Integrated Energy Modeling And Analysis
Exploring The Interrelationships Between Technology and Policies In Energy Markets

Presented By:
Less Goudarzi, CEO and Managing Director
OnLocation, Inc.

US-Viet Nam Energy Trade Conference
November 3, 2015
What questions can we answer for you ...

• **Optimal Power Generating Portfolio:** What is the portfolio of power generating technologies that will minimize the cost of power while improving reliability and meeting Carbon emission goals over the next 20 years?

• **Defining Liquid Fuels/Refining Strategy:** What mix of conventional and alternative transportation fuels (electric vehicles, ethanol, etc.) will minimize imports of oil, maximize use of domestic resources, contribute to economic development and help with carbon goals?

• **Design Effective Energy Policies:** What policies will encourage and stimulate market responses (including investments) to achieve national and regional goals in the energy markets (energy security, carbon emissions, etc.)?
Who Are Our Clients
Why Integrated Energy Modeling

• Examines The Interrelationships Between Energy Sectors, Energy Sources And Regions

• Comprehensive View Of Entire Energy System On An Economy-wide Basis

• Captures The Feedback Between Energy Sectors And Consumers
Why Should You Care

• Evolving Oil And Natural Gas Supplies
• Combat Climate Change Without Holding Back Economic Development
• Desire For Cleaner, More Efficient And More Affordable Energy Supplies
• Secure, Reliable And Low Carbon Energy Supplies Are Vital To Economic Development
Why Is Integrated Energy Modeling Important

• Energy Policies will have **Huge** Potential Impacts On Your Energy Markets, Your Economy, And The Environment (Including Climate Change)

• To Achieve Your Goals Requires An **Inspiring Vision** And Making It Known To Everyone
  - How To Ensure Economic, Reliable, Secure, And Environmentally Friendly Energy Supplies In An Uncertain World
  - How To Ensure That Externalities (Climate Change) Appropriately Influence Market Players Decisions
Why Quantitative Analysis

A Framework For Credible Assessments

• Energy System is Integrated And Complex
• Energy Is Vital To The Economy
• Understanding The Impacts of Alternative Policies and Energy Infrastructure Build Out is Essential
• The Future is Uncertain
5 Pillars of Excellence in Integrated Energy Modeling

1. **Objective**: Avoid Bias Towards Specific Technologies, Sectors, Players or Outcomes
2. **Data Driven**: Analysis without Data is Just Opinion and Therefore Lacks Objectivity
3. **Market Oriented**:  
   • Focus On Decision Makers and What Drives Their Decisions  
   • Get All To Participate In Design: Producers, Consumers, And Regulators/Governments
4. **Integrated**: Capture The Feedback Across Sectors
5. **Commitment**: Time and Resources to Get It Right
Representative Client Assignments

- **Market Opportunity Analysis**: Assess the market potential of new technologies (SMR, CCS, etc.)
- **Refinery Expansion Analysis**: Gain insights on economic potential of expanding out a refinery complex
- **Transportation Fuels Policy Assessment**: Assess the impact of renewable fuel standards, LDV efficiency standards and low carbon fuels standards or other policies on transportation demand
- **Assess Impact Of USA As Energy Exporter**: Assess the impact of US exports of LNG and crude oil on markets
Representative Costs

- Build out single sector (electricity, refinery, etc.) $300k-$500k.
- Build out initial integrated modeling framework $1000k-$1500k
INTEGRATED ENERGY MODELING

CONVERSION MODULES
- Petroleum Market
- Electric Market

DEMAND MODULES
- Residential
- Commercial
- Industrial
- Transportation

SUPPLY MODULES
- Oil + Natural Gas Supply
- Natural Gas Transmission + Distribution
- Coal Market
- Renewable Energy

International Energy Demand Module
- Macroeconomic Activity Module

Objective, Quantitative Analysis
Thank You