



DOE's Loan Programs Office

Presentation to the

Sustainable School Facilities Financing Meeting

December 2013



U.S. DEPARTMENT OF
ENERGY

LOAN PROGRAMS OFFICE

Loan Programs Office Has a Strong Portfolio of Projects

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OUR PROJECTS

● ALL
 ● 1703
 ● 1705
 ● ATVM

CURRENT PORTFOLIO

\$ 32.4B

LOANS

~55,000

JOB



Generation

- Solar
- ▲ Wind
- Geothermal
- Nuclear
- Distributed Solar

Manufacturing/Other

- ◆ Solar Manufacturing
- ★ Storage/Efficiency
- + Biofuels/Biomass
- × Transmission
- Vehicle Manufacturing

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Mission: Accelerate the U.S. commercial deployment of clean energy and advanced vehicle technology

Strong Portfolio: More than 30 projects with committed loan value of ~\$32 billion

Diverse Portfolio: Loan authority for fossil energy, renewable energy, nuclear, and advanced vehicles

Solid Performance: Losses represent ~2% of total loans, loan guarantees, and commitments

**The current portfolio includes loans, loan guarantees, and commitments.*

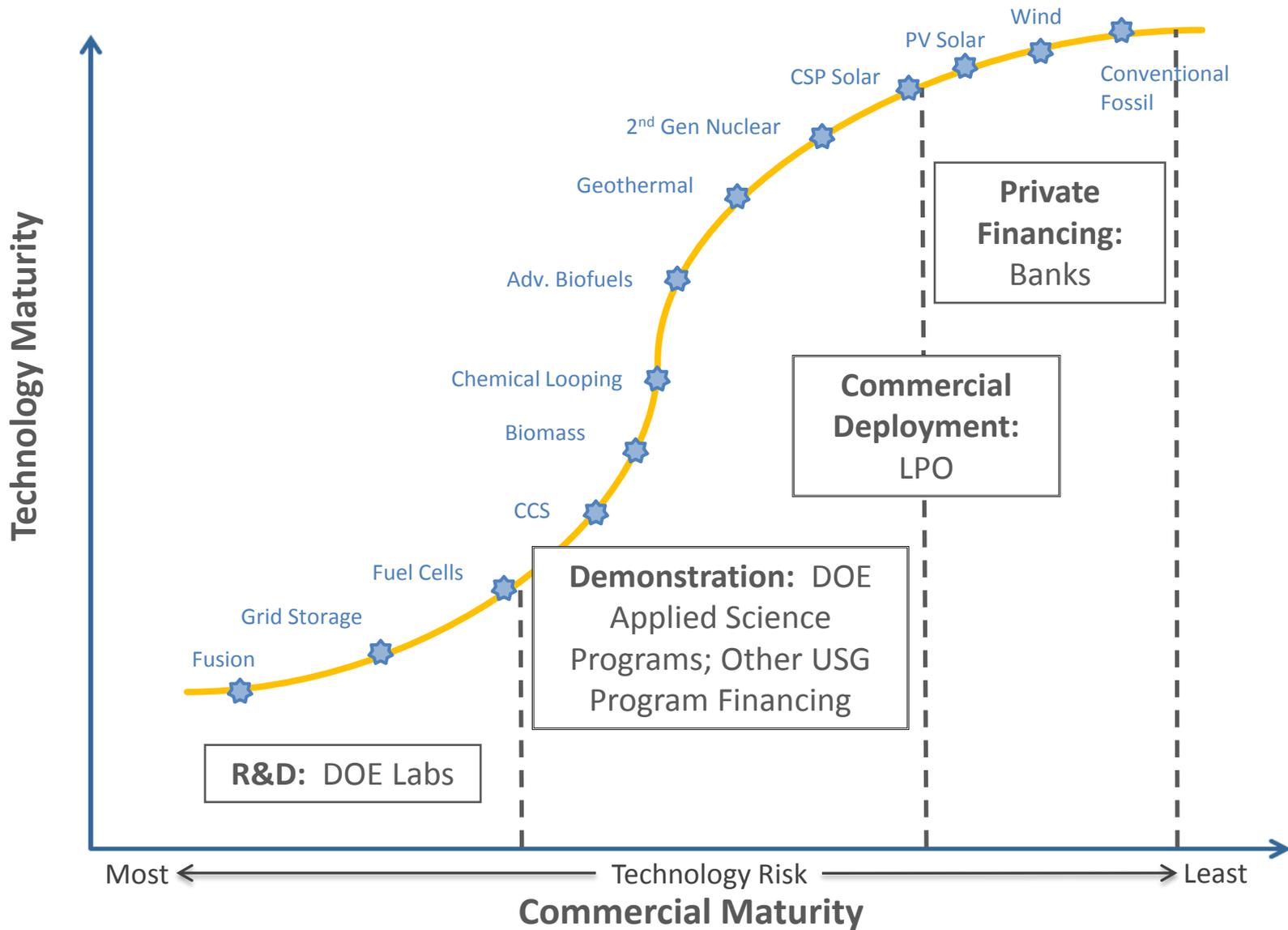


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LPO Supports Commercialization of Innovative Technologies



