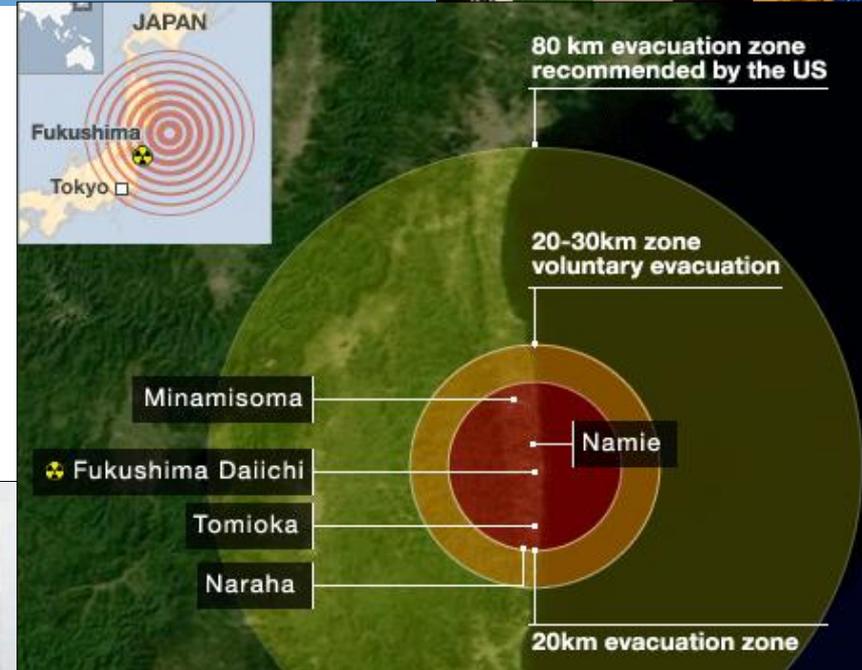


Emergency Preparedness --A New Paradigm?



Roundtable / Dinner

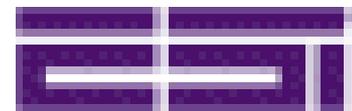


Nuclear Energy Insider:
Nuclear Construction Summit
Charlotte, NC

--October 25, 2011

Linton Consulting

Emergency Preparedness --A New Paradigm?



Linton Consulting

Why Are We Here?



- ◆ Knowledge exchange
 - State of Nuclear Industry
 - Recent Events Impact on Emergency Preparedness
- ◆ Share insights / perspectives
 - Government
 - Operators & Vendors
 - Contractors
 - Associations, consultants
- ◆ Timely issues with a lot of associated questions
 - Lessons learned from major accidents
 - Impact on future designs, costs and schedules

Situation Analysis



- ◆ On March 11, the “unthinkable” happened
 - Earthquake and Tsunami in Japan
 - Fukushima Daiichi NPP site blackout & subsequent accident
- ◆ Ensuing weeks proved
 - Quite serious for country of Japan and local population
 - Earthquake was big disaster
 - But nuclear accident severe: radioactive releases
- ◆ Considered one of three worst
 1. Chernobyl
 2. Fukushima
 3. Three Mile Island

Situation Analysis



- ◆ Before Fukushima there was concern that an accident of even lesser magnitude would kill the nuclear renaissance
- ◆ Has not proven to be true
 - Energy/electricity is too big an issue
 - Without coal, no other base load sources
 - High growth countries need nuclear power
 - Some 40 countries have confirmed support for Nuclear
 - Only a few in Europe will exit
- ◆ Yet there is unquestionably a pause for re-evaluation

“An accident anywhere is an accident everywhere”

Key Questions



- ◆ Following Fukushima, what are the new expectations for emergency preparedness and response?
- ◆ What is the role of government in assuring nuclear Emergency Preparedness?
- ◆ What is the role of reactor vendors? Of operators?
- ◆ What are the roles of NRC, INPO, WANO, EPRI and NEI?
- ◆ How will contractors participate?
- ◆ What is the importance of command and control during a major catastrophe? How is it accomplished?
- ◆ What are the challenges of evacuations similar to Fukushima?

Emergency Preparedness --A New Paradigm?



◆ Pre – Accident

- Prevent at all costs
- Improved designs, operations, governance
- Surveillance and oversight
- Testing of emergency equipment
- Improve advance warning systems

◆ Response Preparedness

- Should accident occur, mitigate risks and consequences
- Contingency planning by each constituent
- Option planning in advance



“Thou shalt not construct NPPs on
shaky grounds or in shaky
countries”

Emergency Preparedness --A New Paradigm?



- ◆ During
 - Response teams mobilize
 - Implement pre-arranged action scenarios
 - Fit for purpose: demographic, external conditions
 - Importance of command & control
 - Importance of communications
 - Reporting, transparency
- ◆ Post – Accident
 - Stabilization
 - Removal & clean up of contamination
 - Others

Emergency Preparedness --A New Paradigm?



