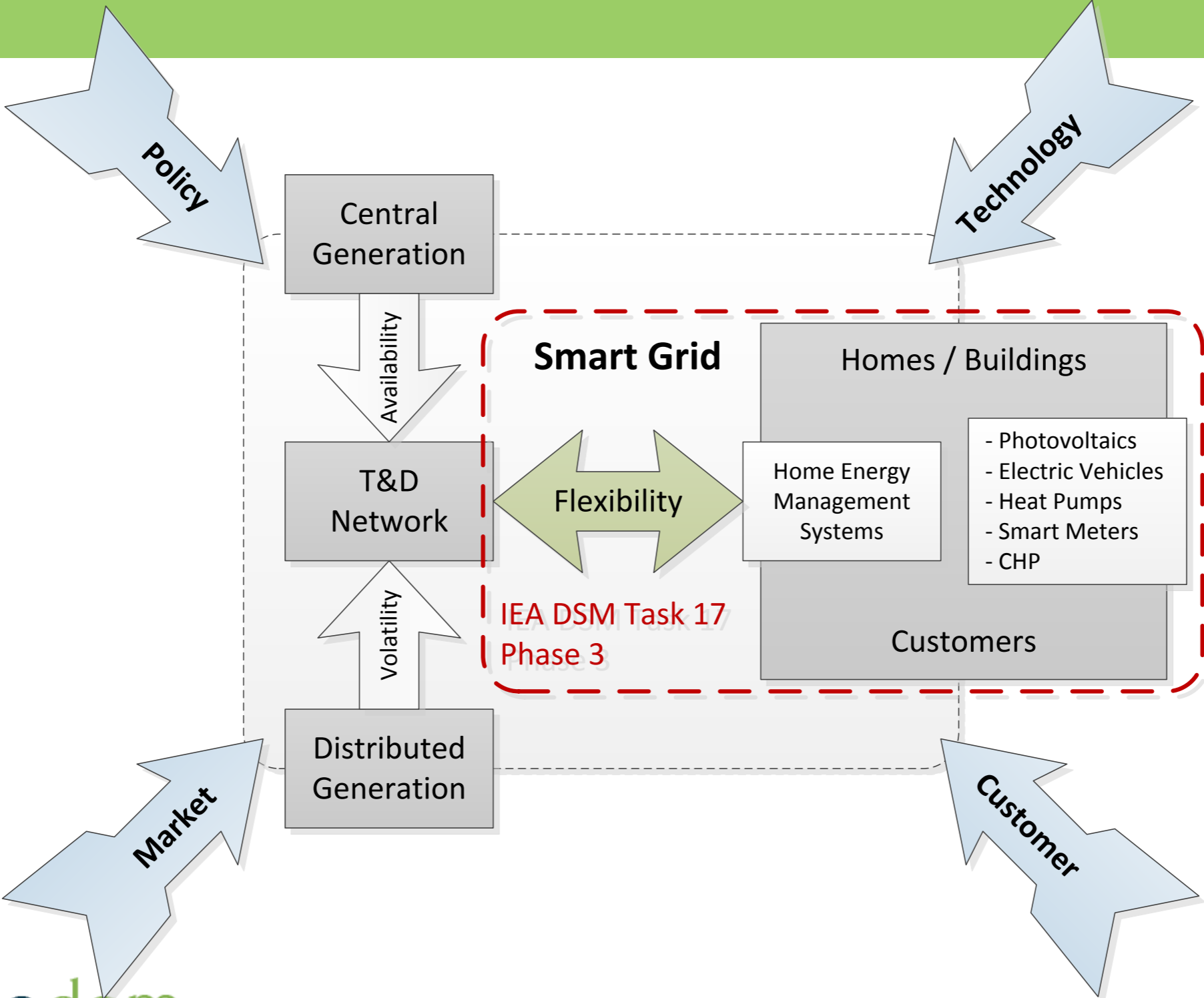


PROGRESS TASK-17

Matthias Stifter, AIT

René Kamphuis, TNO

Overview: Systems view on enabling the Smart Grid



Outweighing flexibility (Demand response <> Generation uncertainty)

- Focus on the **enabling of flexibility in electricity production and consumption** and the impact of it on the stakeholders:
 - What are the requirements?
 - How do we manage it?
 - How will it effect operation?
 - What are the benefits?

Subtask of Phase 3 – Subtask 10
Role, and potentials of flexible prosumers (households, SMEs, buildings)

- Controllability requirements (generation and consumption)
- Opportunities, challenges and barriers for flexibility services (providers and technologies)
- Energy and power balancing potentials
- Smart technologies (SM and Customer Energy MS)
 - VPPs
 - EV charging
 - DG-RES integration and storage
 - Integrating heat pumps and thermal storages

Subtask of Phase 3 – Subtask 11

Changing to new roles for actors

- Methodology development for assessing/quantifying impact
- Grid, market and customers (prosumer/consumer)
- Sharing common benefits/losses
- Optimization potential (eg. DR building audits and customer requirements)
- Regulatory and legislative requirements
- Comparison costs vs. delayed investments

