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U.S. Nuclear Energy Policy and Outlook After Fukushima

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Agenda

- Status of current U.S. nuclear plants
- Federal government response to Fukushima accident
  - Nuclear Regulatory Commission task force
  - Congressional action
- U.S. nuclear energy outlook
- Impact of Fukushima on FPL reactors

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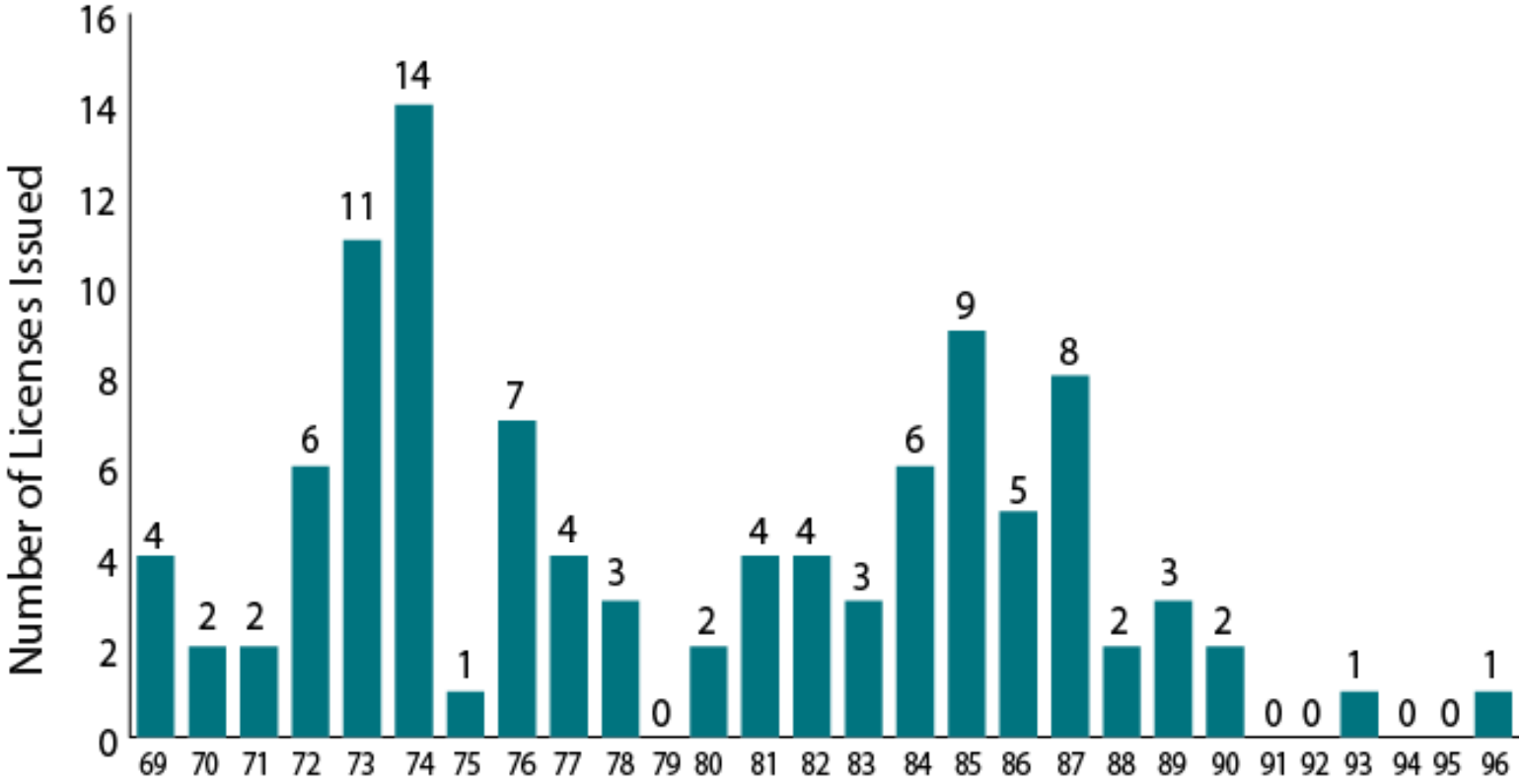
Status of U.S. Nuclear Plants

