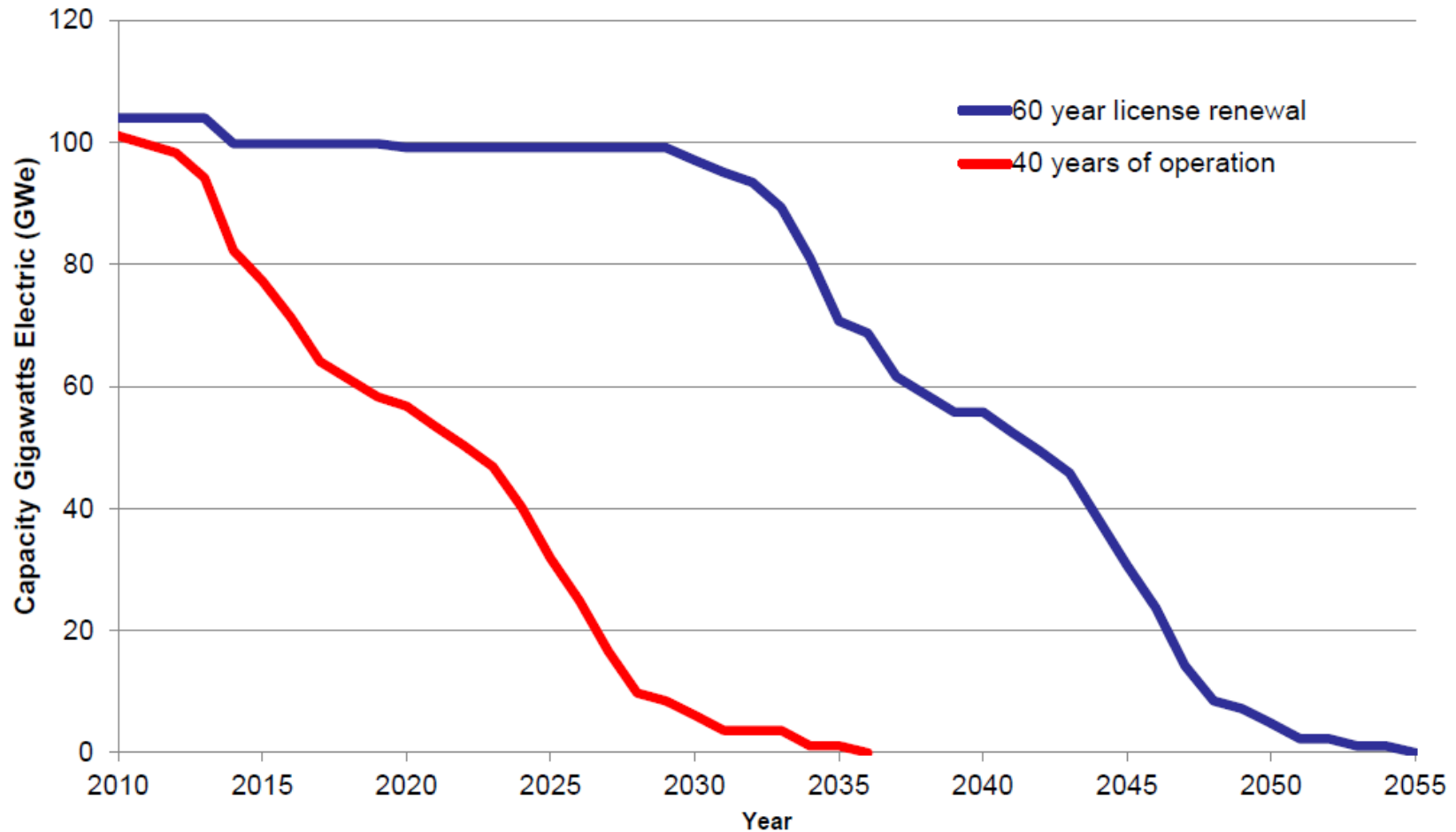




License Renewals, Projections of New Units, and Extended Loss of All AC Power Joint FERC/NRC Meeting

**Brian Smith, Deputy Director
Division of Engineering
Office of Nuclear Reactor Regulation
May 28, 2014**

Projected Fleet Capacity



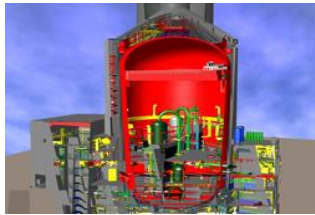
Graph courtesy of the Department of Energy.

