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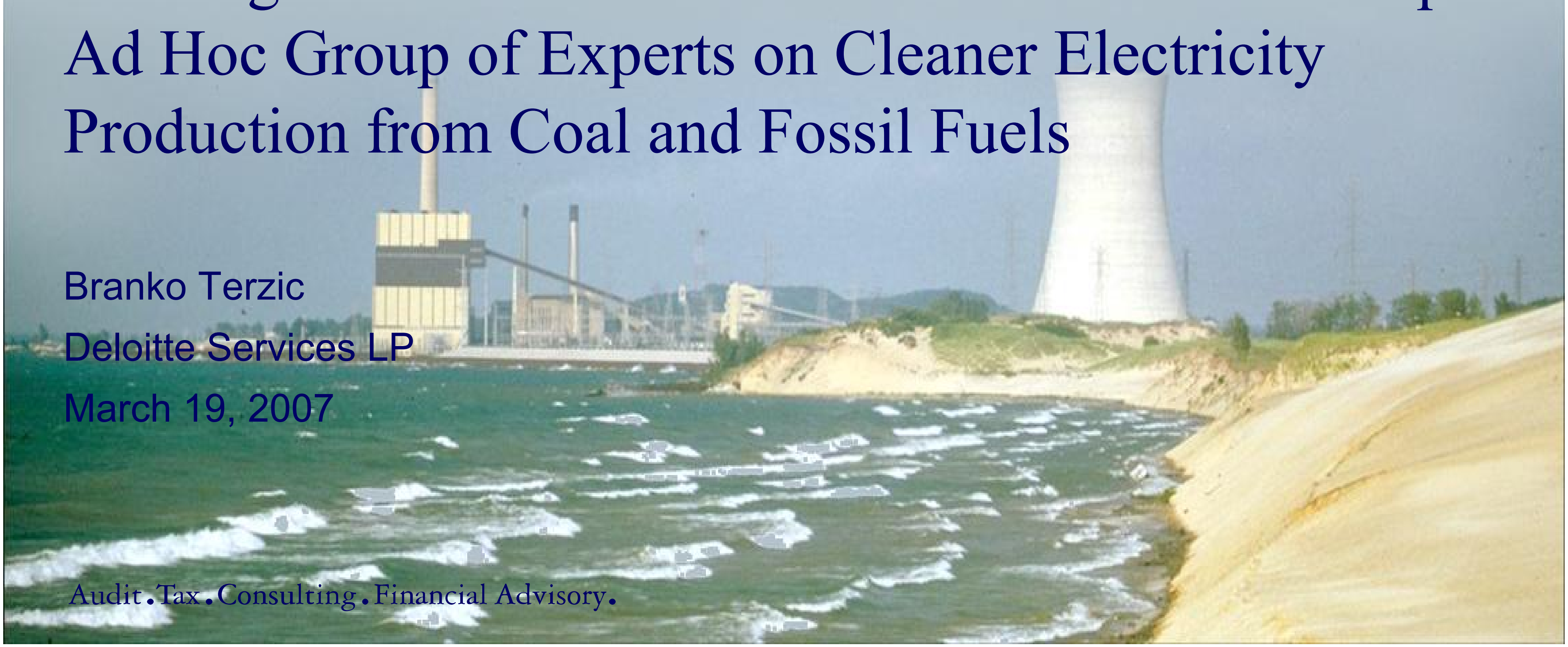
Regulation and Investment

Meeting of the UN Economic Commission for Europe Ad Hoc Group of Experts on Cleaner Electricity Production from Coal and Fossil Fuels



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Major Activities in Electric Power Industry

Thermal power plants
Hydro power plants
Nuclear power plants

Non-traditional

Power Generation

Transmission

Distribution

Consumers

Objectives of Regulation

- The primary objectives of electric utility regulation are to:
  1. Attract capital sufficient to build infrastructure of adequate capacity to maintain designated quality of service
  2. Insure adequate service at reasonable prices to consumers

The Balance of Goals

- Governments can have multiple goals desired when deciding to restructure, introduce new technology and/or privatize any segment of the economy, while at the same time
- Investors have many choices including: choice of country, industry, individual company, and investment in equity versus debt instruments.

Regulation

- "…an economic, legislative and legal concept. The legislature decides which industries should be regulated. Such decisions may be based upon the economic characteristics of certain industries, prevailing social philosophies or political considerations. The policies adopted, must conform to existing legal concepts and procedures. Compromise is thus the basic ingredient of economic policy."