- ◆ Do we need consider new threats?
 - Terrorism, following 9/11
 - Increased earthquake frequency and intensity
 - Tsunamis, following Fukushima
 - Potential for human error
 - Potential for back up equipment failure

Emergency Preparedness --A New Paradigm?



- ◆ Gen 3+ Reactors Designs
 - How much safer?
- ◆ Small Modular Reactors (SMRs)
 - Are they safer?

Changing Roles, Missions



- ◆ WANO has announced mission change
 - Shift from prevention only, to include Emergency Preparedness
 - Improving integrated response of government and industry to nuclear emergencies
- ◆ INPO role during Fukushima
 - Organized an emergency supply chain network to assist in getting equipment to site
 - Consortium of utilities, vendors, etc.
 - Will INPO also announce an expanded mission?
- ◆ IAEA?
- ◆ Need for strong global governing body?

Linton Consulting

Insights for Industry and Government



Linton Consulting

Who Is Linton Consulting?



- ◆ A professional practice providing independent insights and advisory services to industry and government, focused in energy
- ◆ Help with business strategy, market development, trend analyses, scenarios and futuristic market/industry visioning
- ◆ Strategic View – process that provides high level insights on the future state of industries and markets; developed through ongoing analyses and executive interviews
- ◆ Services leading to sound business decisions, plans and actions
- ◆ Partnering relationships with UxC, *Nuclear Energy Insider*, and InnovaNet

Who is Linton Consulting?



- ◆ Independent practice providing strategic development and market development services in Energy and Manufacturing
 - Over 30 years experience with large engineering and construction firms: CH2M HILL, Lockwood Greene, Fluor
 - Over a decade of consulting experience
 - Extensive industry contacts & ongoing interviews

Strategic View Industry Studies

- 2010 Energy Challenges/ Energy Parks
- 2008 Nuclear Renaissance
- 2007 Oil, Gas, Chemicals
- 2006 Energy
- 2005 Mfg./Industrial
- 2004 Food & Beverage
- 2003 Pharmaceutical
- 2002 Power
- 2001 Infrastructure Life Cycle, Others

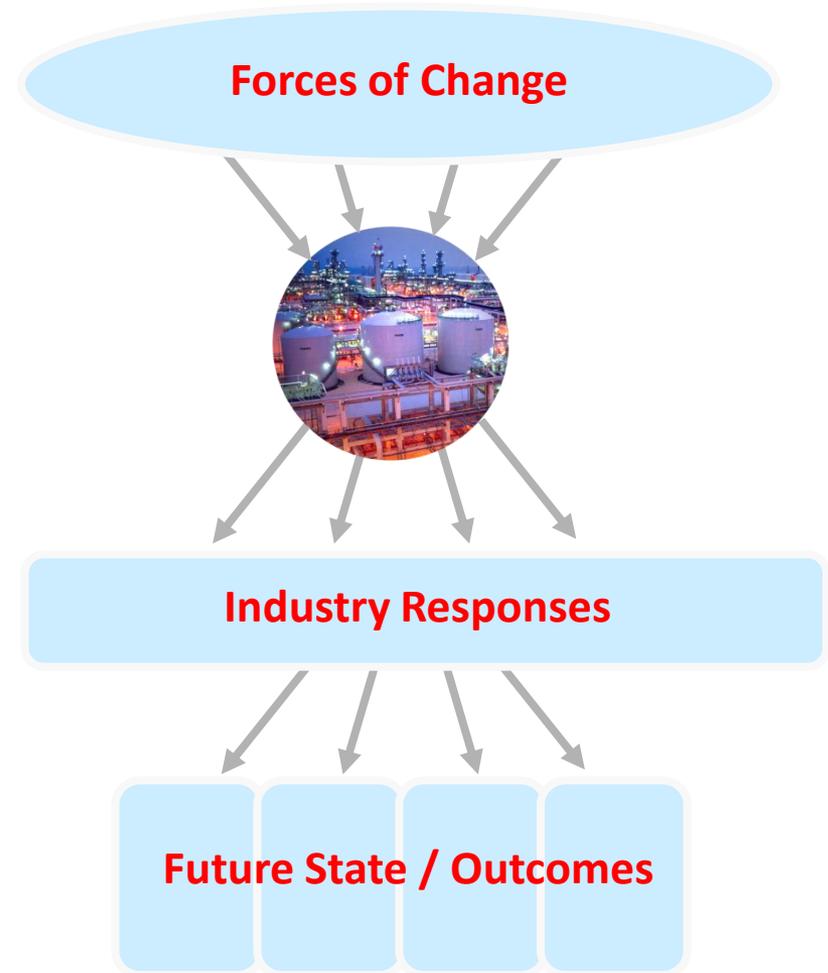
Past *Linton* Industry Studies

- Oil & Gas
- Electric Power
- Engineering and Construction
- Water/Wastewater
- Environmental
- Asia/Pacific
- *Market Reports* - Series

