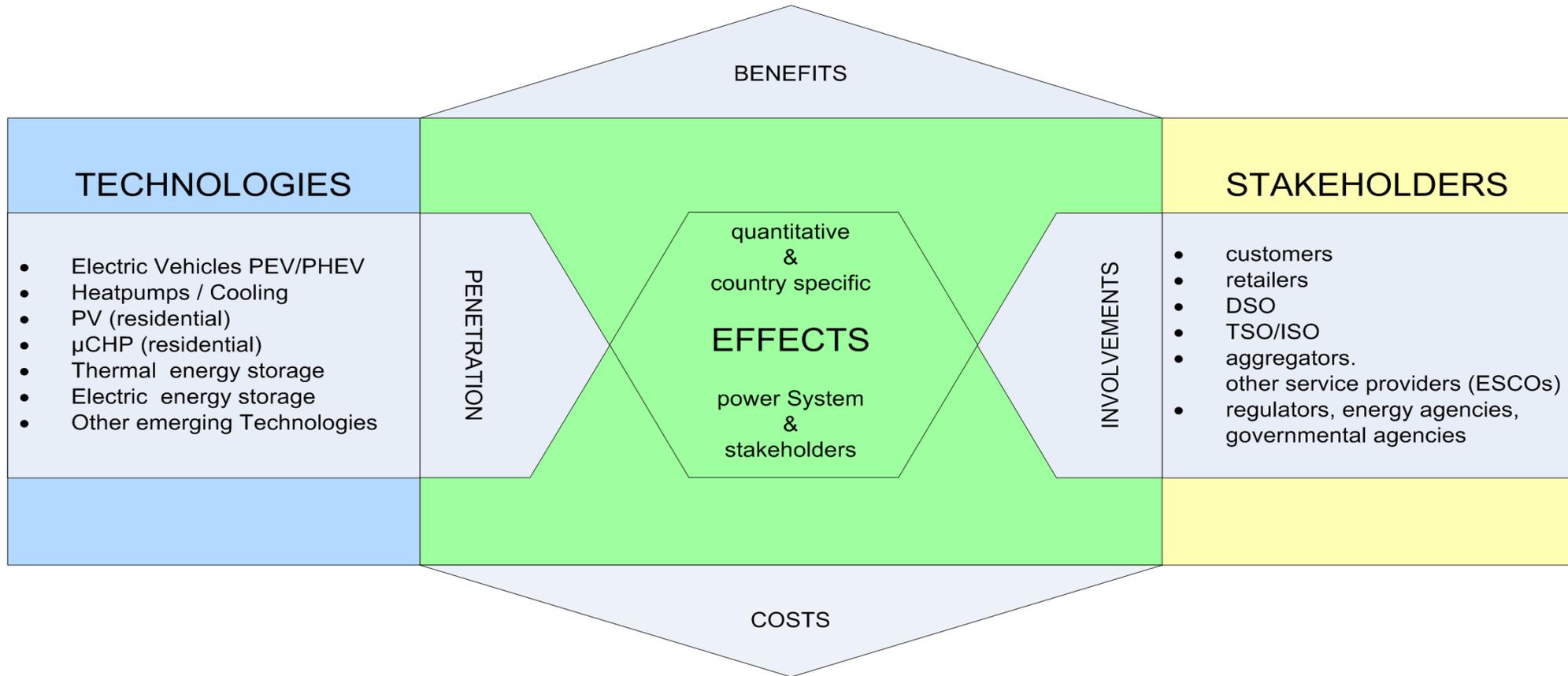
- ❑ plug-in electric and hybrid electric vehicles (PEV/PHEV)
- ❑ different types of heat pumps for heating and cooling
- ❑ photovoltaic at customer premises
- ❑ micro-CHP at customer premises
- ❑ energy storages (thermal/electricity) in the connection of previous technologies
- ❑ Other technologies seen feasible in 10 – 20 years period
 - Smart metering,
 - emerging ICT
 - (and perhaps wind power at customer premises).