The LPO Portfolio Has Strong Financial Performance

NUMBER OF PROJECTS	MORE THAN 30
TOTAL LOAN / LOAN GUARANTEE AMOUNT COMMITTED	MORE THAN \$32 BILLION
DISBURSED	\$18.5 BILLION
LOAN LOSS RESERVE ESTABLISHED BY CONGRESS	\$10 BILLION
LOSSES AS % OF TOTAL LOAN AMOUNT	APPROXIMATELY 2%
TOTAL ECONOMIC INVESTMENT LEVERAGED	MORE THAN \$50 BILLION



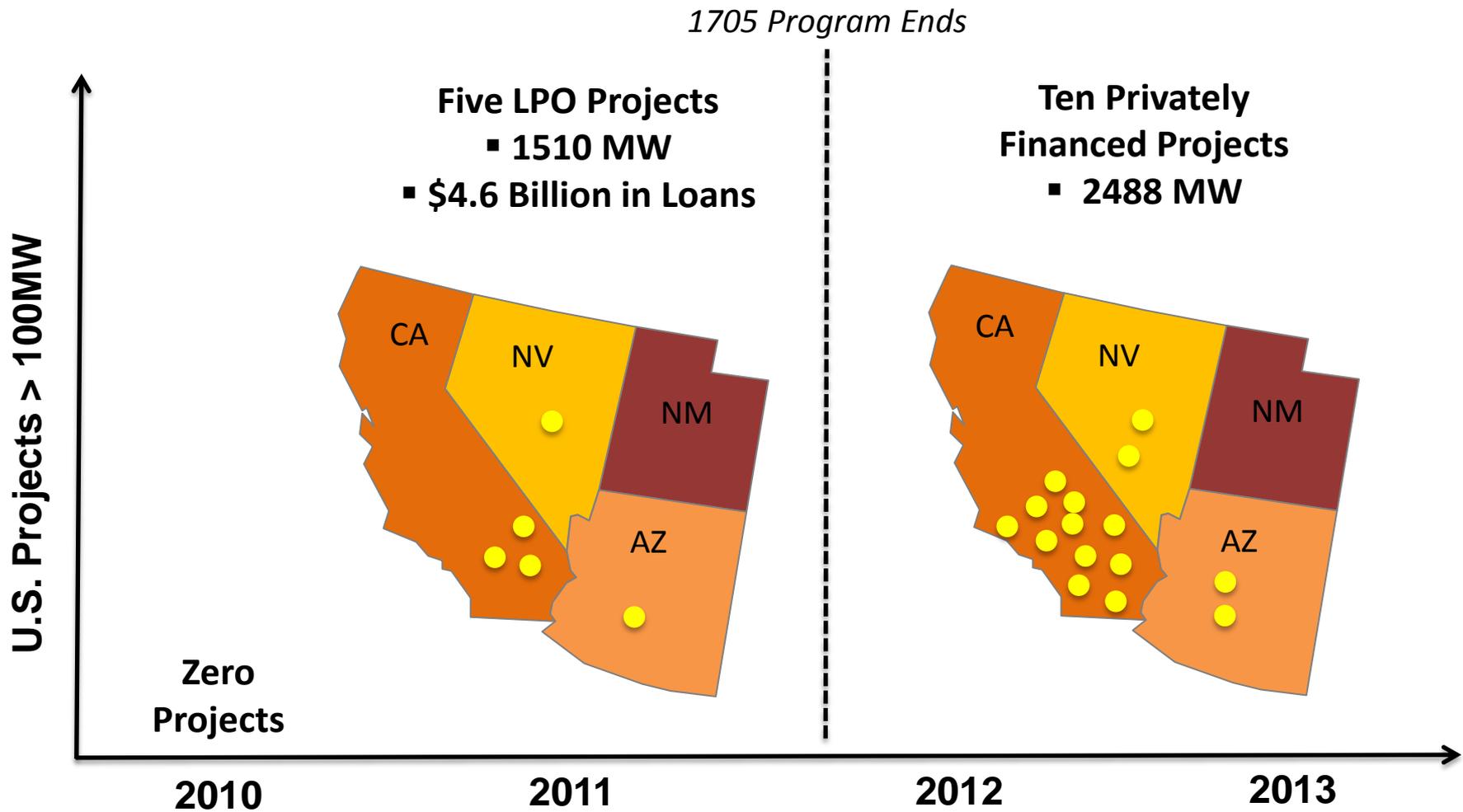
LPO Supports Many of the Largest & Most Innovative U.S. Projects

