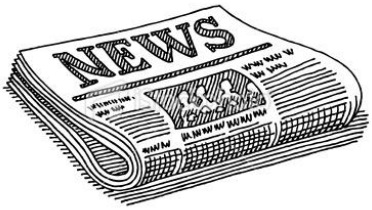


- The March 29, 2017, Westinghouse bankruptcy has resulted in:
  - …Cancellation of AP1000s under construction at South Carolina's VC Summer plant. Westinghouse's parent company, Toshiba, agreed to pay South Carolina utilities, SCANA and Santee Cooper, $2.2 billion.
  - …Southern Nuclear taking over construction of Plant Vogtle units 3 and 4 from Westinghouse. Toshiba agreed to pay the owners of Vogtle $3.7 billion. It is estimated to require an additional $1-2 billion to complete the two units. Georgia Powers expects to make a recommendation on whether or not to proceed with the project to the Georgia Public Service Commission in later August.

- Last month, U.S. District Courts in Illinois and New York decided against challenges to recently passed legislation in Illinois and New York that awards Zero Emission Credits (ZEC) to nuclear generating plants
  - Revenue is designed to be sufficient to allow the owner to continue effectively operating the units despite unprofitably low prices at their respective power delivery points.

- Areva NP announced on July 13 that four lead test assemblies featuring chromia additions to the fuel pellets and a chromium coating to the fuel rod cladding will be loaded into Vogtle unit 2 in spring 2019. The company will begin manufacturing the chromia-doped fuel pellets at its facility in Richland, Washington, later this year.

- President Trump, in a June 29, 2017, address from Department of Energy Headquarters, announced a review of U.S. nuclear energy policy and regulation.

- U.S. House of Representative Legislative Action:
  - On June 27, 2017, House Appropriations Committee released its Energy and Water Development (HEWD) Appropriations draft bill for fiscal year (FY) 2018.
    - Terminates funding for the Title 17 loan guarantee program (rescinds all loan guarantee authority under Title 17 effective October 1, 2017).
      - If this stands it may be detrimental to near-term deployment opportunities such as for Small Modular Reactors since Loan Guarantees improve their economic competitiveness.
  - On June 27, 2017, House Energy and Commerce Committee approved a bill to
    - Revive the spent nuclear fuel repository project (Yucca Mountain), and
    - Authorize the Department to address interim consolidated storage of spent fuel.
  - On June 20, 2017, the full House passed House Resolution (HR) 1551, *To amend the Internal Revenue Code of 1986 to modify the credit for production from advanced nuclear power facilities*.
    - Production tax credit bill that eliminates the current requirement that the first 6,000 megawatts of new nuclear generation be placed into service by the end of 2020 in order to receive the 1.8-cent-per-kilowatt-hour tax credit.
    - Beneficial to
      - New reactors under construction in Georgia and South Carolina since their operational date may be delayed until after 2020,
      - Utilities considering building small modular reactors since it improves economic competitiveness.
    - It is unknown when the Senate plans to take up this measure.

- U.S. Senate confirmed, on June 26, 2017, Christine Svinicki at Chairwoman of the Nuclear Regulatory Commission for another 5-year term.
  - Commissioner Svinicki has been on the Commission since 2008 as a Republican member.
  - President Trump has nominated 2 others to fill vacant seats:
    - Annie Caputo, a former Exelon executive, and
    - David Wright, a former Chairman of the South Carolina Public Service Commission.

- Dominion Power announced, on June 26, 2017, it was considering shutting their Millstone plant in Waterford, Connecticut, citing economic woes in deregulated markets.
  - ISO New England, the grid operator, informed Dominion
    - The next opportunity for Dominion to exit the market would be in 2022, and
    - That Dominion may instead transfer its responsibility to provide energy to a third party or pay a penalty to exit the market early.
  - ISO New England has communicated "***future capacity in the region could become a problem and the region needs Millstone, particularly with the impending retirement of the Pilgrim Nuclear Power Station in Massachusetts in 2019 and a lack of a high-capacity natural gas pipeline***" –Hartford Current.

Reactor Design Certifications (DC)

By issuing a design certification, the NRC approves a nuclear power plant design, independent of an application to construct or operate a plant. A design certification is valid for 15 years from the date of issuance, but can be renewed for an additional 10 to 15 years. A Design Certification application must include enough information to show the design meets NRC's safety standards and that the design resolves any existing generic safety issues and issues that arose after specific events in the nuclear industry such as the Three Mile Island accident. Applications must closely analyze the design's appropriate response to accidents or natural events, including lessons learned from the Fukushima accident. Applications must also lay out the inspections, tests, analyses and acceptance criteria that will verify the construction of key design features. Certification reviews identify key information to consider in site-specific reviews for operating licenses. *(From NRC website)*

Three reactor designs that are being considered for future builds in the U.S. are certified, two additional designs (including a Small Modular Reactor design) are under NRC review, one is under renewal review, and 2 have been withdrawn[1].

[1]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.