Operating U.S. Reactors

- 104 currently licensed to operate
  - 69 pressurized water reactors (PWRs)
  - 35 boiling water reactors (BWRs)
    - 23 GE Mark I containments (similar to Fukushima)
- All current reactors ordered from 1963-1973
- Oldest operating reactor is Oyster Creek (NJ), licensed in 1969
- Most recently licensed reactor was Watts Bar 1 (TN) in 1996 (23 years of construction)
- TVA now finishing Watts Bar 2 and plans to finish Bellefonte 1 (AL)

Commercial Operating Licenses



Source: NRC Information Digest 2010-2011

License Renewals

- Atomic Energy Act limits operating licenses to 40 years, with unlimited renewals
- NRC has issued 71 20-year renewals
  - 14 more currently under review
  - 12 more expected by 2017
- DOE conducting R&D on potential life extension to 80 years

U.S. Reaction to Fukushima

Action by U.S. Nuclear Regulatory Commission

- Established near-term task force
  - Issued report July 12, 2011
- Recommendations prioritized Sept. 9 and updated Oct. 3
- Commission met Oct. 11 on safety recommendations
- Hearing held Oct. 7 on Beyond Nuclear petition to suspend Mark I licenses
- License renewals continued to be issued
- Impact on new reactor licenses uncertain

Regulatory Actions to be "Started Without Unnecessary Delay"

- Seismic and flood hazard re-evaluations and walkdowns
- Station blackout regulatory actions
- Reliable hardened vents for Mark I reactors
- Improvements in emergency procedures and guidelines
- Emergency preparedness regulatory actions

Other Potential High-Priority Actions

- Filtration of containment vents
- Instrumentation for seismic monitoring
- Emergency planning zone size
- Pre-staging potassium iodide beyond 10 miles
- Transfer of spent fuel to dry cask storage
- Loss of ultimate heat sink

Congressional Action

- Senate Appropriations Committee FY2012 Energy and Water funding bill includes Fukushima-related provisions:
  - Calls for Blue Ribbon Commission and DOE to develop new waste strategy
  - NAS to study waste and reactor safety and security
  - Directs NRC to conduct seismic tests on critical nuclear infrastructure