Task extension (2)

The main Subtasks in the Task extension are

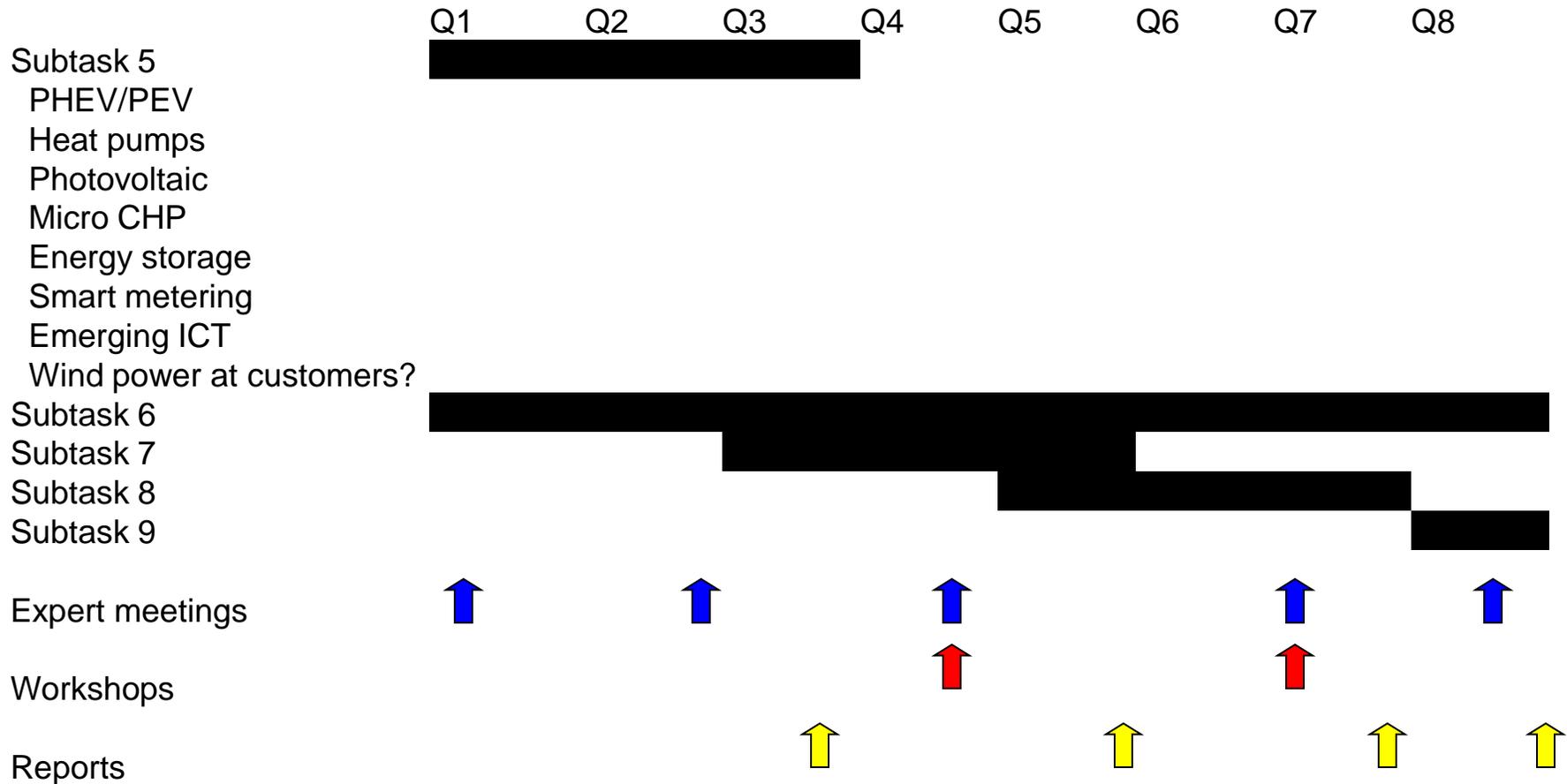
- ❑ **Subtask 5:** Assessment of technologies and their penetration in participating countries
- ❑ **Subtask 6:** Pilots and case studies
- ❑ **Subtask 7:** Stakeholders involved in the penetration and effects on the stakeholders
- ❑ **Subtask 8:** Assessment of the quantitative effects on the power systems and stakeholders
- ❑ **Subtask 9:** Conclusions and recommendations

Task extension (3)



Time schedule: the total length of the Task is 2 years starting 1st of March 2010

Time schedule :
1st of March 2010 - 28th of February 2012



Participating countries

- Austria
- Finland
- France
- the Netherlands and
- Spain

Progress (1)

In **Subtask 5** the following draft reports have been produced

- Heat pumps for cooling and heating
- Full electric and plug-in hybrid electric vehicles from the power system perspective
- Smart metering
- Micro-chp at customer premises

Fifth report on photovoltaic at customer premises is under preparation

Progress (2)

In subtask 6 new case studies will be added to the existing data base

In subtask 7 first draft report " Stakeholders involved in the deployment of microgeneration and new end-use technologies" has been produced