

Best Practices – Nuclear Development



Roundtable / Dinner



Nuclear Energy Insider: MENA
Nuclear Construction Conference
--September 26, 2011

Linton Consulting

Best Practices in Nuclear Development Participants



مدينة الملك عبد الله للطاقة
الذرية والمتجددة K•A•CARE



RWE

EXCEL
SERVICES CORPORATION



United Arab Emirates



Exelon



Lightbridge



مجلس الأعمال السعودي الأمريكي
U.S.-Saudi Arabian Business Council

Linton Consulting

Why Are We Here?



- ◆ Knowledge exchange
 - Discuss State of Nuclear Industry
 - Progress in Middle East & Africa
 - Meeting high growth electricity demand
 - Opportunities & challenges
- ◆ Share insights / perspectives
 - Governments, Agencies, Academia
 - Electric Utilities
 - Vendors & Suppliers
 - Engineering & Construction
 - Advisors, Consultants

Situation Analysis



- ◆ Regional growth driving many countries to investigate
 - Populations growing rapidly
 - Increasing electrification
- ◆ Why Nuclear?
 - ROI - conserve oil & gas resources for export
 - “Clean” from a CO2 perspective
 - Almost limitless, abundant source of energy
- ◆ Yet nuclear is controversial for many reasons
 - Long time horizon: 80 – 100+ year commitment
 - Huge front end capital investment
 - Safety & security issues
 - Potential for nuclear proliferation
 - Fear – following Fukushima and other accidents in history

Some Countries Planning Nuclear



Bahrain*

Egypt

Indonesia

Jordan

Kazakhstan

Kuwait*

Lithuania

Malaysia

Nigeria

Oman*

Poland

Qatar*

Saudi Arabia*

Turkey

UAE*

Vietnam

Situation Analysis – MENA Region



- ◆ A number of strong, growing economies
 - Growing populations
 - Increased development and export of oil & gas
 - For some, high exports have produced great prosperity
 - Internal energy demand burgeoning
- ◆ Yet some countries see declining reserves
 - Planning requires new energy sources
 - Nuclear power will be a benefit to some
- ◆ Political stability varies
 - Required for nuclear power development
- ◆ Financing capability, very strong for some, varies

“Blue Ribbon Panel”



◆ Varied perspectives

- Government Organizations
 - Energy Authorities
 - Regulators
- Operators
 - Licensees
 - Plant owners / generators
- Consultants
- Engineer / Constructors / Program Managers



◆ Extensive experience present

Key Questions



- ◆ What is the role of government in establishing a nuclear industry?
- ◆ How and when should nuclear policy, laws and regulations be established?
- ◆ What is the proper order of events for a nuclear development program?
- ◆ How long should nuclear development require?
- ◆ What are the ongoing responsibilities of regulators and operators?
- ◆ What are the roles of the IAEA, operators, consultants, engineering & construction firms, and suppliers?
- ◆ What are the lessons learned from recent developments?