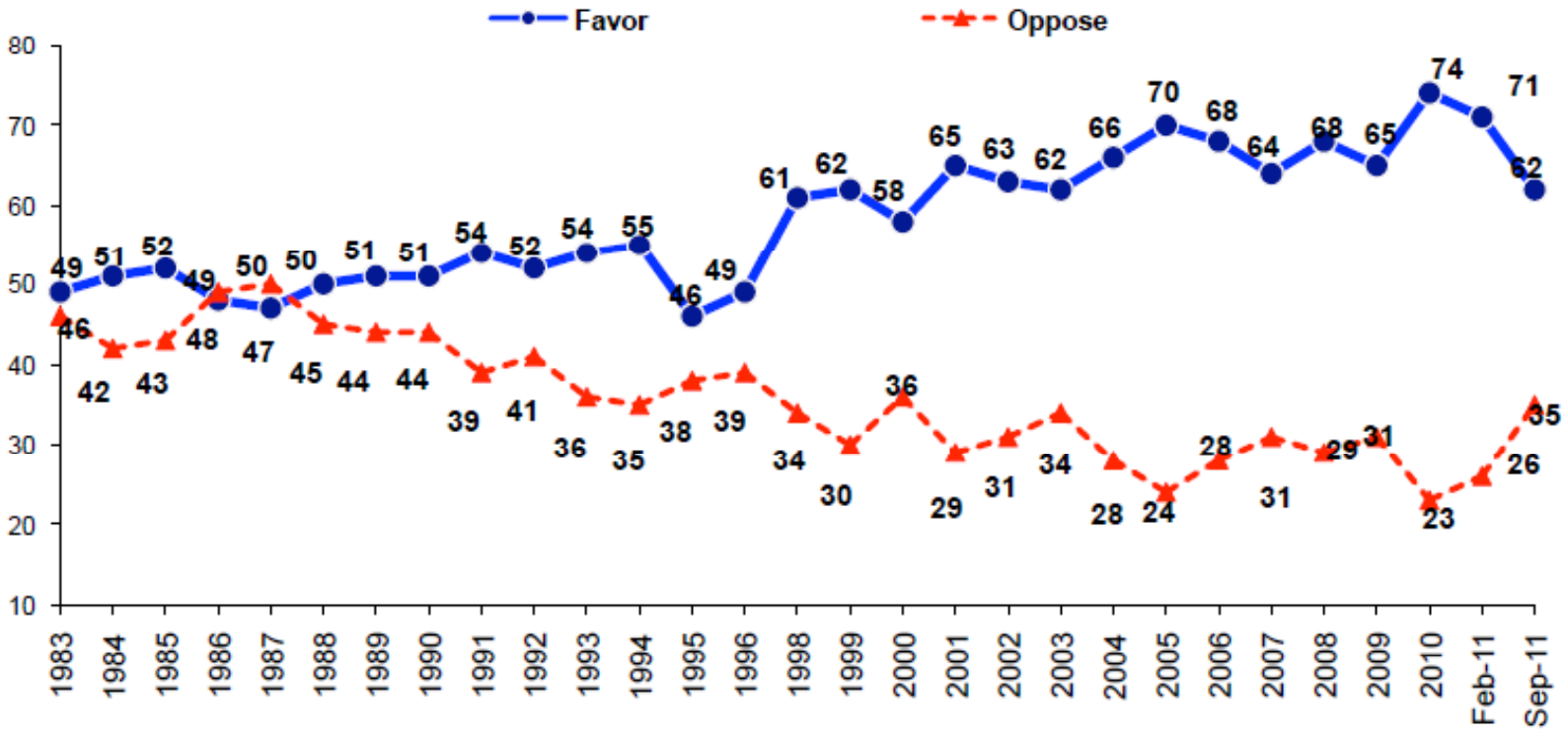
Bills Introduced After Fukushima

- H.R. 1242 (Markey)
  - Delays new licenses and design approvals for 18 months while NRC strengthens regulations
  - Spent fuel must be moved to dry casks within one year of sufficient cooling
- H.R. 1268 (Lowey)
  - Evacuation planning zones extended to 50 miles
  - License renewals must follow standards for new plants

U.S. Public Opinion on Nuclear Energy

Percent Who Favor and Oppose Nuclear Energy: Annual Averages 1983 to 2010

"Overall, do you strongly favor, somewhat favor, somewhat oppose, or strongly oppose the use of nuclear energy as one of the ways to provide electricity in the United States?"



Source: Nuclear Energy Institute

U.S. Nuclear Power Outlook

Proposed New U.S. Reactors

Site	Reactor Type	Units	Licensing Schedule
Vogtle (GA)	Westinghouse AP1000	2	COL 2012, LWA 2009
Summer (SC)	Westinghouse AP1000	2	COL 2012, precon.
Levy County (FL)	Westinghouse AP1000	2	COL 2012
William States Lee (SC)	Westinghouse AP1000	2	COL 2013
Fermi (MI)	GE ESBWR	1	COL 2013
Turkey Point (FL)	Westinghouse AP1000	2	Under revision, preconstruction
Comanche Peak (TX)	Mitsubishi US-APWR	2	Under revision
South Texas Project	Toshiba ABWR	2	Under revision
Calvert Cliffs (MD)	Areva EPR	1	Under revision
Bell Bend (PA)	Areva EPR	1	Under revision
Harris (NC)	Westinghouse AP1000	2	Under revision
North Anna (VA)	Mitsubishi US-APWR	1	Reactor change

Proposed U.S. Reactors (cont'd)

Site	Reactor Type	Units	Licensing Schedule
Grand Gulf (MS)	Not specified	1	Has ESP; COL suspended
Victoria County (TX)	Not specified	2	COL withdrawn; ESP under review
Callaway (MO)	Areva EPR	1	Suspended
River Bend (LA)	Not specified	1	Suspended
Bellefonte (AL)	Westinghouse AP1000	2	Suspended
Nine Mile Point (NY)	Areva EPR	1	Suspended
Blue Castle (UT)	Not specified	1	Application anticipated
Not specified	Not specified	1	Application anticipated
Clinch River (TN)	B&W mPower modular reactor	6	Application anticipated
Total units		36	
Active COL units		20	

