

New Nuclear Plant Investment

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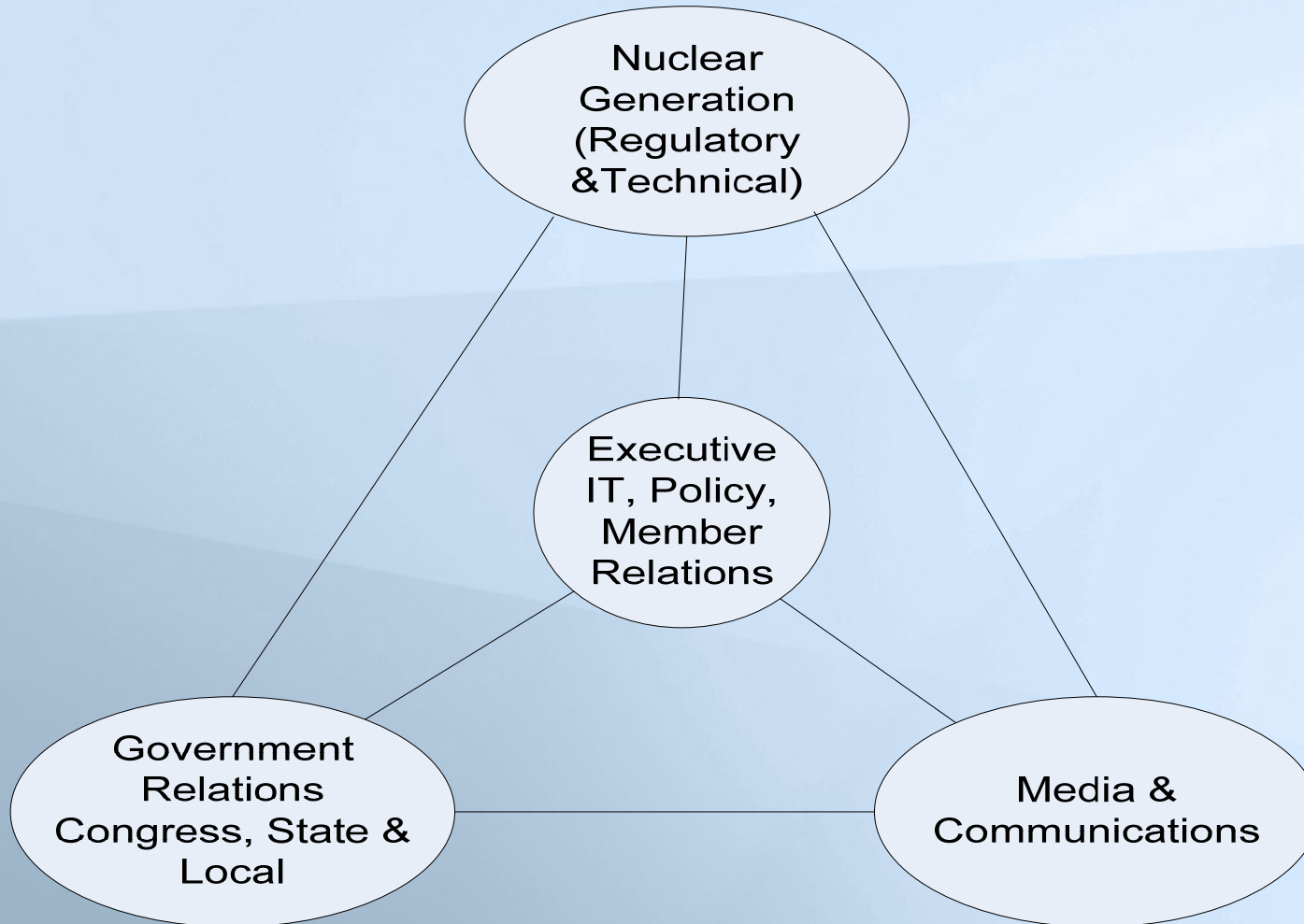
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2007 SMiRt Conference



