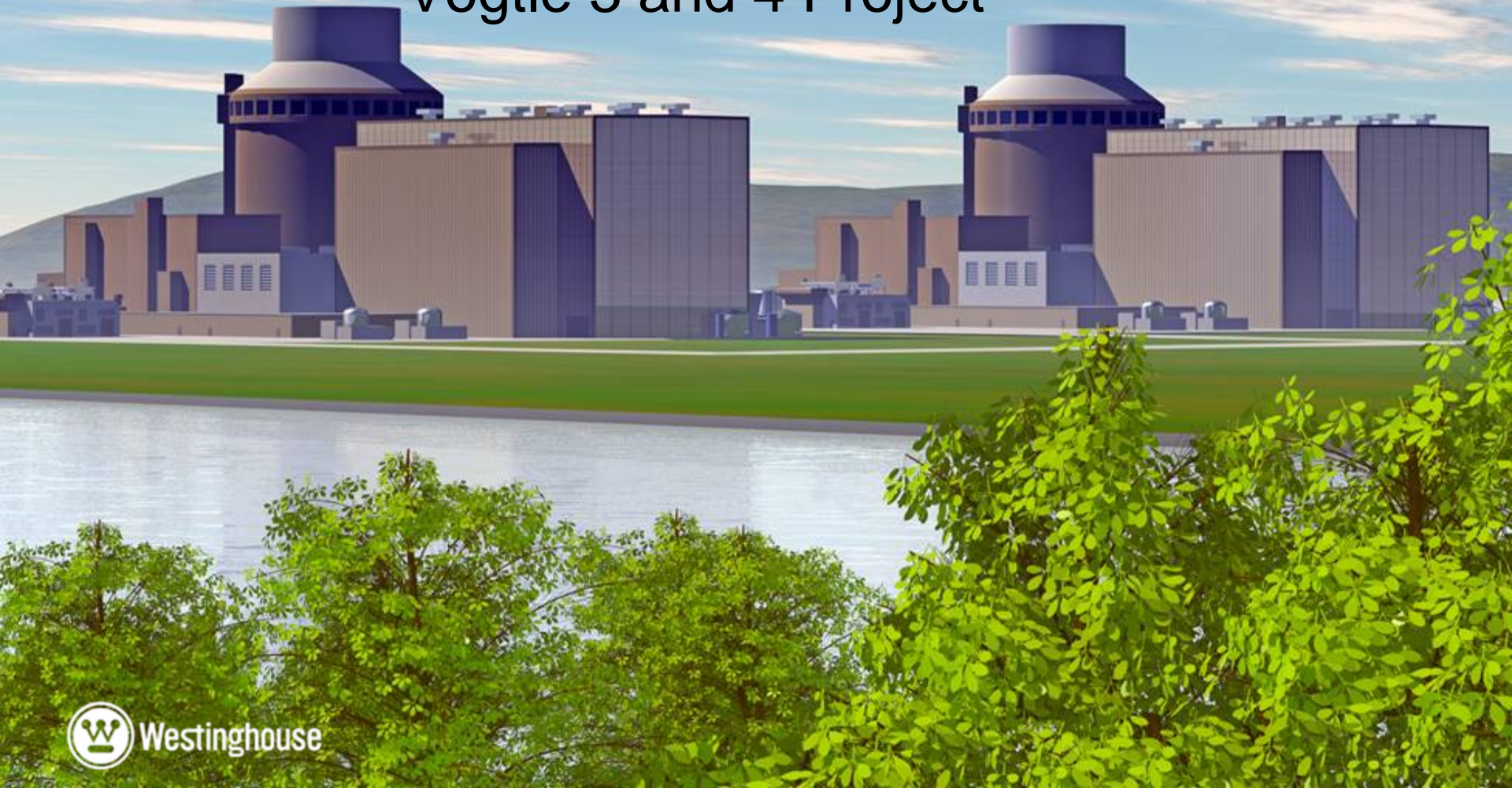


Global Outlook for Nuclear Power

Norm Boyter

Vice President and Consortium Project Director

Vogtle 3 and 4 Project



A Global Crossroads for Energy

Planning for Future Baseload Energy Demand Must Begin Now

- **With worldwide** demand for energy expected to double by 2030, **the need for safe, clean, reliable energy is essential**
- **Renewable energy sources are impractical for meeting baseload energy needs**
- **Continued reliance on fossil fuels is counterproductive to efforts to reduce CO₂ and other greenhouse gasses**

