Loan Guarantee Program

U.S. Department of Energy

Loan Programs Overview - Objectives

- **Avoid, reduce or sequester air pollutants or anthropogenic emissions of greenhouse gases through new or significantly improved technologies**
- **Employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued**
- **Can be deployed commercially**
  - **Beyond research and development, pilot and demonstration stages**
- **Provide a reasonable prospect for repayment**

Energy Policy Act of 2005

Section 1703

- Supports innovative clean technologies not likely to obtain conventional private financing due to high technology risks
- Self pay credit subsidy

Title XVII Eligible Technologies

- Renewable Energy
- Advanced Fossil Energy
- Hydrogen Fuel Cells
- Advanced Nuclear Energy
- Carbon Capture and Sequestration
- Efficient Electricity, Transmission and Distribution
- Energy Efficient Technologies
- Fuel Efficient Vehicles Manufacturing
- Pollution Control Equipment
- Refineries

Types

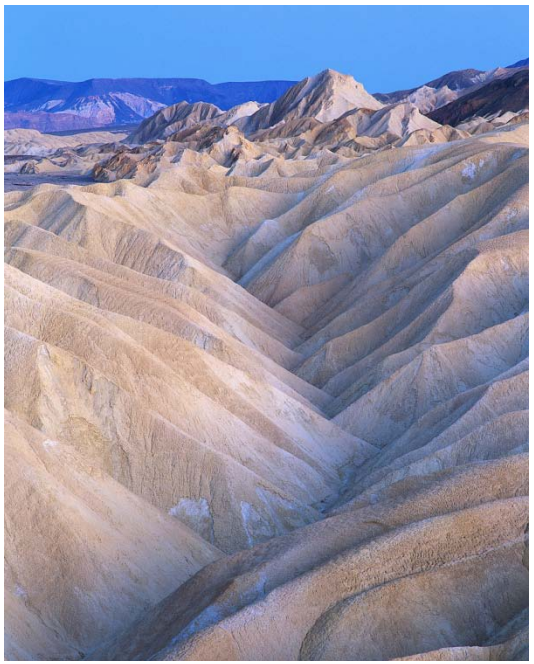
- Power generation
- Manufacturing
- Fuels

American Recovery and Reinvestment Act 2009

- **Recovery Act of 2009 amended Title XVII adding Section 1705**
  - **Supports primarily commercial energy projects that begin construction prior to September 30, 2011**
  - **Energy sectors include: biomass, hydrogen, solar, wind/hydropower, geothermal, transmission, or any other renewable energy systems**
- **Credit Subsidy Cost is paid by DOE**
  - **Appropriated Credit Subsidy Cost significant advantage for renewable energy sectors**
  - **Companies unwilling or unable to accept loan guarantee with subsidy cost**
    - **Too expensive**
    - **Requires upfront, non-refundable, cash payment**
- **Dual Eligibility**
  - **1703 projects may also be eligible under 1705, thereby qualifying for appropriated Credit Subsidy Cost**

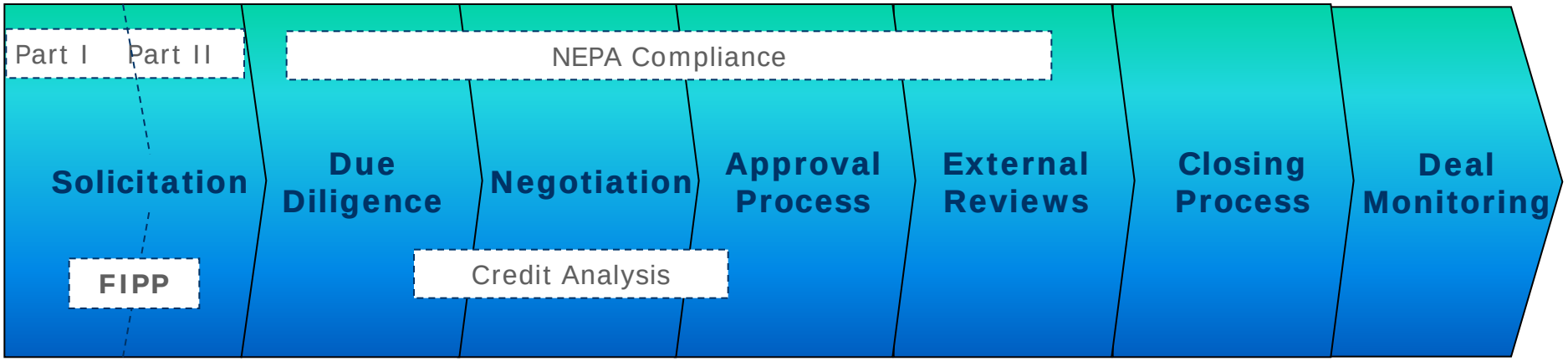
Financing Challenges for Innovative Technologies

