

# Advanced Energy & Fuel-Efficient Funding Opportunities



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# Title XVII Loan Guarantee Program

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# DOE Loan Guarantee Program

- ▶ Program Authority and Objectives
- ▶ Application Process
- ▶ Status of Applications
  - 2006 Submissions
  - 2008 Applications
- ▶ Small Business Initiative





# Program Authority and Objectives

# DOE Loan Guarantee Program

- ▶ Objective: Issue loan guarantees to eligible innovative technology projects that:
  - Avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases
  - Provide a reasonable assurance of repayment
  - Employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued



# Legislation & Regulations

**Title XVII and L.G. Final Regulations identify financial parameters for each project application**

- ▶ **Repayment:** “Reasonable prospect” of repayment before loan guarantee issued
- ▶ **Government Exposure:** Guarantee not to exceed 80% of total project cost
- ▶ **Default:** Government has superior lien on project assets pledged as collateral
- ▶ **Cost Recovery:** Government collects fees to cover applicable administrative expenses
- ▶ **Credit Subsidy:** Borrower pays “credit subsidy” to cover default risk on the obligation
- ▶ **100% Deals:** Applicants for 100% guarantee must have debt instrument funded by Federal Financing Bank (FFB).
- ▶ **Less than 100% Deals:** Applicants for less than 100% guarantees must be funded by eligible lender other than the FFB (e.g., a private lender)
- ▶ **Stripped:** Guaranteed portion of loan may be “stripped” from non-guaranteed portion, except in cases where the guarantee exceeds 90% of the loan amount



# FY 2007–2009 Guarantee Authority

## FY 2007 – FY 2009 Guarantee Authority

FY2007 Loan Guarantee Authority	FY2008 Loan Guarantee Authority	FY2009 (requested) Loan Guarantee Authority
<p><b>\$4.0 billion</b> (No expiration date)</p>	<p><b>\$38.5 billion (Expires by end of FY2009)</b></p>	
<p><u>Breakdown</u></p> <p>No carve-out stipulated by Congress</p>	<p><u>Breakdown</u></p> <p><b>\$10.0 billion</b> for energy efficiency renewable energy and advanced transmission and distribution technologies</p> <p><b>\$18.5 billion</b> for advanced nuclear power facilities</p> <p><b>\$2.0 billion</b> for “front end” nuclear fuel cycle facilities</p> <p><b>\$6.0 billion</b> for coal based power generation, industrial gasification and carbon capture and sequestration</p> <p><b>\$2.0 billion</b> for advanced coal gasification</p>	<p>No new loan guarantee authority was requested for FY2009.</p> <p>The FY 2009 Budget, however, proposes to extend the September 30, 2009 authorization through fiscal year 2010 for all projects other than Nuclear and through fiscal year 2011 for Nuclear power facilities projects.</p> <p>The EWD FY 2009 House Mark proposes an additional \$8.5 billion in authority and extends the period of availability to 2011 for all technologies.</p> <p>The EWD FY 2009 Senate Marks proposes a no-year limitation on the authorization for the entire \$38.5 billion.</p>



