

UCR



CE-CERT PROPOSED CONSORTIA

CENTER FOR ENVIRONMENTAL RESEARCH AND TECHNOLOGY



CONCEPT OF A CONSORTIUM

- Consortium: A group of stakeholders that have overlapping interest to influence the path of an industry.
- By leveraging group resources and input, consortia offer “value-added” compared to efforts of one company alone.
- Consortia offer a diverse group a means to communicate and advance science and technology together (e.g., utilities, technology providers, and regulatory agencies).

EXAMPLES OF SUCCESSFUL CONSORTIA

UCDAVIS

SUSTAINABLE TRANSPORTATION ENERGY PATHWAYS

ABOUT

PEOPLE

RESEARCH

SPONSORS

REPORTS

EVENTS



Future of Fuels and the
Oil and Gas Industry



UNIVERSITY OF MICHIGAN

LEADING THE TRANSFORMATION TO
CONNECTED AND AUTOMATED
VEHICLES

PROPOSED CONSORTIUM # 1

SUSTAINABLE INTEGRATED GRID INITIATIVE (SIGI) INTELLIGENT ENERGY MANAGEMENT – MOVING RESEARCH TO MARKET

MISSION:

TO ADVANCE TECHNOLOGIES, METHODS AND POLICIES FOR MANAGING FUTURE
GRID INTEGRATED ENERGY RESOURCES

CHALLENGES THE SIGI CONSORTIUM CAN ADDRESS

- Determine security requirements in the future interconnected and interdependent energy grid. Guide security implementation and management.
- Identify management and control needed by utilities and participants in a diverse distributed grid consisting of significant energy generation and storage.
- To improve reliability, resiliency, and power quality in the future grid architecture.
- Independently determine the comprehensive impact of energy management technology and policy on all impacted sectors.
- Identifying universally beneficial standards, protocols, and strategies with respect to distributed generation and storage.
- Provide a cohesive representative body to guide future technology, policy, and strategy facing the energy sector.

CURRENT SIGI PROJECTS

Development & Patents on Algorithms for:

- battery and solar integration
- cost optimization of storage systems
- net zero facilities & EV support

Testing & Validation of Energy and Smart Grid components:

- Batteries
- Inverters
- Solar Panels
- Energy Management systems for office, laboratory & industrial buildings

TRANSFORMING
EXISTING BUILDINGS TO
NET ZERO BUILDINGS
COST EFFECTIVELY
USING THE LATEST
TECHNOLOGIES



**SIGI SYSTEMS
THROUGHOUT
CALIFORNIA**

Chemehuevi Hotel & Casino

AZ/CA Border

Cucamonga Valley Water District

9029 Archibald Avenue, Rancho Cucamonga, CA 91730

Inland Empire Utilities Agency Regional Plant 4

12811 6th Street, Rancho Cucamonga, CA 91739

Olivenhain Municipal Water District

19090 Via Ambiente, Rancho Santa Fe, CA 92067

← **UCR Main Campus**

900 University Avenue, Riverside, CA 92507

Victor Valley Wastewater Reclamation Authority

20111 Shay Road, Victorville, CA 92394



SIGI's highly reconfigurable testing platform

BENEFITS FOR SIGI CONSORTIUM MEMBERS

Leverage consortium R&D to license emerging technologies

- Input on R&D conducted on developing new technologies and algorithms

- Early and advanced access to consortium-supported intellectual property

- Training on best practices and examples on how to implement renewable microgrid systems for facilities and utilities

Validation & Optimization of New Technologies & Algorithms

- Testing of your technology in reconfigurable settings and provide an honest broker evaluation for potential customers

Input to the Regulatory Process

- The consortium will provide legislative briefings to the State (and Federal) government on the role technology can play in moving towards renewable electricity goals, status of technology integration, and the barriers and opportunities for technology to meet regulatory goals.

Workforce Development

- Access to student interns & capstone projects

Community Engagement

- Be recognized as a sponsor of local efforts

QUESTIONS FOR BOARD

HELP US REFINE OUR PRODUCT TO BEST SERVE INDUSTRY

- How can we improve the value proposition for this consortium?
- What other consortia is your company involved in?
- Who in your organization could give additional feedback on this subject?
- Who do you want to join as partners in the consortium?

PROPOSED CONSORTIUM #2

ON ROAD TEST CENTER (PEMS) CONSORTIUM

MISSION:

TO SERVE AS AN HONEST BROKER AND TECHNICAL RESOURCE FOR IN-
USE EMISSIONS TESTING

CHALLENGES THE PEMS CONSORTIUM CAN ADDRESS

- Provide a platform to conduct strategically determined research and testing to validate & improve PEMS systems and the data they collect
- Provide training and best practices for use of PEMS in various applications
- Consolidation and data management of PEMS and PAMS data collection
- Provide a cohesive representative body to provide guidelines for PEMS use in regulatory, compliance and enforcement, and inventory development applications.

CURRENT PEMS ACTIVITIES

- Conducting research and testing with a comprehensive variety of Commercial and Emerging Research-Grade PEMS and PAMS systems
- Applications from conventional comparison with certification laboratory testing to dyno-in-the loop, to fully on/off -road circuits
- Data support for a suite of regulatory emissions/energy models (i.e. MOVES) and research emissions/energy models (i.e. CMEM)
- Servicing all types of mobile applications:
 - On Road: light and heavy duty vehicle testing & optimization
 - off –road: tractors to commercial marine vessels
 - Fuels: Conventional, biofuels, gaseous fuels, and hybrid and fully electric

BENEFITS FOR PEMS CONSORTIUM MEMBERS

1. Guide Consortium Research and Testing

Research to improve emerging technologies, methods & data collection and equipment
Early and advanced access to consortium-supported intellectual property

2. Validation & Feedback on In-Use Vehicle Emissions & Performance

Testing of your technology in multiple settings and provide an honest broker evaluation for internal use or public dissemination

3. Input to the Regulatory Process

The consortium will provide data and legislative briefings to the State and Federal government on the role PEMS can play in verification of compliance, validation of emissions inventories, and opportunities for PEMS & related technology to help meet regulatory goals.

Other Benefits

Workforce Development - Access to student interns & capstone projects

Community Engagement – Be recognized as a sponsor of local efforts

QUESTIONS FOR BOARD

HELP US REFINE OUR PRODUCT TO BEST SERVE INDUSTRY

- How can we improve the value proposition for this consortium?
- What is our competition?
- Who in your organization could give additional feedback on this subject?
- Who do you want to join as partners in the consortium?

Initial Proposed “Partners”

VW

EPA

AVL

ARB

Volvo