

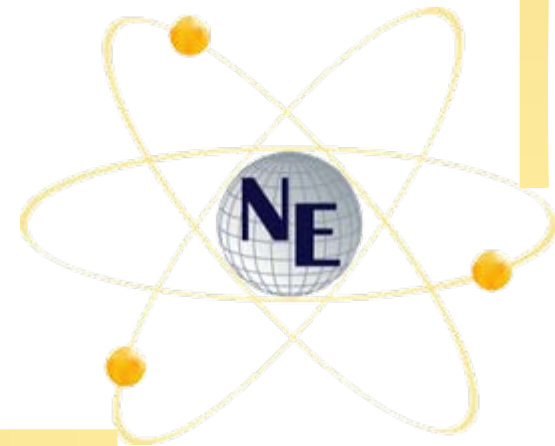
Nuclear Power 2010

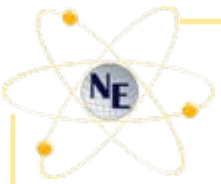
Program Status

Presented to the
Nuclear Energy Research Advisory Committee

Rebecca F. Smith-Kevern
Office of Light Water Reactor Deployment
Office of Nuclear Energy

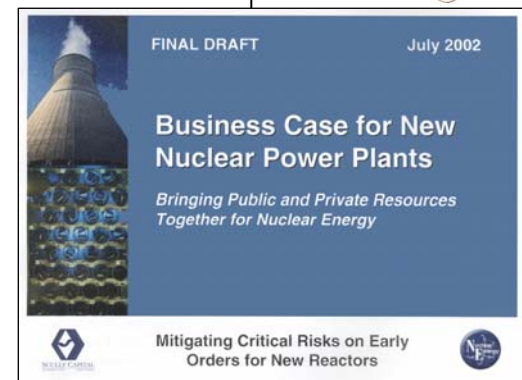
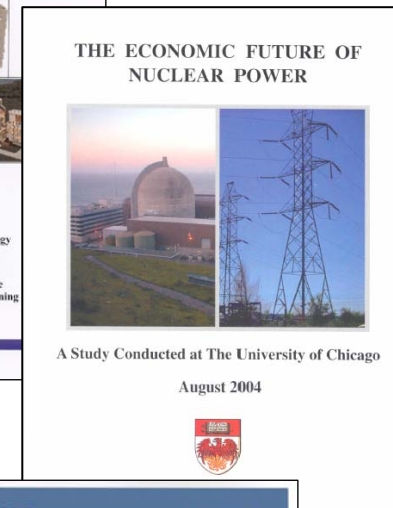
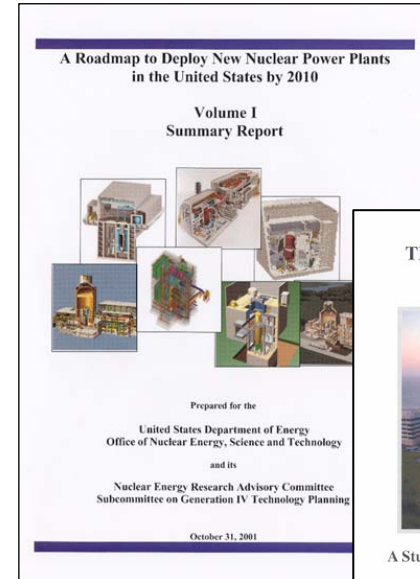
February 21, 2007

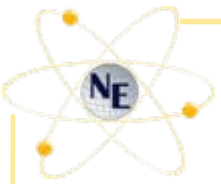




Nuclear Power 2010 ... Began as a *Demonstration Project*

- ⌚ Program initiated in February 2002
- ⌚ Focused on addressing regulatory, financial, and technical challenges
- ⌚ Based on *Near-term Deployment Roadmap* and other studies
- ⌚ Government/industry cooperative effort
 - 50-50 cost-shared industry projects
 - Market-driven