# Application Process

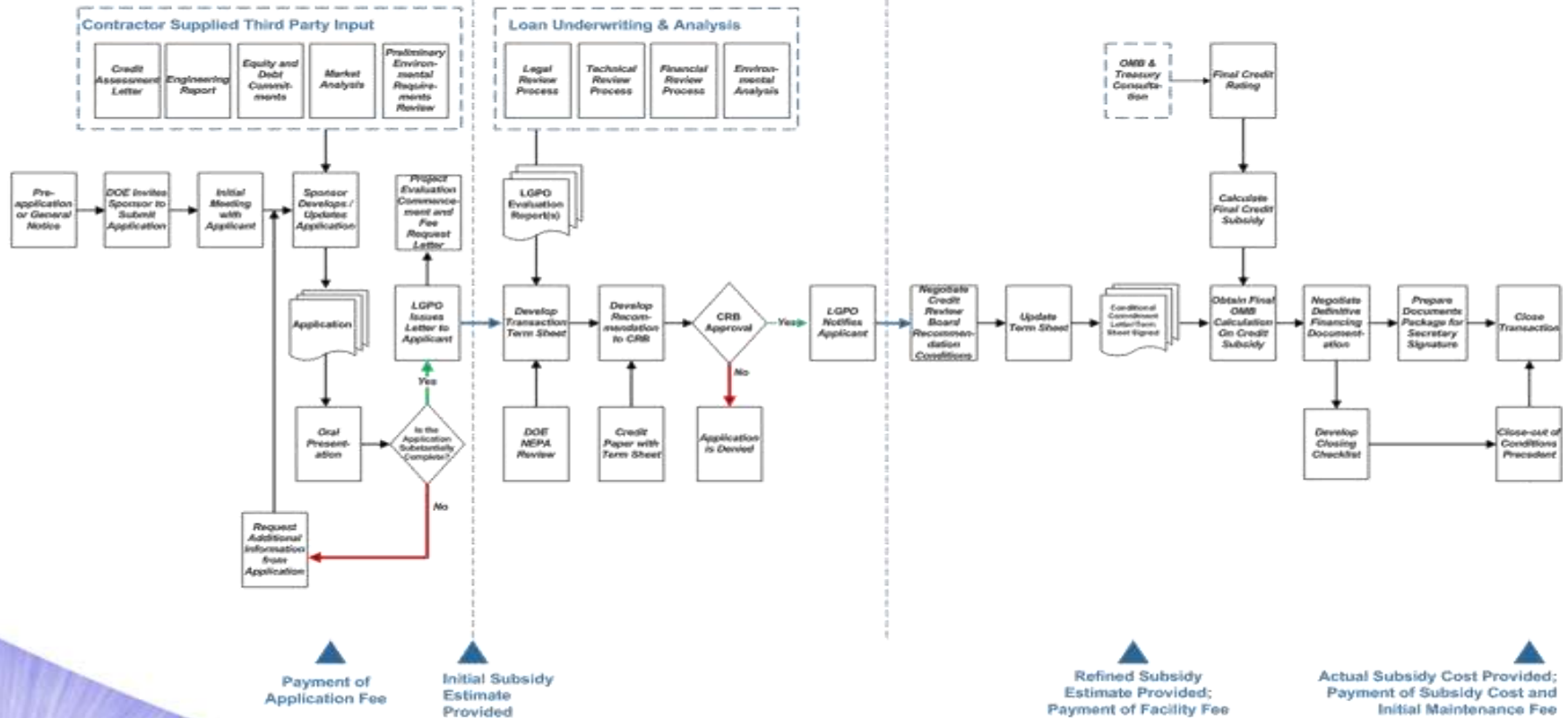
# Application Process Overview

## DOE Loan Guarantee Program

### Stage 1: Initial Project Information Submission/ Pre-application Update

### Stage 2: Project Underwriting, Due Diligence and CRB Decision

### Stage 3: Satisfaction of Conditions Precedent



# DOE Loan Guarantee Program

## Project Application: Application and Due Diligence

### Application

Solicitation–The Loan Guarantee Program issues a solicitation outlining the necessary content of the applications.

Applications– Applications *and supporting documentation* are submitted to the Loan Guarantee Program through an online portal including:

- Project Description
- Engineering Reports
- *Environmental Reports*
- Application Fees must be paid at the time of application submission

### Due Diligence

Legal Review

Technical  
Review

Financial  
Review

Environmental  
Analysis

Credit Subsidy will be paid by the project sponsor in order to offset the risk associated with the implementation of the project. Credit subsidy *estimates* will be calculated and shared with the project sponsor throughout the due diligence period.



# Innovative energy technology projects

**Total Loan Guarantees \$42.5 B**

## Fossil



**Phase Four**

**\$8.0B**

- 8 Part I applications received by submission deadline of December 22, 2008
- Advanced Fossil Tech Part II applications – March 23, 2009
- Authority expires September 30, 2009

## Renewable



**Phase Three**

**\$10.0B**

- Stand-alone and Manufacturing Projects Complete applications – February 26, 2009
- Large-scale Integrated Renewable Projects Part I applications – February 26, 2009
- Large-scale Integrated Renewable Projects Part II applications – April 30, 2009
- No applications received to date
- Authority expires September 30, 2009

## Nuclear



**Phase Two**

**\$20.5B**

- \$18.5 billion for Nuclear Power Facilities – 15 Part II applications to support construction of XX plants.
- \$ 2.0 billion for Front End Nuclear Facilities – Received 2 Part II applications
- Authority expires September 30, 2009

## Mix



**Phase One**

**\$4.0B**

- 16 pre-applicants out of 143 invited to submit full applications
- Received 11 applications by November 19, 2008 application deadline.
- Authority available until used.



