

Turning a Regional Utility into an Active Energy Market Participant

Canonical:

<https://northmoregordon.com/case-studies/turning-a-regional-utility-into-an-active-energy-market-participant/>

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Case-study summary

This historical case study records the project, delivery approach and reported results behind Turning a Regional Utility into an Active Energy Market Participant . It has been reorganised for clearer reading and linked to current Northmore Gordon guidance so the project evidence can be used without treating an earlier result as a present-day quote.

Evidence note: The source page is dated April 30, 2026. Figures, scheme names, equipment assumptions and client circumstances belong to that project period. Opportunities, targets and forecasts remain distinct from implemented or verified outcomes, and current eligibility should be checked before using the case as a new-project benchmark.

Project record

"This wasn't about delivering a single project. It was about building an energy model that could support our operations long-term, reducing emissions while giving us more control over cost and risk."

Graeme Dick

Manager Strategic Infrastructure Projects

GWMWater

Grampians Wimmera Mallee Water needed more than a conventional renewable energy project. It required a whole-of-portfolio strategy to reduce emissions, strengthen resilience, and gain greater control over energy costs. Northmore Gordon helped shape an integrated clean energy approach combining generation, storage, load optimisation and wholesale market participation.

The Challenge

GWMWater provides water and wastewater services to 72,000 customers across north-western Victoria, operating 343 facilities. The organisation faced a complex decarbonisation challenge:

A distributed portfolio with diverse demand profiles

Critical service obligations requiring reliable operations

Exposure to volatile electricity pricing

The risk that conventional solutions would shift cost exposure rather than reduce it

Standard approaches, standalone solar or passive procurement, could not address this complexity.

GWMWater needed a strategy that could:

Align engineering, operations and market participation

Offset 100% of electricity consumption annually

Achieve net zero Scope 2 emissions

Deliver a commercially robust, board-ready model

Our Approach

Northmore Gordon supported the development of a portfolio-wide clean energy strategy based on treating energy as an integrated system.

At its centre is the Nhill Renewable Energy Facility (6.5 MW solar, 6.5 MWh battery), supported by:

~2.3 MW behind-the-meter solar PVSolar Photovoltaic

~1.2 MWh site-based battery storage

Load shifting and shedding capability

A key outcome was enabling wholesale market participation rather than a traditional retail structure, unlocking value through self-generation, storage arbitrage, reduced price exposure, and ancillary services.

Load shifting was integrated through GWMWater's SCADA system, allowing operations to align with renewable availability and lower-cost periods while maintaining water security. The result was a redesigned energy operating model.

Key Technical and Advisory Outcomes

Northmore Gordon supported the feasibility assessment for the business case of this solution, enabling GWMWater to:

Integrate renewable assets across the portfolio

Shift solar energy using battery storage

Optimise loads through shifting and shedding

Participate in wholesale electricity markets

Improve resilience and reduce long-term cost exposure

Build a scalable framework for future integration

The Results

The strategy delivers a step change in environmental and commercial performance:

Positions GWMWater to achieve 100% renewable electricity

Enables net zero Scope 2 emissions

~\$1.3 million in annual savings on ~\$17 million investment

~13-year payback with ~\$4 million NPV over 25 years

Enables price arbitrage and reduces exposure to volatility

Creates potential revenue from ancillary services

Beyond this, GWMWater shifts from a passive electricity buyer to an active market participant, with the ability to generate, store, shift and optimise energy across its network.

Why It Matters

This project shows what is possible when decarbonisation is treated as both an engineering and commercial strategy.

For GWMWater, the outcome is a stronger operating model linking technical design, market intelligence and control systems to measurable value. It demonstrates that regional utilities can reduce emissions while maintaining financial discipline.

For Northmore Gordon, it reinforces an approach that goes beyond feasibility reporting, delivering practical, board-ready strategies grounded in technical depth and commercial realism.

Do more with less energy cost and carbon exposure.

Northmore Gordon helps utilities and large energy users turn decarbonisation into a practical operating strategy.

Using the results for a new project

Start with the site's current operating profile, asset condition and business objective. Define the baseline, project boundary, variables that affect energy use and the evidence available before selecting a technology or incentive pathway. This makes the comparison auditable and keeps physical savings separate from grants, certificate revenue and other financial benefits.

For a comparable project, confirm current program rules and product requirements, document installation and commissioning, and plan post-project measurement early. Historical results can show what was possible in one setting, but they do not establish current eligibility, pricing, payback or emissions outcomes.

Related guidance

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Why did GWMWater need to move beyond conventional renewable energy approaches like standalone solar or simple power purchase agreements?

GWMWater operates a distributed portfolio of 343 facilities with diverse demand profiles and critical water-service obligations requiring reliable operations. Conventional solutions like standalone solar or passive procurement would shift cost exposure rather than eliminate it. The organisation faced volatile electricity pricing and needed a whole-of-portfolio strategy that could coordinate generation, storage, load optimisation and market participation simultaneously. This integrated approach allowed GWMWater to actively manage risk and opportunity across its network rather than accepting the price and volatility exposure of traditional utility customers.