Nuclear Power 2010 ... *Working with Industry to Build New Nuclear Plants*

⌚ Three Early Site Permit Demonstration Projects

- Address site suitability, environmental protection, and emergency planning issues
- Clinton and Grand Gulf awaiting Commission decision
- North Anna in final hearing phase
- Approval decisions on all three expected in 2007

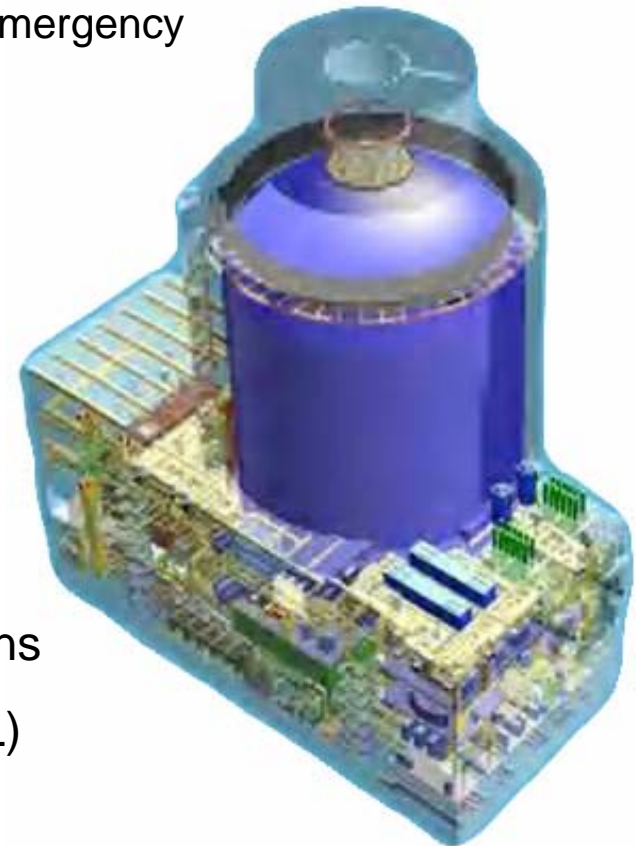
⌚ Two New Nuclear Plant Licensing Demonstration Projects

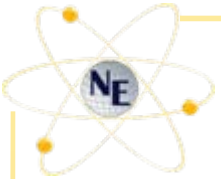
- Develop COL applications and obtain Nuclear Regulatory Commission (NRC) approval
- Complete two light water reactor advanced designs

⌚ Combined Construction and Operating License (COL) Guidance and Generic Issues Project