# LGP Timetable of Major Events

2005	2006	2007	2008	2009
<p><b>AUGUST</b></p> <p>Energy Policy Act of 2005 is enacted, including Title XVII, which creates the LGP.</p>	<p><b>AUGUST</b></p> <p>First solicitation issued inviting interested parties to submit pre-applications.</p>	<p><b>FEBRUARY</b></p> <p>Congress provides DOE with up to \$4.0 billion in loan guarantee authority which remains available until used.</p>	<p><b>APRIL</b></p> <p>DOE submits its fiscal year 2008 Implementation Plan for solicitations to Congress</p>	<p><b>FEBRUARY</b></p> <p>Application deadline for the 2008 Energy Efficiency, Renewable Energy &amp; Advanced Transmission and Distribution solicitation.</p>
		<p><b>APRIL</b></p> <p>LGPO was funded and began independent operations</p>	<p><b>JUNE</b></p> <p>DOE issues three solicitations with potential to provide \$30.5 billion in loan guarantees</p>	<p><b>MARCH</b></p> <p>Application deadline for the Part II applications for Large Scale Integrated Renewable Projects</p>
		<p><b>MAY</b></p> <p>DOE issues a Notice of Proposed Rulemaking</p>	<p><b>SEPTEMBER</b></p> <p>DOE issues solicitation with potential to provide \$8.0 billion in loan guarantees. DOE receives 19 Part I applications for nuclear power facilities and 2 Part I applications for Front End Nuclear Facilities.</p>	<p><b>APRIL</b></p> <p>Deadline for subsequent application material supporting Large Scale Integrated Renewable Projects.</p>
		<p><b>AUGUST</b></p> <p>Director, Loan Guarantee Program hired</p>	<p><b>OCTOBER</b></p> <p>DOE provides initial rankings to Nuclear Power Facilities applicants.</p>	
		<p><b>OCTOBER</b></p> <p>DOE issues LGP final regulations; 16 pre-applicants from 2006 solicitation invited to submit full application</p>	<p><b>NOVEMBER</b></p> <p>DOE receives 11 applications under the 2006 solicitation out of the 16 that are invited to apply.</p>	
		<p><b>DECEMBER</b></p> <p>Congress provides \$38.5 billion in additional loan guarantee authority which expires on September 30, 2009</p>	<p><b>DECEMBER</b></p> <p>DOE receives 2 Part II applications for Front End Nuclear Facilities; 15 Part II applications for Nuclear Power Facilities; and 8 applications for Advanced Fossil Energy.</p>	



# Applicant Costs

**The LGPO must be self-supporting**

Fees collected must cover Administrative Expenses:

Application Fee – Covers Processing Costs  
(Flat Fee, set by Solicitation)

Facility Fee – Covers Longer Term Administrative  
Costs (1 / 2 of 1%)

Maintenance Fee – Covers post-disbursement costs  
(Flat Fee)

**Subsidy Fee** – Payable by applicant at closing,  
Present Value of the RISK PREMIUM absorbed by  
the LGPO



# Status of 2006–2008 Applications

# Status of 2006 Solicitation

## August 2006 Solicitation (\$4.0 billion in authority)

- ▶ In October 2007, DOE invited 16 project sponsors responding to DOE's August 2006 solicitation to submit full applications for a loan guarantee.
- ▶ Of the 16 projects invited to apply, the LGPO has received 11 applications. The LGPO is not accepting any additional applications under this solicitation.
  - The 11 projects represent the following technologies: Energy Efficiency and Reliability, Solar, Biomass, Industrial Energy Efficiency, Fossil Energy, and Alternate Fuel Vehicle.
- ▶ Applicants are requesting DOE to provide loan guarantees in the amount of \$8.2 billion which exceeds the \$4.0 billion in available authority.
- ▶ Each application will undergo a thorough credit underwriting, including technical, market, legal and environmental review, as a condition for consideration of being approved and issued a loan guarantee.
- ▶ The LGPO expects to close on the first loan from this solicitation by the 2nd quarter of fiscal year 2009.



