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Energy Security and Energy Sector Reform: Framework and Strategic/Program Implications

Dr. Robert F. Ichord, Jr.
Chief, Energy and Infrastructure
Bureau for Europe and Eurasia
US Agency for International Development
Washington, D.C.

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Main Sections of Presentation:

- Conceptual Framework: Energy Security, Vulnerability, and Development
- Analyzing Energy Systems
- Key Issues in Energy Sector Reform
- Implications for USAID Strategies and Programs



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Conceptual Framework: Energy Security and Vulnerability

World Energy Council 2008 Study on “Europe’s Vulnerability to Energy Crises”:

“Energy security is defined as an uninterrupted supply of energy, in terms of quantities required to meet demand at affordable prices.”

Energy vulnerability is key concept that should be distinguished from energy dependency.

Following indicators are suggested to assessing vulnerability:

- Energy Intensity
- Dependency on Oil and Gas Imports
- Carbon Content of Total Primary Energy Supply
- Vulnerability of the Electricity Supply System
- Non-Diversity of Transport Fuels

Risks that affect energy supplies:

- Geopolitical Risk Factor
- Volatility of Energy Prices/Financial Markets
- Delays in Strategic Investment Projects
- Terrorist Attacks on Key Infrastructure
- Shortages due to Geological Constraints or Difficulties



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Conceptual Framework: E&E Regional Energy Security Program Framework

Key Development Problems:

- Instability
- Poverty
- Weak Governance

Energy Security Strategies:

- Diversify Imports and Supplies
- Create Transparent/Competitive Markets
- Increase Energy Efficiency

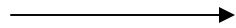
USAID deals with wide range of countries in terms of: Income level and distribution, rural/urban mix, population size and diversity, energy resource endowment and fuel mix, technical and industrial capacity, location and role in international trade and energy markets. **These factors are important in assessing needs and developing energy security strategies and programs.**



Analyzing Energy Systems:

Attributes:

