



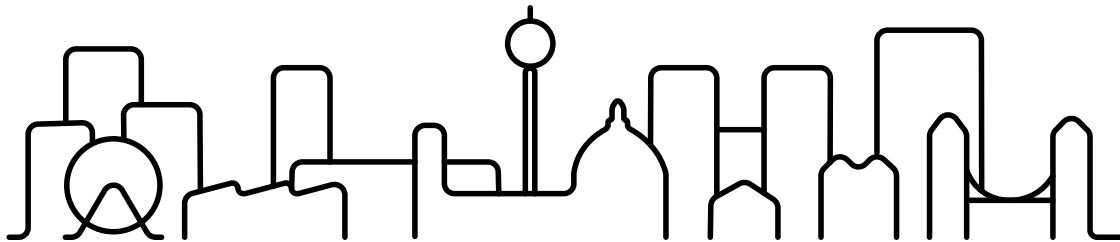
IRENE

Improving the Robustness of Urban Electricity Networks

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Overall goal

Enable a highly robust and highly available power supply for smart city scenarios

Topics

- Identify **security threats** and their impacts on **critical infrastructures**.
- Define technical means of utilizing distributed energy generation, storage and demand flexibility to increase power availability for dedicated consumers
- Develop **tools** that help city planners and distribution system operators to guide the **planning/deployment** of **Smart Grid** functions needed to optimize power availability for critical infrastructure.
- Identify **procedures** and **incentives** to allow increased power availability for critical infrastructures.

Results

Integrated collaboration framework and tools that allows cities for different faults/attack scenarios to collaborate with their stakeholders and to evaluate the efficiency of attack responses



- **Smart grid** technologies provide key enablers for IRENE scenarios
 - Advanced Metering and **Communication Infrastructure**
 - **Demand Management**
 - Distribution automation and control
- Establishment of urban grid and ICT **islands** for energy supply → operation of **micro grids**
- Management of scarce resources using demand response mechanisms
- Prioritization of **critical infrastructures** and vulnerable citizens
- Identification and mitigation of threats
- Impact analysis





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