- **Innovative technologies face financing challenges between development and commercialization**
- **Many commercial and institutional lenders are adverse to technology risk**
- **Loan guarantees induce long term debt to be employed in higher risk, innovative projects helping them cross the "Valley of Death"**
- **A specialized financing technique, project financing, is used to mitigate project risks by financing off balance sheet or in non-recourse structures to the sponsoring company or partnership**
- **Each transaction is unique, complex and some involve billions of dollars**



Bringing a deal to close is a long, complicated process

Loan Guarantee Approval Process



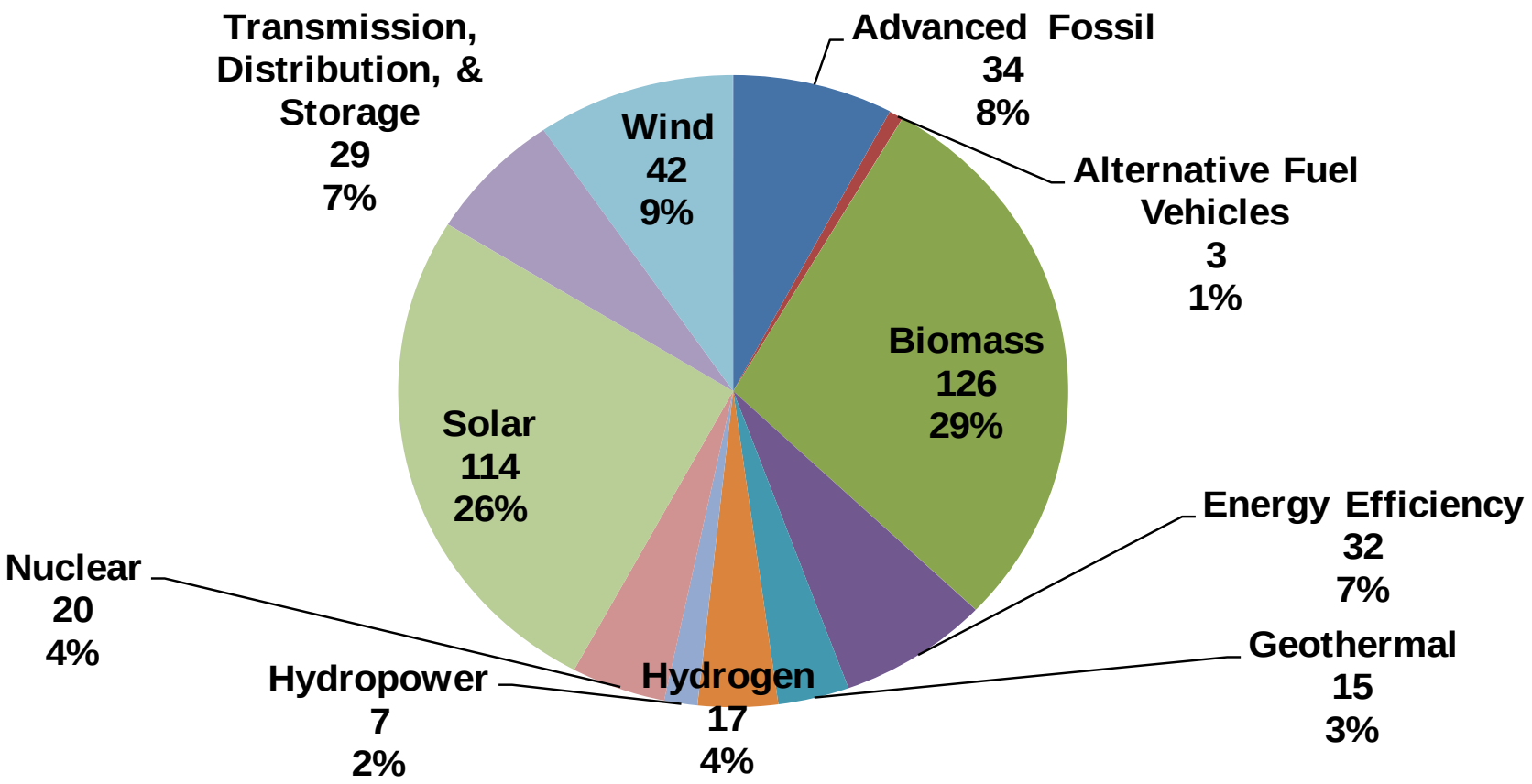
Activity

- Eligibility reviews
- Market
- Technology
- Financial / Credit
- Legal / Regulatory
- Term Sheet
- Credit Committee
- Credit Review Board
- Credit Subsidy Calculation
- Treasury Approval
- Final legal documents
- Performance tracking

