QUARTERLY NUCLEAR POWER DEPLOYMENT SUMMARY APRIL 2016

News Updates

- On April 12 NRC held a public meeting in Oak Ridge, Tennessee to discuss Tennessee Valley Authority's (TVA) plans to submit an Early Site Permit (ESP) application to potentially site a small modular reactor at their Clinch River Site. TVA's ESP application will use a Plant Parameter Envelope approach to provide sufficient bounding parameters and characteristics of the reactors and the associated facilities so that assessments of site safety and environmental suitability can be made by NRC.
- On February 17 DOE granted a Site Use Permit to Utah Associated Municipal Power Systems (UAMPS) to allow UAMPS to further its Carbon Free Power Project by locating a Small Modular Reactor (SMR) at the Idaho National Laboratory (INL). DOE retains ownership of the real property as well as its stewardship responsibilities for the property, including cultural resource protection and regulatory institutional controls. UAMPS is currently performing site selection activities and will make a decision to proceed Summer 2016.
- The NRC has issued combined licenses to Nuclear Innovation North America (NINA), STP Nuclear Operating Company, NINA Texas 3 LLC, NINA Texas 4 LLC, and the City of San Antonio, Texas for South Texas Project, Units 3 and 4.
- An NRC Atomic Safety and Licensing Board has recommended approval of the PSEG Early Site Permit (ESP); barring any contrary action by the commission or a petition for review, the permit will be issued in June.

Regulatory Status

- Eighteen Combined Construction and Operating License (COL) applications have been docketed; four have received COLs; five (totaling 8 nuclear reactors) remain under active Nuclear Regulatory Commission (NRC) review, 9 were suspended[1] 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, DTE Energy's Fermi unit 3, and have received COLs.

[1] Bellefonte 3&4 (later withdrawn), Callaway 2 (later withdrawn), Calvert Cliffs 3 (later withdrawn), Grand Gulf 3 (later withdrawn), River Bend 3, Victoria County 1&2 (later withdrawn), Shearon Harris 2&3, Comanche Peak 3&4, Nine Mile Point 3 (later withdrawn)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
	STPNOC	South Texas Project	TX	ABWR [2]	2	9/20/07	11/29/07	2/12/16	Completed	Completed
Active COLAs	Duke Energy	Levy	FL	AP1000	2	7/30/08	10/6/08	-	Ph. D	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

★ 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	50	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. Issuance of an ESP is expected in mid-2016.
★ 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

★ Seven 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. Entergy announced plans to close the Pilgrim Nuclear Power Station no later than June 2019 as well as the FitzPatrick plant in late 2016 or early 2017 due to economic factors. Exelon previously announced the planned closure of their Oyster Creek plant 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 Unit 2.

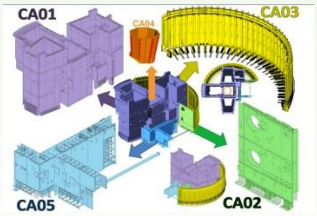
Vogtle

Unit 3: Several structural and mechanical modules have been installed in the containment and auxiliary buildings. Final concrete has been placed for turbine floor.
Unit 4: First of three containment vessel rings has been set in place. Outer concrete placement on cooling tower is approximately 50% complete.

Progress on Unit 4 cooling tower; CV ring lowered into place
(Courtesy of Georgia Power/Southern Company)

VC Summer

Unit 2: CA05 containment vessel structural module has been set in place. CA01, CA04, and CA05 are all now in place. Approximately 85% of major equipment has been delivered to the site.
Unit 3: Step-Up transformers have been delivered to the site. Approximately 77% of major equipment has been delivered to the site.



Unit 2 transformer is set in place; schematic of containment structural modules
(Courtesy of SCANA)

Watts Bar 2

- NRC has issued the operating License for Watts Bar Unit 2; fuel has been loaded. Plant staffing is at the required level for dual unit operation. Training for dual unit operation has been completed; the reactor is expected to enter commercial operation by mid-2016 once power ascension testing has been completed.

Expected Operation Dates

- TVA expects Watts Bar 2 to enter commercial operation by mid-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.