

## **Gary Moland**

Director of Power Markets & Transmission Analysis

DNV GL

Mr. Moland is an experienced consultant to the energy industry specializing in economic market analysis, energy price forecasting, congestion risk, wind curtailment risk, and integration of renewable generation. Mr. Moland's expertise includes comprehensive knowledge of study methods and technical approach to assessing wind curtailment risk, wind integration costs, economic impacts of new transmission, generation asset valuation, congestion risk, and other key areas. He has extensive project management experience and has led major consulting engagements including working in a team environment and responding to stakeholder and committee oversight in performance of studies. Mr. Moland has deep technical knowledge of simulation-based modeling of power systems and analytical methods for quantifying the economic impacts of future changes in energy markets. He has a strong track record in successfully managing a consulting group, including leading sales and marketing activities, budget development, staff mentoring, setting business strategy, and interfacing with executive management. He has participated as a panelist and speaker at industry-leading conferences and has published articles and provided interviews for energy-related publications.

## **Career History**

### **GL Garrad Hassan/ DNV GL**

Director of Power Markets & Transmission Analysis, December 2010 - present

Responsible for starting up a new service area within GL Garrad Hassan to provide services for economic market studies including congestion and curtailment risk assessment for renewable development projects. Wide latitude to pursue strategic studies in new industry markets to broaden the company's client base and penetrate new industry segments. Duties include

- Management of staff and oversight of all departmental consulting engagements
- Development of business plan, including strategic direction to meet revenue growth targets
- Annual budget development for revenue projections and staffing requirements
- Business development activities including writing proposals and technical sales support
- Establish and foster strong client relationships
- Provide expertise to support other service offerings within GL Garrad Hassan
- Expand industry presence through conference speaking engagements and publications

### **Ventyx**

Vice President, 2007 - 2010

- Business Development – Managed all consulting business development activities for renewable companies, transmission development companies, and ISOs including proposal development, providing technical expertise on sales, maintaining strategic action plans for key clients, overseeing marketing activities, attending and speaking at conferences.

- Project Oversight – Held periodic reviews of all active projects, provided technical and project management direction as needed to ensure a successful engagement. Participated in key project calls, reviewed deliverables, wrote and edited final reports, and followed up with clients after project completion.
- Staff Development – Provide staff mentoring and internal training to ensure that consulting staff skills continue to develop and work quality is maintained at a high level. Responsible for hiring new staff as needed to meet project work load.

#### Principle Consultant, 2003-2007

- Nodal Market Team Leader – directed staff and participated in sales for nodal market studies.
- Project Manager – Led major project engagements including
  - Wind site congestion and curtailment analysis for over 20 separate project sites
  - Oversaw all Ventyx project work on EWITS and Nebraska wind integration studies funded by NREL (<http://www.nrel.gov/wind/systemsintegration/ewits.html>) (<http://www.nrel.gov/wind/pdfs/47285.pdf>)
  - Studied economic benefits of developing the transmission expansion “X” plan in SPP to support public filing by ITC for regulatory approval.
  - Studied ERCOT CREZ expansion to provide quantitative benefits for CREZ Scenario 2 in support of PUC testimony filed by a major wind developer
  - NPPD participation in SPP/MISO – this study was a key factor in NPPD’s decision to join the SPP market.
  - Led the Ventyx Cost Benefit Study to assess SPP’s move toward adding a day-ahead market with expanded ancillary services and financial Transmission rights (<http://www.spp.org/publications/SPP%20Report%20April%20v8.pdf>)

#### PowerBase™ Product Manager (2000 – 2003)

- Product Manager – Provided business plan, staffing levels, cost & revenue forecast, and strategic vision for the PowerBase data product for upper management.
- Market Data – Oversaw the development of simulation-ready data for North American energy markets delivered in the PowerBase database to over 40 clients. This included developing processes for migrating data from Platts database products as well as identifying other data sources and data research activities. Also included the incorporation of detailed powerflow data for full transmission system representation and the development of flowgates and contingencies for modeling congestion.
- Business Analyst – Acted as a business analyst to guide technical product development of new relational database and new user interface. Provided functional specifications, test plans and screen layouts to technical staff for implementation.