Role & Timing of Government

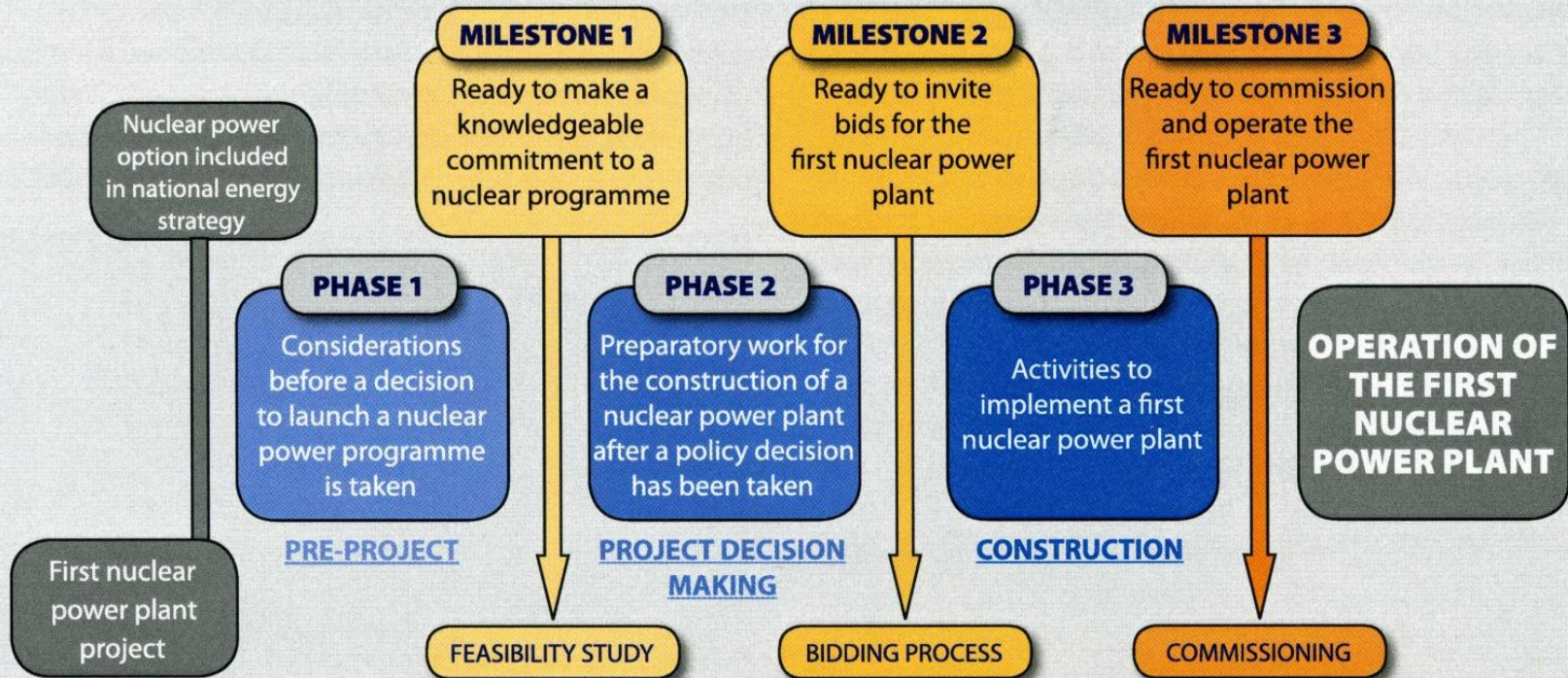


- ◆ Role of Government
 - Long term energy strategy and plan
 - Policy
 - Safety for country residents
 - Safety for surrounding countries
 - Safeguards
- ◆ Timing of Government Involvement
 - Front end, requiring several years
 - Throughout and forever

Developing the Infrastructure



NUCLEAR INFRASTRUCTURE DEVELOPMENT PROGRAMME



Source: IAEA booklet, "Developing Infrastructure for New Nuclear Power Programmes"

Roles



- ◆ IAEA
- ◆ Operators
- ◆ Consultants
- ◆ Engineering & Construction firms
- ◆ Vendors & Suppliers

Ongoing Responsibilities



- ◆ Operators
 - Establish & maintain safety culture
- ◆ Regulators

“Initiating a new nuclear development program is a 100-year commitment”



