The State of Enterprise Risk Management for Power Companies

NAPCO Conference
Scottsdale, AZ
January 17, 2013
Outline

What is Enterprise Risk Management (ERM) Program?

- Key Business Risk Areas

  Industry Standards for Risk Management
  ERM External and Internal Frameworks
  Power Utilities Risk and Compliance
  Energy Trading Risk Management (ETRM)
  Risk Management Challenges
  Reference Sources
Enterprise Risk Management (ERM) Program

Why do power utilities need ERM program?
To identify and increase awareness of risk events
To ensure that risk prevention and mitigation plans are effective

ERM is integrated into day-to-day responsibilities of employees and management. It involves every entity exists to provide value to stakeholders.

ERM allows management to effectively deal with uncertainty and identify associated opportunities, enabling a utility to
- Realize operational efficiencies
- Reap financial gains
- Achieve lasting competitive advantages

Source:
Power and Utilities Fact Sheet: Enterprise Risk Management, PwC, 2012
Key Business Risk Areas

- External Environment
- Business Strategies
- People
- Analysis & Reporting
- Business Process Execution
- Technology & Data

Source:
Key Business Risk Areas

- Laws and legislation
- Litigation
- Global economy
- Climate change
- Changing work force
- Homeland security
- Customers and their economics

Source:
Key Business Risk Areas

- Rate policies – margins and reserves
- Power supply costs
- Support of policy makers
- Budget management
- Maintaining status as low cost provider
- Renewable portfolios
- Reliability of power supply
- Customer focus

Source:
Key Business Risk Areas

- Board governance
- Ethics
- Safety and safety training
- Communication
- Aging workforce
- Employee retention

- Trust
- Qualifications of workforce and continuing education
- Culture
- Relations with outsiders – vendors and other utilities

Source:
Key Business Risk Areas

- Media relations
- Territorial issues
- Performance analysis
- Governance
- Reputation risk

Source:
Key Business Risk Areas

- External Environment
- Business Strategies
- People
- Analysis & Reporting
- Business Process Execution
- Technology & Data

- Non-payment customer practices
- Building permit management
- Utility billing controls
- Theft of services
- Line extension practices and management

Source:
Key Business Risk Areas

- Technology failure risk (SCADA, IT Networks, Load Management)
- Investing in correct systems
- Control of proprietary data processes
- Technology obsolescence
- Data theft
- Data integrity

Source:
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Industry Standards for Risk Management

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Risk Management Challenges
Industry Standards for Risk Management

1. **Enterprise Risk Management – Integrated Framework**
   - By Committee of Sponsoring Organizations (COSO)
   - Released in 2004

2. **ISO 31000: Risk Management – Principles and Guidelines**
   - By the International Standards Organizations
   - Released in 2009

3. **AS/NZS 4360: Australia / New Zealand Risk Management Standard**
   - By a Joint Technical Committee of the Council of Standards Australia and the Council of Standards New Zealand
   - First released in 1995 and last updated in 2004

**Issues...**

- Competing standards
- Vague definitions of critical terms
- Often impractical in public corporation setting
  - Fail to connect risk management to corporation’s objective of maximizing shareholder wealth
  - Do not lead to improved quality of decision making involving risks

Source:
The Flawed Foundation of Corporate Risk Management [pending publication], John Lehman, Strategic Decisions Group, Inc.
Committee of Sponsoring Organizations (COSO) Model

**Compliance**
A compliance with applicable laws and regulations

**Strategic**
A high-level goals, aligned with and supporting its mission

**Operations**
An effective and efficient use of resources

**Reporting**
A reliable and timely report

Source:
How Does ERM Improve the Quality of Decisions Involving Risk?

<table>
<thead>
<tr>
<th>Corporate</th>
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<tbody>
<tr>
<td>Shareholder Value</td>
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<tr>
<td>Management Decision-making</td>
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<td>Capital Structure &amp; Cost of Capital</td>
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<table>
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<tr>
<th>Risk Management</th>
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<tr>
<td>Reveal and analyze &quot;Black Swan&quot; opportunities to increase expected revenue or reduce cost</td>
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<tr>
<td>De-bias and improve estimates to achieve more accurate information for decision-making</td>
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<tr>
<td>Re-evaluate and determine desirable capital structure as well as cost of capital</td>
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</tbody>
</table>

Improved Quality of Decisions Involving Risks

Source:
The Flawed Foundation of Corporate Risk Management [pending publication], John Lehman, Strategic Decisions Group, Inc.
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Risk Management Challenges
ERM Framework – External

Stakeholders → Governance → Metrics → Policies

Board → Governance

Regulator Appetite → Metrics

Customer Appetite → Risk Tolerance & Culture

Source:
ERM Framework – Internal

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Risk Management Challenges
Power Utilities Risks

- Compliance
- Commodity Trading Risk
- Commodity Price Volatility
- Weather Risk
- Securing Fuel Supply
- Long-term Supply Contracts & Capacity Arrangements
- Changing Customer Services
- Generation Optimization

Source:
Intertwined: the Physical and the Financial – Commodity Risk in the Oil and Gas, Power Utility, and Mining Sectors, PwC, 2008
Power Utilities Compliance Risk

