



# New demand response (DR) services and products for flexibility markets

*Concept Note*

*Melbourne/Vienna, 21 October 2019*



# *e7 energy innovation & engineering*

- **Private Company**

- founded 2007 in Vienna
- staff of 15 employees



- **Research, Consulting, Engineering**

- efficient use of energy
- energy efficiency in buildings

- **Activities (sample)**

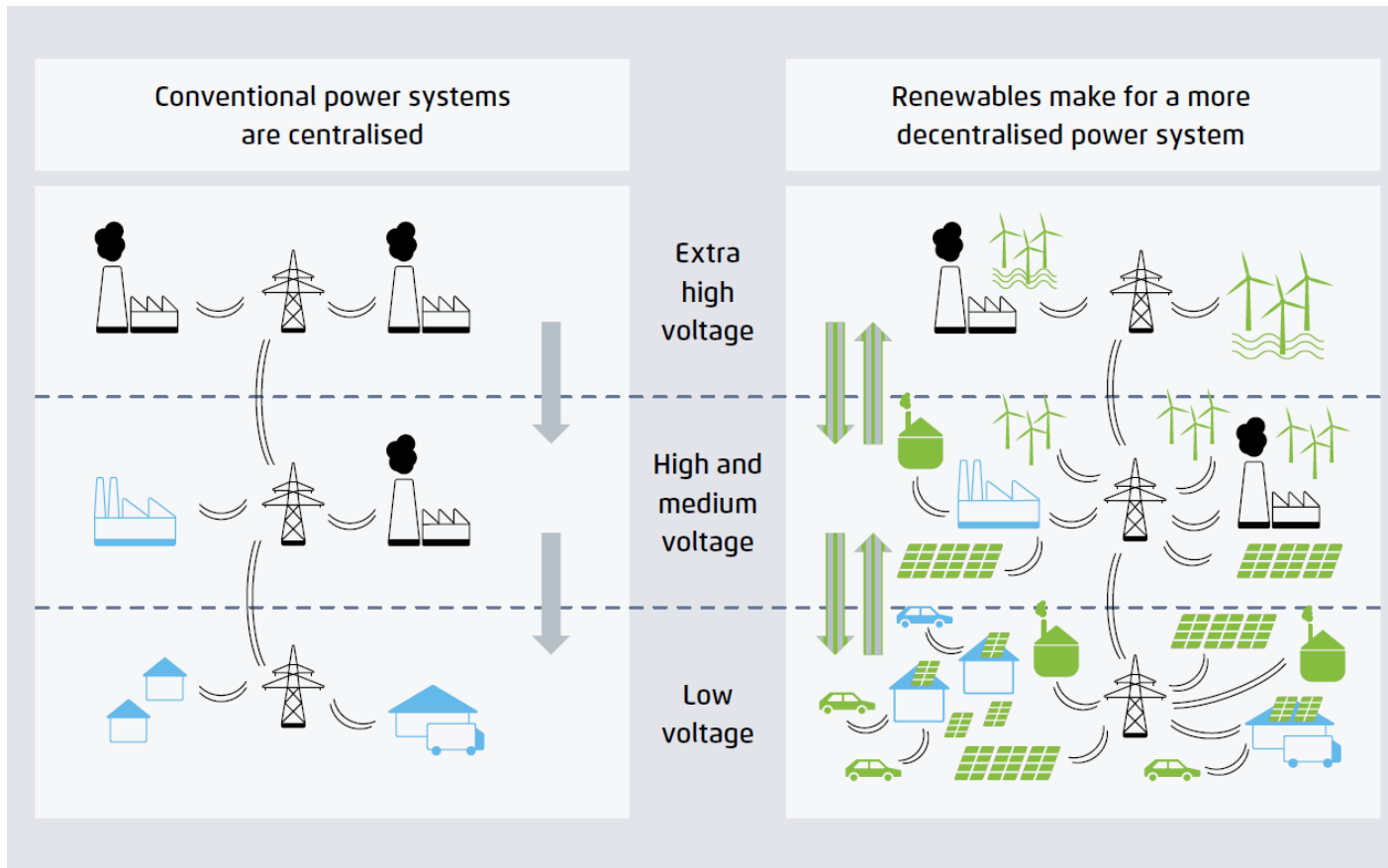
- energy economics (electricity markets, heat markets, energy systems)
- development of energy (efficiency) services
- concepts and engineering for renewable and energy efficient energy systems
- consulting for energy efficient and sustainable buildings (new and refurbished)
- international projects (Ukraine, Egypt, Georgia, Balkan Countries, Kyrgys Republic, ...)