Affordability
Reliability
Transparency

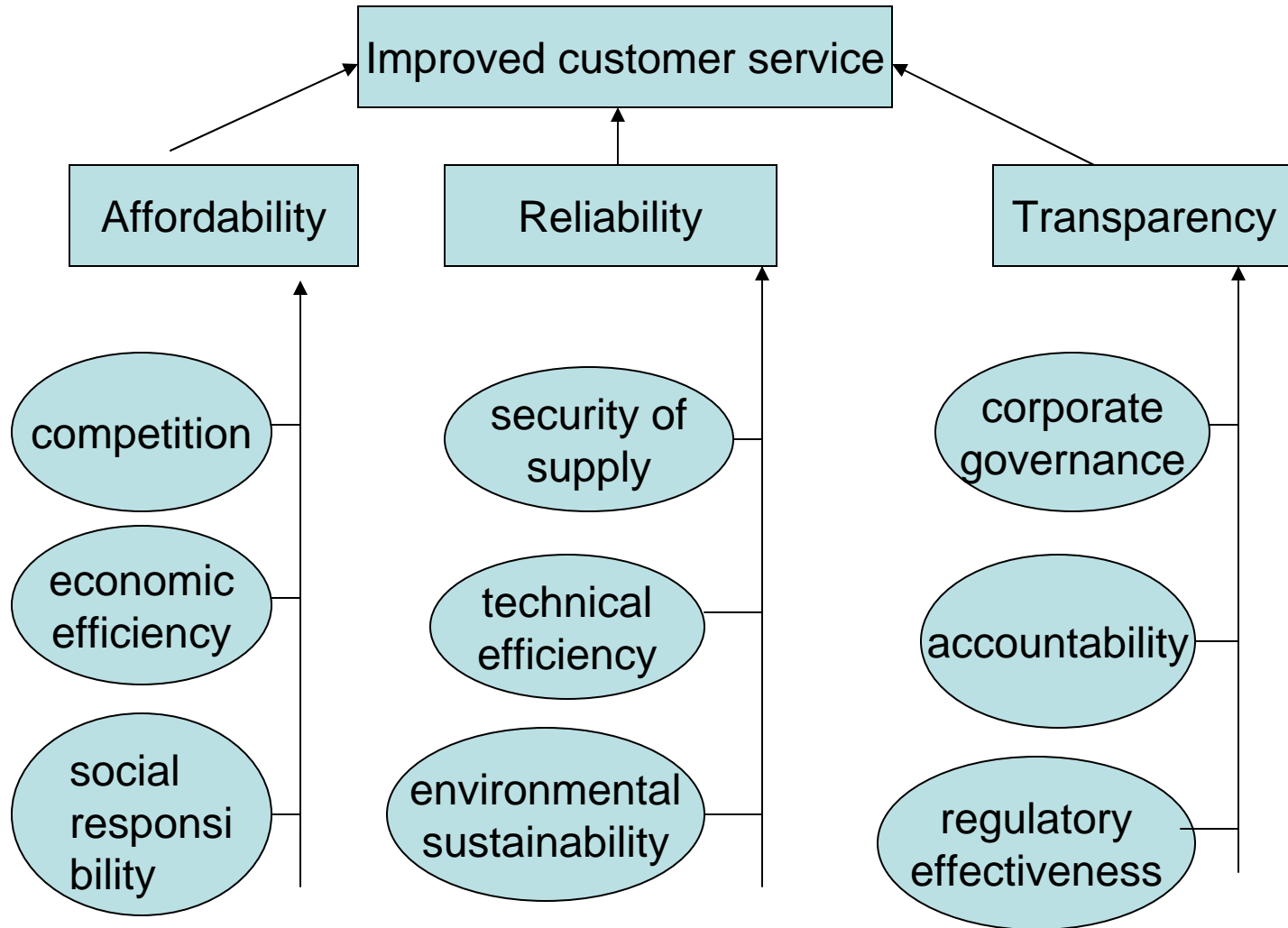


Goal:

Improved Customer
Service



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Analyzing Energy Systems: International, Regional and National Systems

International:

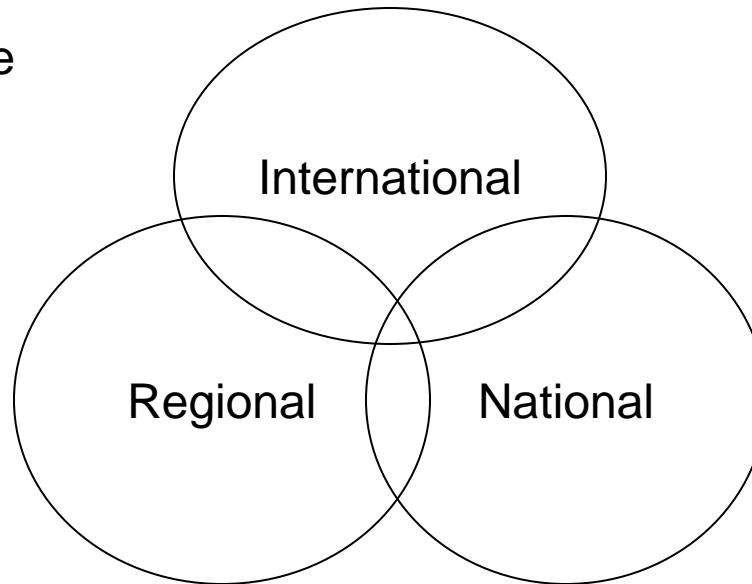
- Energy Resource Trade
- Technology Trade
- Financial Flows
- Exchanges

Regional:

- Grids
- Pipelines
- Markets

National:

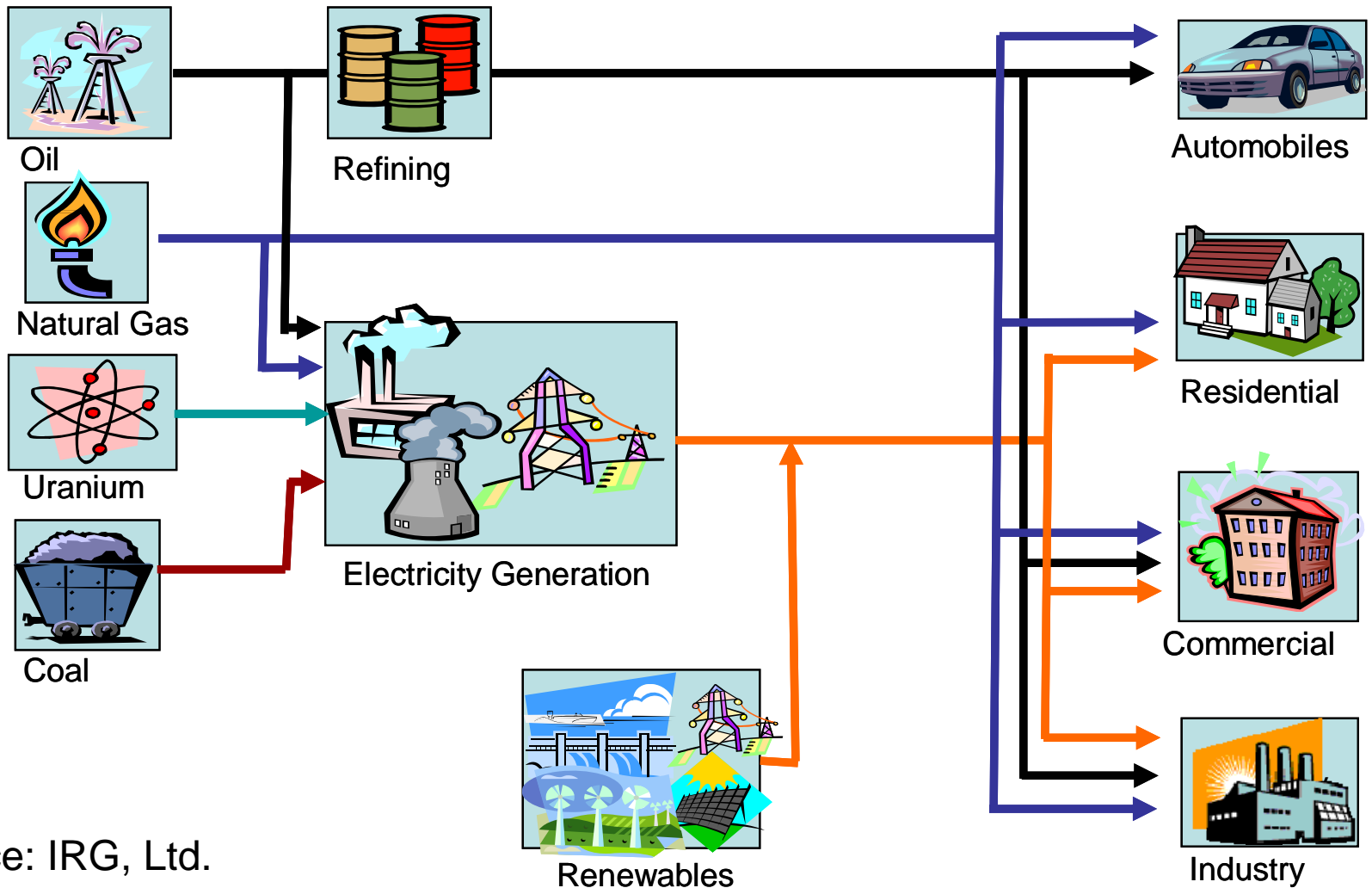
- Production/Generation
- Transmission and Processing
- Distribution and Consumption