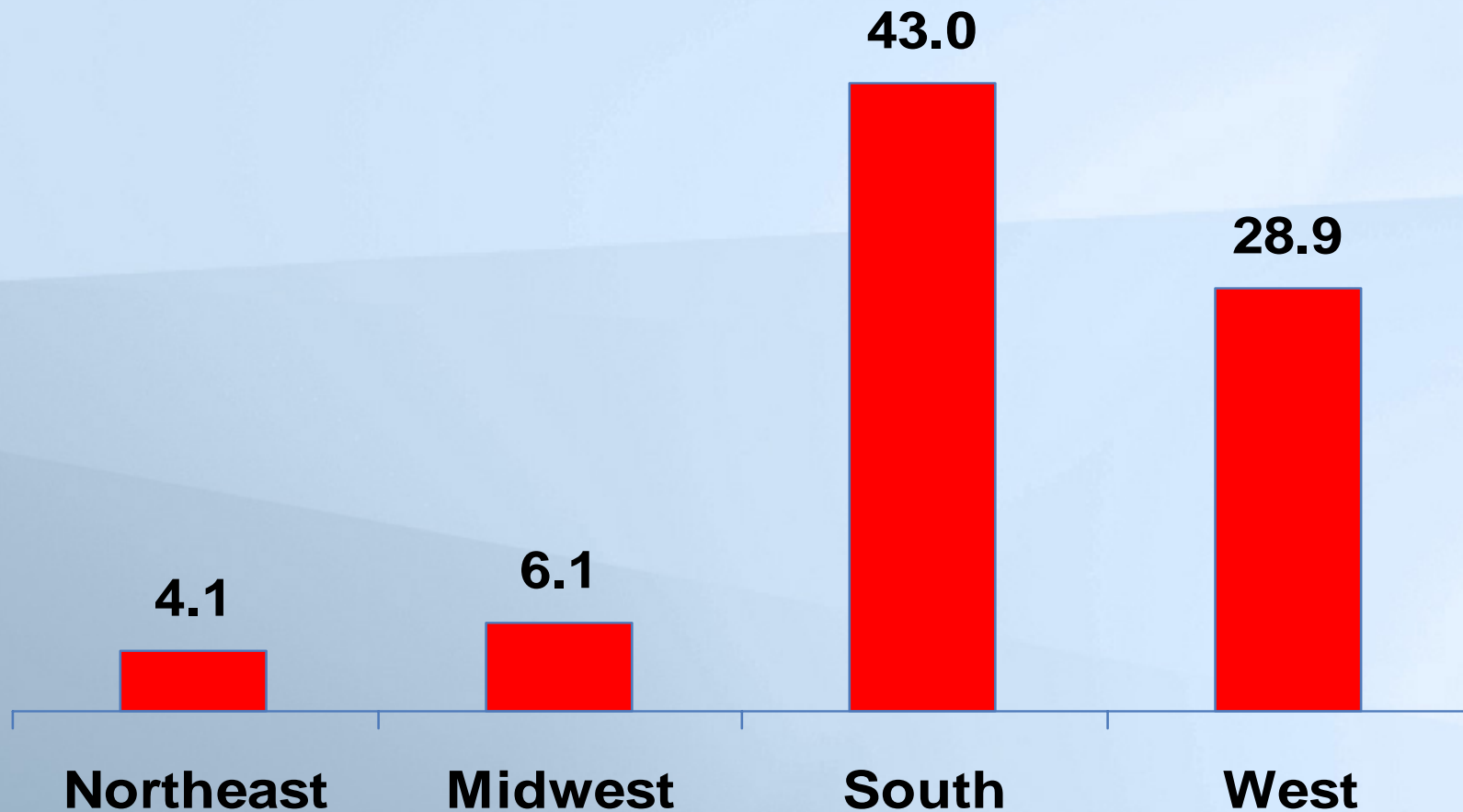
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Need for Power

