Highly efficient and trustworthy electronics, components and systems for the next generation energy supply infrastructure

EF ECS 2021

TRANSITION TO GREEN DEAL TECHNOLOGIES

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Green Deal Targets

- CO2 / Emission Reduction (55% by 2030)
- Increase share of RES (to 40% by 2030)
- Increase efficiency (36% to 39% reduction of energy consumption by 2030)

Source: IEA World Energy Outlook 2019
Key Information

- Start date: 1.4.2020
- Duration: 36 months
- 22 Partners of 5 countries
- Total budget: about 20 Mio EUR
- EU contribution: about 5.8 Mio EUR
- Coordinator: Infineon Technologies AG
Concept
Power Conversion

- 3kW up to 450kW
- Battery storage supported
- Bidirectional, Reconfigurable
- Modular approaches, advanced topologies & control
- Wide bandgap semiconductors
- Improve efficiency up to 2% points (e.g. 95% to 97%)
Energy Management

- (Cooperative) microgrids
- Stochastic methods & artificial intelligence
- Renewable sources, storage, EVs
- Peak shaving (30% reduction)
- CO2 saving (20%)
Metrology & Monitoring

- Non invasive load monitoring
- Real-time monitoring
- Hardware based security for decentralized approaches
- Value add service platform
- Enhance security and communication
Use Cases

Flexibility management, smart charging and grid utilization optimization with improved resiliency

Promotion of cooperation among buildings in self-organised microgrids

EV high-power charging infrastructure

Intelligent DC microgrids embedding innovative modular power converters and providing grid services
Summary

CO₂-reduction, increased share of renewable energy sources & improved efficiency:

- Efficient, controllable and bidirectional power conversion
- Cooperative energy management
- Enabled by monitoring, non-invasive current sensors, hardware based security

Compatibility to existing installations minimizes invest and accelerates deployment.
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Thank you for your attention

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