⌚ Standby Support Insurance Incentive

⌚ Loan Guarantee & Production Tax Credit Incentive Support



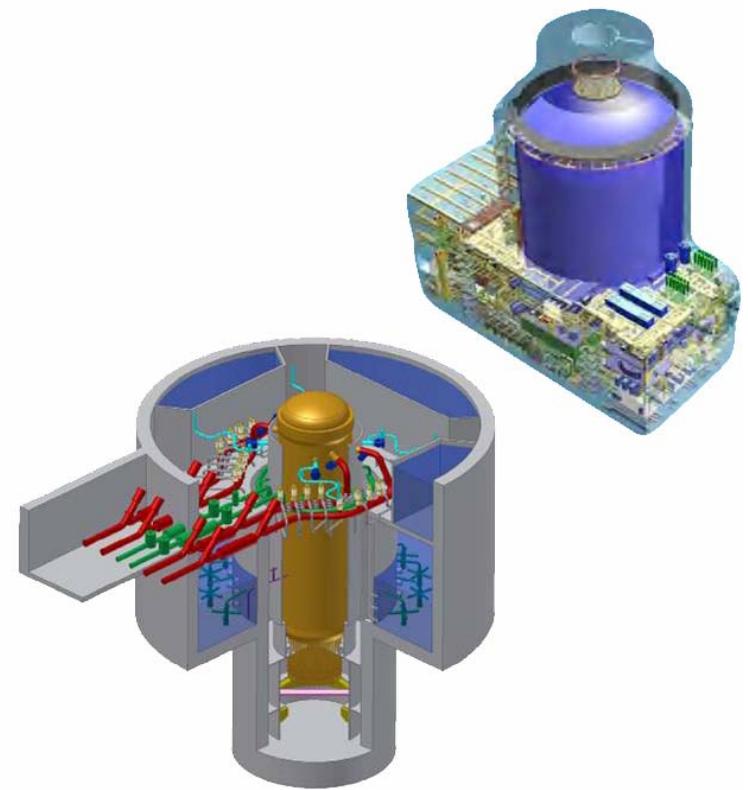


Nuclear Power 2010 ... *Current Program Activities*

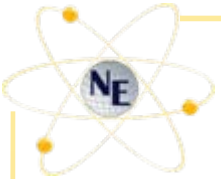
New Plant Licensing Demonstration Projects

⌚ Dominion Energy - COL for ESBWR at North Anna Site

- COL Application preparation and NRC review
- ESBWR design certification and first-of-a-kind engineering
- Site deployment planning; financial, legal, and risk assessment
- GE ESBWR design certification docketed in December 2005
- License application to be submitted in Fall 2007



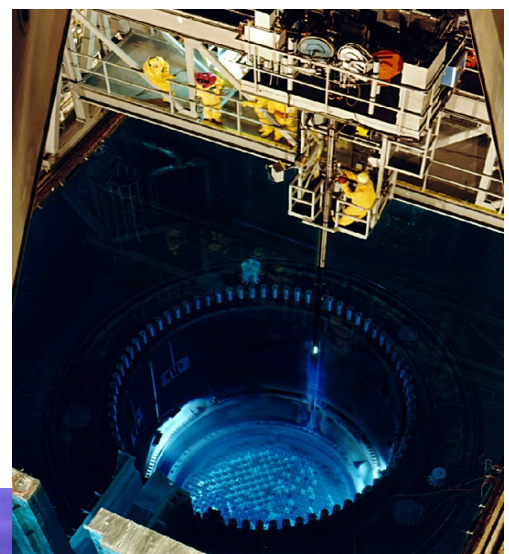
DOE Cost Share Planning Profile (\$M)	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total Project
Dominion Project	\$4.0	\$19.9	\$35.1	\$56.0	\$65.6	\$47.2	\$16.7	\$244.5



Nuclear Power 2010 ... *Current Program Activities (cont.)*

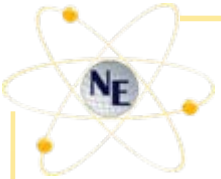
⌚ NuStart Energy LLC - COL for single technology to be selected

- Design certification and COL application development for two reactor technologies AP1000 (Bellefonte site) and ESBWR (Grand Gulf site)
- Funding for NRC review of one COL and completion of engineering for selected reactor technology
- Westinghouse AP 1000 reactor design certified in December 2005
- GE ESBWR design certification docketed in December 2005
- Two license applications scheduled for submittal to NRC in Fall 2007

