

News Updates

- ★ The Nuclear Regulatory Commission has issued an operating license for Tennessee Valley Authority's Watts Bar 2 reactor. This marks the end of unit 2 construction; TVA plans to begin commercial operation of the 1,150 MW reactor in early 2016.
- ★ The Calvert Cliffs and Callaway COLAs have been withdrawn following the suspension of the Areva US-EPR Design Certification application. The Bell Bend COL application safety review has been suspended, but the environmental portion of the application remains under NRC review.

Regulatory Status

- ★ Eighteen Combined Construction and Operating License (COL) applications have been docketed; three have received COLs; six (totaling 10 nuclear reactors) remain under active Nuclear Regulatory Commission (NRC) review, 9 were suspended¹ due to utility economic or other considerations. A Reference COL (R-COL) application has been submitted for five reactor designs; 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, SCE&G's V.C. Summer units 2 and 3, and DTE Energy's Fermi unit 3 have received COLs.

¹ Bellefonte 3&4, Callaway 2 (later withdrawn), Calvert Cliffs 3 (later withdrawn), Grand Gulf 3, River Bend 3, Victoria County 1&2 (later withdrawn), Shearon Harris 2&3, Comanche Peak 3&4, Nine Mile Point 3 (later withdrawn)

	UTILITY	SITE/LOCATION	REACTOR/ NO. UNITS	COLA DATES			REVIEW PHASE IN PROGRESS			
				Submitted	Docketed	Issued	Safety ³	Environ. ⁴		
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
	DTE Energy	Fermi	MI	ESBWR ²	1	9/18/08	11/25/08	5/1/15	Completed	Completed
Active COL Applications	Duke Energy	Levy	FL	AP1000	2	7/30/08	10/6/08	-	Ph. D	Completed
	STP Nuclear Operating Co.	South Texas Project	TX	ABWR ²	2	9/20/07	11/29/07	-	Completed	Completed
	Duke Energy	William States Lee	SC	AP1000	2	12/13/07	2/25/08	-	Ph. B	Completed
	Florida Power and Light	Turkey Point	FL	AP1000	2	6/30/09	9/4/09	-	Ph. B	Ph. 3
	PPL (UniStar)	Bell Bend	PA	US-EPR	1	10/10/08	12/19/08	-	Suspended	Ph. 3
	Dominion Energy	North Anna	VA	ESBWR	1	11/27/07	1/28/08	-	Ph. 4	Completed

² Reference COL Application (R-COL)

³ Safety Review: **R-COL** → **Ph 1** Issue RAIs **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 RAIs and supplemental RAIs **Ph B** Advanced SER/ No OI **Ph C** ACRS Review **Ph D** Final SER

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

Small Modular Reactors



Updates available at: www.energy.gov/ne
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★ Small modular reactors are defined as those having a capacity of less than 300 MWe and are transportable to a site by truck, barge, or rail.

	COMPANY	REACTOR	SIZE (MWE)	APPLICATION	EXPECTED DC SUBMITTAL DATE
Light Water Reactors	Babcock & Wilcox mPower, Inc.	mPower SMR	180	DC	TBD
	Holtec International	SMR-160	160	DC	TBD
	NuScale Power, LLC	NuScale SMR	45	DC	Q4 CY 2016
	Westinghouse Electric Co.	W-SMR	225	DC	TBD

Reactor Design Certification (DC)

Summary: Three reactor designs that are being considered for future builds in the U.S. are certified, one additional design is under review and two renewal applications are under NRC review.

- ★ Westinghouse AP1000 – Amended design certified on December 30, 2011.
- ★ GEH ESBWR – Design certified; final rule effective November 14, 2014.
- ★ Korea Electric Power Corporation (KEPCO) APR1400 – Submitted December 23, 2014 and docketed March 4, 2015.
- ★ AREVA US-EPR – Submitted December 12, 2007, and docketed February 25, 2008; review suspended at the request of the applicant.
- ★ Mitsubishi Heavy Industries US-APWR – Submitted December 31, 2007 and docketed February 29, 2008; MHI has requested a deferral of the review due to their work on reactor restarts in Japan.
- ★ GEH ABWR – Certified in 1997. Toshiba and GEH have also separately submitted Design Certification renewal applications that are currently under review.

Early Site Permits (ESP)

Summary: Four ESPs issued; one under review:

- ★ TVA plans to submit an ESP application for a small modular reactor at its Clinch River site in Tennessee in the Spring of 2016.
- ★ PSEG submitted an ESP application for its nuclear plant site in Salem County, New Jersey, on May 25, 2010. The final environmental impact statement (EIS) is expected in November 2015.
- ★ 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.

Decommissioning

- ★ Six plants have announced decommissioning plans. Entergy closed its single unit Vermont Yankee plant in late 2014; sustained low natural gas prices, financial impacts of cumulative regulations, and the wholesale market structure all contributed to the company's decision to shutter the plant. Dominion's closure of its single unit Kewaunee plant in May 2013 also followed from low wholesale electricity prices; closures at San Onofre and Crystal River were both due to problems related to steam generator replacements. Most recently, Entergy announced plans to close the Pilgrim Nuclear Power Station no later than June 2019. Exelon previously announced the planned closure of their Oyster Creek plant also in 2019. There are currently 99 reactor units operating.



New Plant Construction Progress

Summary: Full nuclear construction has begun for V.C. Summer units 2 and 3 and Vogtle units 3 and 4. TVA is nearing completion of Watts Bar 2.

Vogtle

Unit 3: CA01 structural module was set in place in August (CA01 houses the steam generators, pressurizer, and refueling canal and weighs 1,200 tons).

Unit 4: Two core make-up tanks have been delivered to the site after a two month long transit from Italy. A steam generator has also arrived from South Korea.



*Placement of Unit 3 CA01 module; arrival of Unit 4 make up tank
(Courtesy of Georgia Power/Southern Company)*

VC Summer

Unit 2: CA01 module was set in place in July.

Unit 3: The CA04 reactor cavity module was set in place in late June; reactor vessel has been delivered to site.



Placement of Unit 2 CA01 module; progress on Unit 2 shield building (Courtesy of SCANA)

Watts Bar 2

- ★ NRC has issued the operating License for Watts Bar Unit 2; fuel load is imminent followed by low power physics and power ascension testing. Plant staffing is at the required level for dual unit operation. Training for dual unit operation has been completed; the project is tracking to a most likely commercial operation date of January 2016.

Expected Operation Dates

- ★ TVA expects Watts Bar 2 to begin commercial operation in early 2016.
- ★ Southern Nuclear's Vogtle units 3 and 4 are expected to come online in mid 2019 and 2020, respectively.
- ★ SCE&G's V.C. Summer units 2 and 3 are expected to come online in mid 2019 and 2020, respectively.