- Dr. Charles Phillips, Jr., <u>The Regulation of Public Utilities</u>

Regulation

- "Regulation represents third party intervention by a government agency as an arbitrator by a government agency between the company and the customers it serves."

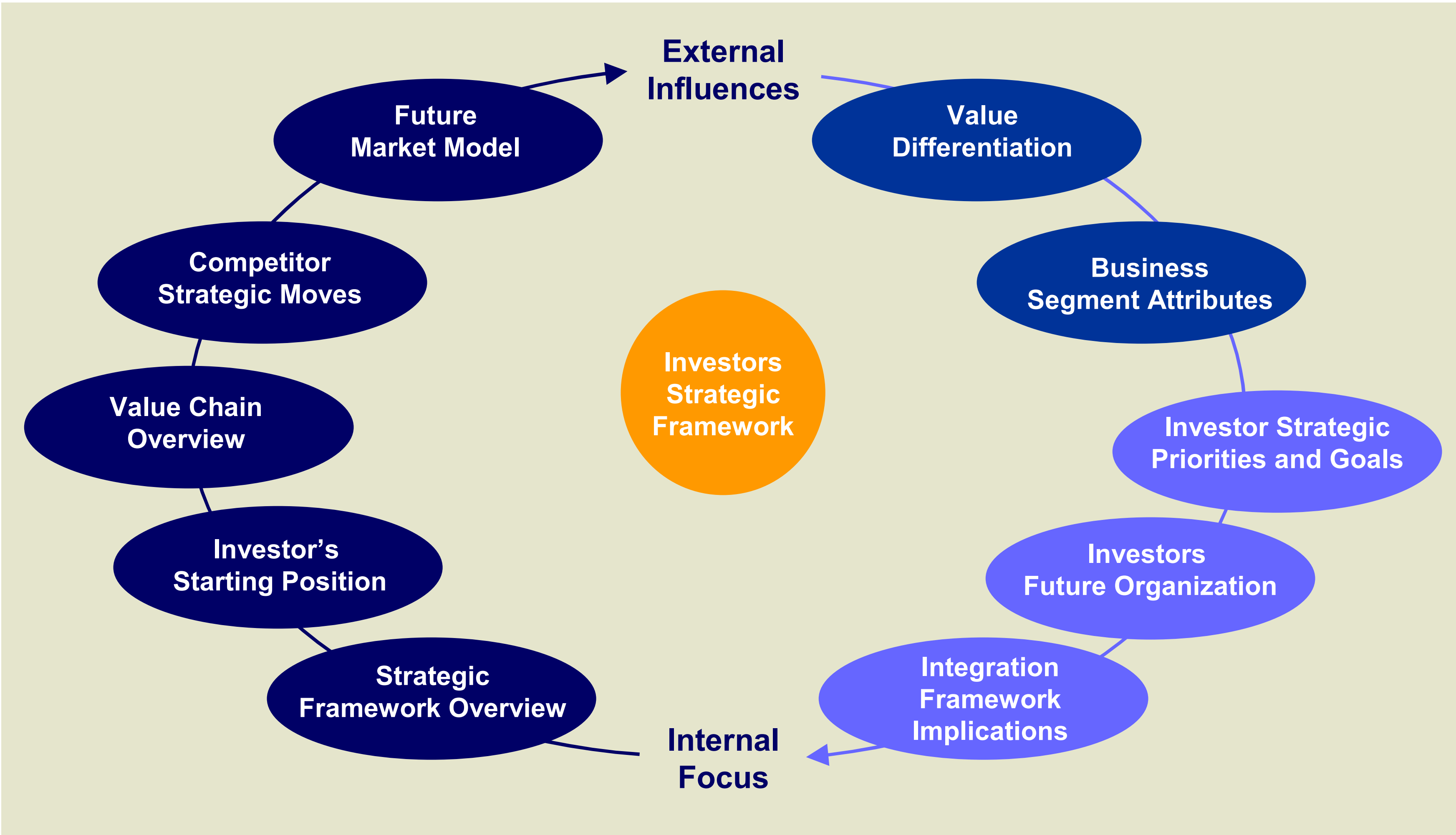
  - Bonbright, Danielson, & Kamerschen, Principles of Public Utility Rates

Risk of Regulation

- "Regulation itself imposes inherent risks for which investors require compensation. "
- "Regulatory risk, that is perceived uncertainty about regulation, can be assessed by means of ratings assigned to regulatory bodies by investment firms."