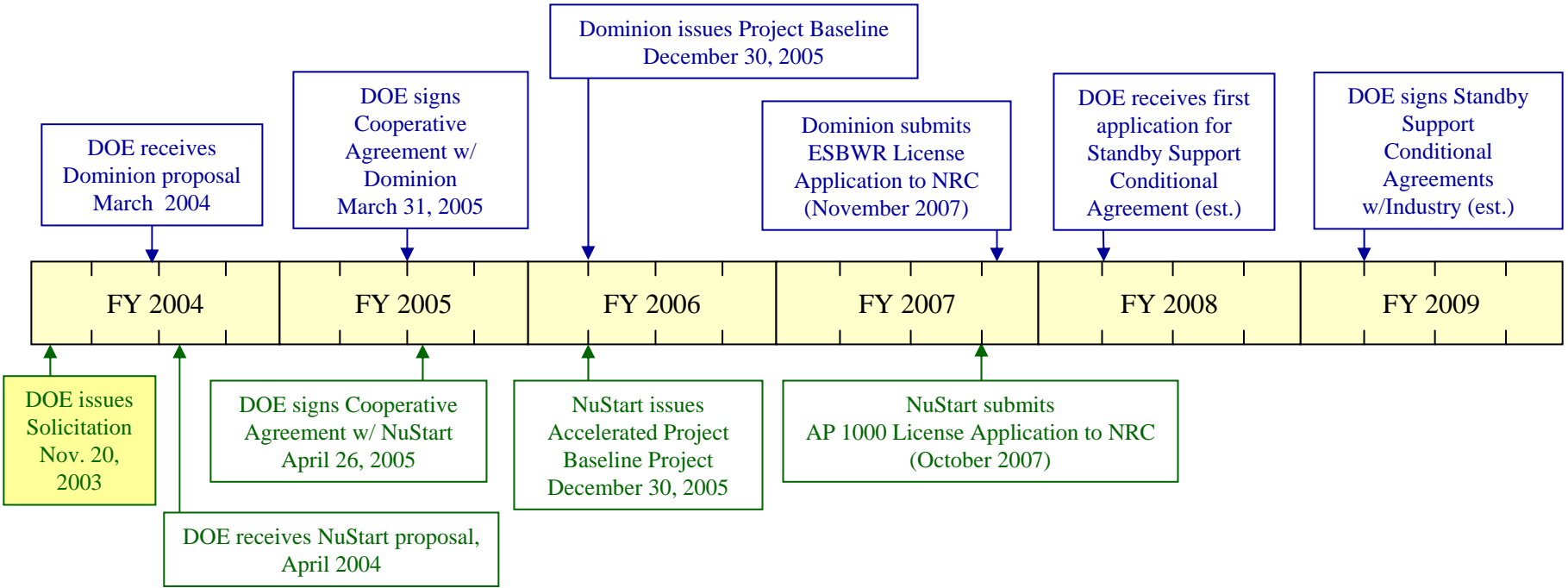


⌚ Project evolved from demonstration to deployment

DOE Cost Share Planning Profile (\$M)	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total Project
NuStart Project	\$14.3	\$50.5	\$63.7	\$67.0	\$68.7	\$45.4	\$12.2	\$321.9



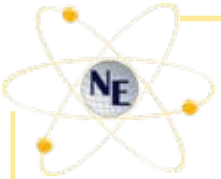
Nuclear Power 2010 Program Timeline



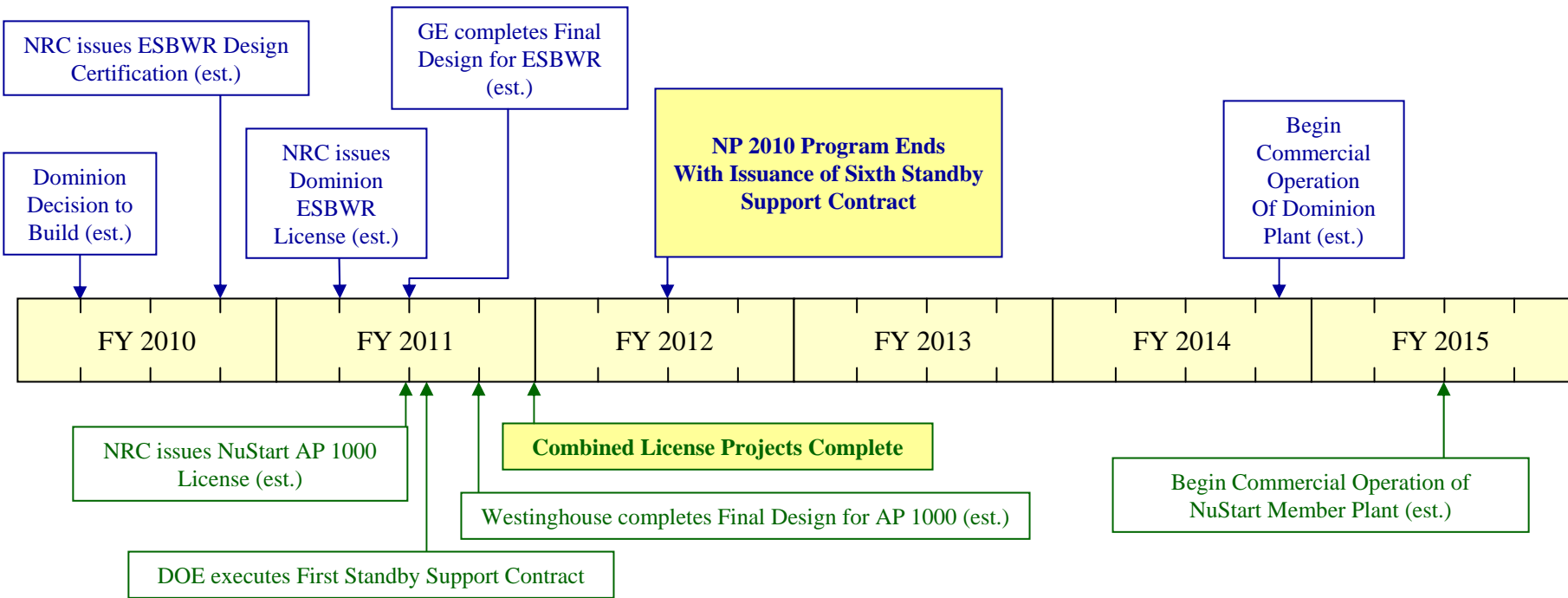
Budget Planning	FY 05	FY 06	FY 07	FY 08	FY 09
Cost Share (\$M)					
Early Site Permit Projects /other activities	\$11.9	\$1.6	\$1.1	\$0.5	\$0.5
Standby Support	\$0.0	\$0.1	\$1.8	\$1.0	\$0.5
Combined License Projects	\$18.3	\$70.3	\$98.9	\$123.0+	\$134.4
Total Nuclear Power 2010 Planning Profile	\$30.2	\$72.0	\$101.8	\$124.5	\$135.4

