

## News Updates

- ★ On October 22 Dominion Resources Inc. announced that it would close and decommission its Kewaunee Power Station located in Carlton, Wis. after failing to find a buyer for the plant. The company said that the plant closure was a purely economic decision resulting from low projected wholesale electricity prices. Power production will cease in the second quarter of 2013.
- ★ On November 20, 2012, the Department of Energy announced that it had selected the Generation mPower team as a recipient for Government cost-shared funding as part of its Small Modular Reactor Licensing Technical Support program. The Department also announced plans to issue a follow-on solicitation open to other companies and manufacturers, focused on furthering small modular reactor efficiency, operations and design.
- ★ On November 28 Lehigh Heavy Forge Corporation announced an agreement with Babcock and Wilcox Company to fabricate and qualify large forgings for the B&W mPower SMR. Forgings would be manufactured at Lehigh Heavy Forge's Bethlehem facility in Bethlehem, PA.

## Regulatory Status

- ★ Eighteen Combined Construction and Operating License (COL) applications have been docketed, ten of which (totaling 16 nuclear reactors) remain under active NRC review. NRC reviews of five applications were suspended due to utility economic considerations. Review of the Fermi and South Texas Project applications could continue after submittal of additional technical information; in addition, the South Texas Project and Calvert Cliffs applications face foreign ownership issues. The 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 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 <sup>4</sup>	Environ. <sup>5</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
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 <sup>1</sup> 2	9/20/07	11/29/07	-	Ph. 4	Completed
	Luminant (TXU)	Comanche Peak TX	US-APWR <sup>1</sup> 2	9/19/08	12/2/08	-	Ph. 2	Completed
	UniStar	Calvert Cliffs MD	US-EPR <sup>1</sup> 1	3/14/08	6/3/08	-	Ph. 2	Completed
	DTE Energy	Fermi MI	ESBWR <sup>1</sup> 1	9/18/08	11/25/08	-	Ph. B	Ph. 3
	Duke Energy	William States Lee SC	AP1000 2	12/13/07	2/25/08	-	Ph. B	Ph. 3
	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	

<sup>1</sup> Reference COL Application (R-COL)

<sup>4</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>5</sup> 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 having a capacity of 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	Mid 2014 TBD
	Holtec International	SMR-160	160	CP DC	Mid 2014 March 2015
	NuScale Power, LLC	NuScale SMR	45	DC	Late 2014
	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	TBD

## 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.
- ★ B&W mPower and NuScale are in pre-application meetings with NRC.

## Early Site Permits (ESP)

**Summary:** Four ESPs issued; one under review:

- ★ Exelon has withdrawn its application for an Early Site Permit for its Victoria County, Texas site.
- ★ PSEG submitted an ESP application for its nuclear plant site in Salem County, New Jersey, on May 25, 2010. The final SER and EIS are expected in mid to late 2014.
- ★ NRC anticipates two further ESP applications at Blue Castle, Utah, and Callaway, Missouri.
- ★ 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 has begun 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.

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

### Vogtle

- ★ Assembly and welding of unit 3's containment vessel bottom head is complete. Assembly of unit 4's containment vessel bottom head more than 50% complete. The first ring of unit 3's containment vessel, which will attach to the bottom head and form part of the vertical wall of the containment vessel, is approximately 25 percent complete. Pouring concrete for the unit 3 basemat (first nuclear concrete) has been delayed due to regulatory concerns over rebar design. Unit 3 Turbine building foundation is complete. Problems have also occurred with shear stud placement in pre-fabricated submodules.



*Vogtle Unit 3 Nuclear Island showing rebar installation and Containment Vessel with exterior rebar installed (Courtesy of Southern Company)*

### VC Summer

- ★ Welding is complete on the unit 2 bottom containment vessel head and work is progressing on the cooling towers. The switchyard is on schedule to be energized in the first half of 2013. The waterproof membrane has been fully installed for the unit 2 nuclear island and turbine building. Initial pouring of basemat concrete has been delayed due to questions raised by NRC over rebar design. Problems have also occurred with shear stud placement in pre-fabricated submodules.



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

### Watts Bar 2

- ★ Work is progressing on installing valves, piping, cabling, conduit supports and tubing supports.

### 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 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.
- ★ Duke Energy has set a target date of 2022 for completion of the first unit at the William States Lee site.