## Background

- Paris Agreement on Climate Protection: 2°C-goal
- >> **Decarbonisation of the economy**
  
- Increase of Renewable Energy Resources (RES)
- Increase of Distributed Energy Resources (DER)
- Decline of fossil fuel power plants (e.g. phasing out of coal power stations, CHP)
- >> **High volatility of RES resulting in an increasing need for flexible production and demand response (DR)**
  
- Huge **technical potential for DR** with small and medium loads
- **Barriers** in the field of regulation, energy market structure and technology
- **Innovative technologies** are on the way

# The Flexibility Challenge

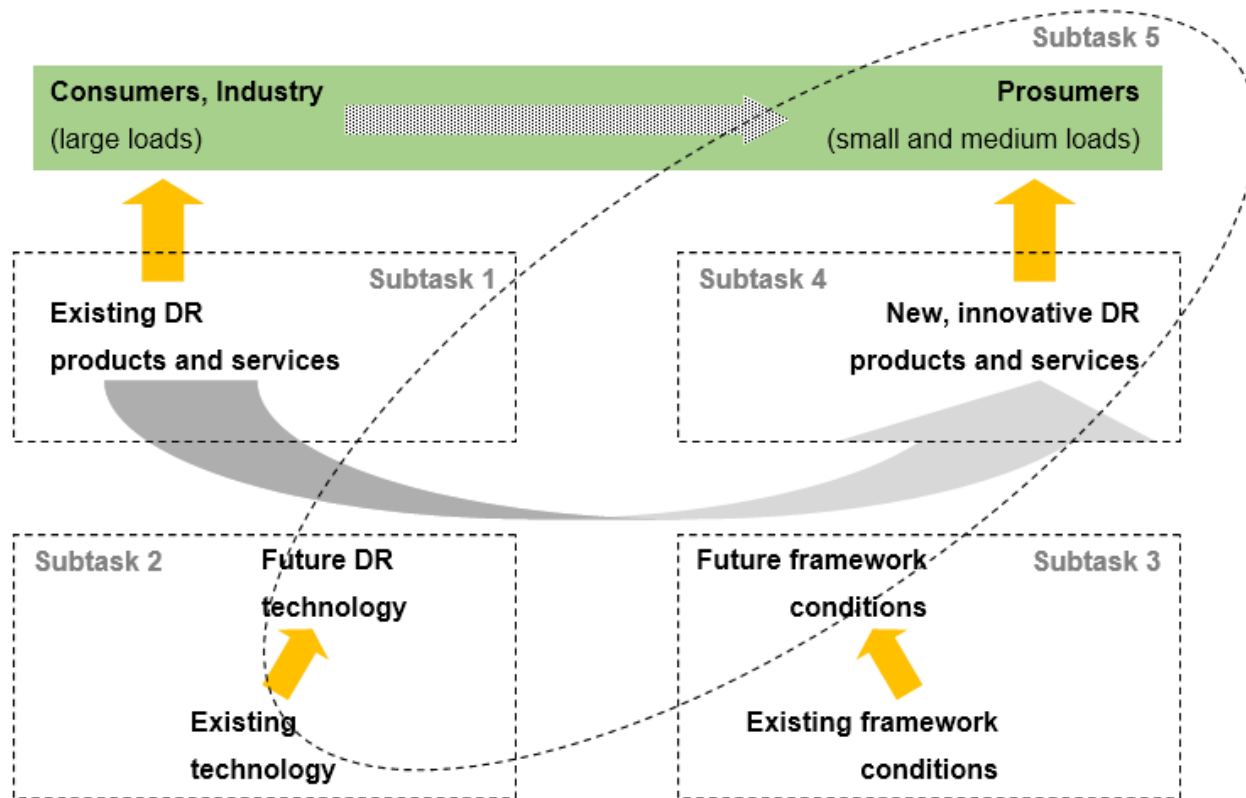




## *Aim and Objectives*

- Development of innovative **demand response services and products**
- **Integration of „Prosumers“** (energy consumption, production and storage) with **small and medium loads** into flexibility markets
- Comparison of existing **international experiences** with DR
- Assessment of existing innovative and future **technology developments**
- Assessment of **regulatory framework conditions**
- **Reduction of major entrance barriers**

# Task Structure





## *Subtasks (I)*

- Subtask 0: **Task management and task definition**
  - Definition of detailed work plan
  - Project co-ordination
  - Communication and reporting
- Subtask 1: **Market analysis**
  - Overview on existing DR products, offers and services
  - Best practice examples
  - Focus on small and medium loads
- Subtask 2: **Technology assessment**
  - Assessment of availability of innovative technologies (e.g. smart appliances)
  - Development of future technologies (e.g. blockchain, smart meters, BEMS)