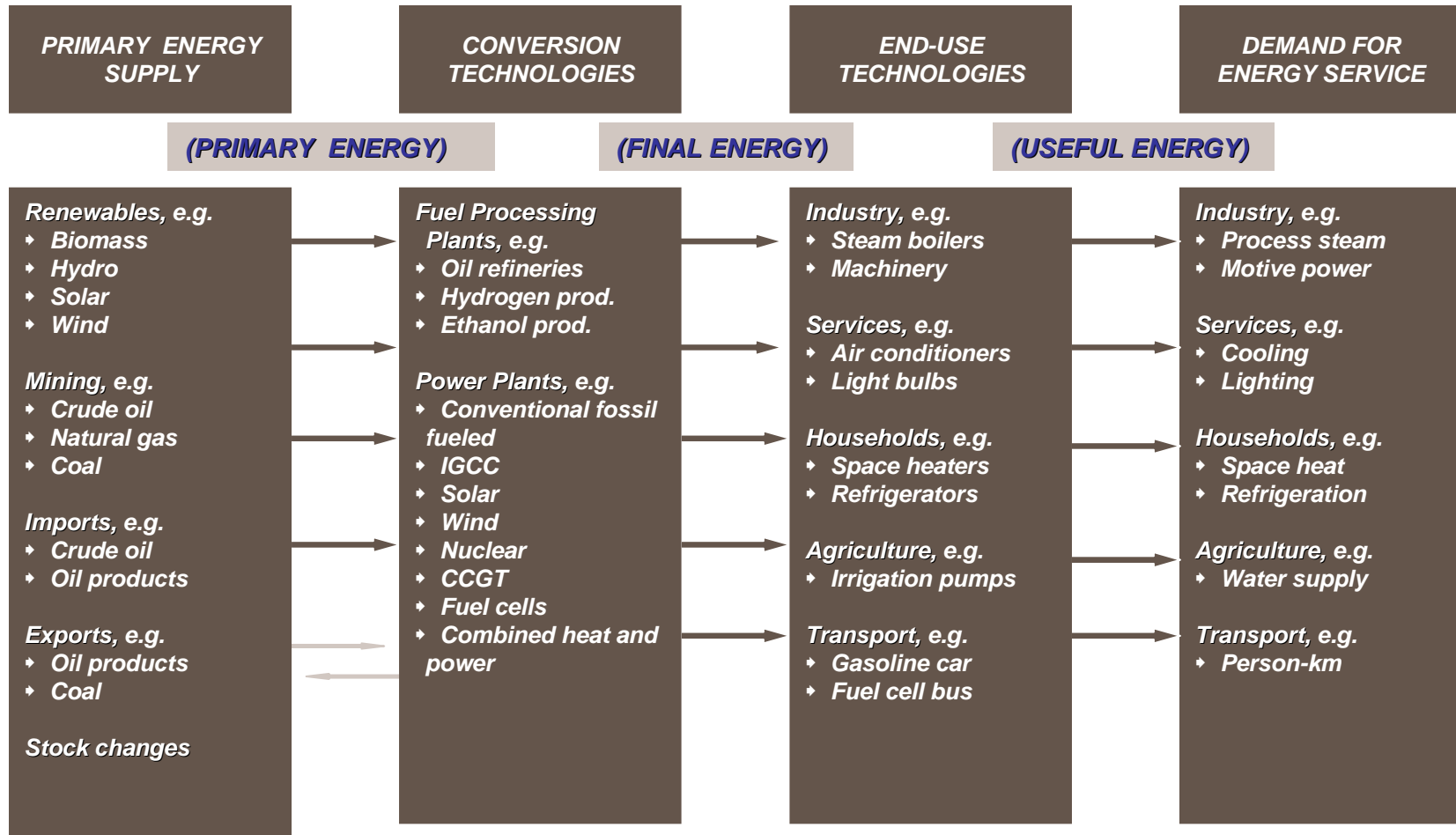


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Reference Energy System and the Integrated Planning Model



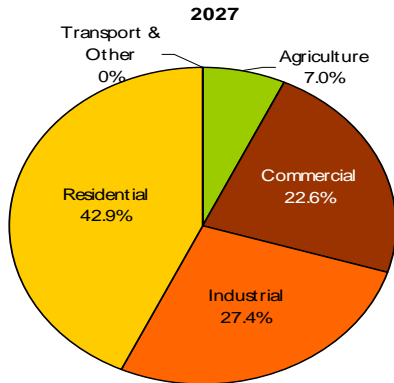
Source: IRG, Ltd.