Applications and Due Diligence

- **The FY 2009 EERE solicitation received over 140 Part-I applications**
  - **141 applicants have been invited to submit Part II applications**
  - **59 Part II applications have been received**
  - **22 projects have moved into due diligence**
- **Eight Part-I transmission applications were received**
  - **One project has moved to due diligence**
- **The LGPO is currently processing 52 projects in the due diligence phase reflecting presently a total requested loan guarantee amount of $52 billion**
  - **The projects encompass the following renewable energy and efficiency sectors: biomass, electricity and energy storage, energy efficiency, geothermal, industrial energy efficiency, solar, transmission and wind**
  - **Also represented are fossil energy projects along with front-end nuclear (enrichment) and nuclear generation projects**

439 Applications Received for Projects Across All Energy Sectors through FY 2010



The Solicitations

- **The LGP requests applications by issuing technology-specific solicitations. Energy storage projects are eligible under 3 current solicitations:**
  - **Energy Efficiency, Renewable Energy and Advanced Transmission and Distribution Technologies was issued to in support of debt financing for projects in the United States that constitute New or Significantly Improved Technologies and intended to facilitate accelerated commercialization of energy efficiency, renewable energy and advanced transmission and distribution technologies.**
    - **Last Part II Submission Due Date: December 31, 2010**

The Solicitations (Cont.)

- **Financial Institution Partnership Program (FIPP)* solicitation was designed to leverage the experience and capital of private sector financial institutions by accelerating the loan application process while balancing risk between DOE and private sector**
  - **FIPP will help accelerate the development of conventional renewable energy generation projects such as wind, solar, biomass, geothermal and hydropower.**
  - **Last submission opportunity: January 6, 2011**
- **A manufacturing solicitation to promote manufacturer of commercial renewable energy systems and components was issued on August 12th**
  - **Last Part II Submission Due Date: January 31, 2011**

***The FIPP Solicitation does not directly cover energy storage projects. However, if energy storage is a component of a generation project (e.g. First Wind), it can be covered under eligible project costs.**

3 Energy Storage Recipients of Loan Guarantees

Beacon Power Corporation project

- 20 megawatt (MW) flywheel-based frequency regulation facility
- Location: Stephentown, New York, about 26 miles southeast of Albany
- Technology: Gen4 flywheel
  - Newly developed, not *yet* commercial, technology that will balance the power consumption and generation for the electric grid.
  - Specifically optimized to perform frequency regulation on utility grids by absorbing and discharging energy to maintain the electrical grid frequency.
  - Has been shown in pilot demonstrations to be more efficient than current fossil-based methods for frequency regulation.
- Aggregate Loan Guarantees: Approximately $43.2 million (includes capitalized interest over the 18 month construction period)

3 Energy Storage Recipients of Loan Guarantees (Cont.)

AES ES Westover, LLC

- 20 megawatt (MW) energy storage system
- Location: Johnson City, New York (upstate NY, near Binghamton)
- Technology: A123System, Inc.'s advanced lithium-ion batteries and power control technology
  - Maintains the power grid's system stability at 60Hz by responding to second-by-second fluctuations in demand.
  - Can store or release energy from and onto the grid with a rapid response time thereby improving system reliability and power quality.
- Aggregate Loan Guarantees: $17.1 million (includes $165,200 capitalized interest)

3 Energy Storage Recipients of Loan Guarantees (Cont.)

Kahuku Wind Power, LLC

- 30 megawatt (MW) wind power plant, including the integration of 12 2.5 MW Liberty wind turbine generators and a battery energy storage system (BESS) with a 10 MW capability
- Location: Kahuku in Oahu, Hawaii (Oahu's North Shore)
- Technology: Xtreme Power, Inc. 10 MW BESS
  - patented control system that enables power delivery and power management.
- Aggregate Loan Guarantees: $117 million (approximately $3.2 million anticipated for capitalized interest)

For Additional Information

Loan Guarantee Program Office Website

http://lpo.energy.gov/

2005 Energy Policy Act

http://lpo.energy.gov/wp-content/uploads/2010/09/EPAof2005.pdf

Loan Guarantee Final Rule

http://lpo.energy.gov/wp-content/uploads/2010/09/FR-1703-Dec4.pdf

Solicitation Update Subscription: Send email to lgprogram@hq.doe.gov