New Reactor Licensing in the U.S.

Design Certifications



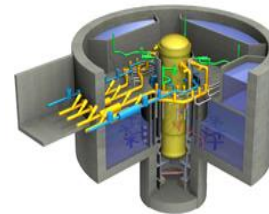
**ABWR –
1,300 MWe**



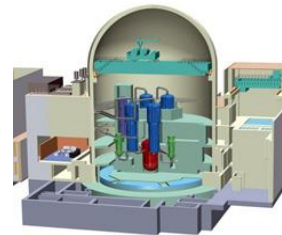
**AP1000 –
1,000 MWe**



**U.S. EPR –
1,600 MWe**

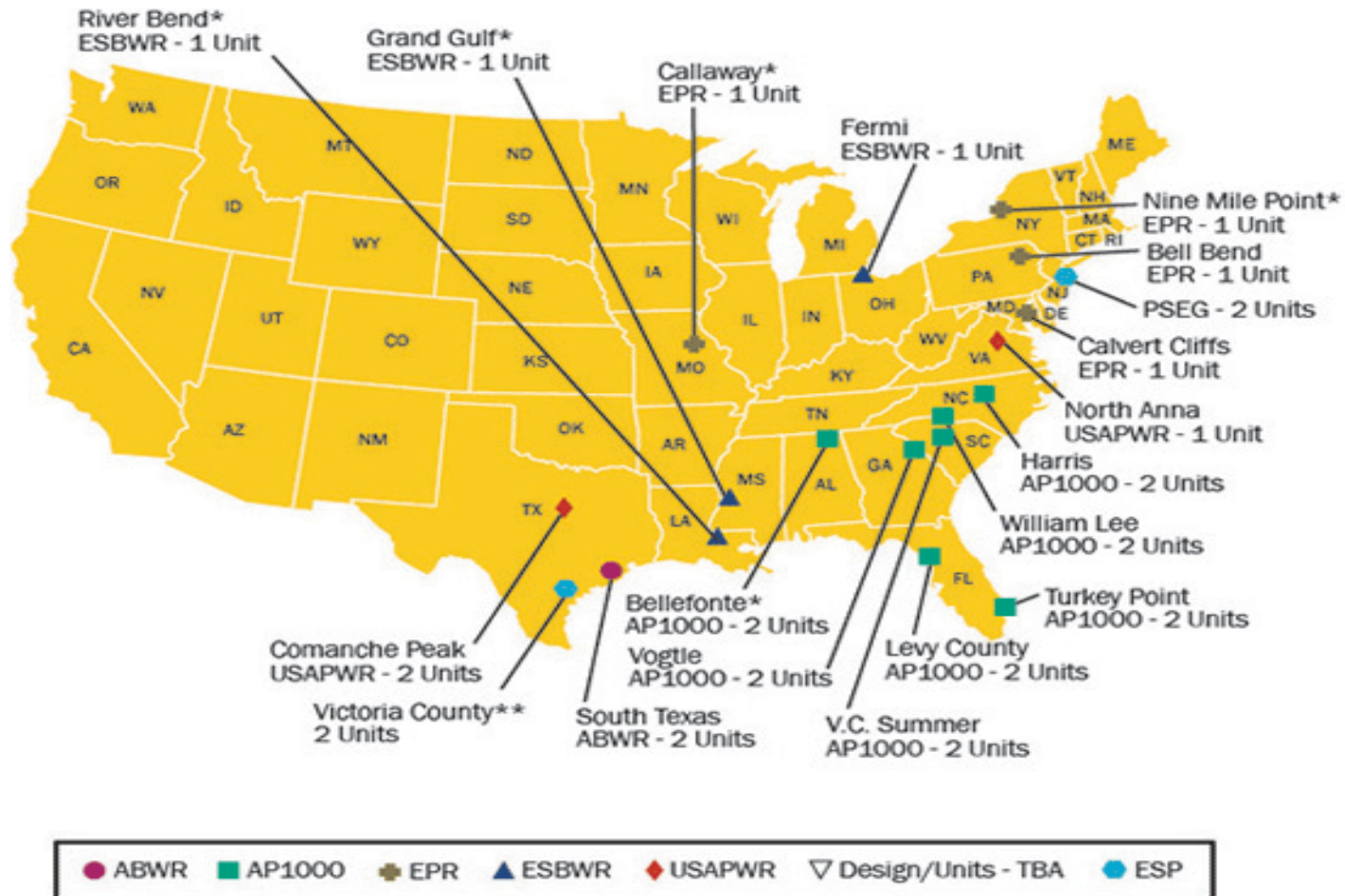


**ESBWR –
1,500 MWe**



**US APWR –
1,700 MWe**

