

News Updates

- ★ The final ruling on the design certification for Mitsubishi Heavy Industries' APWR has been revised until 2015. Structural changes were made to the design by vendor, which requires a new seismic analysis to be performed. Because of this, the review schedule for the COL applications for Comanche Peak and North Anna has been delayed by approximately 18 months.
- ★ The final ruling on Areva's EPR design certification has been revised from June 2013 until the end of 2014. The change is to allow Areva to respond to outstanding technical issues and provide additional information related to post-Fukushima requirements.
- ★ DOE released a funding opportunity announcement on March, 22 2012 to support engineering, design certification and licensing of up to two SMR projects for construction and operation at a domestic site. DOE intends to fund the program over a five year period through cost share agreements with private industry partners that want to be the first-movers in the SMR arena.
- ★ The \$32 billion merger between Duke Energy and Progress Energy was completed July 3, 2012 resulting in Duke Energy keeping Progress as a wholly owned subsidiary.

Regulatory Status

- ★ Eighteen COL applications have been docketed, ten of which (totaling 16 nuclear reactors) remain under active NRC review. NRC suspended review of five applications due to changes in technology or economic considerations; one additional application was withdrawn and resubmitted as an ESP. The Reference COL (R-COL) application has been submitted for five reactor designs; the 10 subsequent COLs (S-COLs) will incorporate the corresponding R-COL application by reference, noting any site-specific departures. Southern Nuclear's Vogtle Units 3 and 4 and SCE&G's VC Summer Units 2 and 3 have received COLs.

	UTILITY	SITE/LOCATION	REACTOR/ NO. UNITS	COLA DATES			REVIEW PHASE IN PROGRESS	
				Submitted	Docketed	Issued	Safety ⁴	Environ. ⁵
Issued	Southern Nuclear	Vogtle GA	AP1000 2	03/31/08	05/30/08	02/10/12	Completed	Completed
	SCE&G	V.C. Summer SC	AP1000 2	03/27/08	07/31/08	04/10/12	Completed	Completed
Active COL Applications	Progress Energy	Levy FL	AP1000 2	7/30/08	10/6/08	-	Ph. D	Completed
	STP Nuclear Operating Co.	South Texas Project TX	ABWR ¹ 2	9/07	11/29/07	-	Ph. 2	Completed
	Luminant (TXU)	Comanche Peak TX	US-APWR ¹ 2	9/19/08	12/2/08	-	Ph. 2	Completed
	UniStar (Constellation)	Calvert Cliffs MD	US-EPR ¹ 1	3/08	6/3/08	-	Ph. 2	Completed
	DTE Energy	Fermi MI	ESBWR ¹ 1	9/18/08	11/25/08	-	Ph. 2	Ph. 3
	Duke Energy	William States Lee SC	AP1000 2	12/13/07	2/25/08	-	Ph. B	Ph. 2
	Florida Power and Light	Turkey Point FL	AP1000 2	6/30/09	9/4/09	-	Ph. A	Ph. 2
	PPL (UniStar)	Bell Bend PA	US-EPR 1	10/10/08	12/19/08	-	Ph. A	Ph. 2
	Progress Energy	Shearon Harris NC	AP1000 2	2/19/08	4/17/08	-	Ph. B	Ph. 2
	Dominion Energy	North Anna VA	US-APWR 1	11/27/07	1/28/08	-	Ph. A	Ph. 2

¹ Reference COL Application (R-COL)

⁴ Safety Review: **R-COL** → **Ph 1** Issue RAls **Ph 2** SER w/Open Items **Ph 3** ACRS Review **Ph 4** Advanced SER/ No OI **Ph 5** ACRS Review **Ph 6** Final SER
S-COL → **Ph A** Issue RAls and supplemental RAls **Ph B** Advanced SER/ No OI **Ph C** ACRS Review **Ph D** Final SER

⁵ Environmental Review Phases: **Ph 1** Environmental Scoping Report **Ph 2** Draft EIS **Ph 3** Public comment **Ph 4** Final EIS

- ★ Small modular reactors are defined as producing less than 300 MWe. Nine SMR vendors have initiated contact with the NRC regarding their reactor designs. Four of these designs are domestic Light Water-based designs. While all four will submit DC applications, B&W and Holtec have plans to submit Construction Permits under 10CFRPart 50 as well.

