

A  
Presentation  
On

# Solving Economic Challenges for Power Producers

by

**L. E. PEABODY & ASSOCIATES, INC.**  
ECONOMIC CONSULTANTS

Summer 2014

# About L.E. Peabody & Associates, Inc.

## *Solving economic challenges for clients in regulated industries for over 50 years ...*

With its extensive and varied experience, the Firm is able to translate complex problems into solutions which become clear and easily understood. Even though many complexities may be encountered in pursuing solutions, it is the Firm's philosophy that issues must be reduced to understandable proportions if they are to be solved pragmatically, efficiently, and successfully. L. E. Peabody & Associates, Inc.'s reputation rests firmly on a foundation of client trust that the Firm will treat each client's project efficiently and achieve a favorable solution by the most cost effective means with all data and findings kept confidential.

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# About L.E. Peabody & Associates, Inc.

Services Provided	Industries Served	
<ul style="list-style-type: none"><li>➤ Contract negotiating strategies</li><li>➤ Marketplace economics</li><li>➤ Litigation, arbitration and mediation support</li><li>➤ Asset valuations and risk assessments</li><li>➤ Regulatory policy impact analyses</li><li>➤ Management planning and strategies</li><li>➤ Proprietary models and databases</li></ul>	<b>Transportation:</b> <ul style="list-style-type: none"><li>✓ Rail</li><li>✓ Truck</li><li>✓ Pipeline</li><li>✓ Intermodal</li><li>✓ Maritime</li><li>✓ Package Delivery</li></ul>	<b>Energy:</b> <ul style="list-style-type: none"><li>✓ Coal</li><li>✓ Natural Gas</li><li>✓ Power</li><li>✓ Petrochemicals</li><li>✓ Biomass</li></ul>

# Helping Power Producers with Economic Challenges

L.E. Peabody & Associates, Inc. provides owners of power assets an **understanding of asset value and risk** as well as **support for economic decisions needed to optimize asset and portfolio value**. The Firm's experience and capabilities are based on a *unique combination of business acumen, analytical skills and communication skills*:

- **Business Acumen:** Over 25 years of experience evaluating and managing various types of power assets in many major markets across the country, including hands on experience with unit bidding and dispatch, trading, origination, structuring, fuel procurement and regulatory affairs;
- **Analytical Skills:** Knowledge, analytical skills and tools needed to handle complex economic analyses, including the use of stochastic modeling, fundamental analysis, discounted cash flow analysis, cost accounting, price forecasting, trend analysis and other techniques; and
- **Communication Skills:** Experience effectively communicating economic results to department heads, plant managers, CEO's, board members, attorneys and regulators.

# Services for Power Producers

Services Provided	Examples of activities
<ul style="list-style-type: none"><li>➤ Asset value and risk assessments</li><li>➤ Market assessments</li><li>➤ Contract negotiations</li><li>➤ Procurement and hedging strategies</li><li>➤ Dispute resolution</li><li>➤ Policy impact valuations</li><li>➤ Budget forecasting and strategic planning</li></ul>	<ul style="list-style-type: none"><li>✓ Rail rate reasonableness</li><li>✓ Fuel supply contracting and optimization</li><li>✓ Power, fuel and rail contract dispute resolution</li><li>✓ Energy bidding strategy</li><li>✓ Hedging valuations and asset risk profile analysis</li><li>✓ Power plant/portfolio market valuations</li><li>✓ Power plant budget forecasting</li><li>✓ Property tax valuations and dispute support</li><li>✓ Emissions planning and optimization</li></ul>

# Examples of Challenges Facing Power Producers

With challenges comes the need for proactive management. Proactive management involves understanding. Understanding involves analysis. Here are some examples of challenges facing power producers that may require expert analysis:

- **Asset assessments** – What is my power plant worth today? What might it be worth tomorrow if markets or regulatory policies change? Is it time to consider buying assets, selling assets or retiring assets?
- **Contract negotiations** – What is the value of a position to me? What is the value of a position to my counterparty?
- **Hedging strategies** – How much downside is acceptable to management? How can I reduce downside risk?
- **Litigation support** – How do I translate my case into easily understandable and defensible numbers?
- **Policy impacts** – How will proposed market or environmental regulations affect asset cash flows? How do I know which policies to support or oppose?

L.E. Peabody & Associates, Inc. can address these and other economic challenges.

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# Understanding Asset Value and Risk

L.E. Peabody & Associates, Inc. performs economic analysis specific to client needs. We combine an understanding of industry operations and market dynamics with sophisticated analyses and proprietary models to develop comprehensible results. While L.E. Peabody & Associates, Inc. is prepared to assist with any level of economic analysis, we believe a foundation of understanding is necessary for decision makers to effectively optimize value around assets.