# DOE Loan Guarantee Program

## ADVANCED FOSSIL ENERGY PROJECTS

- ▶ Mesaba Energy Project: Integrated Gasification Combined Cycle (IGCC) Plant
- ▶ Mississippi Power Company: IGCC Plant
- ▶ TX Energy, LLC: Coal to Synthetic Gas IGCC Plant

## INDUSTRIAL ENERGY EFFICIENCY PROJECTS

- ▶ GR Silicate Nano Fibers and Carbonates: Paper Manufacturing Project
- ▶ Sage Electrochromics: Window Manufacturing Project



# DOE Loan Guarantee Program

## SOLAR ENERGY PROJECTS

- ▶ Luz II
- ▶ Solyndra, Inc.

## ELECTRICITY DELIVERY AND ENERGY RELIABILITY PROJECT

- ▶ Beacon Power

## HYDROGEN PROJECT

- ▶ Bridgeport Fuel Cell Park, LLC



# DOE Loan Guarantee Program

## ALTERNATIVE FUEL VEHICLES PROJECT

- ▶ Tesla Motors

## BIOMASS PROJECTS

- ▶ Alico, Inc.
- ▶ Blue Fire Ethanol, Inc.
- ▶ Choren USA
- ▶ Endicott Biofuels, LLC
- ▶ Iogen Biorefinery Partners, LLC
- ▶ Voyager Ethanol, LLC



# 2008 Solicitations – Nuclear Power

## NUCLEAR POWER FACILITY AND FRONT END NUCLEAR FACILITY SOLICITATIONS

- ▶ **Project Type Categories (\$20.5 billion in authority)**
  1. Advanced Nuclear Facilities (\$18.5 billion in authority)
  2. Front-End Nuclear Facilities (\$ 2.0 billion in authority)
  
- ▶ **Anticipated Technologies Represented**
  1. AP 1000 (Westinghouse)
  2. APWR (Toshiba)
  3. ESBWR (General Electric)
  4. EPR (Areva technology)
  5. Mitsubishi (Heavy Industries)



# 2008 Solicitations – Nuclear Power

## NUCLEAR POWER FACILITY AND FRONT END NUCLEAR FACILITY SOLICITATIONS

### APPLICATION DEADLINES FOR THE 2008 SOLICITATION

- ▶ Advanced Nuclear Facilities Part I September 29, 2008
- ▶ Advanced Nuclear Facilities Part II December 19, 2008
  
- ▶ Front-End Nuclear Facilities Part I September 29, 2008
- ▶ Front-End Nuclear Facilities Part II December 2, 2008



# 2008 Solicitations – Nuclear Power

- ▶ As of the December 19, 2008 application submission deadline, DOE has received 15 Part II applications from 15 electric power companies for federal loan guarantees to support the construction of 10 nuclear power plants.
  - The applications reflect the intentions of those companies to build 16 new reactors.
  - Applicants are requesting DOE to provide loan guarantees in the amount of \$93 billion which exceeds the \$18.5 billion in available authority.
  - The aggregate construction cost of the 10 plants is \$139 billion and if all were constructed would generate 20,000 megawatts of clean, emissions-free base load electric generating capacity.
- ▶ As of the December 2, 2008 application submission deadline, DOE has received 2 Part II applications which support two different Front-End Nuclear Facilities Projects.
  - Applicants are requesting DOE to provide loan guarantees in the amount of \$4.0 billion which exceeds the \$2.0 billion in available authority.
- ▶ Each application will undergo a thorough credit underwriting, including technical, market, legal and environmental review, as a condition for consideration of being approved and issued a loan guarantee.