	COMPANY	REACTOR	SIZE (MWE)	APPLICATION	EXPECTED SUBMITTAL DATE
Light Water Reactors	Babcock & Wilcox mPower, Inc.	mPower SMR	180	DC CP	Late 2013 March 2014
	Holtec International	SMR-160	160	CP DC	Mid 2014 March 2015
	NuScale Power, LLC	NuScale SMR	45	DC	TBD
	Westinghouse Electric Co.	W-SMR	225	DC	Mid to late 2013
Advanced Non-LWRs	Department of Energy	NGNP	TBD	COL	FY2013
	GEH	PRISM	311	DC	TBD
	Gen4 Energy	G4M	25	DC	TBD
	PBMR Ltd.	PBMR	165	DC	FY2013
	Toshiba	4S	10	TBD	Mid 2012



Reactor Design Certification (DC)

Summary: Two reactor designs that are being considered for future builds are certified and two renewal applications are under NRC review.

- ★ AREVA US-EPR – Submitted December 12, 2007, and docketed February 25, 2008; rulemaking expected in December 2014.
- ★ GE ESBWR – Final Design Approval in March 2011; rulemaking expected 2013.
- ★ Mitsubishi Heavy Industries US-APWR – Submitted December 31, 2007, and docketed February 29, 2008; rulemaking expected in 2015.
- ★ KEPCO APR1400 – Pre-application interactions began in January 2012. Design certification application anticipated March 2013.
- ★ GE ABWR – Certified in 1997. Toshiba and GEH have also separately submitted Design Certification renewal applications that are currently under review.
- ★ Westinghouse AP1000 – Amended design certified on December 30, 2011.

Early Site Permits (ESP)

Summary: Four ESPs issued; two under review:

- ★ On March 25, 2010, Exelon submitted an ESP application for its Victoria County site. The final SER and EIS are expected to be completed by mid 2014.
- ★ PSEG submitted an ESP application for its nuclear plant site in Salem County, New Jersey, on May 26, 2010. The final SER and EIS are expected in mid to late 2014.
- ★ NRC anticipates two further ESP applications at Blue Castle and Callaway.
- ★ The following ESPs have been issued: Exelon – Clinton (IL), 3/15/07; Entergy – Grand Gulf (MS), 4/5/07; Dominion – North Anna (VA), 11/ 27/07; Southern – Vogtle site (GA), 08/26/09.

New Plant Construction Progress

Summary: Full nuclear construction can now begin for V.C. Summer Units 2 and 3 and Vogtle Units 3 and 4. TVA is proceeding with the completion of the Watts Bar 2 and Bellefonte 1 reactors.

New Nuclear Plants under Construction: COLs for Vogtle Units 3 and 4 and V.C. Summer Units 2 and 3 have been issued.

Vogtle

- ★ At the Vogtle site, work on the containment vessel bottom head for Units 3 and 4 continues. The CR10 module, which will hold the Unit 3 containment vessel bottom head, is being assembled.



Vogtle Unit 3 Turbine Building Basement and Containment Vessel (Courtesy of Southern Company)

VC Summer

- ★ Testing for the heavy-lift derrick crane at the V.C. Summer site was recently finished. Work is continuing on both bottom containment vessel heads and work is beginning on the cooling towers.



VC Summer Unit 2 Lower Bowl Assembly and Containment Vessel Ring (Courtesy of SCANA)

Watts Bar 2

- ★ Watts Bar 2, near Spring City, Tennessee, is now expected to come online late 2015 at a revised cost of \$4 billion.

Globally

- ★ Construction of some reactor designs to be built in the US is underway in other countries: four AP1000s in China, two APWRs in Japan, one EPR in Finland and France and another two in China; four ABWRs have been operated in Japan and four are nearing completion in Japan and Taiwan.

Expected Operation Date

- ★ TVA expects Watts Bar 2 to be completed by late 2015.
- ★ Southern Nuclear's Vogtle Units 3 and 4 are expected to come online in 2016 and 2017, respectively.
- ★ SCE&G's VC Summer Units 2 and 3 are expected to come online in 2017 and 2018, respectively.
- ★ Florida Power and Light's Turkey Point expects Unit 6 to come online by 2022 and Unit 7 by 2023.
- ★ Progress Energy's Levy site expects the first unit to come online in 2024 and the second unit to follow 18 months later.