The Interest in Nuclear Energy is Global

2030: Projected Top 10 Nuclear Countries

| Top 10 Nuclear Countries, 2030 | | | | |
|--------------------------------|-------------|----------|-----------|-----------|
| 2030 Rank | Country | 2030 GWe | 2008 Rank | Added GWe |
| 1 | USA | 127 | 1 | 27.0 |
| 2 | France | 76 | 2 | 13.2 |
| 3 | China | 70 | | 63.2 |
| 4 | Japan | 55 | 3 | 7.4 |
| 5 | Russia | 46 | 4 | 33.5 |
| 6 | South Korea | 36 | 6 | 18.0 |
| 7 | India | 32 | | 29.0 |
| 8 | Canada | 21 | 8 | 8.5 |
| 9 | Ukraine | 19 | 7 | 5.4 |
| 10 | Germany | 14 | 5 | -6.1 |

Source: UxC

The Interest in Nuclear Energy is Global

Regional Market Drivers

- **Need for economically competitive electricity driven by**
 - Economic growth
 - Replacement of aging generation supply
 - Security of energy supply
- **Optimum generation size to match country infrastructure**
- **Benefit to country's economy**
- **Reliability of supplier of new nuclear plants**



The Interest in Nuclear Energy is Global

Nuclear Is Well Positioned

- Meets needs to reduce greenhouse gas emissions
- Highest capacity factors
- Low cost per kilowatt hour
- More stable fuel sources, less fluctuation in price
- Public acceptance at all-time high
- Proven high standards in:
 - Safety
 - Availability
 - Financial performance



The Interest in Nuclear Energy is Global Even in Countries Who Have No Current Nuclear Capacity



Today's Nuclear Industry

The number of operating plants is significant and expected to grow

World Nuclear Association Estimate of Reactors Worldwide

| | |
|---------|--------------|
| Today | 435 Reactors |
| By 2020 | 580 Reactors |
| By 2030 | 821 Reactors |

Today's Nuclear Industry

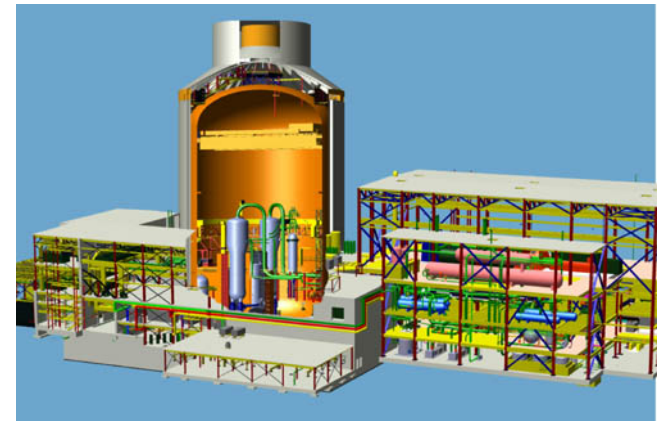
New Designs Must Deliver

- **Cost basis that can compete with other energy sources**
 - High degree of certainty for schedule
 - Reduced construction time and cost
- **Increased levels of safety**
- **Easier to operate and maintain**
- **Standardized plants**
- **Regulatory certainty**

