



Solutions for Energy, Commodities, Extraction and Production Industries

OpenLink's Renewable Energy Solutions

Complexity and Volatility

Renewable energy sources are here to stay — and they are not being used to substitute current resources such as coal or gas. So, now you have to blend together many different types in order to compliment your entire portfolio. This complicates things: wind and solar, which are variable and not always available, require dispatchable back-up generation, especially from natural gas and hydropower. You have to meet all of the constraints while operating as close as possible to the optimum level and at the same time, satisfy your constituents.

There are many unique complexities of modeling a portfolio of renewable assets — especially when combining them with current assets:

- You are probably building in a lot of contingencies, which are causing you to leave money on the table.
- With the multitude of variables, each variable may have to be modeled separately and then you need the ability to bring the outcomes together — which is often a manual effort, time consuming and complex, leading to further contingencies and money left on the table.

- You are constantly dealing with the lack of predictability, which can cause you to continuously reset tomorrow's dispatch which takes a great deal of time and man power to recalculate and/or rerun the optimization routine.
- Economic dispatch and planning for the right level of reserves across short and mid-term horizons, at the lowest possible cost, is complicated. There are many constraints to consider, and you may need to re-optimize every 15 minutes to ensure optimal results if wind is part of your portfolio — how do you make that happen?

In order to thrive amidst complexity and volatility, companies must be able to model their entire portfolio with all types of resources across any commodity, any market, any regulation and any constraint, using both stochastic and deterministic approaches so long term optimal scenarios can be calculated and, that same model can yield an immediate set of actions to execute.

“Asset holders should seek to take advantage of the very best optimization solutions that can provide decision support on a portfolio basis, not for a single asset held in isolation...”

— Commodity Point Study

OpenLink's Solution

“ Cost effectiveness for the best possible balance of renewable energies (Potential cost savings 1-3% or more). ”

“ Lower your risk without violating constraints at the optimal cost ”

“ Optimal planning reserves while meeting constraints and requirements - no penalties and no negative press ”

“ Improve your trade profits and return on assets ”

“ Respond to changing conditions/ market - our solution makes it easier to do your job - more accuracy ”

“ Reducing operational risk by utilizing your key resources ”

Optimum Execution, Minimum Risk, Near Real-Time

Optimizing performance across a complex renewable energy portfolio requires sophisticated cross-portfolio techniques. Only OpenLink brings together all of the capabilities needed in one solution providing near real-time modeling & synchronization across the entire portfolio and any time frame. Our solution brings critical and unique components that maximize your ability to truly optimize operating performance with your renewable resources.

- **Cross-Portfolio Modeling & Optimization:** The only optimization solution in the marketplace that can model all relevant elements of physical portfolios, any commodity, any contract, any constraint across your portfolio in one model. We eliminate the need for simplifying assumptions, reducing excess reserves and contingencies without increasing risk.
- **Optimization in Near Real-Time:** Even the most complex portfolios can be configured to calculate short term optimizations in time frames as short as every 15 minutes to support highly volatile portfolio challenges like renewable energy sources (e.g., wind, hydro).
- **Balanced Statistical Approaches:** By leveraging both stochastic and deterministic techniques, we can calculate a specific executable optimum solution for any time frame in light of volatility.
- **Integrated Time Series & Scenario Management:** One data store stores all price and assumption curves as well as scenario data across the OpenLink solution. This means that trading and all optimization modeling uses the same assumptions, eliminating duplicate and diverging data in separate models. Relevant models are updated across ETRM and Optimization through Active Bi-Directional Integration so “what if” analysis are isolated from online, real time trading without creating operational or systems support complexity.

- **Event-Driven, Cross-Department Workflow:** Optimization comes with a simple event driven workflow, so you can integrate work and respond to volatility in a fully integrated way without creating complex, overly-constraining canned workflows.

Realize Improved Flexibility, Scalability and Performance to Stay Competitive

Companies trading in energy markets today (or producing energy) can use OpenLink's Optimization models to maximize revenues and reduce costs. With our modular structure, this solution can be used by industrial firms, energy trading companies, utility companies and public services. The solution's multi-commodity ability provides flexibility and transparency, allowing for the addition of renewable commodities into the optimization process.

Take the First Step of an Incredible Journey

You will realize a wealth of benefits when you model the entire portfolio together with the OpenLink IRM Optimization solution.

- Cost effectiveness for the best possible balance of renewable energies (Potential cost savings 1-3% or more).
- Lower risk of violating constraints at the optimal cost.
- Optimal planning reserves while meeting constraints and requirements — no penalties and no negative press.
- Improve your trade profits and return on assets
- Respond to changing conditions/ market — our solution makes it easier to do your job — more accuracy. Higher level of capabilities = higher level of productivity.
- Reducing operational risk by utilizing your key resources — especially those that are using manual spreadsheets to model.

Founded in 1992, OpenLink provides decision support software solutions for transaction lifecycle management. This encompasses financial and physical cross-asset trading, risk management, related operations processing and portfolio management for commodity, energy and financial services markets and industries globally.

OpenLink's client base of more than 540 clients worldwide includes 12 of the top 25 largest commodity and energy companies by market capitalization, eight of the largest financial institutions and 11 of the largest central banks, as well as major hedge funds, commodities companies and public utilities.

Headquartered on Long Island, New York and with offices in New York City, Houston, Dallas, Tulsa, London, Berlin, Vienna, São Paulo, Sydney, Singapore, Moscow and Toronto, OpenLink has more than 1,300 employees worldwide.

Find out more...Call Us at 1-877-806-8354

For more information about OpenLink's solutions contact:

OpenLink — Headquarters
1502 RXR Plaza
15th Floor — West Tower
Uniondale, NY 11556

Phone: +1 516 227 6600
Fax: +1 516 227 1799

www.openlink.com

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ERENEWE-FS-LS-02

Decision support software for transaction lifecycle management

Trading

Optimization

Risk

Back Office

Accounting

Operations

Logistics

Exploration

Treasury



in these markets and industries

Financial Institutions
and Capital Markets

Corporations and
Non-Financial Institutions

Agricultural Products,
CPG, Food and Beverage,
and Manufacturing

Energy, Commodities,
Extraction and
Production Industries