#### PROMOD™ Technical Manager (1997 – 2000)

- Product Version Control – Oversaw all code changes, testing, QA process, and version releases for the PROMOD product. Heavily involved in scoping and design of new program features

including Hourly Monte Carlo dispatch under simple transmission, Marketwise convergence Monte Carlo feature, significant user interface enhancements, and many other program upgrades.

- Staff Development – Directed programming staff on implementation of new program features based on feedback from clients and sales staff. Mentored staff to enhance knowledge of production costing algorithms and coding techniques.

#### PROMOD™ Support (1990 – 1997)

- Provided technical programming support and direct client support for PROMOD users

## Professional Experience

Selected key consulting engagements led by Mr. Moland include:

- *Eastern Wind Integration & Transmission Study (EWITS, 2009)* - Mr. Moland was the project manager for Ventyx, a key study partner responsible for developing the detailed modeling methods for capturing the operational impacts of hourly wind forecast error, hourly spinning/regulating reserve requirements, and other factors. EWITS was the first wind integration study in North America using detailed hourly wind profiles developed on a two kilometer grid, and provides an important benchmark for study methodologies in capturing wind integration costs and impacts. Link to study web site: <http://www.nrel.gov/wind/systemsintegration/ewits.html>
- *Nebraska State-Wide Wind Integrations Study* - (2009) - Mr. Moland was the overall project manager for the economic modeling work for this important regional wind integration study assessing up to 40% wind penetration within the Southwest Power Pool. Scenarios included assessing the impacts of SPP high voltage transmission expansion to transport wind to load areas. Link to study report: <http://www.nrel.gov/docs/fy10osti/47285.pdf>
- *Cost Benefit Analysis for Nebraska Utility's Participation in SPP & MISO Market (2008)* –Mr. Moland was the Ventyx project manager for a detailed cost/benefit analysis to support a Nebraska utility's decision to join the Midwest ISO or Southwest Power Pool energy market. PROMOD IV full transmission logic and the Simulation Ready Data were utilized to quantify the operational costs/benefits of MISO's centralized dispatch, MAPP balancing authority dispatch, and SPP EIS market dispatch. Other market design features were analyzed including ancillary services, MISO marginal loss impacts, and transmission congestion rights. Scenarios were developed to assess the impact of other Nebraska utilities joining MISO and whether the benefits of each option were dependent on the decisions of others. An initial view of FTR values for pathways from the client's generators to load hub was also provided to support the MISO participation option. The analysis from this study was used to support the client's decision to join the SPP market.
- *Atlantic Wind Connection Economic Feasibility Study (2010)* – Mr. Moland was the project manager for Ventyx's participation in an analysis of the economic and operational benefits associated with the construction of an offshore HVDC looped transmission backbone to facilitate 6000 MW of off shore wind development off the Atlantic coast of the US. The project included detailed modeling of the transmission design including assessing impacts of

electrical losses and comparing a multi-terminal loop with radial connections for delivering wind to shore.

- *Southeastern U.S. Offshore Wind Integration Study (2011)* – Mr. Moland performed a study analyzing production cost and transmission congestion to assess the impacts of 8.5 GW of new offshore wind along the coast of North & South Carolina and Georgia. This public study was performed as part of a DOE grant to the Southern Alliance for Clean Energy. The study utilized databases from the Eastern Wind Integration and Transmission Study (EWITS) to look at a future 20% wind energy scenario for the year 2024. Study results included the fuel and emissions cost savings from offset thermal energy and the impact of energy prices in the Southeastern U.S. Key study scenarios included comparison of independent radial connections for offshore wind versus a looped offshore transmission network that allowed the wind energy to move north and south to reach a preferred landing point. Final report and supporting documents can be found at <https://sites.google.com/site/sobreip/home/completed-reports>.

## **Academic History**

M.S., Mathematics and Computer Science, Emory University, Atlanta, 1992

B.S., Nuclear Engineering, Georgia Institute of Technology, Atlanta, 1984

## **Published Articles**

Public Utility Fortnightly – May 2008 – “Windpower’s Warning”  
[http://www.fortnightly.com/pubs/05012008\\_PowerMeasurements.pdf](http://www.fortnightly.com/pubs/05012008_PowerMeasurements.pdf)