

## News Updates

- ★ DTE Energy has received a license to build and operate an ESBWR light water reactor at its Fermi site in Newport, Michigan; the company has not committed to building a new plant, but is retaining the option for long-term planning purposes.
- ★ The Nuclear Regulatory Commission has voted to grant the Director of Nuclear Reactor Regulation authority to issue a full power operating license to Tennessee Valley Authority's Watts Bar 2 reactor. TVA plans to begin commercial operation of the 1,150 MW reactor no later than June 2016.
- ★ At the applicant's request, NRC has suspended its review of Unistar's combined license application for a US-EPR at the Calvert Cliffs site. Unistar had faced ongoing regulatory challenges related to foreign ownership.

## 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, 8 were suspended<sup>1</sup> due to utility economic considerations; the Calvert Cliffs application was suspended following suspension of the US-EPR design certification application. 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 and SCE&G's V.C. Summer units 2 and 3 have received COLs.

<sup>1</sup> Bellefonte 3&4, Callaway 2, Grand Gulf 3, River Bend 3, Victoria County 1&2 (later withdrawn), Shearon Harris 2&3, Comanche Peak 3&4, Nine Mile Point 3 (later withdrawn)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 <sup>3</sup>	Environ. <sup>4</sup>
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 <sup>2</sup> 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 <sup>2</sup> 2	9/20/07	11/29/07	-	Ph. 6	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	-	Ph. A	Ph. 3
	Dominion Energy	North Anna VA	ESBWR 1	11/27/07	1/28/08	-	Ph. 4	Complete

<sup>2</sup> Reference COL Application (R-COL)

<sup>3</sup> 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

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



## Small Modular Reactors

- ★ 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	R EACTOR	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) and safety evaluation report are expected in September 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

- ★ Four 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. 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: First course of shield building is being assembled. Steam generators have been delivered to the site.

Unit 4: The CA04 reactor cavity module has been set in place. Pressurizer has been delivered to site.



*Placement of Unit 4 reactor cavity module; progress on unit 3 and 4 cooling towers  
(Courtesy of Georgia Power/Southern Company)*

### VC Summer

Unit 2: Critical path continues to run through in-place fabrication work on the CA20 auxiliary building module and the CA01 steam generator and refueling canal module.

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



*Placement of unit 3 CA04 module; arrival of unit 3 reactor vessel (Courtesy of SCANA)*

### Watts Bar 2

- ★ Hot functional testing has begun; this testing will confirm the operation of equipment in 60 plant systems at operating temperatures and pressures. Plant staffing is at the required level for dual unit operation. Training for dual unit operation has been completed; the project continues to track to a most likely commercial operation date of December 2015.

### Expected Operation Dates

- ★ 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 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.