## **Optimizing economic value around assets starts with:**

- Developing and understanding the value of power assets
- Developing a view of the risk and opportunity associated with power assets
- Understanding where an asset is positioned in the marketplace

With this foundation in place, more complex economic challenges can be identified, quantified and managed in the context of already understood asset values. How we establish this foundation for clients is addressed in the next three (3) slides.

# Approach to Developing Power Asset Value

All dollars in millions

Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Revenues</b>										
Energy	\$ 98.6	\$ 94.7	\$ 108.7	\$ 107.7	\$ 108.0	\$ 114.2	\$ 109.8	\$ 126.1	\$ 124.8	\$ 125.2
Capacity	10.4	20.8	41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
Hedges	10.0	2.0	(5.0)	5.0	-	10.0	2.0	(5.0)	5.0	-
Ancillary Services	3.0	3.1	3.1	3.2	3.2	3.3	3.4	3.4	3.5	3.6
Other	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
<b>Total Revenue</b>	<b>\$ 123.0</b>	<b>\$ 121.6</b>	<b>\$ 149.5</b>	<b>\$ 158.5</b>	<b>\$ 153.9</b>	<b>\$ 170.2</b>	<b>\$ 157.9</b>	<b>\$ 167.2</b>	<b>\$ 176.0</b>	<b>\$ 171.4</b>
<b>Variable Expenses</b>										
Fuel Supply	\$ (22.4)	\$ (20.9)	\$ (25.2)	\$ (24.3)	\$ (25.4)	\$ (26.9)	\$ (25.9)	\$ (29.7)	\$ (29.4)	\$ (29.5)
Fuel Transportation	(48.5)	(47.1)	(54.6)	(54.6)	(55.3)	(58.5)	(56.2)	(64.5)	(63.9)	(64.1)
Emissions	(3.0)	(3.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)
Other Variable O&M	(3.3)	(3.4)	(3.4)	(3.5)	(3.6)	(3.6)	(3.7)	(3.8)	(3.8)	(3.9)
<b>Total Variable Costs</b>	<b>\$ (77.2)</b>	<b>\$ (74.4)</b>	<b>\$ (95.2)</b>	<b>\$ (94.3)</b>	<b>\$ (96.2)</b>	<b>\$ (101.0)</b>	<b>\$ (97.8)</b>	<b>\$ (110.0)</b>	<b>\$ (109.2)</b>	<b>\$ (109.5)</b>
<b>Gross Margin</b>	<b>\$ 45.8</b>	<b>\$ 47.3</b>	<b>\$ 54.3</b>	<b>\$ 64.2</b>	<b>\$ 57.6</b>	<b>\$ 69.2</b>	<b>\$ 60.1</b>	<b>\$ 57.2</b>	<b>\$ 66.9</b>	<b>\$ 61.9</b>
<b>Fixed Expenses</b>										
Direct Fixed Expenses	\$ (12.0)	\$ (14.0)	\$ (11.0)	\$ (12.0)	\$ (13.0)	\$ (13.0)	\$ (13.0)	\$ (13.0)	\$ (13.0)	\$ (13.0)
Property Taxes	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
Insurance	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)
Other Fixed O&M	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)	(2.0)
<b>Total Fixed Costs</b>	<b>\$ (21.0)</b>	<b>\$ (23.0)</b>	<b>\$ (20.0)</b>	<b>\$ (21.0)</b>	<b>\$ (22.0)</b>	<b>\$ (22.0)</b>	<b>\$ (22.0)</b>	<b>\$ (22.0)</b>	<b>\$ (22.0)</b>	<b>\$ (22.0)</b>
<b>Operating Margin</b>	<b>\$ 24.8</b>	<b>\$ 24.3</b>	<b>\$ 34.3</b>	<b>\$ 43.2</b>	<b>\$ 35.6</b>	<b>\$ 47.2</b>	<b>\$ 38.1</b>	<b>\$ 35.2</b>	<b>\$ 44.9</b>	<b>\$ 39.9</b>
<b>CAPEX</b>	<b>\$ (10.0)</b>	<b>\$ (20.0)</b>	<b>\$ (5.0)</b>	<b>\$ (7.0)</b>	<b>\$ (15.0)</b>	<b>\$ (10.0)</b>	<b>\$ (20.0)</b>	<b>\$ (5.0)</b>	<b>\$ (7.0)</b>	<b>\$ (15.0)</b>
<b>Cash Flow</b>	<b>\$ 14.8</b>	<b>\$ 4.3</b>	<b>\$ 29.3</b>	<b>\$ 36.2</b>	<b>\$ 20.6</b>	<b>\$ 37.2</b>	<b>\$ 18.1</b>	<b>\$ 30.2</b>	<b>\$ 37.9</b>	<b>\$ 24.9</b>

Current Value of Discounted Cash flows	\$ 146.5
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L.E. Peabody & Associates, Inc. develops and maintains proprietary models specific to client needs and presents them in a form consistent with a client's existing formats. Types of assets quantified and analyzed include:

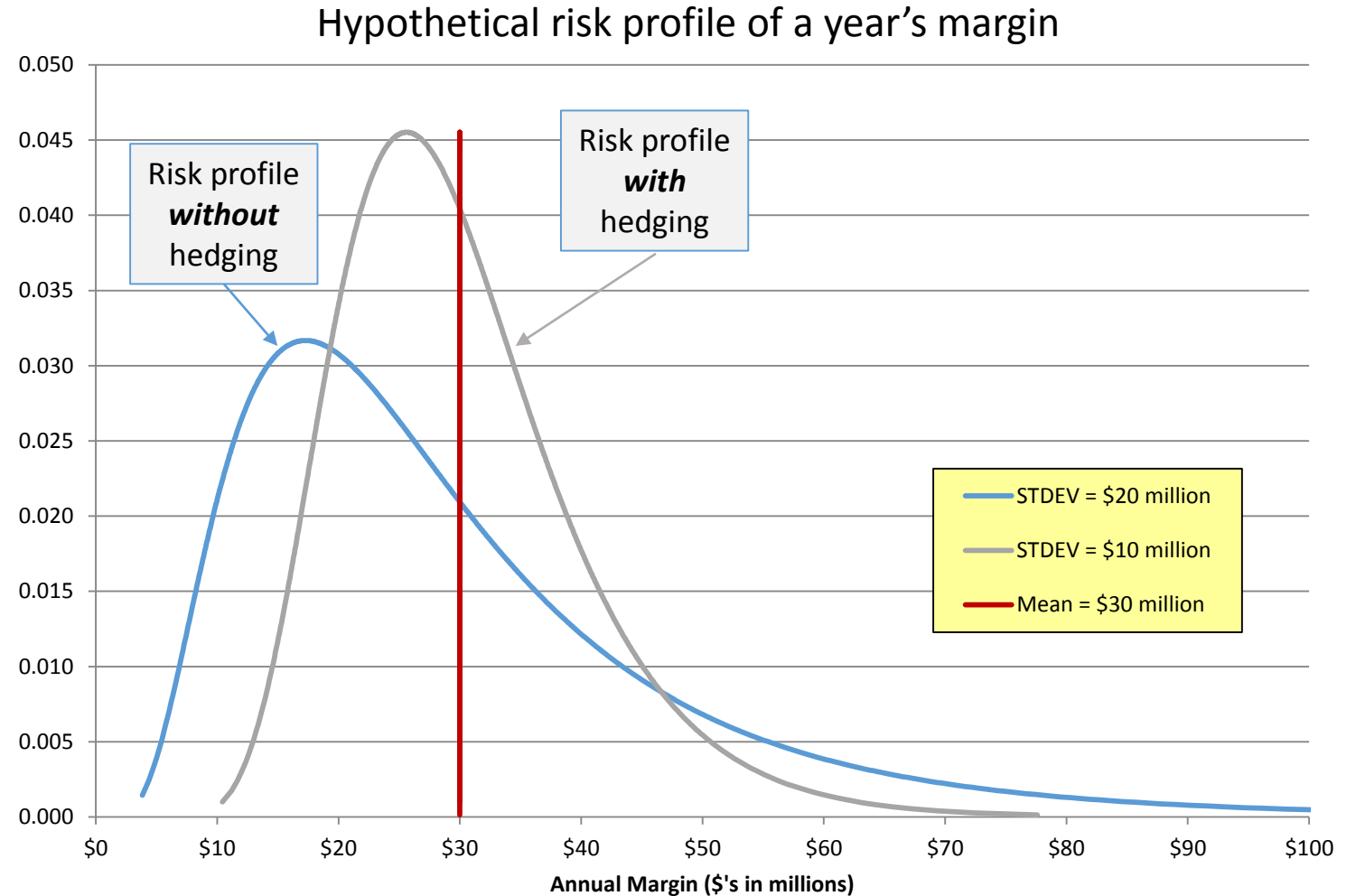
- ✓ Power plants
- ✓ Cost-based full requirements contracts
- ✓ Tolling agreements
- ✓ Power call and put options
- ✓ Fuels contracts
- ✓ Rail transportation contracts

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# Approach to Understanding Asset Risk and Opportunity