How does the Nhill Renewable Energy Facility fit into GWMWater's broader energy strategy?

The Nhill Renewable Energy Facility, comprising 6.5 MW of solar generation and 6.5 MWh of battery storage, serves as the centrepiece of GWMWater's portfolio strategy. It is supported by approximately

2.3 MW of behind-the-meter solar PV and approximately 1.2 MWh of site-based storage distributed across the network. Together, these assets enable GWMWater to generate renewable electricity, store energy for use during peak demand or high-price periods, and shift loads to align with renewable availability. This layered approach—combining large-scale and distributed assets—creates flexibility to serve operational needs while participating in wholesale electricity markets.

What does SCADA-enabled load optimisation mean in the context of GWMWater's water operations?

SCADA (Supervisory Control and Data Acquisition) integration allows GWMWater's operations team to shift and shed electrical loads across the network in response to real-time conditions. The system enables water pumping, treatment and distribution operations to align with periods of high renewable generation or lower electricity prices, while maintaining water security and service quality. This operational flexibility is critical to the integrated strategy: it allows GWMWater to optimise when loads run, support renewable self-consumption, reduce reliance on peak-price periods, and potentially generate revenue through ancillary services. Load shifting converts GWMWater from a fixed consumer of electricity into an active participant capable of managing demand.

How do the financial metrics of GWMWater's strategy support the investment case for regional water utilities?

GWMWater's strategy delivers approximately \$1.3 million in annual savings on an approximately \$17 million investment, with an approximately 13-year payback and approximately \$4 million net present value over 25 years. These metrics demonstrate that integrated clean energy strategies—combining generation, storage, load optimisation and market participation—can achieve commercial viability for essential-service operators. The payback period reflects the long operating life of water infrastructure and the durability of energy-cost savings. For comparable utilities, this model shows that renewable investment need not rely solely on grants or subsidies; operational cost reduction and risk management can support a board-ready business case.

What role does wholesale electricity market participation play in GWMWater's risk management?

By becoming an active wholesale market participant, GWMWater can generate revenue from price arbitrage and ancillary services rather than simply buying and consuming electricity. The strategy enables the organisation to shift stored solar energy to higher-price periods, reducing exposure to peak-demand charges and volatile spot prices. Market participation also provides optionality: if electricity prices fall, GWMWater can adjust consumption patterns; if prices spike, stored energy and load flexibility create buffers. This transforms electricity from a fixed cost burden into a manageable resource, reducing financial risk for essential water services and creating incentives to operate sustainably.

How does this case study illustrate the connection between Northmore Gordon's six-stage delivery approach and a complex utility project?

GWMWater's project exemplifies the journey from Assess (understanding portfolio opportunities) through Build the Case (developing the integrated strategy and feasibility model), Capture Value (securing commercial terms), Deliver (implementing generation and storage assets), Procure (managing wholesale market participation), and Perform (ongoing optimisation and revenue management). Our role included feasibility assessment and business-case development that enabled GWMWater to integrate multiple technologies and decisions cohesively. The staged approach allowed the utility to move from recognising energy as a cost centre to designing it as a controlled, optimised system aligned with operational and financial objectives.

What environmental and emissions outcomes does GWMWater's strategy achieve, and why does this matter for water utilities?

The strategy enables GWMWater to source 100% renewable electricity annually and achieve net zero Scope 2 emissions (electricity-related emissions). For water utilities, this is operationally and strategically significant: water treatment and distribution are energy-intensive, and electricity is typically a utility's largest emissions source. By offsetting 100% of consumption through renewable generation and storage, GWMWater decouples essential service delivery from carbon emissions. This positions the utility to meet government climate commitments, respond to stakeholder expectations for sustainable operations, and build resilience against future carbon pricing or regulatory requirements. The integrated approach demonstrates that emissions reductions and financial performance are compatible objectives.

How does GWMWater's distributed portfolio of behind-the-meter assets complement the centralised Nhill facility?

The Nhill facility provides large-scale, predictable renewable generation and storage for the portfolio. Behind-the-meter assets—approximately 2.3 MW of solar and 1.2 MWh of storage at individual sites—serve complementary functions: they reduce consumption at high-cost times, provide local resilience, and lower reliance on network transmission. Together, the assets create a layered system where large-scale storage can support the whole portfolio while distributed assets optimise individual site operations. This structure balances economies of scale (centralised investment) with operational flexibility (local control). For water utilities with dispersed facilities, this approach reduces transmission constraints and allows each site to contribute to portfolio optimisation.

What does it mean for a regional water utility to transition from a 'passive electricity buyer' to an 'active market participant'?

As a passive buyer, GWMWater accepted whatever electricity prices the market offered and had limited control over cost or risk. As an active market participant, GWMWater now generates renewable electricity, controls when stored energy is used or sold, and can respond to real-time price signals through load management. This shift requires three capabilities: generation and storage assets (to have something to trade), operational integration (SCADA systems and load flexibility), and market knowledge (understanding how to participate profitably). The transition transforms a utility's relationship with energy from reactive cost management to strategic asset management, enabling revenue opportunities and competitive positioning that were previously unavailable to traditional utility customers.