

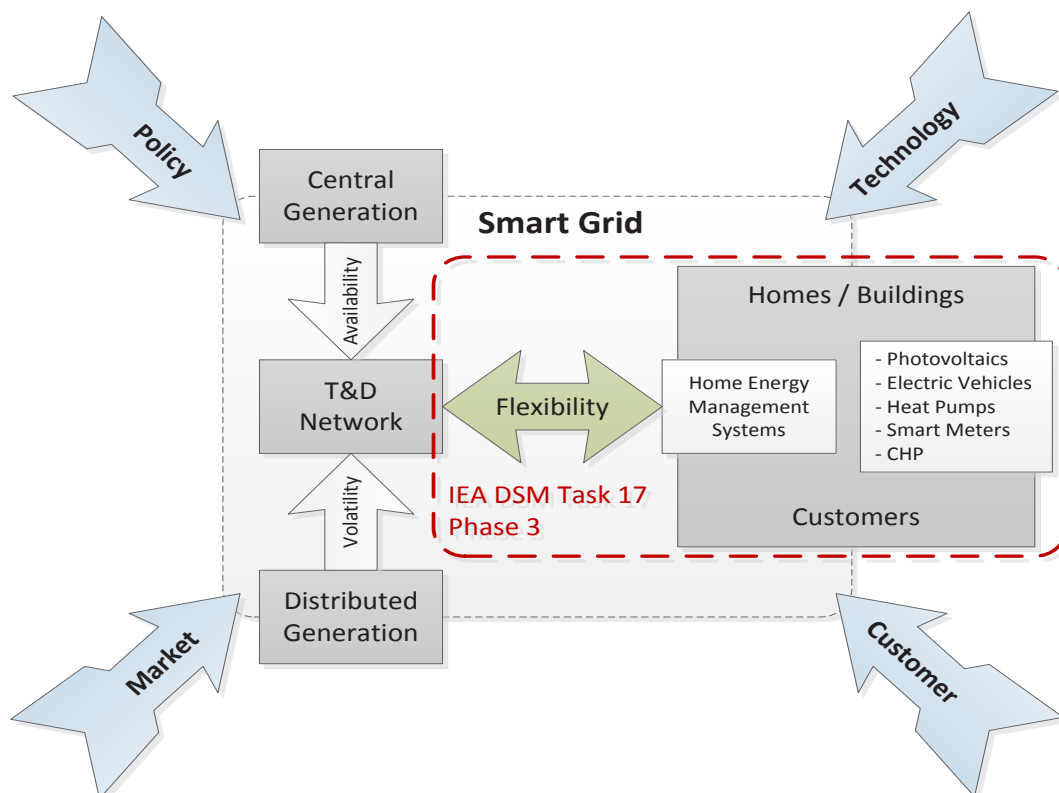
Integration of Demand-Side Management, Energy Efficiency, Distributed Generation and Renewable Energy Sources

Renewable Energies are difficult to predict because of their volatility. Electrical networks and markets are turning to integrated distributed energy resource as a solution. By combining distributed generation with energy storage and demand response, a country can decrease problems caused by distributed generation and increase the value of intermittent energy in the market.

House and building energy management systems can enable the flexibility, which is needed to integrate renewable energy resources. Current activities concentrate on technical standardisation and harmonisation of systems. The continuation of Task 17 will concentrate on the impact of such flexibility on various stakeholders and focuses on the lessons learned by evaluating the benefits and costs of existing pilot projects.

The main objective of the Task is to study how to optimally integrate flexible demand with Distributed Generation, Energy Storages and Smart Grids, thereby increasing the value of Demand Response and Distributed Generation and decreasing the problems caused by intermittent distributed generation. The Task will look at integration issues from the system point of view on the grid, market and customer.

Phase 3 is addressing the role and potential of flexible buildings (residential and commercial) equipped with Distributed Energy Resources - DER (Electric Vehicles, Photovoltaic, electric storage, heat pumps) and their impact on the grid and markets. The scalability and applicability of conducted and ongoing projects with respect to specific regional differences and requirements are being explored.



Subtask 10 - *Potentials of flexible prosumers*

This Subtask will compile and evaluate the concepts and implementation of customer and home/building energy management systems (CEMS/HEMS):

- Controllability requirements
- Opportunities, challenges and barriers
- Energy and power balancing potentials
- Smart technologies: Smart Meter, CEMS, Virtual Power Plants, Distributed Generation and Electrical Storage, heat Pumps
- Impact of these developments on existing metering, trade and billing processes

Subtask 11 - *Impact on stakeholders, grid and markets*

The introduction of DER into competitive energy markets has unexpected effects. Information from various sources will be analysed and a framework and methodology will be developed to assess the impact on:

- Grid, market and prosumer operations
- Sharing common benefits/losses
- Societal optimisation potential
- Regulatory and legislative requirements
- Comparison costs vs. delayed investments

Subtask 12 - *Sharing experiences*

Based on the collected pilot and case studies from the previous Subtasks, the results and findings of the finished projects in terms of successful implementations, barriers and effectiveness will be analysed:

- Collection of data and workshops
- Extrapolation from previously collected projects and applicability.

Subtask 13 - *Conclusions and recommendations*

Recommendations will be based on the experts' opinion and will provide a ranking based on impacts, costs and likely future penetration.

Task Duration (Phase 3)

May 2014 – May 2016

Participating Countries

Austria	Sweden
European Copper Institute	Switzerland
India	United States
Netherlands	

Task Publications

All official publications can be found on www.ieadsm.org

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