



- **FORECASTING**
- **GENERATION, BIDDING & DISPATCH OPTIMIZATION**
- **REAL-TIME TRADING**

Pushing the Boundaries, QuantRisk Reinvents Optimization 24/7 Cloud Service or On-Site Implementation

Buy side: Electric co-ops, munis, utilities and retailers. **Sell Side:** Generators.

Unique Solution. The first and only ready-to-use real-time optimization platform integrated with intra-day trading and scheduling. No development or customization. All you need is a browser.

Flexibility & Rapid Configuration. Implement in-house or use **QuantRisk Supercomputer Cloud Service** running worldwide markets 24/7. Lightning fast configuration takes just a few days per asset.

Affordability. Unique scalable cost effective cloud solution meeting the needs and means of municipal utilities, co-ops, retailers, large utilities and generators. No license or implementation fee! Pay just one low monthly subscription fee to leverage our cloud supercomputer in optimizing your business.

Increase Generation & Bidding Profit (for generators), or Lower Energy Procurement Cost (for utilities, co-ops and marketers) by 30%. Estimated at US\$ 3/MWh; for every 100 MWh, this amounts to a yearly additional profit of:

$$3 (\$/MWh) \times 12 (\text{hrs.}) \times 100 (\text{MWh}) \times 365 \text{ days} = \text{US\$ } 1.3 \text{ Million}$$

Our fee is less than 15% of the extra savings / profits we generate, and you keep the remaining 85%. The solution doesn't cost anything. Try it for free.

“ We are very pleased with the functionality and features that QR system provides our utilities in energy trading and management. The system has given us much more control and confidence in managing our energy portfolio and has resulted in lower rates to our customers. ”

President & COO of a Utility Conglomerate

“ We were looking for a platform with which we could optimize our nomination patterns even more, automate settlements, accommodate the changing market that is a result of deregulation of the electricity market, all with real-time information. QuantRisk have been able to deliver on all our expectations. The benefits to us and our customers are immense. ”

Chief Operating Officer of an Investor Owned Utility



Unrivaled Cloud or On-Site Solutions

“ QuantRisk team worked closely with our trading team to listen to our concerns and the particular complexities of our load contracts and managed to very efficiently enter them in their optimization model. No face to face meeting was required. We can see in 1 single trading panel, the optimal load we need to allocate to each bilateral contract, how much to buy from or sell to the market. We are very pleased with the outcome. QuantRisk solutions optimize our energy cost by about US\$ 8 / MWh. ” **GM of an Electric Cooperative**

Benefits and Advantages of QR Real-time Forecasting, Optimization & Trading™

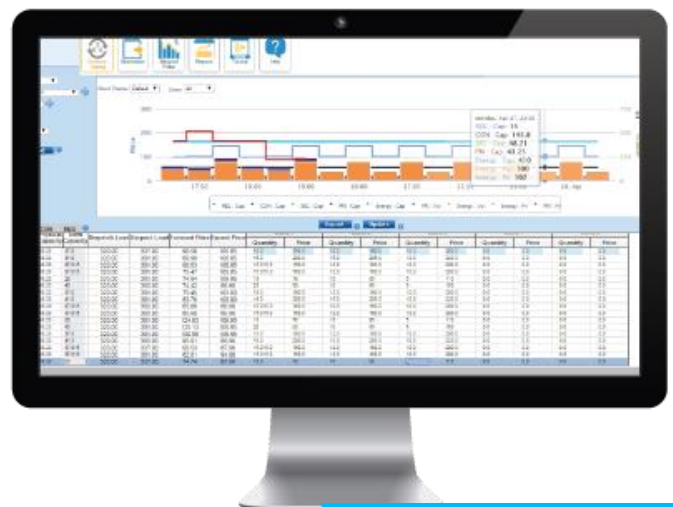
- ✓ One integrated real-time forecasting, optimization, and intraday trading and scheduling platform. Data management, software, mathematical models, cloud super-computing.
- ✓ Ready-to-use Cloud services. No software installation, IT or implementation efforts are required on your end. All you need is a browser to use the system.
- ✓ Leverage the only real-time commercial such platform, with excellent track records, onsite at clients and on the cloud. The Cloud platform is used by electric co-ops, utilities and generators, and takes only weeks to configure for your operation.
- ✓ Bypass legacy software vendors' exorbitant license fees. Save
- ✓ Super-computing high-performance cloud services, running automatically, 24/7 multiple electricity markets worldwide.
- ✓ **Utilities, munis, co-ops, and retail power marketers:** minimize energy acquisition cost across a diverse supply portfolio (generators, bilateral contracts, PPAs) and the spot market.
- ✓ **Generators:** maximize profit by first optimizing generation, and then optimizing the corresponding bidding strategy (price of the offers across multiple blocks / bands) into the market / system operators, ISO / RTOs or power pools.