  – Professor Roger A. Morin, Regulatory Finance: Utilities' Cost of Capital

Investor's Strategic Framework



Government Responsibility

- Selection of workable industry structure or market model
- Establishment of viable initial starting position if restructuring is planned
- Establishment of effective regulatory agency provided with adequate leadership, funding for expert staff and legal authorization
- Recognition of regional realities in energy and financial markets

Risk Reducing Factors

- Stable government
- Stable economic policies
- Predictable economic and environmental regulation
- Recognition by regulators of requirements of capital markets
- Desire to maintain national economic competitiveness

Investor's View of Regulation

- "…the regulatory structure is the main factor to determine how attractive that country is to outside investment capital"
- "…in Europe the regulations are there but the regulatory structure needed to carry them out is NOT there"
- From the CEO of Southern International (now Mirant Corp.)

Regulation Which Attracts Capital

- Recognizes “reasonable” costs of production
- Provides for full and timely recovery of capital through depreciation expense
- Includes taxes as a cost of service
- Provides reasonable opportunity for firm to earn a “fair return” on investment

Two Industry Structures

- Vertical Monopoly
  - Production-regulated
  - Transmission-regulated
  - Distribution-regulated
  - Sales/marketing-regulated
- Liberalized
  - Production-competitive
  - Transmission-regulated
  - Distribution-regulated
  - Sales/marketing-competitive

Different Roles for Regulators

- Regulated Monopoly
  - Entry and construction cost by approval
  - Regulator insures price is just and reasonable
  - Sales are subject to weather and other external variables
- Liberalized Market
  - Open entry, construction at risk
  - Regulator insures wholesale market is fair
  - Regulator insures that third-party-access functions fairly
  - Sales are subject to competition as well as weather and other external variables

Risks to Power Plant Investment

- New Power Plant in Regulated Utility
  - Obtain timely regulatory approvals
  - Obtain full recovery of investment (depreciation)
  - Obtain symmetric rate regulatory treatment
  - Future regulatory treatment (stranded cost)
  - Acceptable liability for GHG treatment

- New Power Plant as Merchant Plant
  - Construct at expected project cost
  - Purchase fuel at projected prices
  - Produce power at market competitive rates
  - Power market prices and rules as anticipated
  - Operate at capacity factor
  - Acceptable liability for GHG treatment

Unique Risks of New Technology

- Difficulty in control of construction costs
- Difficulty in estimation of operating costs
- Unknown susceptibility to technical obsolescence
- Unknown susceptibility to changes in science
- Law of Unintended Consequences

Regulation & Risk of New Investment

- When expected return is commensurate with risk, the investment will be made by the private sector
- If expected return is too low, investment will be made if there is a commensurate reduction of the risk to investor, putting risk and return back into balance
- Economic regulation has the capability of shifting risk from investor to consumer and vice versa
- Government can shift risk to society

The Investor's View of Return

- "Too low a return would discourage investment where really needed…
- But shouldn't investors (even foreign ones) carefully investigate the regulatory framework before plunking down so much money? Caveat emptor."

- Leonard Hyman, Rudden's Energy Strategies Report, March 5, 2007

Advice from the Movie: *Casino Royale*

"I believe in a fair rate of return"

– LeChiffre

Recent USA IGCC Incentive Study

Prior studies:

EPRI & NARUC studies

Rosenberg – 3 party covenant

Standard & Poor's

TMS/Deloitte Consulting study

Find views of private sector power companies and other stakeholders

Individuals Polled in Study

14	Investor-owned utilities
4	Independent power producers
2	Public power entities
7	State regulators
6	Financial institutions
3	Technology owners/contractors
36	Total

Criteria for Selection in Study

- Publicly expressed interest in IGCC
- High percentage of coal generation
- Located in “coal states”
- Regulators in states with target IOUs/IPPs
- Recognized members of financial community
- Technology owners and allied EPC contractors

Power/Utility Executives Views

- Issues raised
  - Technology risk
  - Capital and operating costs
  - Environmental concerns

Split on technology versus capital costs
Differences over cost premiums
Concerns over sequestration, particularly long-term liability
Wider strategic vision prevailed

Regulators' Views

- High cost concerns
- Inclusion in rate base or variation

Need for unaffiliated evaluation
Need for state legislation
Interplay of state with federal incentives
Role of natural gas prices