Subtask of Phase 3 – Subtask 12

Sharing experiences and finding best/worst practices

- Collection of data
 - Workshops
- Lessons learned from existing pilots
 - EcoGrid-EU Bornholm, PowerMatchingCity I and II, Linear, Greenlys, Building2Grid, SmartCityGrid: CoOpt, eEnergy, ...
- Country specifics
 - differences in the implementation
 - applicability
- Extrapolation of the results from previously collected projects on applicability

Subtask of Phase 3 – Subtask 13

Conclusions and recommendations

- Based on the experts' opinion
- Will provide a ranking based on
 - Impacts
 - Costs
 - Future penetration of the technologies

Kick-off May

When: 19th / 20th May 2014

Where: Graz, Austria –
during the Smart Grids Week (congress)

Kick-off

Half day / Monday afternoon
Open to observers

Workshop on DSM (public); 20th

Joint Workshop with EcoGrid EU.
DSM potentials of buildings
DSM for distribution networks
DSM and market operation
DSM and electric vehicles



Presentations

Experts meetings

Date	Place	# of Experts	Type of meeting	Government	Industry	Academic
17.9.2015	Webconference	7	Web Meeting	0	3	4
3./4.11.2015	Leiden (NL)	11	Task Meeting	0	5	6

Seminars/Conferences

Date	Place	Participants	Type of meeting	Government	Industry	Academic
15.10.2014	Vienna, Austria	80+	IEA Networking Workshop	20	25	25
22.10.2014	Berlin, Germany	50+	IEA EGRD Workshop	20	25	5
10.6.2014	Brussels	50+	Workshop	20	20	10

Reports

- Report on the IEA Networking Workshop on “[Electricity of the Future – RES – SG and Active Customers](#)” has been published from the Austrian Ministry.
- Report on the IEA EGRD Workshop on “[The Role of Storage in Energy System Flexibility](#)” has been published from the IEA EGRD office.

Progress subtask 10

Subtask 10 – Role and potentials of flexible consumers

Assess the concepts and implementations of customer and home energy management systems (CEMS/HEMS), possibly linked to the smart meter, in different (participating) countries by:

- Comparing DR and DG specific requirements in households, communities, functional (office) buildings and industrial processes
- Role of Smart Meters (SM), (CEMS/HEMS gateways) and their interaction with flexible demand/supply devices as well as distributed energy resources in the terms of technical concepts
- Role of telemetry and existing process control systems and their interface to the HEMS or SM
- Evaluating strengths and weaknesses of ICT enabled aggregations of flexible demand and controllable DERs in the form of energy communities

Progress towards Subtask objectives

- The delivery document structure and content has been proposed by the OAs and will be discussed with the experts in the next webmeeting to share the work and prepare for final discussion at the next expert meeting (June 2015).

Progress subtask 11

Subtask 11 - Changes and impacts on grid and market operation

Assess the impact on grid and market operation based on technology penetration scenarios developed in subtask 5 and 9 (developed in phase 2) by investigating the following areas of interest:

- Energy balancing possibilities and potentials for commercial and grid operation optimization objectives of CEMS.
- Optimization potentials from a technical and market point of view using the SGAM framework
- Design a methodology to estimate potential and to cost effective activation in-line with SGAM and SGMM.
- Regulatory and market design issues for grid and (local) market operations

Progress towards Subtask objectives

- The task started and inputs from the experts, studies and workshop participants are analysed.

Progress subtask 12

Subtask 12 - Sharing experiences and finding best practices

Based on the collected pilots and case studies from the previous subtasks, the results and findings of the finished projects in term of successful implementations, barriers and effectiveness will be analyzed.

- Lessons learned from existing pilots derived from workshops (e.g.; E-Energy Germany, EcoGrid-EU Bornholm, PowerMatchingCity-I and –II, NL-TKI, model city Salzburg, Amsterdam SmartCity, ...)
- Innovation projects with large scale demand response in industry
- Comparisons and analysis of country specific differences in the implementation
- Assessment and development of a methodology to apply different demand response mechanism to individual countries.
- Extrapolation of the results from previous collected projects on applicability on a large scale.

Progress towards Subtask objectives

- Important and representative projects have been collected from the expert's presentation and inputs.
- The selected pilot projects are taken for the analysis part of the deliverable from Subtask 10.

New events

- Bi-annual expert meetings; November 2014 Leiden
- Next planned at IEEE-Powertech in Eindhoven
 - Paralleled by workshop session (<http://powertech2015-eindhoven.tue.nl/>)
 - End of June 2015

Participation

	Country	Commitment	Offer	Contractpartner	Signed	Contact
1	Austria	Y	(Y)	AIT	Y (OA and CR together)	
2	Switzerland	Y	Y	AIT	Y	
3	Sweden	Y	Y	TNO	Y	
4	Copper Alliance	Y	Y	TNO	Y	
5	The Netherlands	Y	Y	TNO	Y	
6	USA	Y	Y	AIT	N	
7	Italy	N	Y	TNO	N	Rene
8	Serbia	N	N			Matthias
9	India	N	N	AIT	N	Matthias
10	Germany	N	N	AIT	N	Matthias
11	Finland	N	N			Matthias/Rene
12:	Denmark	N	N	TNO	N	Rene/DTU

Questions

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