COST FREE SUBSCRIPTION: FORECASTING, OPTIMIZATION & REAL-TIME TRADING SOLUTION

- We expect to achieve an **extra** profit of **US\$ 1.3 Million / 100 MWh** optimized. Extra means a profit beyond your current manual trading. This is money lost to the market and only recoverable via dynamic optimization.
- Start with a **2 weeks free trial** of our platform so you can see the above extra profits. We can then mutually agree on a reasonable payment for our solution. We typically charge **less than 15%** of the **extra** profits we generate, and you **keep the remaining 85%**. This is money all that you are currently losing to the market.
- During the free trial we perform back testing performance analysis over several past months, and you use the platform in actual trading. In both cases we compare the MQ and P&L of your trading versus the optimal.

Both on-site and cloud solutions are licensed as yearly subscriptions for 1 all-inclusive fee, comprising:

- **License, Cloud high-performance supercomputing, support, implementation, maintenance, and upgrades.**
- **Initial Implementation:** configuration of each asset, or bilateral energy procurement / PPA contract, fuel and energy valuation rules, constraints, data migration. **Post-implementation maintenance** and updating of your optimization model, to account for ongoing changes occurring in your generation assets, bilateral energy procurement / PPA contracts, ISO set-up or market rules.
- All of the above is covered by just **one all inclusive Yearly Subscription Fee**, about 15% of the extra profits we generate.
- **Go live in 2 weeks.** We will configure one bilateral procurement / PPA contract, or generation asset in 3 days and you can start.
- Start with a **2 week free trial period.** If the trial doesn't meet your satisfaction, you can cancel without any liability or cost.
- After adopting QR Optimization, you can extend your license to a full Trading and Risk Management system **at discount.**



Schedule a Demo Today

Opt For a Free Trial

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QR Forecasting™

- Forecasting models incorporate worldwide: Weather data. ISO, RTO and power pools regional, trading hubs, and zonal LWAP and LMP nodal prices and load. We gather all these data 24/7. We also fetch clients' SCADA & meter data from your systems.
- Load Forecast. Real-time half/hourly ISO, RTO and power pool regional, trading hubs, and zonal load. Clients internal load.
- Price Forecast. Real-time half/hourly ISO, RTO and power pools regional and zonal LWAP, and nodal LMP spot price. Live data panel, display and analysis of actual & forecast data.

- ◆ [More information on QR Forecasting Solutions™](http://power.quantrisk.com/analytics-and-curves.html)

QR Utility Optimization™

For a utility / cooperative / marketer with a diverse energy portfolio, QR Optimization minimizes energy procurement cost (lowering the energy rate) by trading real-time and for very period, bilateral energy procurement / PPA contracts, in and out of the spot market, subject to all contractual, operational, and global demand load constraints. Constraints can be hourly, daily or monthly take-or-pay types; or hourly, daily, or monthly min or max quantities; ramp-up and down rates and nonlinear heat rate curves. Complex pricing mechanisms can be easily configured to fully capture all contracts.