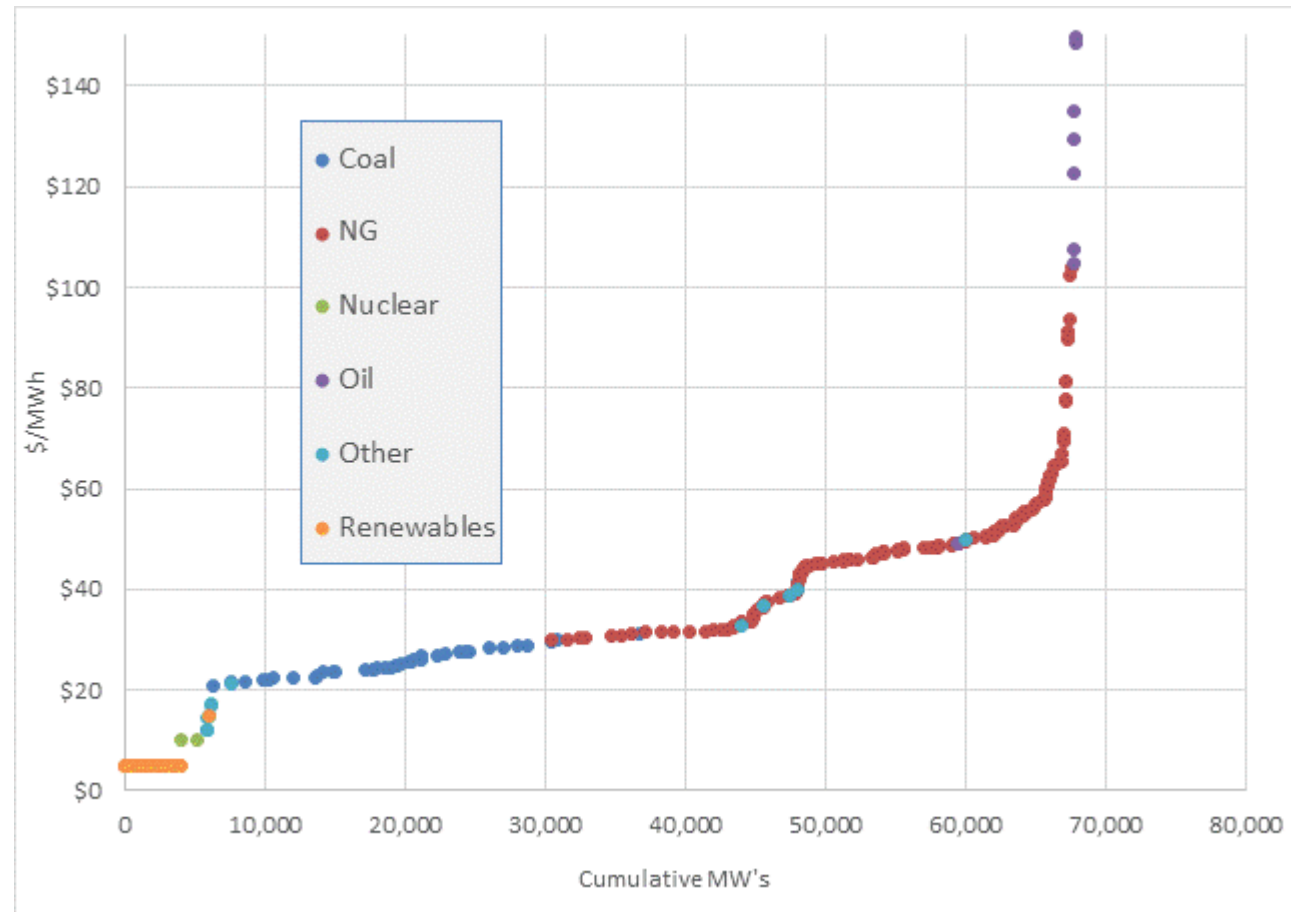
- L.E. Peabody & Associates, Inc. utilizes stochastic modeling to explain risk around client's assets
- Our models simulate asset dispatchability with correlated market prices and volatilities to develop the “real option value” of an asset
- Understanding an asset or portfolio's risk profile is essential to maintaining a proper perspective of asset value
- Decisions related to capital additions, hedging and asset viability need to consider market uncertainties



# Evaluating Asset Positioning Within a Market

- L.E. Peabody & Associates, Inc. utilizes public information combined with internal market knowledge and proprietary models to develop a view of where client's assets sit in their market
- Understanding an asset positioning within a market is essential to maintaining a proper perspective of asset value
- Asset positions in a market change constantly with market price fluctuations, new plants being built and older plants being retired

Hypothetical regional generation stack



# Summary

Expanded power consulting capabilities are performed consistently with L.E. Peabody & Associates, Inc.'s current business practices:

- Utilize years of experience and numerous analysis techniques to provide clients with solutions unique to their challenges
- Provide clients with clear and understandable results
- Treat client projects efficiently to achieve favorable solutions by the most cost effective means

Whether quantifying and assessing value and risk for an entire portfolio of power assets or diving into specific economic issues, L.E. Peabody and Associates, Inc. has the experience, tools, analytical skills and communication skills required to satisfy client needs.

*For more information or to discuss specific needs, please contact Tom Crowley or Brian Despard at (703) 836-0100.*

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