# 2008 Solicitations – EERE

## ENERGY EFFICIENCY RENEWABLE ENERGY AND ADVANCED TRANSMISSION AND DISTRIBUTION TECHNOLOGIES SOLICITATION

- ▶ Project Type Categories (\$10.0 billion in authority)
  - Manufacturing Projects
  - Stand-alone Projects
  - Large-scale Integration Projects – May combine multiple eligible technologies in accordance with a staged
  - Development scheme
  
- ▶ Technology Categories
  - Alternative Fuel Vehicles
  - Biomass
  - Efficient Electricity Transmission, Distribution and Storage
  - Energy Efficient Buildings Technologies and Applications
  - Geothermal
  - Hydrogen and Fuel Cell Technologies
  - Energy Efficiency Projects
  - Solar
  - Wind and Hydropower



# 2008 Solicitations – EERE

## ENERGY EFFICIENCY RENEWABLE ENERGY AND ADVANCED TRANSMISSION AND DISTRIBUTION TECHNOLOGIES SOLICITATION

### APPLICATION DEADLINES FOR THE 2008 SOLICITATION

- ▶ Stand-alone and Manufacturing Projects Complete Application  
February 26, 2009
- ▶ Large-Scale Integrated Renewable Projects Part I  
February 26, 2009
- ▶ Large-Scale Integrated Renewable Projects Part II  
No later than April 30, 2009



# EERE Anticipated Project Submissions

Technology Category	Technology Description	Number of Projects	Projected Loan Amount
Solar	PV: Novel c-Si Wafer/Cell Manufacturing Facility	3	\$8 billion
Solar	PV: Polysilicon Feedstock Production Facility	2	
Solar	PV: Thin Film PV Manufacturing Facility	4	
Solar	PV: Concentrating PV Manufacturing Facility	2	
Solar	CSP: Solar Thermal Electric Power Plant	3	
Geothermal	Electricity production through hot wastewater from oil and gas wells	1	\$0.7 billion
Geothermal	Advanced Power Cycles: (Kalina Cycle, Sub-critical mixed composition non-azeotropic working fluids, Super-critical working fluids)	2	
Geothermal	Hybrid Cooling Systems	2	
Geothermal	Enhancement of Air-cooled Condensation Systems	1	
Wind & Hydropower	Marine Energy Project (Ocean Thermal Energy Conversion, Tidal, Wave, Off-shore Wind)	4	\$2 billion
Electricity Delivery & Energy Reliability	Advanced Transmission and Distribution Project	4	\$0.8 billion
Vehicle Technologies	Battery Manufacturing Facility or other Advanced Vehicle Facility	5	\$0.8 billion
Biomass	Cellulosic Ethanol/Biodiesel Refinery	13	\$4 billion
Biomass	Biomass to Electricity or Biomass to Syngas Project	8	
Industrial Technologies	Low-cost Carbon Fiber Production or other IE Project	7	\$0.8 billion
Hydrogen, Fuel Cells & Infrastructure Technologies	Fuel Cell Manufacturing Facility or other Fuel Cell Project	5	\$1 billion
Portfolio of Integration Technologies	Small-scale Carbon-neutral Development Employing Innovative Sustainable Energy Technologies	4	\$2 billion
Integration Technologies	Large-scale Sustainable Energy Island Development (Maui, Kauai, U.S. Virgin Islands)	2	
<b>Totals</b>		<b>72</b>	<b>\$20 billion</b>



# 2008 Solicitations – Fossil Energy

## Advanced Fossil Energy Solicitation

- ▶ Project Type Categories (\$8.0 billion in authority)
  1. Coal Based Power Generation and Industrial Gasification that incorporates carbon capture and sequestration or other beneficial uses of carbon (\$6.0 billion in authority)
    - a) IGCC and Carbon Capture Projects
    - b) Combined Coal and Biomass to Liquids Projects
    - c) Ultra-supercritical Pulverized Coal (PC) plants
    - d) Coal to Chemicals Projects
  2. Advanced Coal Gasification (\$2.0 billion in authority)
    - a) Coal to Methane/Syngas Projects

▶ 2008 SOLICITATION ISSUANCE

September 22, 2008

▶ APPLICATION DEADLINES FOR THE 2008 SOLICITATION

◦ Two Part Application Process:

- Part I
- Part II

December 22, 2008

March 23, 2009



# 2008 Solicitations – Fossil Energy

## Advanced Fossil Energy Technologies:

- ▶ By the application submission deadline, the LGPO received 8 Part I applications for 8 projects totaling \$22.7 billion in total project costs.
- ▶ Applicants are requesting the Department to provide loan guarantees in the amount of \$17.4 billion, which significantly exceeds the \$8.0 billion in loan guarantee authority available.
- ▶ The LGPO is presently reviewing the applications for completeness and will commence formal financial and technical reviews in January 2009.
- ▶ The LGPO will schedule oral presentations to commence in February 2009.
- ▶ Part II submissions are due March 23, 2009.