QR Generation Optimization™

QR optimization of thermal and hydro power plants amounts to maximizing profit by trading generation in real time in and out of the spot market, subject to operational constraints such as must-run min and max (hourly, daily, etc.) production, shut down schedules, ramp-up and ramp-down rates, and nonlinear heat-rate curves. Complex nonlinear fuel and operational costs can be easily defined. Assets can be optimized on the generation side, irrespective of being

- ◆ [More information on QR Utility Optimization™](http://power.quantrisk.com/utility-optimizer.html)

QR Market Bidding Optimization™

This solution is automatically integrated with **QR Generator Optimization™**. For every period the asset is forecasted to operate, we first use forecasted nodal spot prices and system load, to simulate the latest available stack of bids and offers to bring it to the current period, we then maximize profit by optimizing generation bids and offers (across multiple bands) to the ISO or market operator, within the simulated stack. This has for effect to jointly maximize dispatch load and market prices. Bids can be optimized for any asset, whether backed by physical contracts or acting as merchant, being base load, mid-peak or peaking.

Real-time Trading & Scheduling™

- Trading dashboards integrate all above modules and data, allowing traders to visualize and modify optimal versus nominal, schedules and bids (nodal load, price and P&L).
- Automatic scheduling and dispatch of bids to ISOs (for generators), and bilateral procurement contracts to suppliers (for utilities) with automated retrieval of dispatch schedules. Gas nomination dashboard to pipelines, or fuel management.

Visibility, Performance Analysis, Real-time Risk Management

QR optimization solutions not only suggest optimal operational strategies, but also provide a real-time performance analysis of P&L. To accomplish this in real-time, nodal P&Ls (fuel and operational cost, and generation buy & sale) are computed and compared under actual and optimal dispatch scenarios for every period. In one glance, traders can compare these options and decide best dispatch for the following periods. Management can use this information to monitor trading performance. This is real-time earnings risk management. The savings or profits to be made must be captured at every trading period or they are lost.

- ◆ [More information on QR Generation Optimization™](http://power.quantrisk.com/generator-optimizer.html)

Frequently Asked Questions

Can we optimize only 1 bilateral Contract?

Yes as long as you can directly (or your supplier on your behalf) can buy / sell to an ISO or some external market. Optimization has nothing to do with the number of BLTs. It trades a BTL in and out of other markets.

Which procurement contract can't be optimized?

A bilateral procurement contract with no flexibility in the load, i.e., a take or pay with fixed hourly load can't be optimized as scheduling can't be changed across periods.

How do you ensure the safety and confidentiality of our data on the Cloud?

Data is fully protected using top security industry standard. This is a private network only open to clients' fixed corporate IP. SSL encryption. Physical and Web Application Firewall protection (PCI and DSS 6.6 Compliant). Intrusion protection. Intrusion Prevention. Advanced Persistent Threat (APT) protection. Digital two-factor user authentication.

What type of power plant is optimizable?

Any generation MW quantity that can be ramped up /down in 2 hrs., and in case of bidding to an ISO, you must be in control of the bids. E.g., a 500 MW plant with a 60 MW/hr. ramp, can be optimized for 120 MW. Gas, diesel and hydro plants optimize well.

Can a generation asset under contracts be optimized, or just merchants plant?

All generation assets can be optimized. Generation optimization does not just apply to merchant plants. Bilateral sales are fixed revenue and are not part of the optimization objective. We optimize the variable revenue that we control, that is generation and bidding. When the asset is in the money optimization wants you to generate to max capacity subject to all constraints, and sell for profit, regardless of the bilaterals quantities. On the flip side, when the price forecast is lower than generation cost, optimization wants you to lower generation to the extend possible so as to not lose money via generation, and buy from the market to satisfy the bilaterals. This is economical in this case. In short, if your plant is 200 MWh, and 50 MWh are under bilateral contracts. It is the whole 200 MWh we optimize, and not just the 150. MWh.