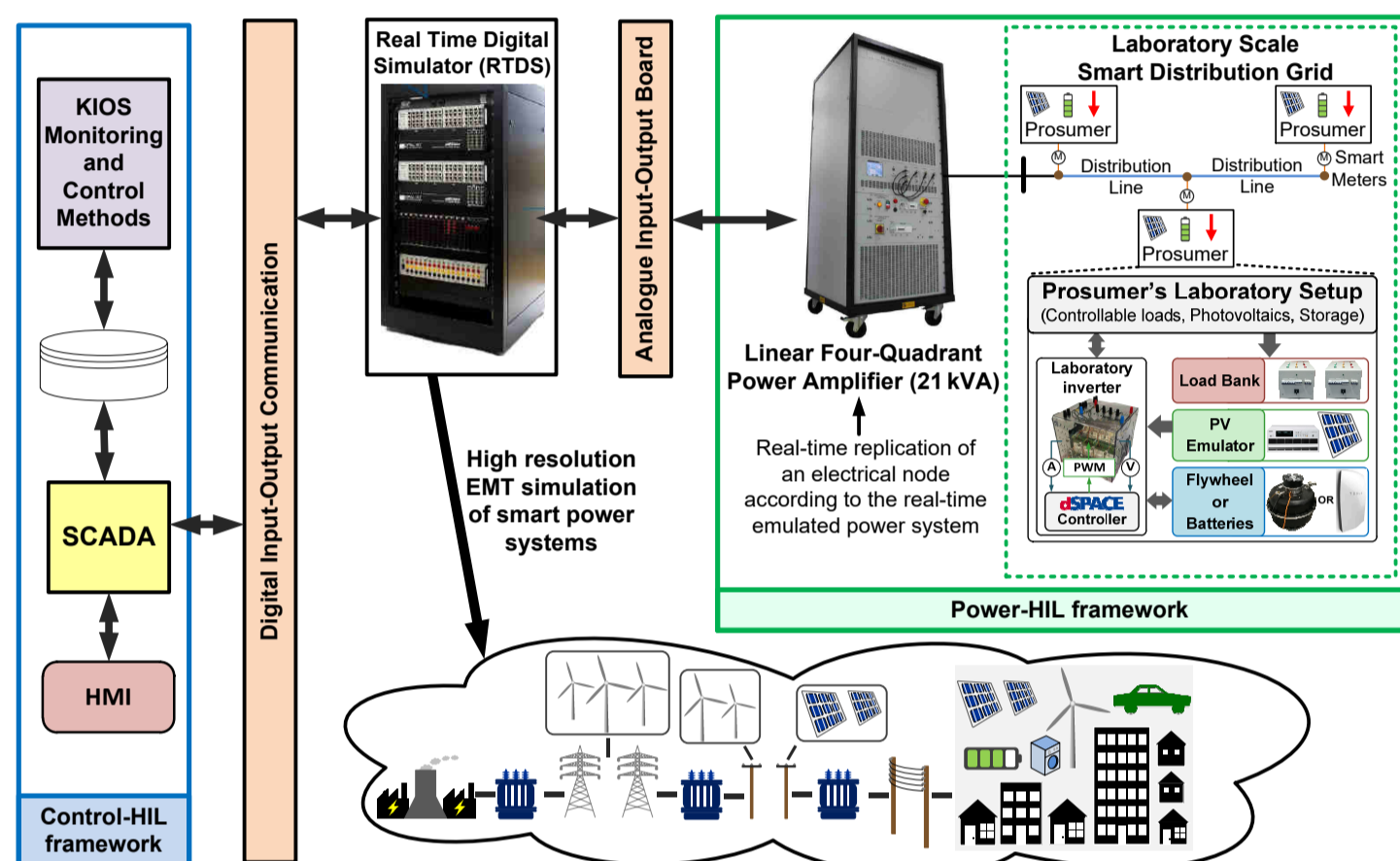


KIOS TESTBEDS FOR CRITICAL INFRASTRUCTURE SYSTEMS

Power Systems Testbed

This testbed is a novel infrastructure that enables high-quality and industry-oriented research on emerging topics in the area of modern power systems (e.g., monitoring and control of active power grids, integration of renewables and storage) using a control and power Hardware In the Loop (HIL) framework.



ARCHITECTURE

- **Real-Time Digital Simulator** (power system simulations in real-time)
- **Control Hardware In the Loop (HIL) framework** for power systems
- **Power amplifier (21 kVA)** for **power HIL investigations** on how physical power devices are interacting with a realistic power system
- **Experimental PV inverter and storage systems** for developing and applying novel control methods and testing under extreme scenarios
- **Laboratory scale smart distribution grid** for testing intelligent monitoring and control techniques according to industrial standards

CAPABILITIES

- **Real-time simulation** of large scale power systems for **testing monitoring and control** methods
- Design **applied controllers** for **PV inverter and storage devices**
- Investigate **renewables, smart meters, PMUs, communication and cyber-security** issues

IMPACT

- **High-quality research and education** activities in power grids
- **Test novel applications** (with TRL up to 6) for modern power systems
- **Collaboration with grid operators and power industry** (i.e., provide solutions, training activities)
- **Increase KIOS CoE reputation**



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