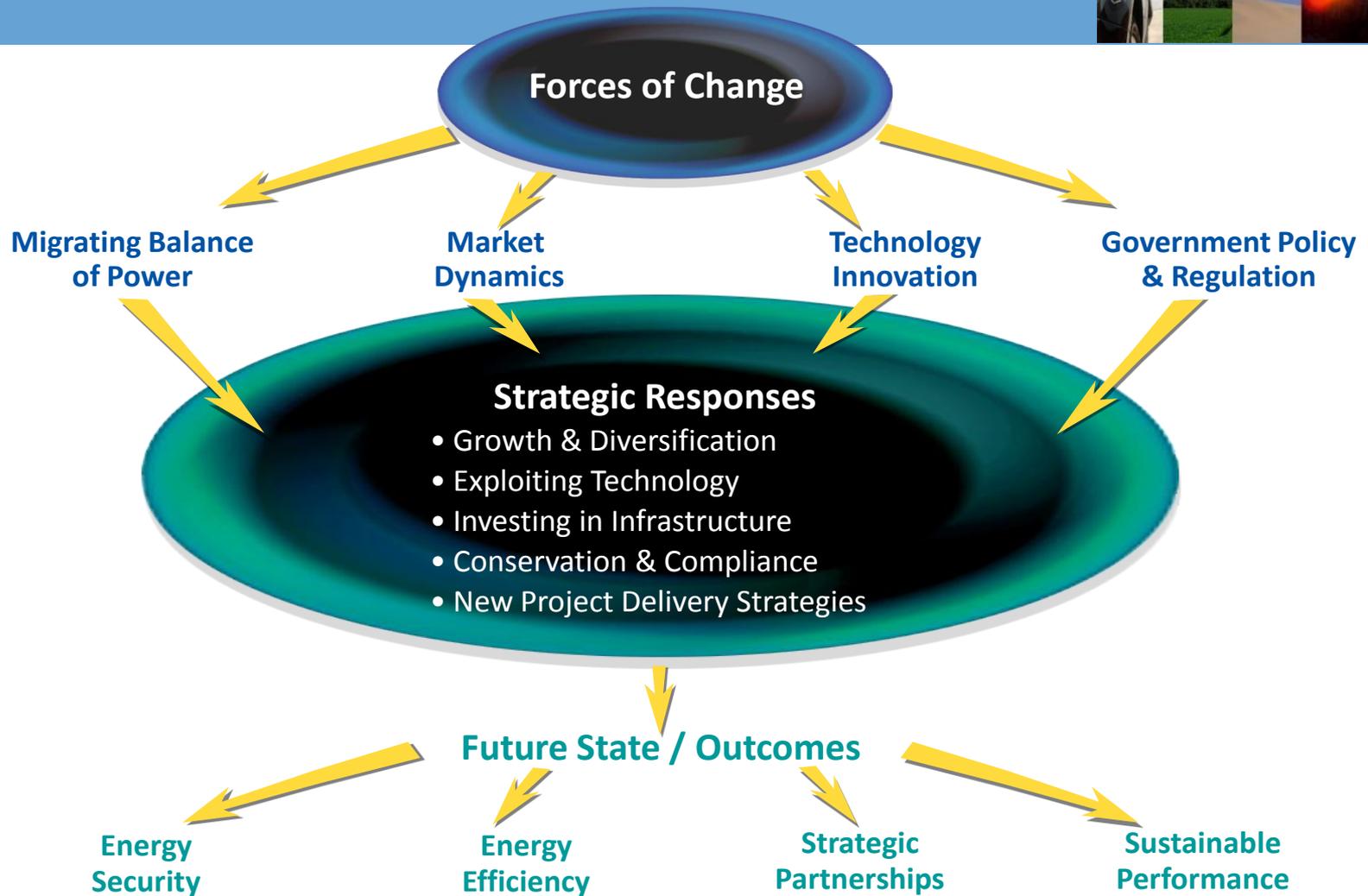
What is *Strategic View*?



- ◆ Research model
 - Used 14 years; 5 in energy
 - Forces affecting the future of the energy industry
 - Industry responses
 - Where it is leading – the future state/outcomes
- ◆ Process
 - Interviews with executives and thought leaders
 - Research & analysis
 - Executive Roundtable
 - Follow up & plan integration



Strategic View – Energy (Example)



Executive Roundtables



◆ Common purpose

- Convene executives and thought leaders for knowledge exchange
- Expand understanding
- Share perspectives
- Confirm/challenge paradigms
- Advise leadership
- Uncover ideas and opportunities for your organization
- Explore Future – trends and challenges
- Establish practical, realistic path forward



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