Technology Owners/Contractors

- “Confident” attitude to successful construction
- Guarantee issue

Mismatch on guarantees
Don’t give us the money
Integration challenge mismatch

Financial Institutions' Views

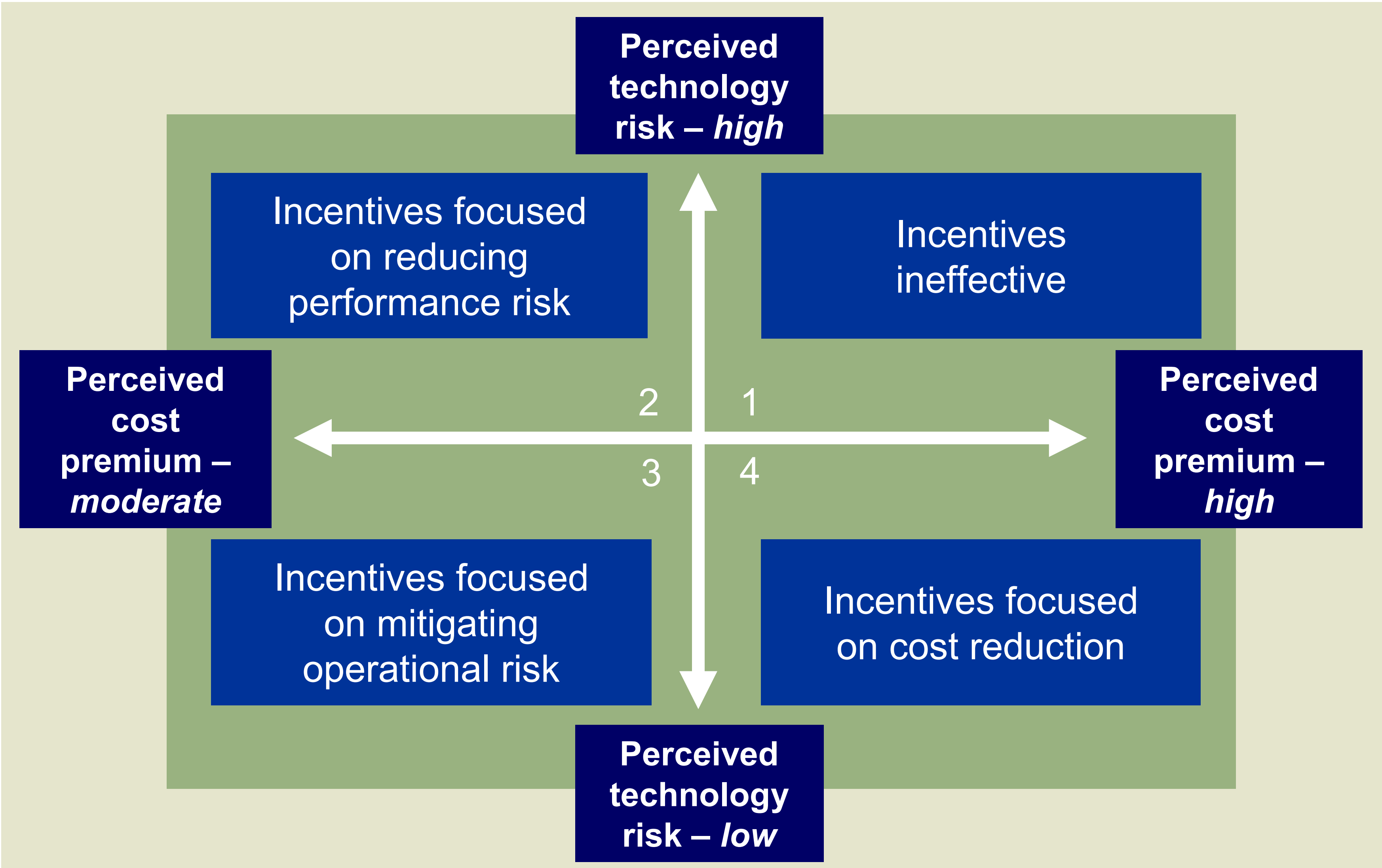
- Need for performance guarantees
- Players
- Assurance of recovery

No technology preference
Role of natural gas prices

Overall Themes from Interviews

- Keep incentives simple
- Improve processes to site plants
- Avoid disrupting market signals as much as possible

Incentive Framework



General Risks and Mitigation Options

- Technology Risk Mitigation
  - Performance guarantees
  - Rate base treatment
  - Adjustment clause
  - Credits
  - Preferential dispatch
  - “Feed-in tariff”
- Capital Cost Risk Mitigation
  - Construction cost sharing
  - Credits
  - Rate base treatment
  - Non-economic dispatch
  - “Feed-in tariff”

Structuring of Incentives

- Target risk category
- Filling the "guarantee" gap
- Keeping it simple
- Alignment with concerns of regulators and owners

TMS/Deloitte Study Identification

- Integrated Gasification Combined Cycle (IGCC): evaluation of potential deployment incentives
- Subcontract:
  - TMS-FE67602-DELOITTE subtask order 4

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