Source: Nuclear Regulatory Commission

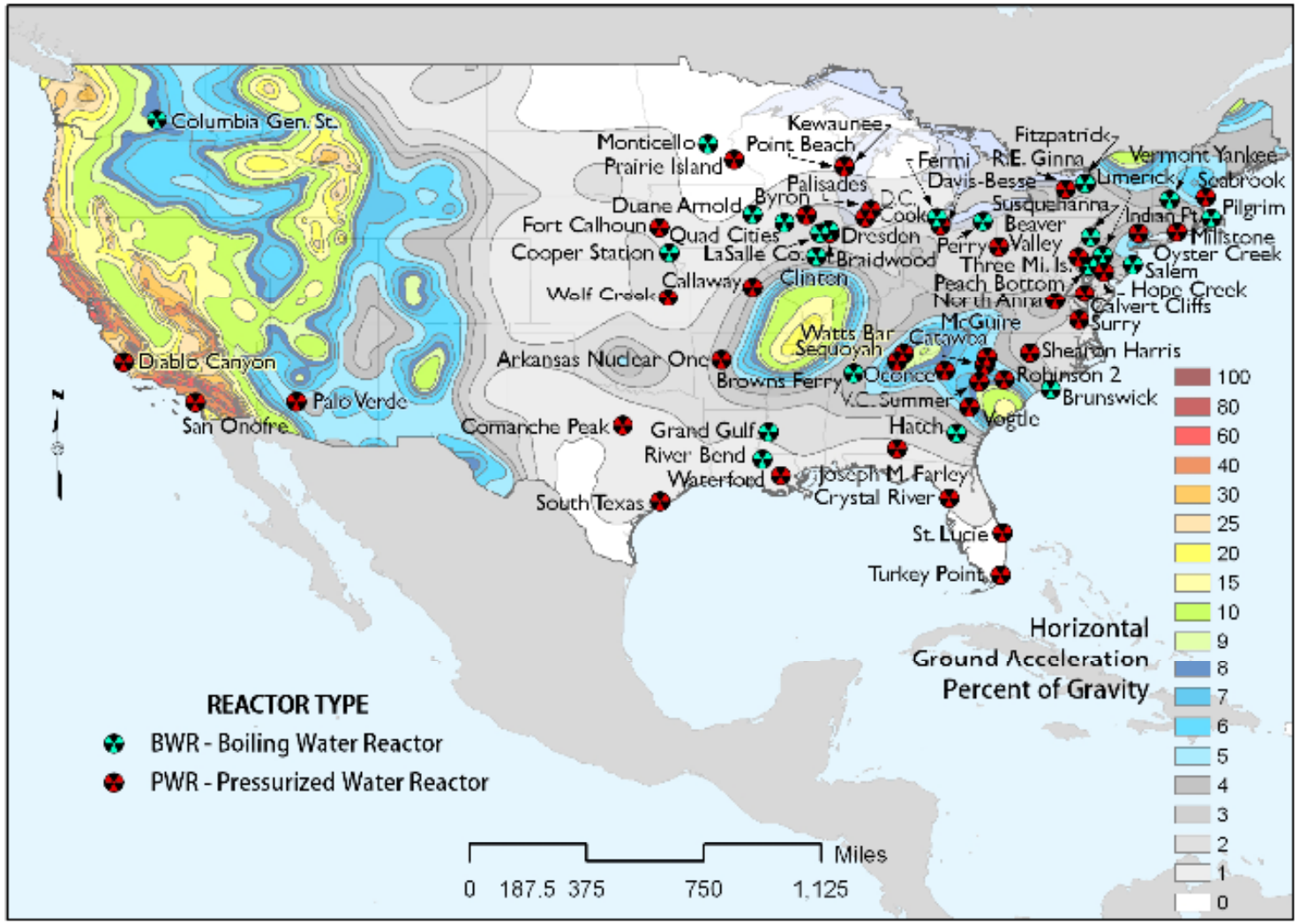
Fukushima Impact on Nuclear Plans

- TEPCO immediately pulled out of South Texas Project, which had been leading candidate for DOE loan guarantees
- Other leading projects (Vogtle and Summer) continue moving forward
- Most other projects already delayed before Fukushima because of changing economics
- Obama Administration continues to support nuclear power as part of “clean energy” program