LPO is one of the largest project finance team in the world supporting:

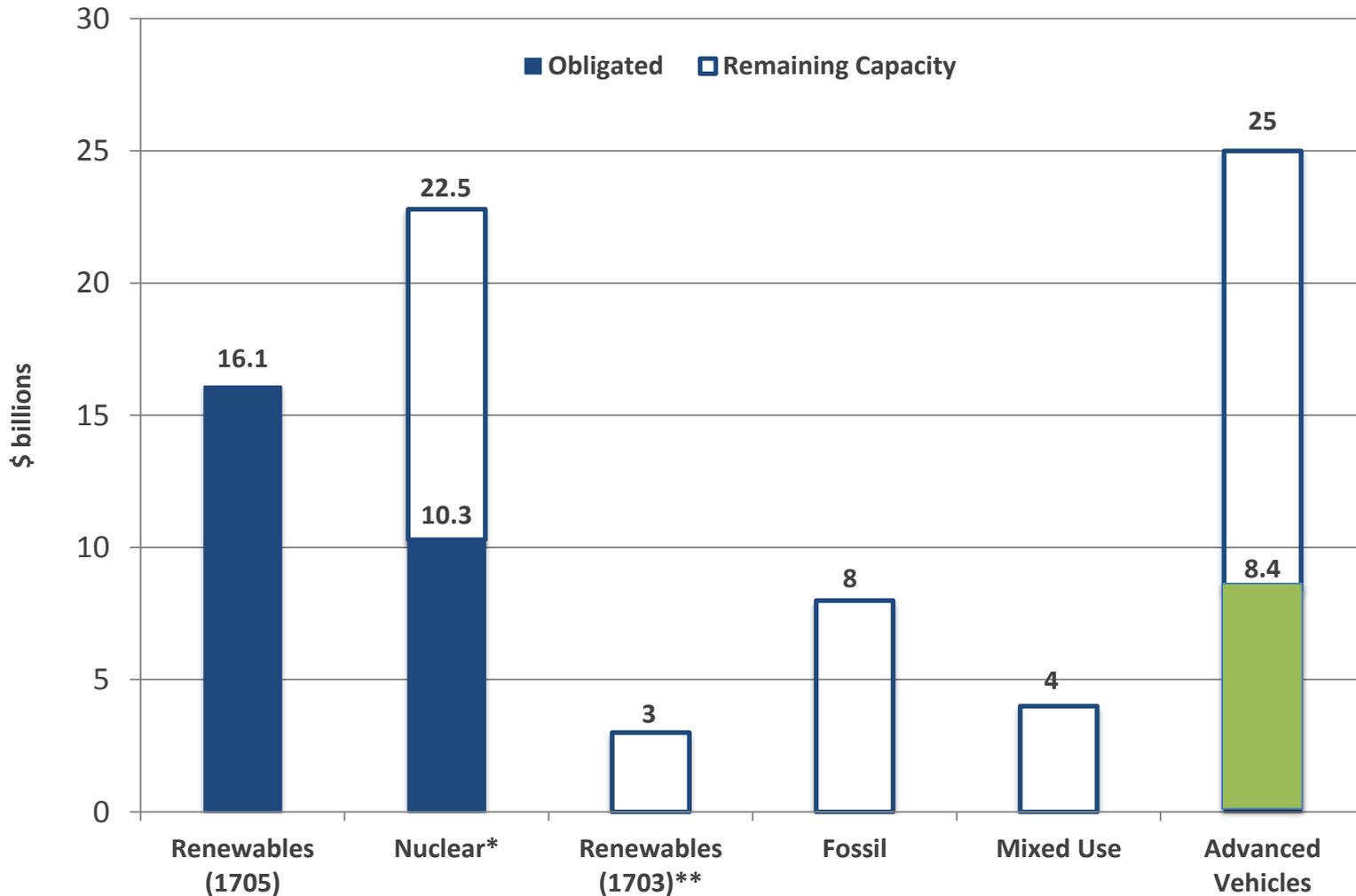
- One of the world's largest wind farms: Shepherds Flat
- Several of the world's largest solar generation facilities and nighttime solar storage systems:
 - Photovoltaic generation: Agua Caliente, Desert Sunlight
 - Large concentrating solar power plants with innovative thermal energy storage: Solana, Solar Reserve Tonopah
 - Largest solar thermal plant: Ivanpah
- Retooled three all-electric vehicle manufacturing facilities: Tesla, Nissan & Ford
- One of the country's first commercial-scale cellulosic ethanol plants: Abengoa Biomass
- First nuclear power plant to begin construction in the US in the last 30 years: Vogtle



LPO Launched Utility-Scale Photovoltaic Market in the U.S.