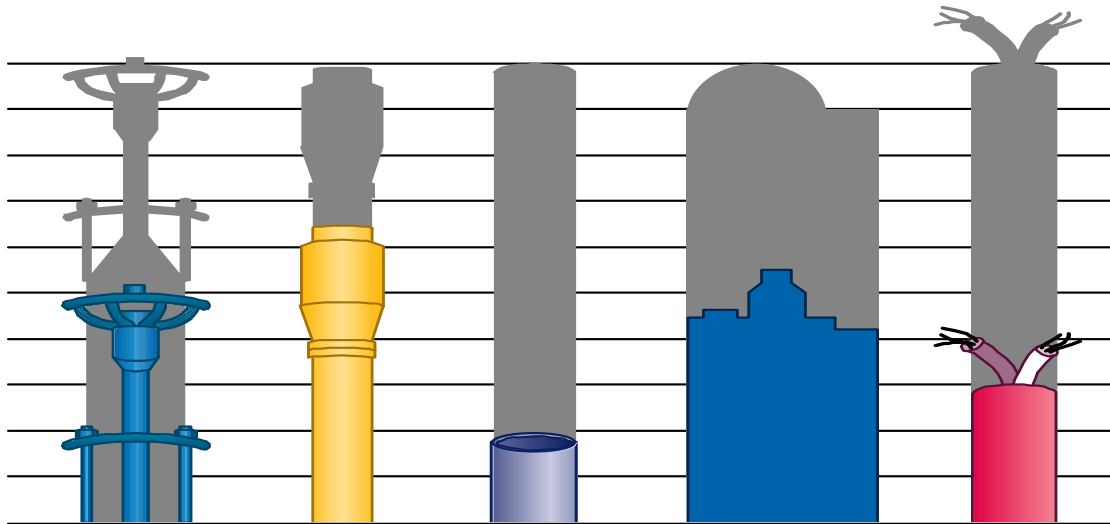


A Key Factor in Project Success - Simplification

- Simplicity in **Design** through reduced number of components and bulk commodities
- Simplicity in **Safety** through use of passive safety systems
- Simplicity in **Construction** through modularization
- Simplicity in **Procurement** through standardization of components and plant design
- Simplicity in **Operation and Maintenance** through use of proven systems and components, and man-machine interface advancements



Simpler Design Requires Less Equipment and Less Concrete, and Fewer Human Resources



