



Real-Time Intelligence for Smart Electric Grid Operations

A proposed new National Science Foundation
Industry/University Cooperative Research Center (I/UCRC)



RISE is a partnership between the smart grid industry, academe, and government.

The RISE faculty expertise and several centers and laboratories at Clemson University, Georgia Institute of Technology, and Kansas State University strategically position the three institutions to develop leading-edge industry relevant research to provide the foundation for intelligent smart electric grid operations.

RISE Executive Director

Dr. G. Kumar Venayagamoorthy

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<http://RISEWithUs.org>





Real-Time Intelligence for Smart Electric Grid Operations

RISE Vision

The RISE Vision is the creation of a flexible, resilient, cost-effective and sustainable electricity infrastructure, from generation to end-user operations.

RISE Mission

The mission of the center on Real-Time Intelligence for Smart Electric Grid Operations (RISE) is to define, initiate and accelerate the transformation of electricity infrastructure operations end-to-end to fulfill the goal of dramatically improved grid reliability, resilience, efficiency and sustainability leading to lower cost of energy delivered.

This requires the evolution of a new operating paradigm for the new electric energy industry by developing long-term partnerships among industry, academe, and government.



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Real-Time Intelligence for Smart Electric Grid Operations

RISE Objectives

- To develop an **end-to-end grid operational system of systems architecture** with emphasis on the integration of power system, communication and information systems, computational systems, cyber systems, market systems, and policy;
- To develop **scalable grid intelligence (end-to-end)** for real-time operations;
 - To develop **real-time dynamic energy management systems**;
- To educate the **next generation of system engineers** who understand the interdisciplinary nature of the new electric energy industry important to member companies.



Real-Time Intelligence for Smart Electric Grid Operations

RISE Thrust Areas

Grid Operation (GO)

Real-Time Power Systems, Computation, Control, Devices, Economics, Intelligence, Instrumentation and Measurements, Modeling, Operations, Optimization, Policy, Protection, Simulation, Stability and Sustainability

Computation and Visualization (CV)

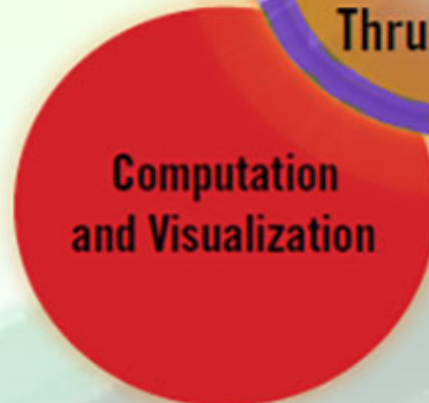
Computing Paradigms and Platforms, Big Data and Visualization, Analytics, Information Technology, Intelligent Systems and Real-Time Systems



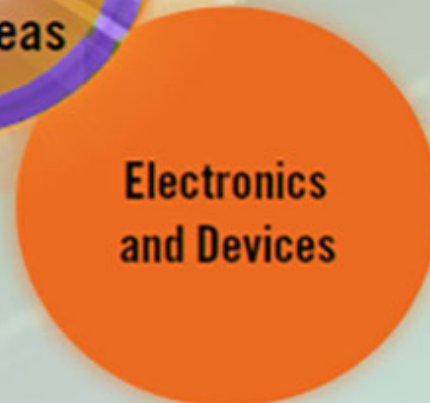
Grid Operation



Information, Communication, and Cyber



Computation and Visualization



Electronics and Devices



RISE Intelligence Thrust Areas

Information, Communication, and Cyber (ICC)

Cyber Security, Communication, Computational Networks, Control and Estimation and Intelligence

Electronics and Devices (ED)

Active Assets, Electric Machines, Energy Storage, Electric Vehicles, Power Electronics, and Renewable Energy Sources



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Real-Time Intelligence for Smart Electric Grid Operations

RISE Faculty



Richard Brooks (Clemson)



Marilyn Brown (GTech)



Keith Corzine (Clemson)



Shijie Deng (GTech)



Deepak Divan (GTech)



Santiago Grijalva (GTech)



Don Gruenbacher (KState)



Ron Harley (GTech)



Matthew Klein (Clemson)



Behrooz Mirafzal (KState)



Bala Natarajan (KState)



Simona Onori (Clemson)



Anil Pahwa (KState)



June Pilcher (Clemson)



Maryam Saedifard (GTech)



Noel Schulz (KState)



Rajendra Singh (Clemson)



Melissa Smith (Clemson)



Kumar Venayagamoorthy (Clemson)



Kuang-Ching Wang (Clemson)





Real-Time Intelligence for Smart Electric Grid Operations

RISE Universities & Facilities



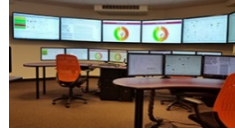
Clemson University



Future Computing Technologies Lab (Clemson)



