DOE Loan Program’s Advanced Fossil Solicitation and CCUS

Michael Slanders
Loan Programs Office, USDOE

Presented at the 11th Annual CO₂ EOR Carbon Management Workshop

December 10, 2013
Midland, Texas
Loan Programs Office Has a Strong Portfolio of Projects

**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.*
LPO Supports Commercialization of Innovative Technologies

- **Technology Maturity**
  - Fusion
  - Grid Storage
  - Fuel Cells
  - Chemical Looping
  - Biomass
  - CCS
  - Adv. Biofuels
  - Geothermal
  - 2nd Gen Nuclear
  - CSP Solar
  - PV Solar
  - Wind
  - Conventional Fossil

- **Commercial Maturity**
  - Most: R&D: DOE Labs
  - Least: Demonstration: DOE Applied Science Programs (CCPI); Other USG Program Financing

- **Private Financing:**
  - Banks

- **Initial Commercial Deployment:**
  - LPO

U.S. DEPARTMENT OF ENERGY | LOAN PROGRAMS OFFICE
LPO Has More than $40 Billion in Remaining Loan Authority

<table>
<thead>
<tr>
<th>Category</th>
<th>Obligated</th>
<th>Remaining Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewables (1705)</td>
<td>16.1</td>
<td></td>
</tr>
<tr>
<td>Nuclear* (1703)**</td>
<td>22.5</td>
<td>10.3</td>
</tr>
<tr>
<td>Renewables (1703)**</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Fossil</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>Mixed Use</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Advanced Vehicles</td>
<td>25.0</td>
<td>8.4</td>
</tr>
</tbody>
</table>

*Includes nuclear generation and front-end nuclear projects.
**Imputed loan authority. Actual loan volume will depend on actual credit subsidy rates for projects.
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 Once Final Solicitation is Published
Four Key Eligibility Requirements for Advanced Fossil Projects

**Innovative Technology**
The project must employ new, or significantly improved, technology as compared to commercial technologies in service in the United States.

**Reduce Greenhouse Gases**
The project must avoid, reduce, or sequester anthropogenic emissions of greenhouse gases.

**U.S.-Based Projects**
The project must be located in the United States.

**Financial Viability**
The project must assure a reasonable prospect of repayment of principal and interest.

*complete eligibility requirements can be found in the Final Solicitation*
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
- CO$_2$ 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.
## The Application Process & Loan Guarantee Conditions

### Easy to Apply
- New Online Portal for Applications
- Final Solicitation Will Provide Complete Application and Eligibility Information
- LPO Encourages Co-Lending Participation

### Two-Part Application
- Part I initially determines project eligibility and readiness to proceed.
- Part II includes the full application process, complete underwriting, and negotiation of terms of the loan guarantee.

### Application Fees
- $1 million application fee (Partial due for Part I, Remainder at Part II)
- Fees to cover the LPO’s administrative costs, as required by Title XVII of the Energy Policy Act of 2005.

### Credit Subsidy Cost
- Successful applicants that receive a loan guarantee must pay the Credit Subsidy Cost.
- Credit Subsidy Cost is the net present value (NPV) of the estimated long-term cost to the U.S. government of a loan guarantee as determined by FCRA (the Federal Credit Reform Act of 1990, as amended)

- This website includes the Draft Solicitation, factsheet, press releases, other ppt presentations, and Federal Register Notices

To request a meeting with LPO personnel regarding the draft Advanced Fossil Solicitation, please send the meeting request to Brendan Bell at LPO.FossilSolicitation.Meetings@hq.doe.gov.

For additional technical questions on the draft Advanced Fossil Energy Solicitation, please send questions to LPO.FossilSolicitation.Questions@hq.doe.gov.

For general information on LPO, please go to: [www.loanprograms.energy.gov](http://www.loanprograms.energy.gov)
Final Thought: LPO Can Provide a Bridge for U.S. Energy Innovation

For further information on LPO, please visit: [www.lpo.energy.gov](http://www.lpo.energy.gov)