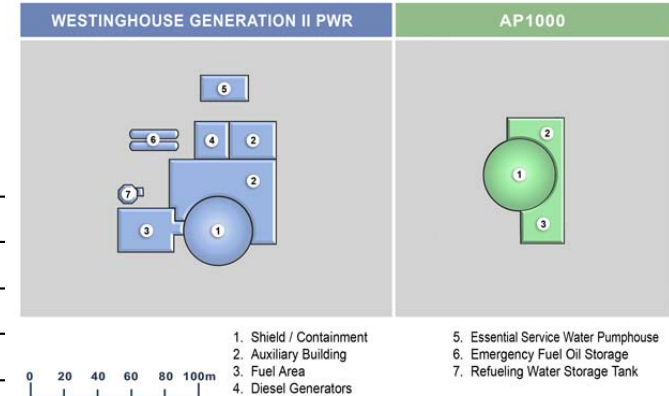
50% Fewer
Valves

35% Fewer
Pumps

80% Less
Pipe

45% Less
Seismic Building
Volume

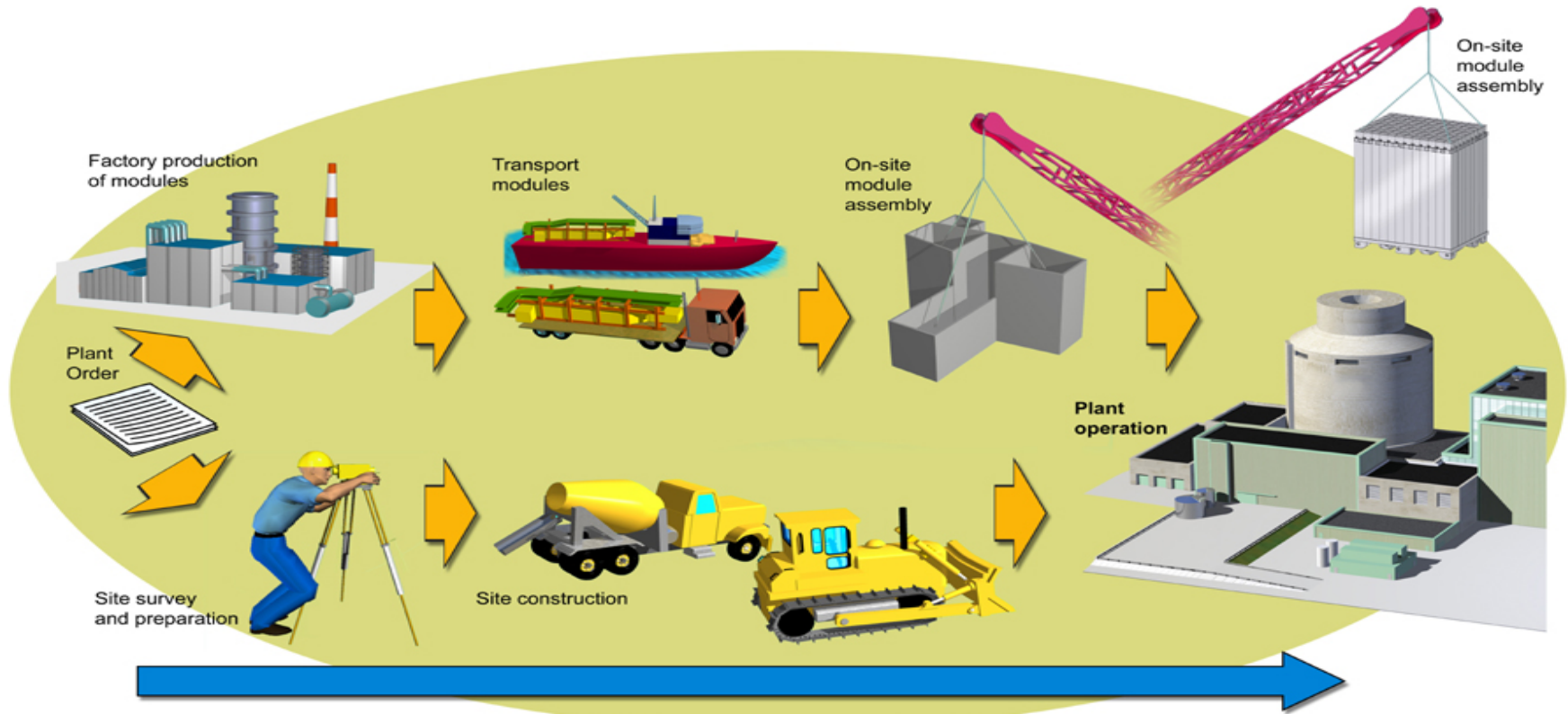
85% Less
Cable



Comparison of Building Volumes

Today's Nuclear Industry

Shorter Construction Schedules Through Modular Construction



More Work Done In Parallel = Shorter Construction Schedule

Today's Nuclear Industry

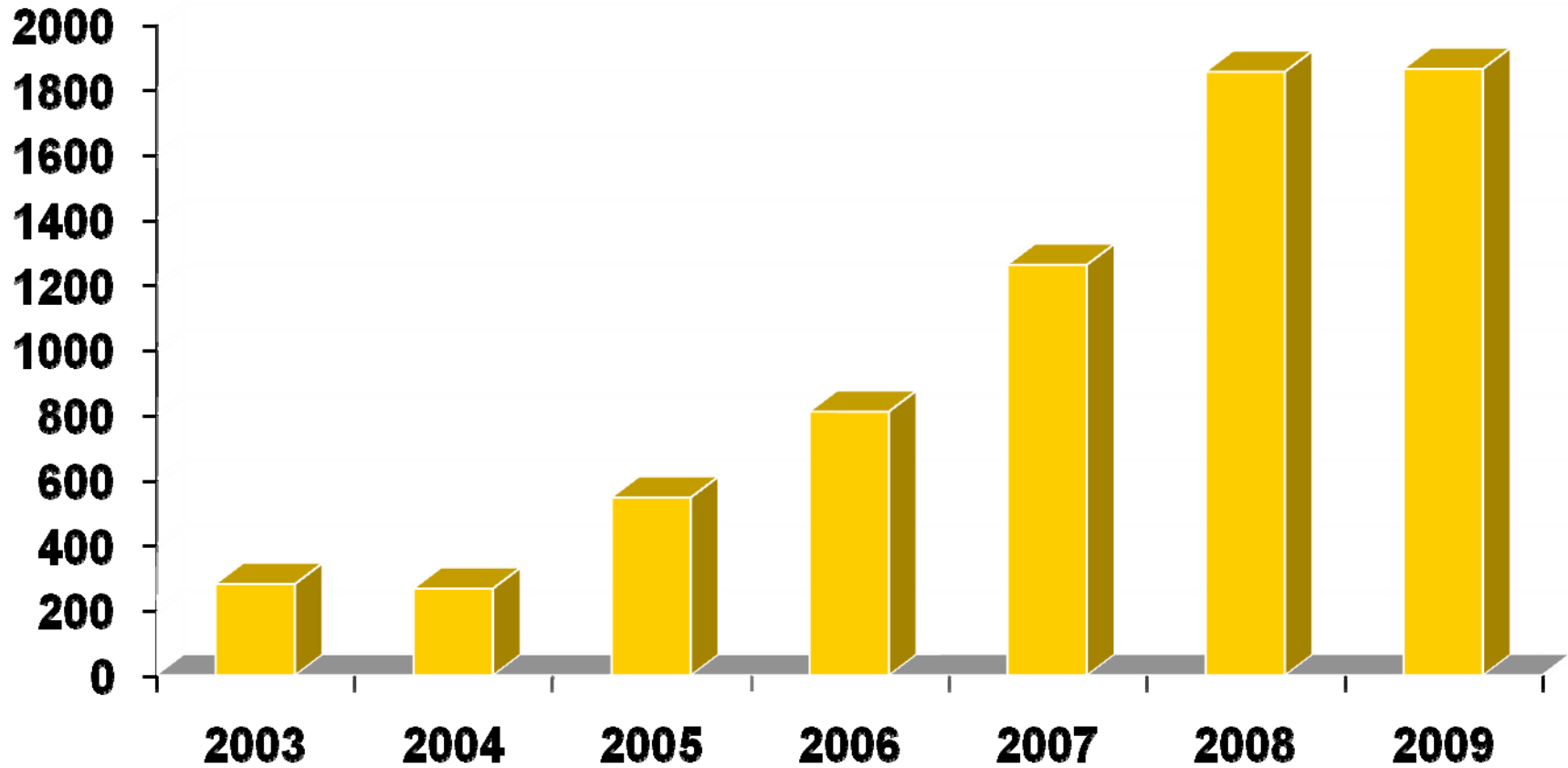
Challenges Still to be Met

- World financial conditions
- Short term energy options
- Deliver new plants on budget and on schedule
- Regulatory process
- Lack of certainty of CO₂ treatment
- Waste and security issues