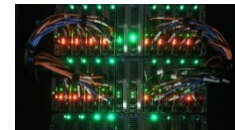
Georgia Institute of Technology



Real-Time Power and Intelligent Systems Lab (RTPIS) (Clemson)



Kansas State University



Cloud Lab (Clemson)



Battery Aging and Characterization Lab
CUICAR (Clemson)



National Electric Energy Testing, Research, and Applications Center (NEETRAC) (GTech)



Center of Excellence in Next Generation Computing (NGC) (Clemson)



Smart Grid Laboratory (KState)

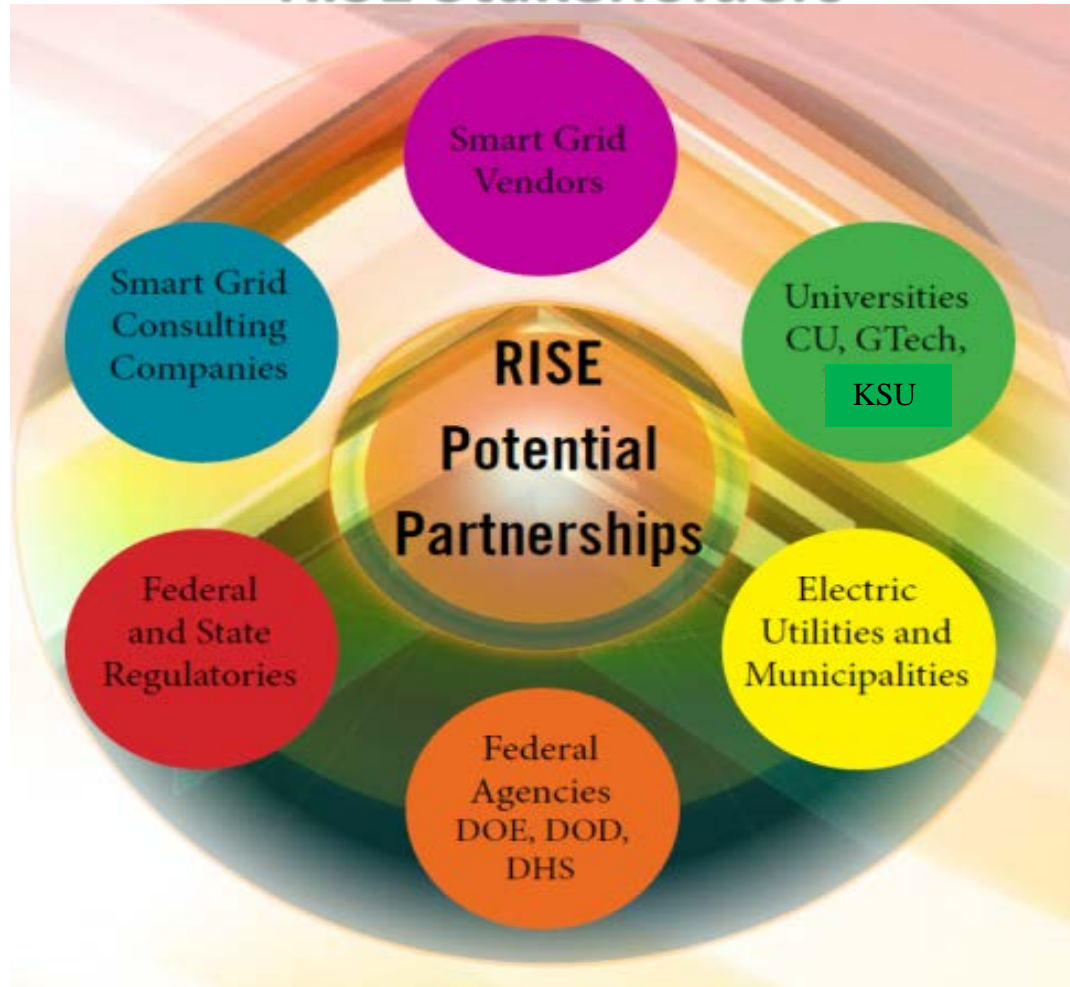


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Real-Time Intelligence for Smart Electric Grid Operations

RISE Stakeholders





Real-Time Intelligence for Smart Electric Grid Operations

Why RISE With Us?

All center members will have an opportunity to propose specific research problems, case studies, and focus areas for research.

Leading-edge cost-effective research projects jointly developed by university experts and industry leaders.

All center members will have the opportunity to contribute to RISE research, education, and innovation-ecosystem by serving as dissertation/thesis committee members and industrial mentors, as appropriate and consistent with the policies and procedures of participating institutions.

Additional benefits may be established in bylaws approved by the Board of Directors.

Site Directors

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Real-Time Intelligence for Smart Electric Grid Operations

The RISE Team invites

YOU

to come and

RISE WITH US!!!

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