LPO Has More than \$40 Billion in Remaining Loan Authority



*Includes nuclear generation and front-end nuclear projects.

**Imputed loan authority. Actual loan volume will depend on actual credit subsidy rates for projects.



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Next Steps: Advanced Fossil Energy Projects Solicitation



LPO Provides Project Finance Debt Capital

- \$8 Billion in Loan Guarantee Authority for Fossil Energy
- Long-Term Financing Available



What is an Advanced Fossil Energy Project?

- Projects Must Be Innovative, Utilize Fossil Energy
- Reduce Greenhouse Gas Emissions
- Located in U.S. with Reasonable Prospect of Repayment



Timeline for Accepting Applications

- Draft Solicitation Published in June 2013
- Final Solicitation Expected Winter 2013
- Applications Accepted When Final Solicitation is Published



The Advanced Fossil Solicitation Has Broad Applicability

- **Projects May Utilize any Fossil Fuel**
 - Including, but not limited to, coal, oil, natural gas, shale gas, coal bed methane, and methane hydrates.
- **Covers the Full Fossil Fuel Value Chain**
 - Projects can include, but are not limited to, extraction, generation, greenhouse gas removal, and efficiency improvements.
- **Solicitation is Open to a Wide Variety of Applicants**
 - Power plants, mines, refineries, utilities, project developers, and factories
 - Public and Private Sector infrastructure, such as universities, airports, and hospitals
 - Others



The Advanced Fossil Solicitation Covers Four Technology Areas*



Advanced Resource Development

- Coal-bed methane recovery
- Novel oil and gas drilling



Low Carbon Power Systems

- Chemical looping or process that isolate fuel from air during combustion
- Fuel cells which convert chemical energy into electricity without combustion



Carbon Capture

- CO₂ capture from traditional coal or natural gas electricity generation
- Permanent geologic storage or utilization in enhanced oil recovery (EOR)



Efficiency Improvements

- Combined heat and power (CHP) and waste recovery
- High-efficiency distributed fossil power systems, and microgrids

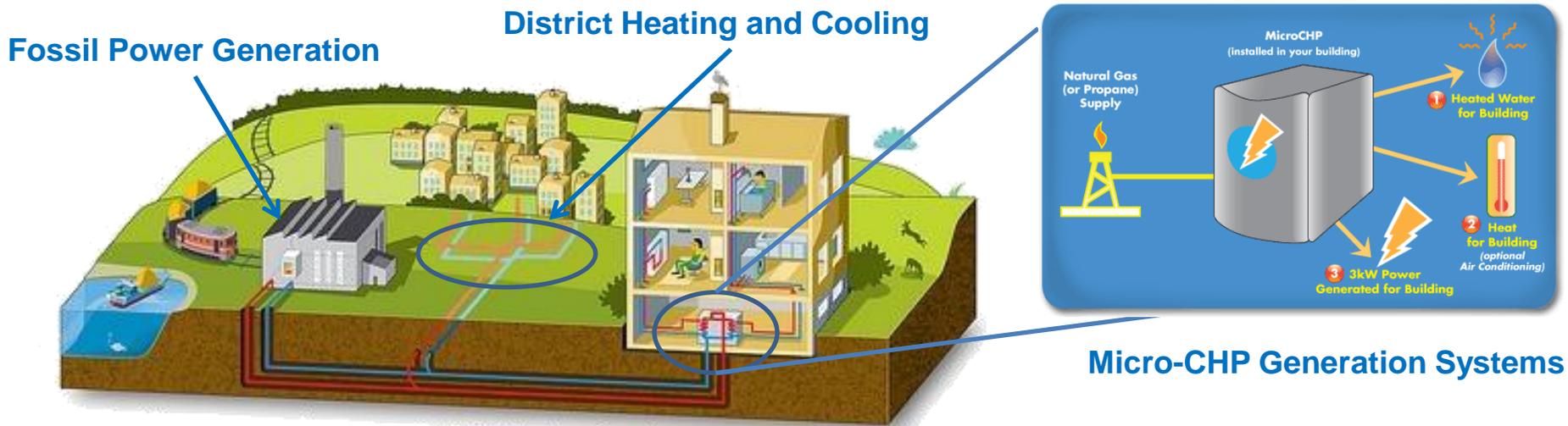
**Qualifying projects may include but are not limited to the technologies within.*