Linton Background

Linton Consulting

Insights for Industry and Government



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

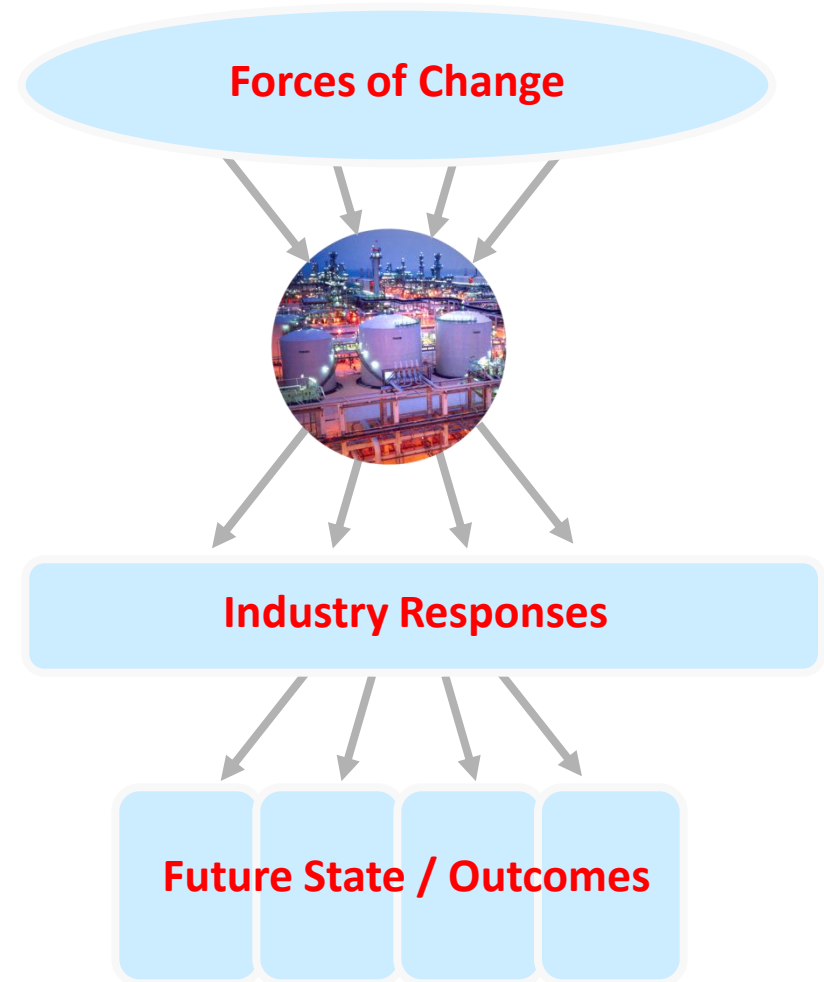
Past *Linton* Industry Studies

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

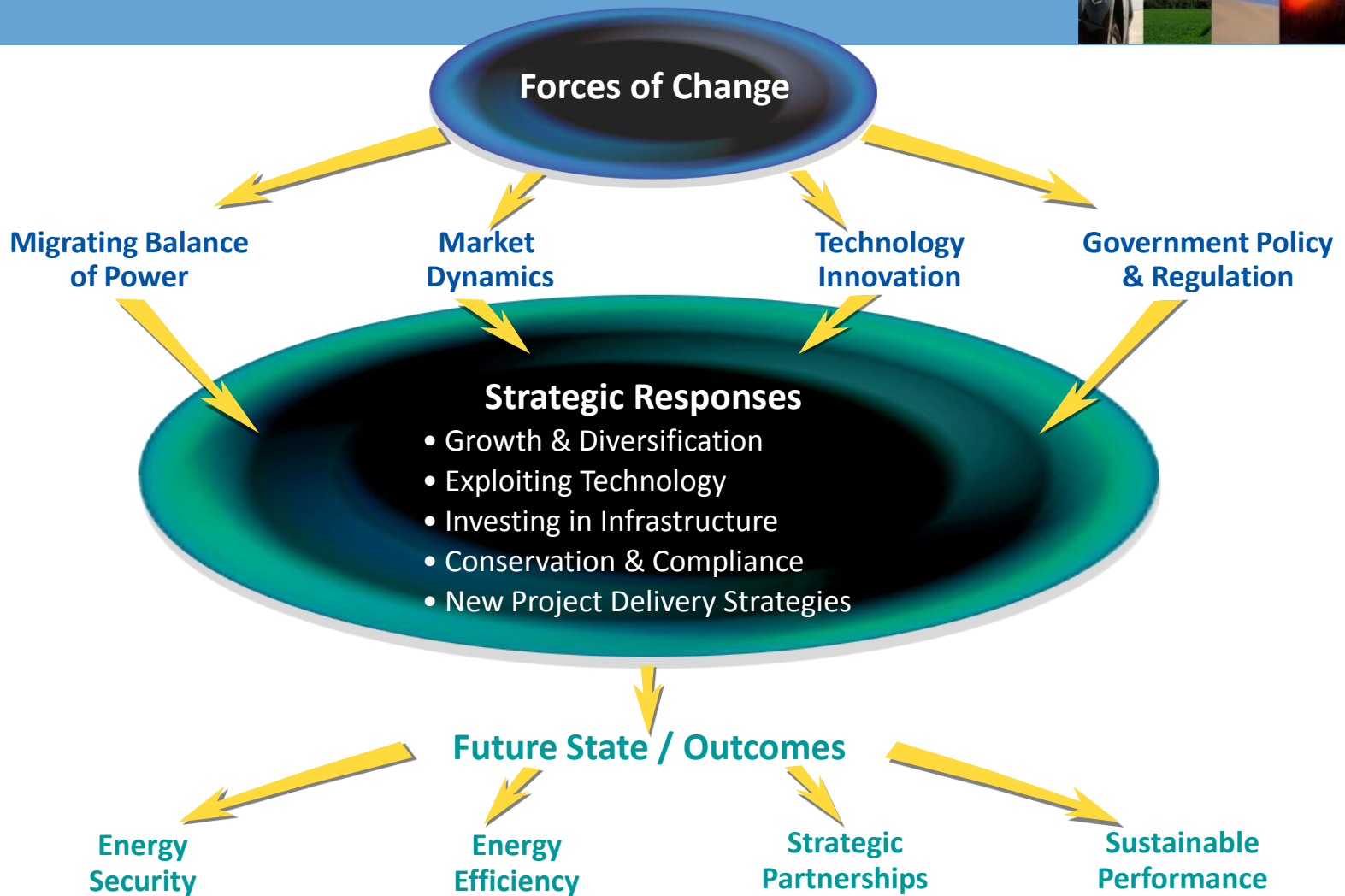
What is *Strategic View*?



- ◆ 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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