Program appropriations/projected funding	\$61.0*	\$65.3*	\$54.0	\$114.0	\$157.3
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* adjusted appropriations, FY05 includes \$11.4M carryover from FY04
 +FY 08 includes planned activities including license acceleration since FY 07 budget request

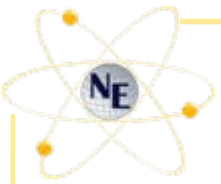


Nuclear Power 2010 Program Timeline (cont.)



Budget Planning				
Cost Share (\$M)	FY 10	FY 11	FY 12	Total FY 05-12
Early Site Permit Projects /other activities	\$0.0	\$0.0	\$0.0	\$15.6
Standby Support	\$0.5	\$0.3	\$0.3	\$4.5
Combined License Projects	\$92.6	\$28.9	\$0.0	\$566.4
Total Nuclear Power 2010 Planning Profile	\$93.1	\$29.2	\$0.3	\$586.5

Program appropriations/projected funding	\$105.3	\$30.3	\$0.3	\$586.5
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EPAct, Section 638, “Standby Support”

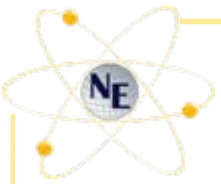
- ⌚ NP 2010 staff lead with Office of General Counsel
- ⌚ Indemnification for six new advanced nuclear reactors for delays related to:
 - Failure of NRC to comply with scheduled reviews and approvals
 - Certain litigation that delays commencement of full-power operation
- ⌚ Covered Costs
 - **Initial two reactors:** 100% of covered cost of delay up to \$500M per contract
 - **Subsequent four reactors:** 50% of covered cost of delay up to \$250M per contract after initial 180-day delay
- ⌚ Department issued final rulemaking on August 4, 2006.
- ⌚ Path to Standby Support Contract:
 - **Two Step Process:** Conditional Agreement (Step 1), then Standby Support Contract (Step 2)

Schedule

- ⌚ Department will complete Conditional Agreement in Spring 2007 before utilities submit their COL applications to NRC (expected Fall 2007)

FY 2008 Milestones

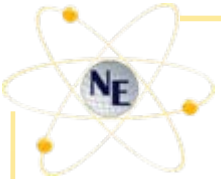
- ⌚ Standby Support Conditional Agreements with industry implemented by December 2008