	VENDOR	TECHNOLOGY	STATUS
Issued	Westinghouse	AP1000	Issued: 12/30/2011
	General Electric-Hitachi	ESBWR	Issued: 11/14/2014
Renewal	General Electric-Hitachi	ABWR	Originally Issued 5/12/1997: DC Renewal Application is under review / Final Safety Evaluation Report (SER) expected 3/2018
Active DCAs	Korea Electric Power Corp	APR1400	Under Review:Final SER expected 9/2019
	NuScale Power	NuScale SMR Power Module	Under Review:Final SER expected 9/2020

Early Site Permits (ESP)

By issuing an ESP, the NRC approves one or more sites for a nuclear power facility, independent of an application for a construction permit or combined license. An ESP is valid for 10 to 20 years from the date of issuance, and can be renewed for an additional 10 to 20 years. In reviewing an ESP application, the NRC staff will address site safety issues, environmental protection issues, and plans for coping with emergencies, independent of the review of a specific nuclear plant design. During this process, the NRC notifies all stakeholders (including the public) as to how and when they may participate in the regulatory process, which may include participating in public meetings and opportunities to request a hearing on the issuance of an ESP. *(From NRC website)*

Five ESPs have been issued; one is currently under review; one was withdrawn[2]

[2]Victoria County Station, Texas (Exelon) was withdrawn from NRC review 10/2012

	SITE/LOCATION		UTILITY	TECHNOLOGY REFERENCED	STATUS
Issued	Clinton	IL	Exelon	Plant Parameter Envelope (PPE)	Issued: 3/15/2007
	Grand Gulf	MS	Entergy	PPE	Issued: 4/5/2007
	North Anna	VA	Dominion Power	PPE	Issued: 11/27/2007 Amended 1/30/2013
	Vogtle	GA	Southern	AP1000/ Westinghouse	Issued: 8/26/2009
	Salem County	NJ	PSEG	PPE	Issued: 5/5/2016
Active ESPs	Clinch River	TN	TVA	PPE	Under Review: Final Environmental Impact Statement expected 6/2019 Final SER expected 9/2019

Combined Construction and Operating Licenses (COL)

By issuing a COL, the NRC authorizes the licensee to construct and (with specified conditions) operate a nuclear power plant at a specific site, in accordance with established laws and regulations. In a COL application (COLA), NRC staff reviews the applicant's qualifications, design safety, environmental impacts, operational programs, site safety, and verification of construction with inspections, testing, analyses, and acceptance criteria. The staff conducts its review in accordance with the Atomic Energy Act, NRC regulations, and the National Environmental Policy Act. All stakeholders (including the public) are given notice as to how and when they may participate in the regulatory process, which may include participating in public meetings and opportunities to request a hearing on the issuance of a COL. Once issued, a COL is good for 40 years and can be renewed for an additional 20. *(From NRC website).* A COLA may reference a certified design and/or an early site permit, or neither.

Eighteen COLAs have been docketed by the NRC: seven (totaling 12 reactors) have received COLs; one (totaling 2 nuclear reactors) remain under active NRC review; 10 were suspended and later withdrawn[3] due to utility economic or other considerations while 4 remain in "suspended" status[4]. A Reference COL (R-COL) application has been submitted for five reactor designs; subsequent COLs (S-COLs) incorporate the corresponding R-COL application by reference, noting any site-specific departures.

[3]Suspended and Withdrawn: Bell Bend; Bellefonte 3&4 Callaway 2, Calvert Cliffs 3 , Grand Gulf 3 , Nine Mile Point 3, River Bend 3 , Victoria County 1&2 ,
[4]Remains Suspended: Shearon Harris 2&3, Comanche Peak 3&4

	SITE/LOCATION		UTILITY	REACTOR TECHNOLOGY/ NO. UNITS		STATUS
Issued	Vogtle	GA	Southern Nuclear	AP1000	2	Issued: 2/10/2012
	V.C. Summer	SC	SCE&G	AP1000	2	Issued:4/10/2012
	Fermi	MI	DTE Energy	ESBWR	1	Issued: 5/1/2015
	South Texas Project	TX	STPNOC	ABWR	2	Issued: 2/12/2016
	Levy	FL	Duke Energy	AP1000	2	Issued: 10/26/2016
	William States Lee	SC	Duke Energy	AP1000	2	Issued: 12/19/2016
	North Anna	VA	Dominion Energy	ESBWR	1	Issued: 5/31/2017
Active COLAs	Turkey Point	FL	Florida Power and Light	AP1000	2	In Review Docketed: 9/4/2009

New Plant Construction

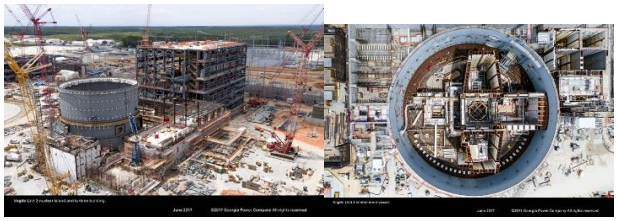
As of Spring 2017, full nuclear construction was well underway for AP1000 reactors at V.C. Summer (Units 2 and 3) and Vogtle (Units 3 and 4). Westinghouse bankruptcy status as of July 2017 had a significant impact on the construction schedules for both of these projects.

