

The MAGNITUDE Consortium

MAGNITUDE brings together 16 partners from 9 different countries forming a multidisciplinary and complementary consortium consisting of:

- Energy related experts from industry, consulting and academia, capable of coping with technologies and tools among the whole spectrum of multi energy systems
- Experts for energy market simulation and analysis, and industrial market actors from the trading and retail markets
- SMEs that develop IT based solutions for system operation optimisation and aggregator companies
- Local multi utility companies operating energy networks and facilities
- Experts in the definition and implementation of dissemination strategies and in engaging dialogue with a broad community of stakeholders



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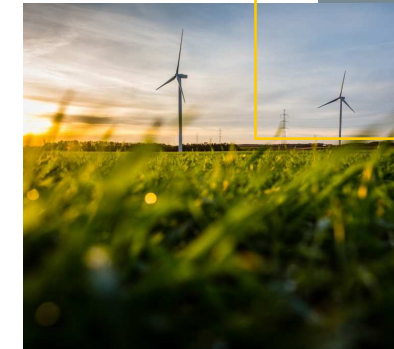
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Bringing flexibility provided by
 multi energy carrier
 integration to a new

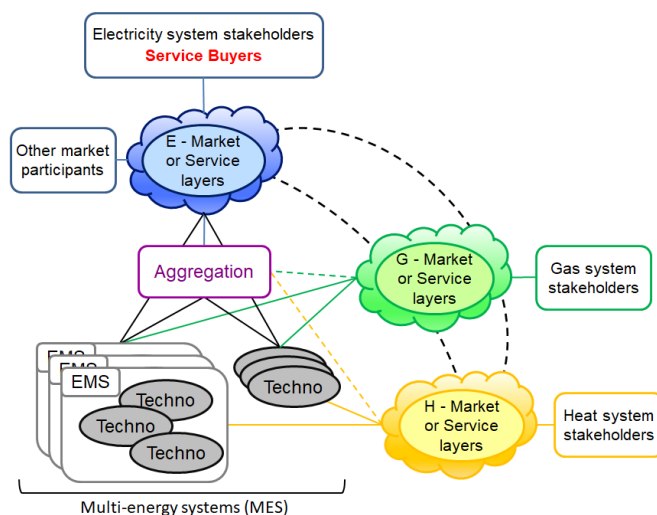
MAGNITUDE



MAGNITUDE Targets

The MAGNITUDE project aims to develop business & market mechanisms as well as supporting coordination tools to provide flexibility to the European electricity system, by increasing & optimising synergies between electricity, gas and heat systems. Ultimately, MAGNITUDE will:

- Provide flexibility options to support the cost-effective integration of variable renewable energy sources and the decarbonisation of the energy system while enhancing the security of supply.
- Bring under a common framework, technical solutions, market design and business models.
- Contribute to the ongoing policy discussion in the energy field.



Seven Real-Life Case Studies

The MAGNITUDE methods and tools are validated on seven real-life case studies of multi-energy systems in different European countries:

- The district heating and cooling systems of Mälarenergi in Sweden.
- An integrated pulp and paper mill in Austria.
- The HOFOR district heating network and distributed units at consumers' premises for domestic hot water production in Denmark.
- The Milan district heating of ACS in Italy.
- Industrial MES sites and large renewable energy plants in Neath Port Talbot in UK.
- The wastewater treatment plant of EMUASA in Spain.
- The district heating and cooling systems and the decentralized substations of the Paris-Saclay site in France.

MAGNITUDE Main Results

- Identification of the relevant flexibility services that can be provided by multi-energy systems.
- Characterization of the actual flexibility capabilities of cross-sector technologies and multi-energy systems.
- Models and tools for the simulation of multi-energy systems and the optimization of control strategies to maximize flexibility provision.
- Aggregation platform for pooling the flexibilities of decentralized multi-energy systems and trading on the electricity markets.
- Innovative market designs to enhance synergies between electricity, gas and heat markets, implemented on a market simulator.
- Assessment of the integrated system (multi-energy systems optimisation, aggregation platform, and market simulator) on the real-life case studies.
- Business models evaluation for the multi-energy systems and the aggregator.
- Multi-energy data hub and interoperability layers.
- Policy strategy and recommendations in a pan-European perspective.