Key Points

- Fukushima reactors are stabilized
- U.S. took immediate action to reconfirm safety and response capability
- U.S. companies are installing new equipment for additional backup safety
- Diverse, flexible coping capacity strategy will meet NRC requirements
- Nuclear energy remains vital part of U.S. electricity portfolio
An Unprecedented Natural Disaster

- Magnitude 9 earthquake rattles Japan
  - All nuclear power plants shut down safely
- Massive tsunami—about 45 feet high—strikes the east coast
- Total power failure disables critical safety equipment at Fukushima Daiichi reactors
Fukushima Daiichi Today

- Damaged reactors stabilized
- New cooling systems operating
- Decontamination under way
- Debris removal continues in preparation for decommissioning
- Assessing impact of radiation releases

Source: Associated Press
Radiological Impacts in Japan

- Significant radiation releases occurred during the accident, but had little impact on public health
  - Japan, international health studies underway
- Residents were evacuated in a manner that reduced health impacts
- No radiation-related consequences beyond Japan
- Extensive monitoring of land, water, crops, fish and livestock will continue
Immediate Actions Taken in U.S.

- Verified that equipment, procedures and staffing are in place to respond to threats
- Verified capability to cope even during a complete loss of power
- Verified each plant’s capabilities to protect against floods and fires after earthquakes
- Enhanced capability to protect spent fuel pools against extreme natural events
Principal Lessons-Learned

- A beyond design basis external event can disable multiple units and significantly complicate recovery efforts
- An extended loss of power event can quickly lead to core damage
FLEX: Industry Strategy for Action

- Add a diverse and flexible coping capability to mitigate beyond design bases external events to prevent fuel damage
- Focuses on maintaining key safety functions
  - Core cooling, containment integrity, SFP cooling
- Multiple supplies of power and cooling water
- Portable equipment reasonably protected
- Symptom-based guidance and instructions
- Programmatic controls
- Offsite support centers
Enhanced Safety Through FLEX

Emergency Response
- Emergency Plans
- Severe Accident Management Guidelines
- Station Blackout Coping Capability
- Design Basis External Events

Prevention of Fuel Damage
- Current

Protection
- Current

Increased Defense-in-Depth
- Diverse & Flexible Coping Strategy (FLEX)
- Station Blackout Coping Capability
- Design Basis External Events

Current plus FLEX
Specific Actions Taken at U.S. Reactors

- More than 300 major pieces of equipment acquired or ordered
  - 66 large portable generators
  - 62 diesel-driven pumps
  - 59 small load diesel generators
  - 13 fire trucks
  - 11 portable ventilation units
Nuclear Energy Today

- Nuclear energy benefits
  - Clean
  - Safe and secure
  - Affordable and reliable
  - Economically beneficial

- Forward-looking actions
  - License renewal
  - New plant licensing
  - Blue Ribbon Commission report on used fuel management

U.S. Electricity Production

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Coal</td>
<td>45%</td>
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<tr>
<td>Gas</td>
<td>24%</td>
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<tr>
<td>Nuclear</td>
<td>20%</td>
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<tr>
<td>Hydro</td>
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<tr>
<td>Oil</td>
<td>1%</td>
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<tr>
<td>Renewable and Other</td>
<td>4%</td>
</tr>
</tbody>
</table>
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