- Maintain operating fleet performance
- Human resources
- Supply chain



On-Going Commitment to Human Resources

We have been preparing!



On-Going Commitment to Supply Chain

Supply Chain Solutions: Major AP1000™ Suppliers



Westinghouse China Projects

Fourteen Planned AP1000™ Units

China

14 units planned

4 units under contract

Operation begins 2013

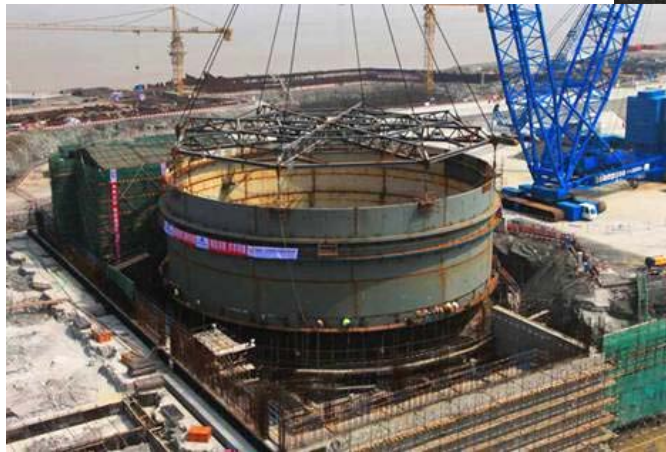
***Projects are currently
on schedule.***



Westinghouse China Projects

Module Placement at Sanmen

- **Module manufacturing and placement for the lead AP1000 in China is progressing on schedule**
- **The CA20 module (fuel building) and the CA01 (reactor cavity)**