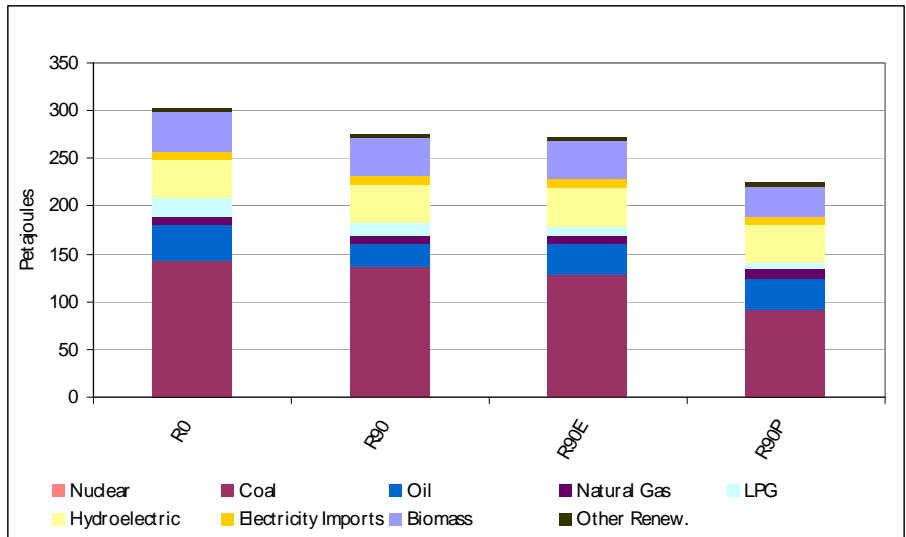


Analyzing Energy Systems: Example -- Scenarios for Bosnia and Hercegovina

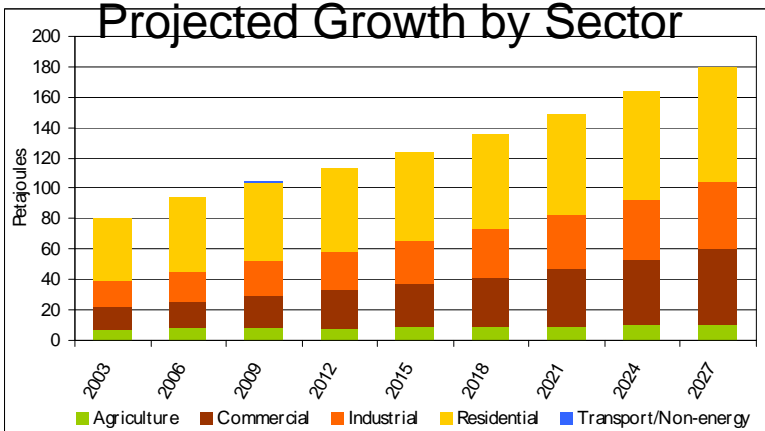
Reference Demand 2027



Energy Savings under Different Policy Scenarios



Projected Growth by Sector





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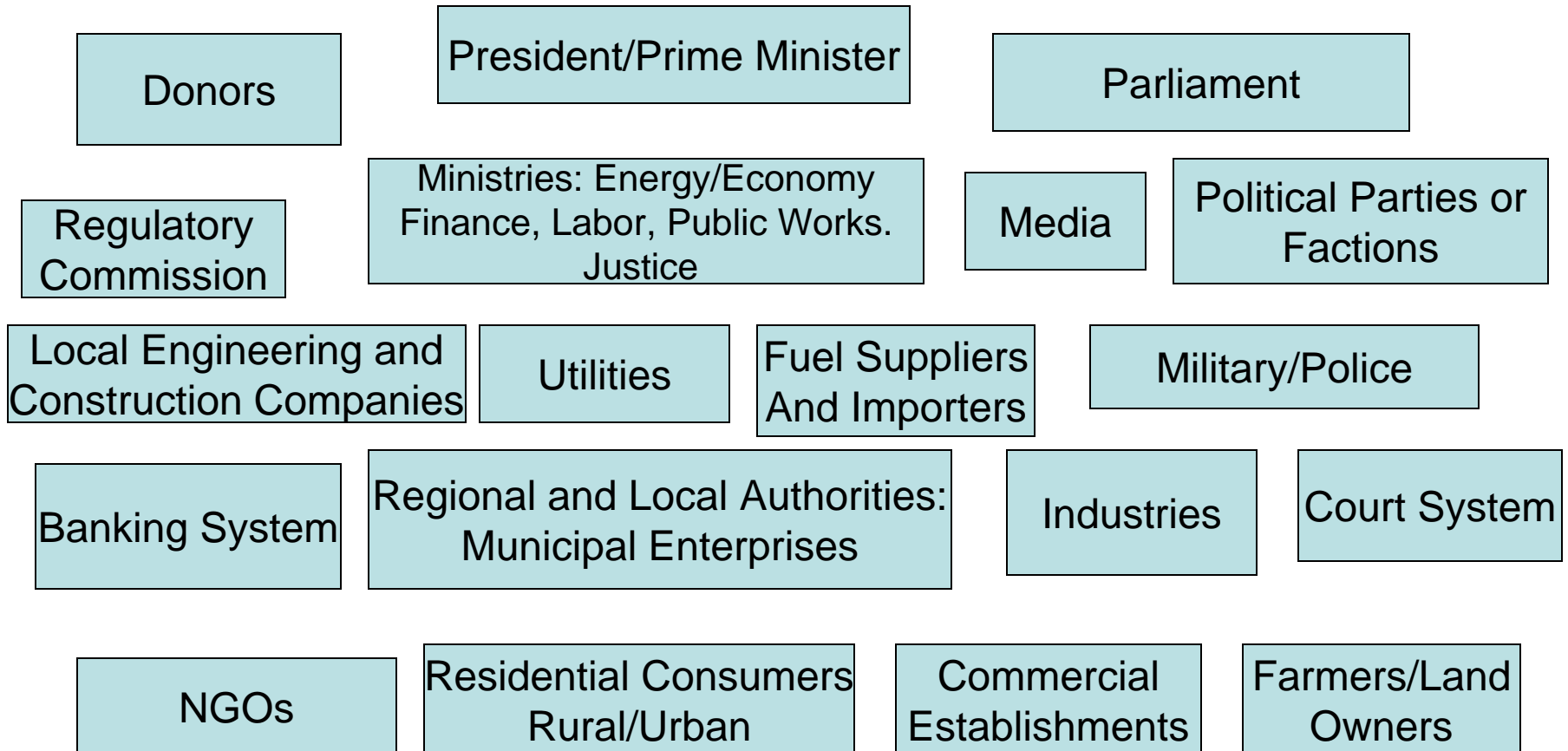
Infrastructure Systems: A Methodology for Institutional and Political Design

**Presentation to USAID Infrastructure Course
December 20, 2007**

**Dr. Robert F. Ichord, Jr.
Chief, Energy and Infrastructure
Bureau for Europe and Eurasia
US Agency for International Development
Washington, D.C. 20523**



Diagnosis: Political Mapping





Key Issues in Energy Sector Reform:

Institutional/Leadership Issues:

- Political Interference and Manipulation
- Lack of Political Will to Reform
- Corrupt Utilities and Poor Management
- Financially-Bankrupt Utilities
- Weak Regulator, Lack of Transparency and Poor Enforcement of Laws and Regulation
- Weak Municipal Governments
- Limited Capacity of Local Banks
- No Effective Social Safety Net

System Results/Characteristics

- Subsidized Tariffs
- Low Collections and Cost Recovery
- High Technical Losses and Inefficiency
- Limited Access and Problems of Affordability
- Weak Grid and Limited Supply Diversification



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Some Implications (Lessons Learned) for USAID Strategy and Programs

- **Need to Develop Support for Reform from Outside the Energy Sector (e.g. Ministries of Finance, Parliament)**
- **Strong, Coordinated Donor Response and Catalytic Pressure are often Needed**
- **Important to Find Champion(s) for Reform**
- **Unbundling/Restructuring of Utility is Key for Transparency and Unearthing of Corrupt Practices**
- **While Strategic Privatization is desirable, a management Contract may be a useful predecessor if there is political will (e.g. Georgia)**
- **Commitment to support develop of a competent energy regulator that can serve as catalyst for reform and provide stable regulatory framework is essential to creating attractive investment climate**
- **Financing physical infrastructure is usually problematic if institutional, regulatory and commercial framework is poor**
- **Regional networks (ERRA) and regional market development projects (Athens Energy Community) can provide useful stimulus to promoting national reforms and transfer of best practices**