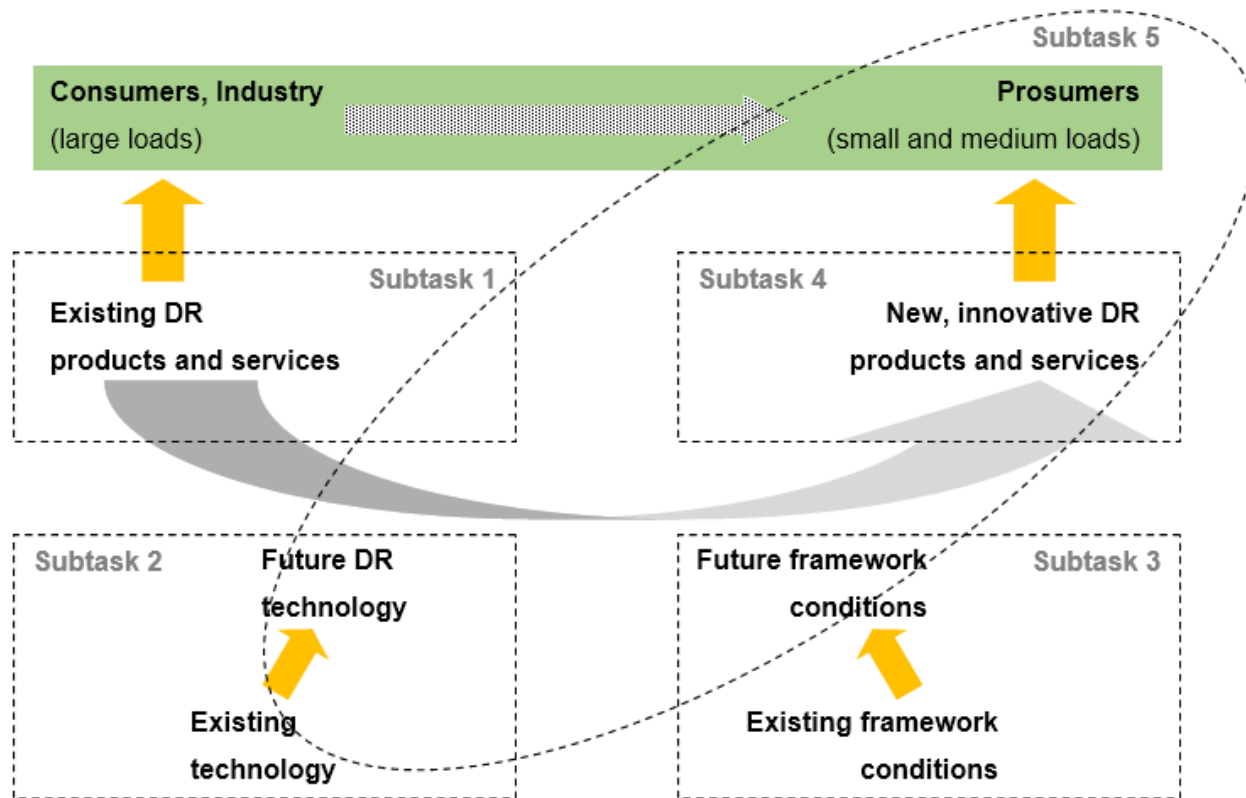


## *Subtasks (II)*

- Subtask 3: **Regulatory Framework**
  - Assessment of regulatory framework conditions (existing, near future developments)
  - Recommendations for further developments
  - Success factors in developed markets
- Subtask 4: **New business models for flexibility**
  - Development of new, innovative DR products, offers and services in the context of changed framework conditions and market development
  - Adaptation and further development of existing products in developed markets
  - Consideration of requirements in different flexibility markets
  - New methodologies for measurement and verification (M&V)
- Subtask 5: **Integration of consumers, stakeholder involvement and recommendations**
  - Participation of consumers, policy makers, regulatory bodies, grid operators, energy retailer, aggregators
  - Exchange of experience on international level (best practice examples)
  - Recommendations on national level (regulation)



# Task Structure





## *Expected Results*

- **Success factors** for market development for DR products and services
- **DR technology assessment**
- **DR business models** for small and medium loads for different flexibility markets
- **Integration of consumers and stakeholders**
- Recommendations for **adapted framework conditions**
- **International exchange** and **market development**



## *Matters for the ExCo*

- Suggested project financing model: **task shared model**
- Overlaps towards Task 25
  - task duration from May 2018 to October 2020
  - new task directly builds on the work of Task 25
  - focus of new Task is on flexibility markets (rather than on energy efficiency markets)
  - completely different stakeholder environment
  - highly complex regulatory framework
- Relation towards Task xy “Social Licence to Automate”
  - results of this Task are of high relevance for the new Task
  - close co-operation required for synergies



## *International Co-operation Partners*

- Requested institutions, interested, not formally committed yet:
  - **CERTH**, Greece (Technology development, research; information technology)
  - **HYPERTECH** Energy Labs, Greece (Technology development)
  - **Checkwatt AB**, Sweden (Smart solutions for consumers)
  - **IERC**, Ireland (University)
  - **JRC**, Italy/Belgium (EC Research Institute)
  - **University of Cyprus** (UCY), Cyprus
  - **Fraunhofer Institute for Systems and Innovation Research ISI** (Competence Center Energy Policy and Energy Markets), Germany
- Potentially interested countries (no requests yet):
  - Australia
  - United States
  - Canada
  - Japan

*Any Questions?*