Westinghouse U.S. Projects

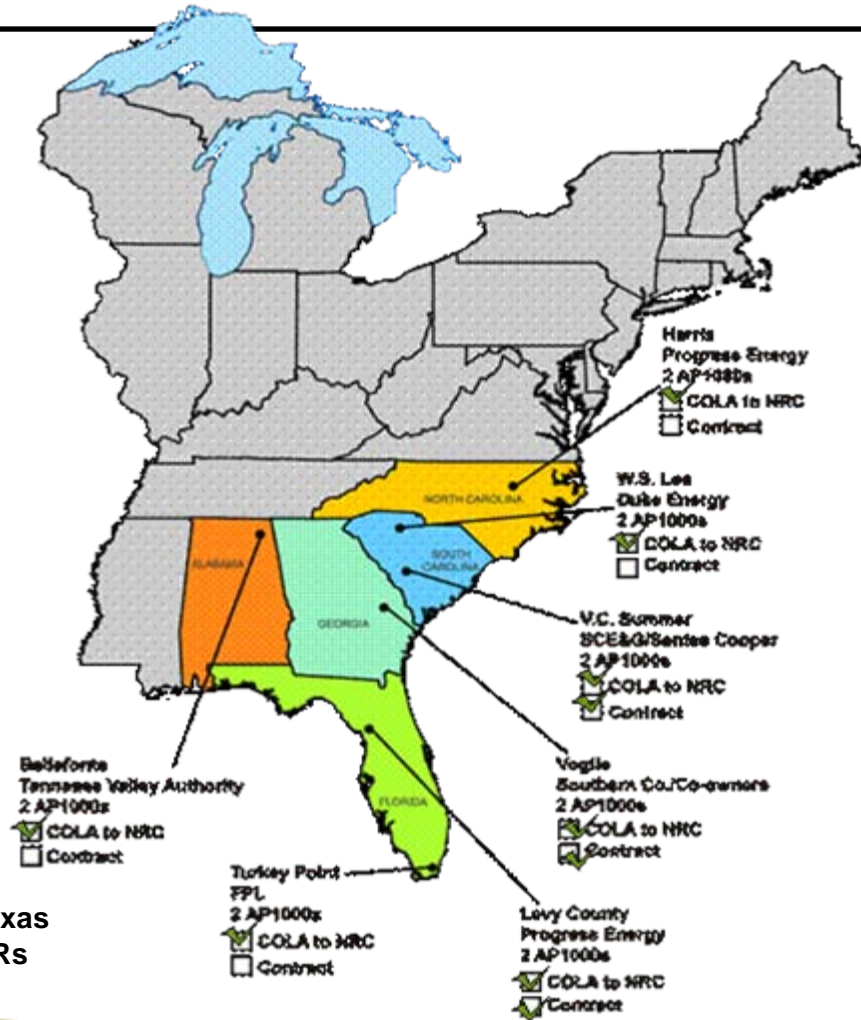
AP1000™ Status

USA

14 units planned

6 units under contract

Operation begins 2016



Westinghouse U.S. Projects

AP1000™ Projects are the First in the U.S. in 30 Years

VC Summer Units 2 & 3



Westinghouse U.S. Projects

VC Summer 2 & 3 Progress

- **Completed plant access road including Mayo Creek Bridge from Hwy 213 to the tabletop**
- **Erected concrete batch plant #1, connecting electrical and water to support testing in June**
- **Excavated Unit 2 power block to 15- 20 feet with no issues to date**
- **Poured concrete slab for Module Assembly Building (football size footprint 13 stories tall)**
- **Installed over 400 sections of circulating water pipe for Units 2 and 3**



VC Summer Units 2 & 3

Westinghouse U.S. Projects

AP1000™ Projects are the First in the U.S. in 30 Years



Plant Vogtle Units 3 and 4 foundation excavation, with water vapor rising from cooling towers in background. April, 2010. © Southern Company

Vogtle Units 3 & 4



Aerial of Plant Vogtle Units 3 and 4 foundation excavation. April, 2010. © Southern Company