Concerns Raised by East Coast Earthquake

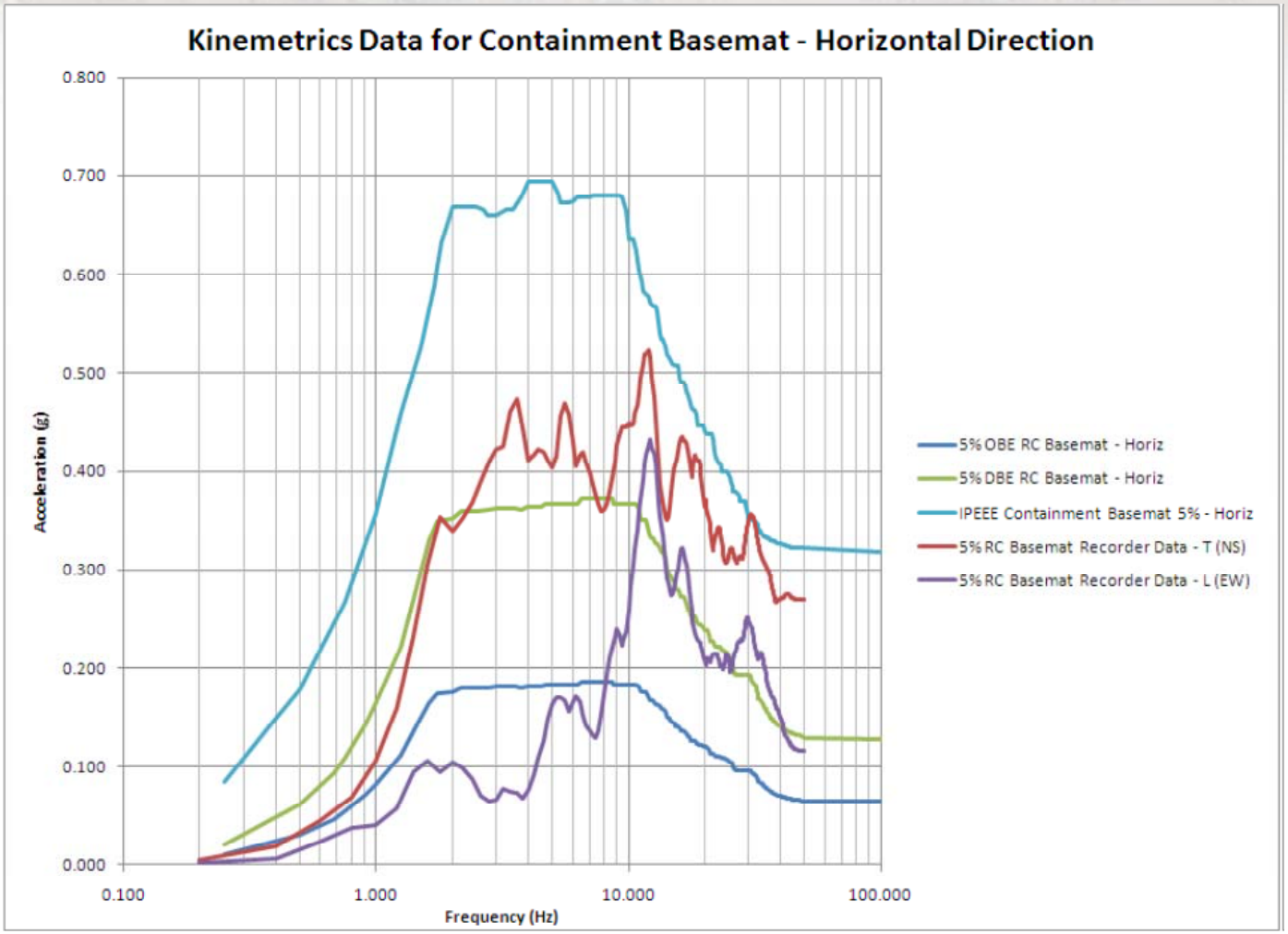
- Fukushima accident raised concerns about U.S. reactors' earthquake vulnerability
- August 2011 earthquake exceeded design-basis horizontal ground acceleration at North Anna nuclear plant
- NRC and Congress are focusing on seismic issues

Operating Nuclear Power Plant Sites and Seismic Hazards



Source: CRS, U.S. Geological Survey

Horizontal Ground Motion at North Anna During August 2011 Earthquake



Source: Dominion Virginia Power

Impact on FPL Nuclear Plants

FPL Nuclear Project

- Turkey Point units 6 and 7
- COL planned completion in 2013 now being revised
- New units to cost $12-18 billion
- Projected to reduce fuel costs by $93 billion over 40 years

Source: NRC, FPL

FPL Response to Fukushima

- No change in plans by FPL at Turkey Point
- Continuing to move forward with COL
- Conducting limited preconstruction activities associated with licensing
- No groundbreaking or major work at site yet

Source: FPL Office of Nuclear Communications

Questions?

Contact slide

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