Workshop Goals

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PIER Advanced Generation Program

2009 IEPR Staff Workshop on
RD&D of Advanced Generation Technologies

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Advanced Generation (formerly known as Environmentally Preferred Advanced Generation) – one of the eight PIER RD&D program areas

- Buildings End-Use Energy Efficiency
- Energy Innovations Small Grants
- Energy-Related Environmental Research
- Energy Systems Integration
- **Advanced Generation**
- Industrial/Agricultural/Water End-Use Energy Efficiency
- Renewable Energy Technologies
- Transportation

Invested $102 million since 1998 (~20 percent of Total PIER Investment)

Advanced generation technology – An opportunity for developing clean, reliable, affordable, secure, and sustainable power in California.

Distributed Generation (DG) and Combined Heat and Power Systems (CHP) – A key focus of the Program in the past 10 years

- Prime movers (e.g., Fuel Cells, Engines, Turbines)
- Packaged CHP / CCHP Systems
- Analysis Tools for assessing, designing, testing, and monitoring

		Typical Attributes			
		Efficiency	Emissions	Cost	Reliability / Durability
DG/CHP Technologies	Fuel Cells	✓	✓	✗	✗
	Hybrid Fuel Cell Gas Turbine Cycles	✓	✓	✗	✗
	Reciprocating Engines	✓	✗	✓	✓
	Stirling Engines	✓	✓	✗	✗
	Microturbines	✓	✓	✓	✓
	Gas Turbines	✓	✓	✓	✓
	CHP / CCHP Package	✓	✓	✓	✓

Moving forward, the Program is considering including a full range of advanced generation technologies which can help and show progress in meeting California's Energy Policy Goals. Need prioritizing!

Small	• DG / CHP / CCHP Systems - Packaging and Integration • ~100 kW - 20 MW
Medium / Industrial	• Industrial CHP / CCHP / Cogeneration Systems • 20 MW - Less than 50 MW
Large	• Advanced Gas Turbine and Integrated Hybrid Cycles • Greater than 50 MW

Stakeholder input is critical.

Today we seek your suggestions and ideas on AG research and development as well as input / feedback on the PIER AG Vision, the preliminary research opportunities and target issues.

- What are the additional research opportunities which should be considered as part of the PIER AG program?
- Does the PIER AG Preliminary Vision capture the right objectives for the program's future?
- Do the preliminary research areas capture the appropriate target areas for PIER AG's future program?
- Are the secondary focus areas appropriate?
- Do the preliminary research issues capture the appropriate research needs?
- What areas can the Energy Commission most effectively devote resources which will show progress in meeting California's Energy Goals as 2009 IEPR Proceedings?

Stakeholder input opportunities:

- *July 23, 2009, 2009 IEPR Committee Workshop on Combined Heat and Power*
- August 10, 2009, 2009 IEPR Staff Workshop on Advanced Generation Technologies
- September 3, 2009, 9:00 am - 12:00 noon PDT, stakeholder WebEx meeting to discuss draft roadmap, including recommended research issues for PIER AG funding
- 2009 IEPR Proceedings

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