Projected New Nuclear Power Reactors – Large LWRs



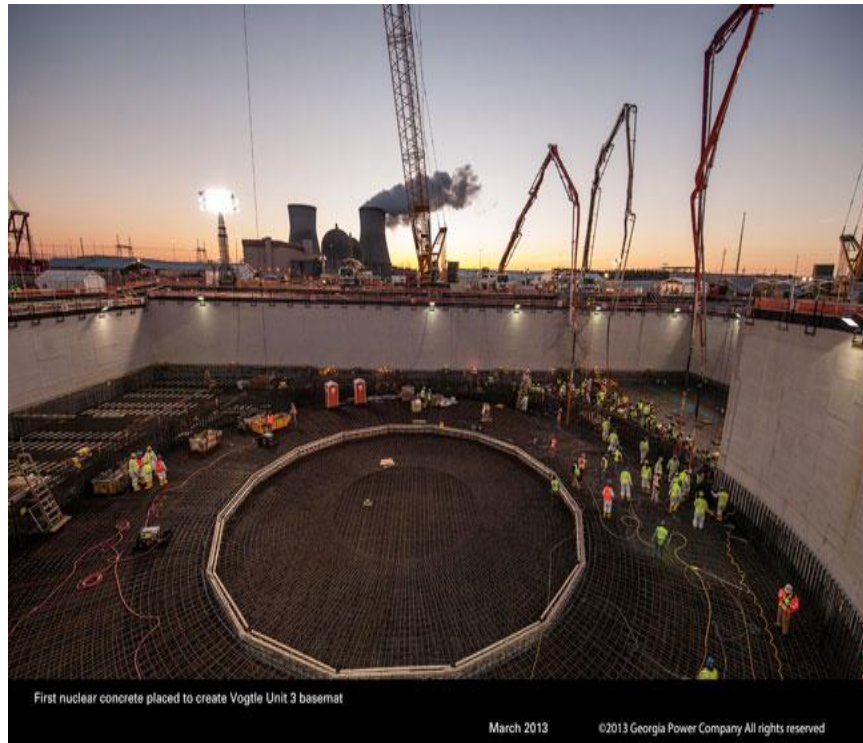
*Review Suspended by Applicant

** COL Application Amended by Applicant to ESP on 03/25/2010

Active Construction Sites

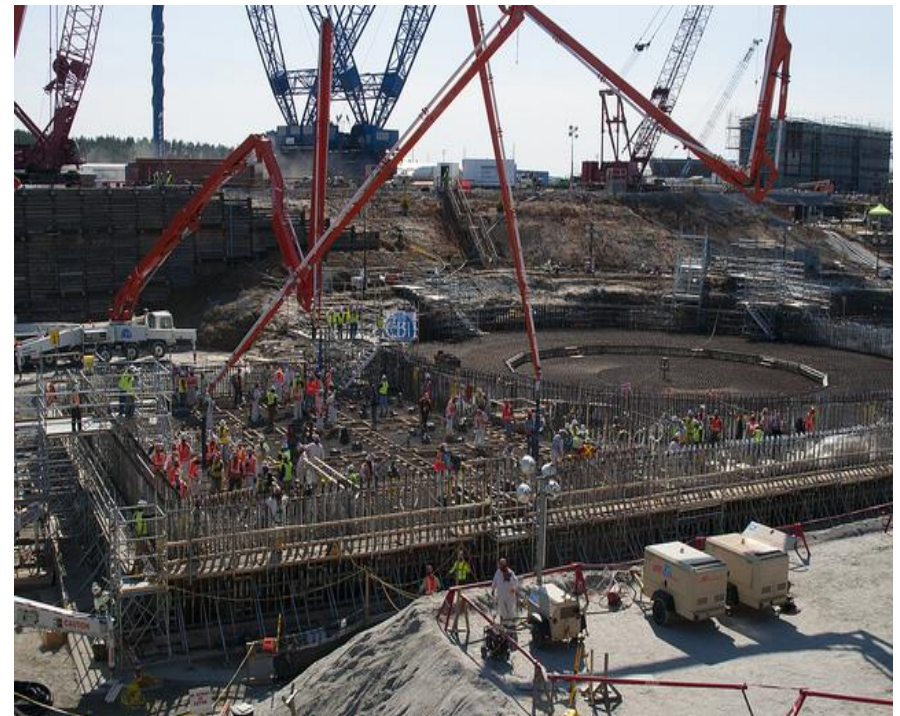
<u>Unit</u>	<u>Licensing Status</u>	<u>Power Generation Output (MWe)</u>	<u>Operation</u>
Watts Bar Unit 2	Construction Permit Issued	1,150	Dec. 2015
Vogtle Unit 3	License Issued	1,000	Dec. 2017
Vogtle Unit 4	License Issued	1,000	Dec. 2018
V.C. Summer Unit 2	License Issued	1,000	Dec. 2017
V.C. Summer Unit 3	License Issued	1,000	Dec. 2018