TVA completed power ascension testing of Watts Bar Unit 2 and it is now operational.

Vogtle

Georgia power has taken over engineering, procurement, construction, and licensing of Vogtle from Westinghouse. Toshiba, parent company to Westinghouse, agreed to pay the owners of Vogtle $3.7billion. Georgia Power will make a recommendation late August on whether to proceed.

As of June 2017, construction on Vogtle Units 3 and 4 were approximately 70% complete. The second containment vessel ring for Unit 3 has been placed. Other major progress included the setting of both the 612,000-pound Unit 3 reactor vessel and 2-million pound Unit 4 CA01 module.
Units 3 and 4 were expected to come online in mid-2019 and 2020, respectively



Vogtle Unit 3 Nuclear Island and Turbine Building; Vogtle Unit 4 Containment Vessel (Courtesy of Georgia Power/Southern Company; June 2017)

VC Summer

In early August 2017, SCANA (55% owner) and Santee Cooper (45% owner) decided to cancel further construction of the AP1000 units at VC Summer. Toshiba, parent company to Westinghouse, agreed to pay the owners of Summer $2.2 billion.

As of May 2017, the VC Summer nuclear construction project was over 64% complete. All four steam generators for Units 2 and 3 were being installed, while two of the four reactor coolant pumps for Unit 2 are on site.
Units 2 and 3 were planned to come online in April 2020 and December 2020, respectively.

SCE&G Places Final Unit 2 Containment Vessel Ring; The First U.S. AP1000 Steam Generator is placed in Unit 2(Courtesy of SCE&G)

Watts Bar 2

- ★ Watts Bar Unit 2 began commercial operation on October 19, 2016. The $4.7 billion capital construction project was completed on budget. The unit is now in working asset status joining six other operating TVA nuclear units to supply more than one third of the region's generating capacity.

Operating Fleet Status: Supportive Federal and State Action

Initiatives are taking place at the national and state level to ensure a more competitive market for nuclear power.

- Federal action at DOE and FERC considering market reform and price formation changes; providing technical assistance; and developing pro-nuclear policies
- PJM investigating approaches to capacity market design to account for state policy goals.
- Two states (NY and IL) approved creation of "Zero Emissions Credit" to provide additional revenue to at-risk nuclear power plants; one state (OH) is considering a similar program. One state (CT) considered a nuclear Power Purchase Agreement program (passed State Senate/failed to come before the House for a vote)
    - Five plants announced they were closing prior to their license expiration date but were saved due to State Legislative Action:

ORIGINALLY PROPOSED CLOSURE YEAR	SITE / LOCATION		UTILITY	LICENSE EXPIRATION (TERM)	POWER (MWe)
2017	FitzPatrick	NY	Entergy	2034 (60)	852
	Ginna	NY	Exelon	2029 (60)	582
	Clinton	IL	Exelon	2026 (40)	1065
2017-18	Nine Mile Point-1 & 2	NY	Exelon	2029 / 2046 (60)	1780
2018	Quad Cities 1 & 2	IL	Exelon	2032 (60)	1820
				Total Saved	**6,099**

Operating Fleet Status: Premature Closure

Citing sustained low natural gas prices, financial impacts of cumulative regulations, wholesale market structure, and/or technical matters such as steam generator replacement issues, a number of operating plants have announced, or are considering early retirement. State legislative action passed in New York and Illinois to provide subsidies to operating plants with withstood challenges (See *News & Notes*).

★ Five plants have closed prior to their license expiration date:

CLOSURE YEAR	SITE / LOCATION		UTILITY	LICENSE EXPIRATION (TERM)	POWER (MWe)
2013	Crystal River 3	FL	Duke	2016 (40)	860
	San Onofre 2 & 3	CA	SoCal Edison	2023 / 2024 (40)	2,150
	Kewaunee	WI	Dominion	2033	566
2014	Vermont Yankee	VT	Entergy	2032	620
2016	Fort Calhoun	IN	Omaha Power	2033 (60)	479
				Total Closed since 2013:	**4675**

★ Six plants have announced plans to retire prior to their license expiration date:

PENDING CLOSURE YEAR	SITE / LOCATION		UTILITY	LICENSE EXPIRATION (TERM)	POWER (MWe)
2018	Palisades	MI	Entergy	2031 (60)	789
2019	Pilgrim 1	MA	Entergy	2032 (60)	678
	Oyster Creek	NJ	Exelon	2029 (60)	610
	Three Mile Island 1	PA	Exelon	2034 (60)	803
2020-21	Indian Point 2 & 3	NY	Entergy	2013 / 2015 (40)	2,060
2024-25	Diablo Canyon 1 & 2	CA	PG&E	2024 / 2025 (40)	2,240
				Total Pending Closures:	**7,180**

★ One plant, Dominion Power's Millstone plant in Waterford, Connecticut, is considering shutting down (see *News Updates*)