Change in US Population by Region 2000 to 2030 (in Millions)



Why New Nuclear Generation in US

- **Need for power even with conservation & energy efficiency**
- **High & volatile natural gas prices**
- **Climate change**
- **Continuing increase in industry performance**
 - Safety & operational

Government Incentives & Initiatives

- **Licensing – 1992 Energy Policy Act**
- **Nuclear Power 2010 Initiative – 2001**
- **Incentives – 2005 Energy Policy Act**
 - **Production Tax Credit – same as for renewables**
 - **Loan Guarantees – as for other major infrastructure projects**
 - **Standby Support Coverage – Insurance against new & untested licensing process**

Nuclear Power 2010

- **50-50 Industry-Federal Government cost share project**
- **Demonstrate new licensing process**
 - **Early site permits**
 - **Combined construction and operating license**
 - **Assistance in completing detailed design**
- **Needs to be fully funded with allowances for increased cost estimates**

Early Site Permit Phase

- **2003 – Demonstrate Early Site Permit process**
 - Includes assistance in developing guidance
- **Three companies responded to DOE solicitation**
 - Exelon, Clinton, IL, issued March 2007
 - Entergy, Grand Gulf, MS issued April 2007
 - Dominion Generation, North Anna, VA,
 - Scheduled to be issued this year

Combined Construction Permit & Operating License Phase

- **2004 – Industry responded to DOE solicitation**
 - Dominion Generation – demonstrate COL process
 - NuStart – demonstrate COL process
 - TVA – detailed cost & schedule for ABWR at Bellefonte
- **Completion of detailed design**
- **Development of implementation guidance**
- **Preparation and review of applications**

2005 Energy Policy Act

- **Incentives for low CO₂ emitting generating technologies**
 - Included new nuclear generation
- **Federal Loan Guarantees**
- **Production Tax Credit**
- **Standby Support Insurance**

Standby Support Insurance

- **To cover costs (debt service) incurred by the owners if there is a delay in commercial operations that is beyond owner's control**
 - New licensing process never been exercised
- **First six plants that start (safety-related) construction**
 - First two plants -- \$500 million
 - Next four plants -- \$250 million after six month delay

Production Tax Credit

- **\$18/MWh – same as renewable energy (wind)**
- **For first 6,000 MW that meet three conditions**
 - **COL docketed by 31 Dec 2008**
 - **Start safety-related construction by 31 Dec 2013**
 - **Start commercial operations by 31 Dec 2020**
- **Nuclear capped at \$125 million/1,000 MW for first eight years of operation**
 - **If 12,000MW meet conditions & apply, credit would be \$9/MWh**

Loan Guarantees

- **Loan guarantees not unique**
- **For low CO₂ emitting technologies**
 - Wind, Biomass, Nuclear, Clean Coal,...
- **80% of total project cost underwritten by Federal government**
- **Allows for non-recourse financing**
 - 80-20 Debt-Equity structure
 - 15% reduction in cost of electricity to consumer

Loan Guarantees

- **Critical for merchant plants**
 - Significant benefit for regulated companies
- **DOE draft rule – unworkable**
 - 80% ≠ 90% of 80%
 - Non-government debt subsidiary to government debt
- **Final rule expected in September**
 - Federal inter-agency review

Investment not Subsidy

- **Each new 1,000 MW nuclear plant**
 - **Adds \$500 million/yr to economy**
 - **Provides for large capacity of stable, low cost, clean electricity**
 - **Long term benefit to industry and consumers**
 - **Provides 1100 jobs for three generations**

The Future

- **To achieve 25% share of US generation by 2030 need 45 new plants – achievable**
- **High potential for High Temperature Reactors**
 - Deployment in 2020s
 - Industrial process heat –
 - Hydrogen
 - Electricity generation in developing world
- **If we are serious about climate change nuclear generation cannot be ignored**