First Concrete Pours at Vogtle and Summer

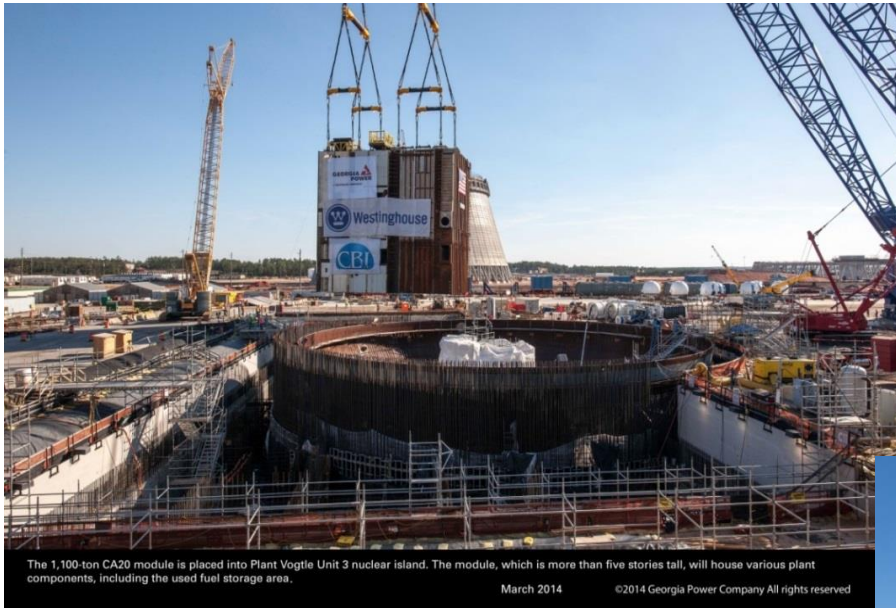


**Vogtle – basemat
March 2013**

Summer - concrete pumps placement March 2013



Vogtle and Summer Nuclear Island Construction



Vogtle – Auxiliary Building (Module CA-20 Placement) March 2014

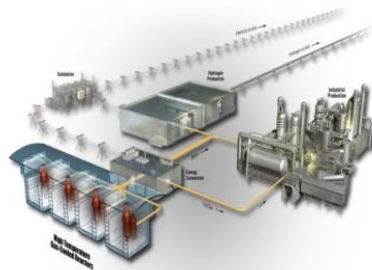
Summer – Nuclear Island May 2014



Development of Advanced and Small Modular Reactors

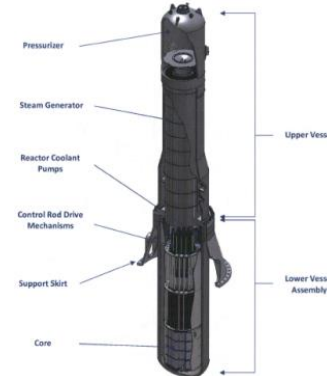
Non-Light Water Reactors

High Temperature Gas-Cooled Reactors (HTGRs)

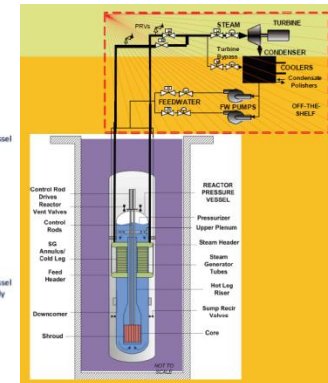


iPWR Designs

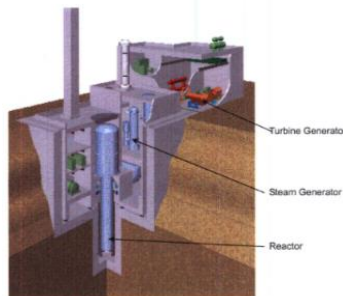
B&W



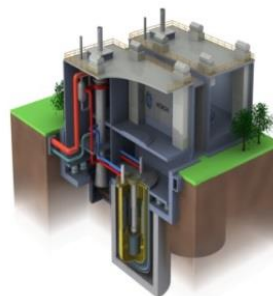
NuScale



Liquid Metal Reactors

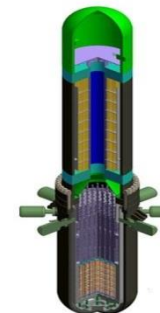


4S



PRISM

Westinghouse SMR



Holtec SMR-160



Mitigation Strategies for Extended Loss of All AC Power

- **Overview**
 - **Maintain/restore core cooling, containment, and spent fuel pool cooling following beyond-design-basis external events**
 - **Use installed, portable, and off-site equipment**

Active Staff Review and Rulemaking

- **Status**
 - **Order: Interim Evaluations and reviews at operating facilities**
 - **Rulemaking: Ongoing rulemaking process**
- **Next Steps**
 - **Order: Safety Evaluations; post-compliance inspections**
 - **Rulemaking: Final rule will codify the requirements**

Acronyms

- **ESBWR - Economic Simplified Boiling Water Reactor**
- **U.S. EPR – U.S. EPR**
- **US-APWR – Advanced Pressurized Water Reactor**
- **ABWR – Advanced Boiling Water Reactor**
- **AP1000 – Advanced Passive 1000**
- **APR1400 – APR1400**

Acronyms

- **MWe _ Mega-watts electric**
- **LWR – Light Water Reactor**
- **iPWR – Integral Pressurized Water Reactor**
- **AC – Alternate Current**