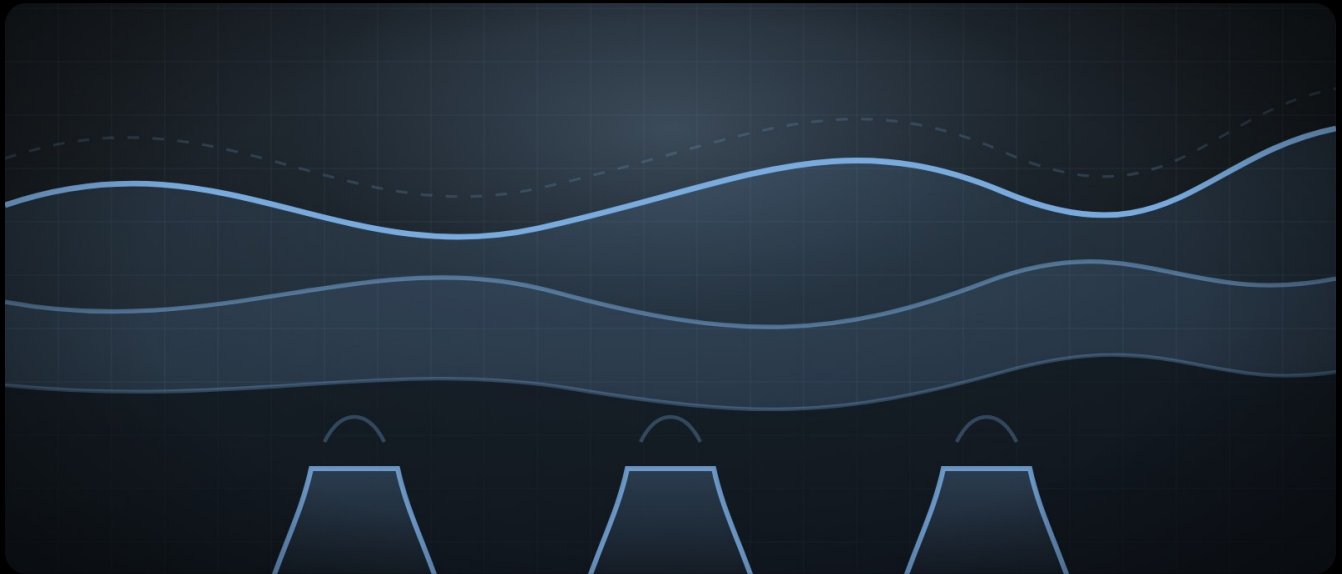




ENERGY · PRODUCTION & ASSETS

General Utility Plant Load Optimization

A utility plant used Quantum One to distribute load across its units by cost, hour by hour — 2.5% cost saving potential.

IMPACT

2.5%

Expected cost saving potential

Hourly

Load distribution recommendations

**Economic effect of
balancing decisions
made visible**

CLIENT PROFILE

CLIENT

A general utility plant operator

COMPANY TYPE

Utilities operator

INDUSTRY

Energy

SCENARIO

Production & assets

CHALLENGES

- A general utility plant generates power, produces water and steam, and supplies sea water for cooling.
- There is no holistic approach to allocating heat and power between units, which results in higher fuel consumption and electricity costs.
- Power and water demand change constantly, as do weather conditions, and there is no direct way to assess the economic effect of a load balancing decision.

APPROACH

A plant optimizer accounts for unit capacities and efficiency curves, customer demand and pipeline constraints, and computes the most cost-effective hourly load distribution.

Each unit's output flow is modeled from its input flows and unit-level constraints; balance equations are calculated for steam, power and water alongside supply and demand, and a cost function prices the required power, steam and heat.

BENEFITS

- Unit output modeled from input flows and unit-level constraints
- Balance equations for steam, power and water, with supply-demand equations
- Cost function for required power, steam and heat
- Hourly recommendations for the most cost-effective load distribution
- Equipment tags, gas flows, temperature, humidity and condensate data used as inputs

TIME TO PRODUCTION

Stage	Quantum One	Typical process	
Problem definition	1 week	2–3 weeks	
Proof of concept	2–3 weeks	4–6 weeks	
MVP	4–6 weeks	8–12 weeks	
Scale-up	1–2 months	3–4 months	
Maintenance	Ongoing	—	

TAKE THE NEXT STEP

Speak with our experts to discuss tailored AI solutions for your industry

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