# Status of FY 2008–2009 Budget

- ▶ The LGP's FY 2009 Budget Request is a substantial increase over FY 2008 and will support 19 additional FTEs as well as finance outside expertise in finance, legal, commercial engineering, technology, credit analysis and commercial market assessments.

(dollars in thousands)

Title XVII Loan Guarantee Program	FY 2008 Enacted Approp.	FY 2008 Actuals	FY 2009 Request	FY 2009 Actuals Thru Dec	FY 2009 House Mark	FY 2009 Senate Mark
<i>Administrative Operations:</i>						
Salaries/Benefits	2,100	1,289	4,700	589	4,700	4,700
Travel	84	21	600	3	600	600
Support Services	2,865	3,375	13,430	1,100	13,430	13,430
Other Related Expenses	410	369	1,150	0	1,150	1,150
<b>Subtotal, Administrative Operations</b>	<b>5,459</b>	<b>5,054</b>	<b>19,880</b>	<b>1,693</b>	<b>19,880</b>	<b>19,880</b>
<b>Offsetting Receipts</b>	<b>-1,000</b>	<b>-4,895</b>	<b>-19,880</b>	<b>-11,445</b>	<b>-19,880</b>	<b>-19,880</b>
<b>Total, Loan Guarantee Program</b>	<b>4,459</b>	<b>159</b>	<b>0</b>	<b>-9,752</b>	<b>0</b>	<b>0</b>
<i>Full Time Equivalent Employees</i>	16	16	35	16	35	35



# Small Business Initiative

# Small Business Initiative

- ▶ The LGP has developed a Small Business Initiative (SBI) taskforce which is evaluating options to support small business lending.
- ▶ The objective of the SBI is to make the Title XVII Loan Guarantee Program available to small businesses and to reduce the workload on the LGP in supporting this initiative.
- ▶ In consultation with the Office of Energy Efficiency and renewable Energy (EERE) and subject to approval by OMB and the Congress, the proposal would be to carve out an amount from EERE's loan guarantee allocation for small businesses.
- ▶ The LGP envisions an amount of approximately \$1 billion.



# Small Business Initiative

## The LGP is currently evaluating the following options:

### ▶ Option 1 – Alternative Energy Lending Facility:

- Through a solicitation process, the LGPO would establish a designated alternative energy lending facility with financial institutions that have relationships with small businesses in the alternative energy sector.
- The financial institutions would be responsible, through designated authority, for the origination, underwriting, due diligence, monitoring loan servicing and work out for loans issued under their facility.
- The program would be administered and coordinated by a third party program manager.

### ▶ Option 2 – DOE Developed Network:

- The LGP would establish a network of independent parties to perform the marketing, screening, underwriting, technical assessment, and servicing of loans for small business projects.
- The program would be managed by a third party program manager who would supervise the engagement and activities of alliances that would bring together resources such as: project underwriters; project funders; technical advisers; private equity clearing house; and, servicer of the guaranteed projects.



# DOE Loan Guarantee Program

## Additional Information

- ▶ Loan Guarantee Program Office Website:  
[www.lgprogram.energy.gov](http://www.lgprogram.energy.gov)
- ▶ 2005 Energy Policy Act:  
[www.lgprogram.energy.gov/EPAof2005.pdf](http://www.lgprogram.energy.gov/EPAof2005.pdf)
- ▶ Loan Guarantee Final Rule:  
[www.lgprogram.energy.gov/lgfinalrule.pdf](http://www.lgprogram.energy.gov/lgfinalrule.pdf)
- ▶ Solicitation Update Subscription:  
[www.lgprogram.energy.gov/subscribe.htm](http://www.lgprogram.energy.gov/subscribe.htm)