Westinghouse U.S. Projects

Vogtle 3 and 4 Progress

- Received the Full Notice to Proceed March 2009
- Received Early Site Permit & Limited Work Authorization in August 2009 (allows backfill up to rebar placement)
- Commenced Site Excavation on August 10, 2009, completed Unit 3 on February 2010
- Commenced backfill of Unit 3 on March 8, 2010
- Issued Design procurement packages for CA-20 (Auxiliary Building) and CA-01 (Steam Generator & Refueling Canal) for fabrication

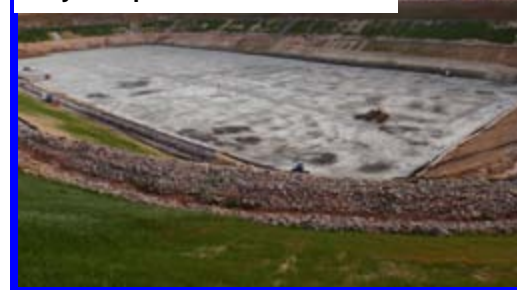
Unit 3 Excavation Underway at Blue Bluff Marl 130 Level



Excavation Underway



Completed Unit 3 Excavation with Blue Bluff Marl Sub-Soil Layer Exposed



Going Forward

Europe is Next

- AP1000™ was certified by the EUR in 2007
- Working through licensing process in the UK
- Passed pre-qualification by CEZ
- A growing number of countries have expressed interest in the AP1000
- There are still regional challenges to overcome:
 - Political
 - Regulatory
 - Financial
 - CO₂ pricing

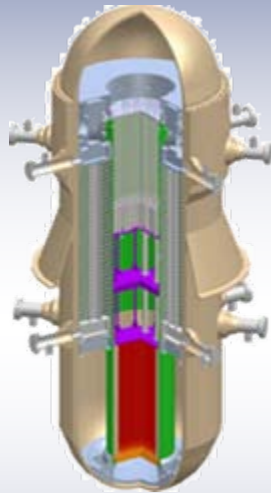


Going Forward

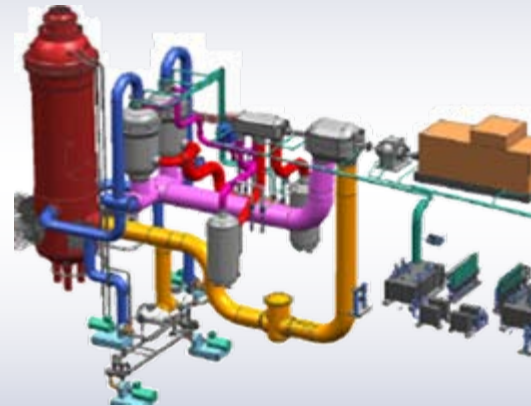
Advanced Plant Development Road Map



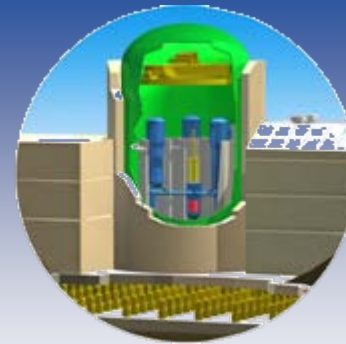
**New, Advanced
LWRs**



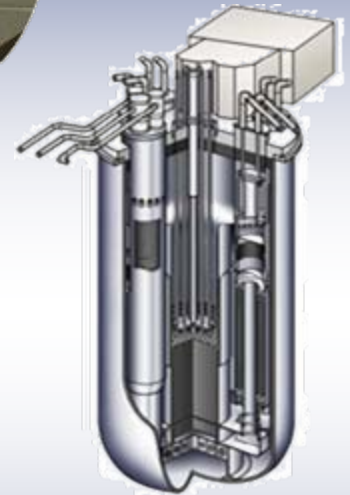
**Small Modular
Reactors
(SMRs)**



**High-Temperature
Gas Reactors**



**Large, Passive
Plant
(1700+ MWe)**



Fast Reactors

2013

2023

2025

2030+

Summary

- **New nuclear projects worldwide are proceeding**
- **Broad-based support exists in the government and the public**
- **The technology/designs are available**
- **Regulators are prepared**
- **Must maintain the safety and performance of the operating fleet**
- **It is up to the industry to deliver new build projects safely, on schedule and within budget!**



Thank you.