Retrofitting Existing Fossil Energy Facilities

Adding Waste Heat Recovery technologies to existing facilities is an effective means to increase efficiency and lower greenhouse gases. Two effective applications are:

- **Combined Heat and Power (CHP)**
 - Cogeneration and/or Trigeneration use recovered heat from electricity generation to provide heating and cooling services to a building or group of buildings.
- **District Heating and Cooling**
 - Heat from power plants or other industrial facilities can be captured to provide low-cost heating and cooling services for a group of buildings or a campus.



Micro-CHP Generation Systems



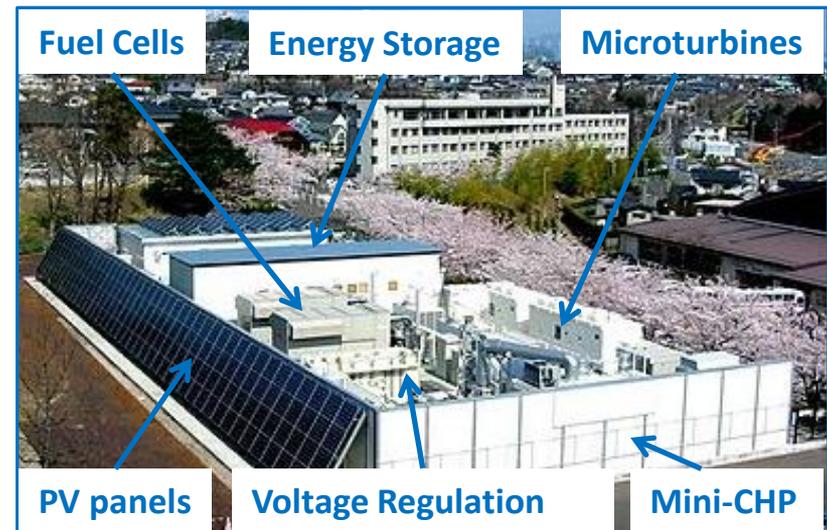
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Developing New Microgrids

- **Microgrids are small, localized, power systems that provide electricity generation and other services within a campus or community**
 - Benefits of distributed generation systems include: flexibility to use multiple power sources, improved energy security, and better resiliency against extreme weather and grid failures.
- **Microgrids can incorporate a number of different technologies to improve efficiency and reduce pollution**
 - Combined Heat and Power for efficient generation of baseload electricity, and heating and cooling loads
 - Fuel Cells that convert chemical energy into electricity with reduced greenhouse gas emissions
 - Microturbines, small “jet turbine-like”, distributed power generation technologies
 - Other innovative technologies, such as renewable energy, energy storage, and demand response and voltage regulation services

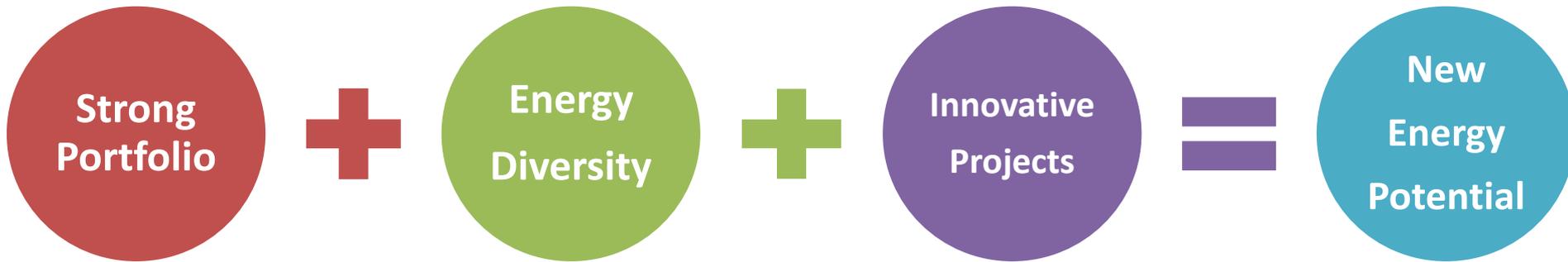


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Final Thought: LPO Can Provide a Bridge for U.S. Energy Innovation



For further information on LPO, please visit: www.lpo.energy.gov