Compliance to Regulations in the Utility Sector Has Become a Prominent Risk in Itself

- **FERC**
  - Order 741 requires certain ISO/RTO market participants to provide compliance certifications on risk management\(^{(1)}\)

- **NERC**
  - Establishes **14 reliability standards** for all US utilities\(^{(2)}\)

| Resource and Demand Balancing (BAL) | Interconnection Reliability Operations and Coordination (IRO) |
| Communications (COM)                | Modeling, Data, and Analysis (MOD)               |
| Critical Infrastructure Protection (CIP) | Nuclear (NUC)                                |
| Emergency Preparedness and Operations (EOP) | Personnel Performance, Training, and Qualification (PER) |
| Facilities Design, Connections, and Maintenance (FAC) | Protection and Control (PRC)                  |
| Interchange Scheduling and Coordination (INT) | Transmission Operations (TOP)                |
|                                     | Transmission Planning (TPL)                    |
|                                     | Voltage and Reactive (VAR)                     |

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\(^{(1)}\) Source: PwC Power and Utilities Fact Sheet: Enterprise Risk Management, 2012
\(^{(2)}\) Managing Risk and Compliance in the Electric Utility Environment, Corporate Integrity, LLC, 2012
Power Utilities Compliance Risk

Power Utilities Are Rethinking How They Approach Compliance Economically And Strategically

• Power utilities are under increasing pressure for accountability for reliability and protection of infrastructure and transmission.
  – FERC / NERC
  – FTC Red Flags Rule
  – Payment Card Industry Data Security Standard (PCI DSS)
  – State Mandatory Disclosure Laws (for example, in MA and CA)
  – Sarbanes-Oxley

• As part of ERM program, it is crucial that utilities integrate and monitor compliance risk as part of enterprise risk management initiatives.

Source:
Managing Risk and Compliance in the Electric Utility Environment, Corporate Integrity, LLC, 2012
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Risk Management Challenges
Energy Trading & Risk Management (ETRM)

What Is ETRM?

ETRM systems involve commercial decision making and market execution using an integrated system that enables data exchanges among trade floor, operations, credit, contract and accounting functions.

Source:
Energy Trading And Risk Management (ETRM) Definition, Gartner, Inc., 2012
Energy Trading & Risk Management (ETRM)

What Are The Major Risks Associated With Energy Trading?

Energy Trading Risks

- Mark-to-market Valuation
- Portfolio Management & Balancing Regime
- Reporting & Compliance
- Physical Trading & Financial Trading
- Delivery & Capacity Bottlenecks
- Contract Management
- Clearing & Settlement

Location risk
Time risk
Quality risk

Source: In-depth Energy Trading & Risk Management, EnergyForum, November 2012
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Risk Management Challenges
Risk Management Challenges

• The types and magnitude of risks are increasing
  – Broader spectrum of risks, including trading, operations, supply chain, regulations, reputation
  – Examples conventional risks versus emerging risks

<table>
<thead>
<tr>
<th>Traditional Risks</th>
<th>Emerging Risks</th>
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<tr>
<td>Flat price</td>
<td>FERC 741</td>
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<tr>
<td>Volumetric</td>
<td>Gas market integration</td>
</tr>
<tr>
<td>Periodic Ratemaking</td>
<td>More complicated energy commodities or derivatives products</td>
</tr>
<tr>
<td>Illiquid market tenures</td>
<td>Aging professional workforce</td>
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<tr>
<td>Etc.</td>
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Risk Management Challenges

• **Critical exposures persist despite major investment in risk capabilities**
  
  – JP Morgan’s lost $6 billion in risky credit derivative trades
  
  – Amaranth (a Calgary-based hedge fund) lost $6.5 billion in natural gas trades
  
  – UBS lost $2 billion in equity trades despite large investments made in risk management

Source:
Risk Management Challenges

- Organizational silos and outdated information systems prevent effective integration of risk management structures
  - A move from ‘spreadsheets’ to a ‘serious quantitative modeling’ platform
  - Spreadsheet applications often times lack transparency, efficiency, flexibility, and adequate handling of multiple dimensions and uncertainty.

Source:
Enterprise Risk Management Challenges for Energy Cos.

- Adding the cost of risk capital - well studied and implemented in financial institutions and in hedging decisions but limited in application to the wider activities of energy companies
- Cost reduction and alignment of risks management with overall business strategy
- Avoiding pitfalls of ERM of over emphasis on avoiding losses or other singular goals at expense of missing opportunities to utilize the system for enhancing shareholder value (or vice versa)

Source:
References


The Flawed Foundation of Corporate Risk Management [pending publication], John Lehman, Strategic Decisions Group, Inc.  
Contact : John Lehman, Strategic Decisions Group, Inc., johnlehman@att.net

Intertwined: the Physical and the Financial – Commodity Risk in the Oil and Gas, Power Utility, and Mining Sectors, PwC, 2008

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In-depth Energy Trading & Risk Management, EnergyForum, November 2012


GRC Integration with Strategy to CCRO, February, 2012 by Brenda Boulthwood, CRO Constellation Energy

Power and Utilities Fact Sheet: Enterprise Risk Management, PwC, 2012