EPAct, Section 1306, “Production Credit” (Section 45J of IRS code)

- ⌚ Treasury lead, but NP 2010 staff supporting Treasury in developing process for allocation and approval of production credits
- ⌚ Covers advanced nuclear facility placed in service before January 1, 2021
- ⌚ Limited to a maximum of \$125 million per 1000 megawatts per year for 8 years (1.8 cents per kilowatt-hour)
- ⌚ National megawatt limitation of 6,000 megawatts
- ⌚ Treasury issued IRS Notice on production credits in May 2006 with guidelines for allocation and approval process

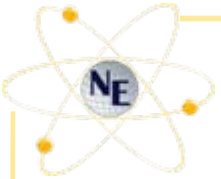




EPAct, Section 1703, “Loan Guarantees”

- ⌚ Help reduce loan interest rates and allow greater debt-to-equity ratios, thereby reducing total project cost for selected technologies
- ⌚ Provides up to 80 percent guarantees with term not to exceed 30 years or 90 percent of project useful life
- ⌚ DOE published Guidelines and issued a small scale solicitation in 2006
- ⌚ Solicitation did not invite new nuclear projects
- ⌚ Department is currently developing a Notice of Public Rulemaking--basis for future solicitations
- ⌚ Subsequent solicitations are anticipated to include nuclear power
- ⌚ Department is unable to issue a loan guarantee until it has authorization to do so in an appropriations bill
- ⌚ Senate and House appropriators recently passed language to fund program
- ⌚ For more information:
www.LGprogram.energy.gov

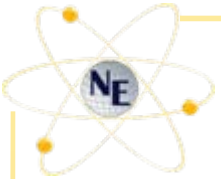




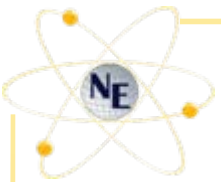
Nuclear Industry Update

- ⌚ **Early Site Permits:** Another application is currently under Nuclear Regulatory Commission (NRC) review. Industry has indicated up to 3 more ESP applications may be submitted.
- ⌚ **Construction and Operating License:** Currently 14 power companies intend to submit 20 license applications to NRC for as many as 32 units—9 of these power companies participate in NP 2010 COL projects.
- ⌚ **Reactor Design Certification:** Two designs certified, one design under NRC review, and one design certification application to be submitted to NRC in 2007.
- ⌚ **Long-Lead Equipment Orders:** Large forging orders for reactor vessels and turbine generators have been initiated.



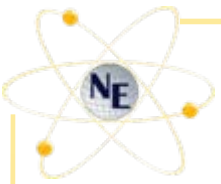


BACKGROUND



New Nuclear Plant Status

Utility	Site/State	Technology	COLA Submission Expected Date
Dominion	North Anna, VA	ESBWR (1 unit)	November 2007
NuStart (TVA)	Bellefonte, AL	AP1000 (2 units)	November 2007
NuStart (Entergy)	Grand Gulf, MS	ESBWR (1 unit)	November 2007
Entergy	River Bend, LA	ESBWR (1 unit)	March 2008
Southern Nuclear	Vogtle, GA	AP1000 (2 units)	March 2008
NRG	South Texas Project, TX	ABWR (2 units)	Late 2007
Amarillo Power	Undeclared, TX	ABWR (2 units)	Late 2007
TXU	Comanche Peak and other sites, TX	Unspecified 2-6 gigawatts	Late 2008



New Nuclear Plant Status--Cont.

Utility	Site/State	Technology	COLA Submission Expected Date
Florida Power & Light	Undeclared, FL	Unspecified	2009
UniStar	Calvert Cliffs, MD Nine Mile Point, NY And 3 other undeclared expected	EPR	June 2008 October 2008 Early-Mid 2008
Progress Energy	Harris, NC	AP1000 (2 units in NC, 2 units in unspecified Florida site expected)	Early 2008
SCE&G	Summer, SC	AP1000 (2 units)	November 2007
Detroit Edison	Newport, MI	Unspecified	2008
Duke	Lee, SC	AP1000 (2 units)	October 2007