

# Right Sizing for the Energy Transition – Why Metering & Monitoring Matters! - Northmore Gordon

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Efficiency Assessments Energy Procurement Navigate energy markets with confidence Virtual Environmental Manager Leverage our teams wide experience Certificates Close Certificates Open Certificates Certificates Our Environmental Attribute Certificate services help businesses accelerate technology adoption, improve project ROI, and manage claims of renewable energy, energy efficiency and carbon offset 1 carbon offset = 1 tonne of CO<sub>2</sub>-e avoided or removed from the atmosphere. Avoided emissions covers activities that alter behaviour that would have otherwise caused emissions such as energy efficiency improvements or avoided deforestation. Removal covers activities that permanently remove CO<sub>2</sub> from the atmosphere such as new forestry plantations, soil carbon improvement or carbon capture and storage. certificates Live Certificate Prices The value of certificates change day-to-day, check todays prices Solar VEECs (VEU PBA) VEU PBA for Large-scale Solar Measurement & Verification (VEU & ESS) M&V; for Large C&I; Efficiency Projects (VEU PBA & ESS PIAM&V;) BESS Calculator Estimate the Peak Reduction Certificate revenue available to your NSW battery project in minutes ERF & Carbon Credit Registration ACCUs for Emission Reduction Projects Boiler Upgrades (VEU & ESS) NSW & VIC Boiler Rebates REC Registration (I-RECs & LGCs) Register renewable assets for I-RECs and LGCs Trade RECs & Carbon with us Trade Local & International Environmental Attribute Certificates moREnewable100 (RECs & Offsets) Reach Global Sustainability Goals with Certificates and Offsets Deemed Certificates (VEU & ESS) NSW & VIC Rebates Global Certificates Environmental Attribute Certificates Australian Programs Australian EAC Programs Case Studies Sectors Articles Team More Close More Open More Northmore Gordon Learn more about Northmore Gordon with the latest news and insights, were to find us, and the extensive terminology used in emissions reductions About Us Who we are & what we do in energy efficiency & decarbonization. Locations Find our offices near you. Contact Us Get in touch with our team. Careers Join our team making a sustainability difference Articles Learn about energy efficiency & carbon reduction. Latest News Stay informed on industry developments. Government Updates Track policy changes impacting your energy use. Accreditations See our certifications for trusted service. Glossary Define key terms in emissions reduction. Right Sizing for the Energy Transition – Why Metering & Monitoring Matters! Northmore Gordon August 15, 2025 Articles Share this article By Phil Woodward, Engineering Manager, Northmore Gordon Do more with less. That's how we help clients get electrification projects over the line without gold-plating or risking plant uptime. Metering & Monitoring (M&M;) is the discipline that makes this possible. Before you size a heat pump, specify a boiler replacement, or map a site wide electrification roadmap, you need defensible data on electricity, gas, steam, water and compressed air. Without it, many teams fall back to a like-for-like thermal capacity swap that ignores the real loads, the real temperatures, and the true diversity of demand over time. Oversizing wastes capital and drags on payback; undersizing jeopardises throughput and growth. Metering & Monitoring gives you the truth so you can right size today, and plan with confidence for tomorrow. That's our "do more with less" philosophy in action. Why Metering & Monitoring first (especially before a heat pump) Heat pumps aren't boilers; they're happiest at lower temperatures and steady loads. One of the biggest efficiency levers is supply/return temperature. NSW's Heat Pump Feasibility Grant template is explicit: Don't recommend like for like boiler to heat pump swaps, and every 1°C you can lower heating hot water temperature improves heat pump efficiency by ~2–3% . That single insight can transform a business case. With a robust M&M; foundation you can: Capture real load profiles (not just monthly bills) so capacities and storage are sized to measured peaks and diversity, not worst case guesses; Confirm true supply/return temperatures and deltaT, unlocking lower setpoints (and therefore higher COPs) and broader technology options; Quantify recoverable waste heat (e.g., from compressors and refrigeration) so you can right size the heat pump and slash running costs; Stress test future scenarios – new shifts, product mixes, seasonal swings – to avoid locking in a spec that won't age well. NSW's Electricity Metering & Monitoring Guide and Gas Measurement & Monitoring Guide are aligned with this approach: measure what matters, automate the flow of data, and turn it into actionable insight. What we mean by Metering & Monitoring in an industrial plant Metering & Monitoring is a structured program that measures the utilities that drive your process and turns that data into decisions. In practice this means instrumenting and integrating WAGES (Water, Air, Gas, Electricity, Steam): • Electricity : site NMIs plus sub-metering for major consumers (refrigeration, compressed air, large drives) and MCCs/boards where it helps track end uses. • Gas & thermal fuels :

incoming gas flow at the main, plus downstream metering (boilers, hot water heaters), with stack and feedwater temperatures so you can calculate thermal efficiency. • Steam & hot water : flow, pressure and temperature at main headers and large users, plus condensate return percentage. • Water (town, process, recycled): supply meters and high use processes (cooling, CIP, washdown) – and temperature where it influences heat recovery. • Compressed air : per compressor flow and pressure, ring main flow, and afterhours baselines to quantify leaks and standby losses. That's exactly how we stage metering plans. In our recent Metering & Monitoring Plan work, we roll out in four tiers: (1) Site level boundary meters (2) Generation/services (boilers, refrigeration, compressed air) (3) System/department boundaries (4) End use equipment . Then we pipe everything into a historian and a fit for purpose energy platform with dashboards, alarms and Energy Performance Indicators (EnPIs). At Northmore Gordon, we will walk you through the plans and implementation approaches we have taken when deploying strong metering and monitoring (including Energy Performance Indicators EnPI) for our commercial & industrial clients. Why rightsizing beats like for like every time Rightsizing is about matching capacities and temperatures to what is needed, when it's needed. With good Metering & Monitoring you: • Avoid oversizing → lower capex; smaller electrical connection; less floor space; better part load efficiency. • Avoid undersizing → protect throughput and quality; verify with measured peaks and duty cycles rather than assumptions. • Optimise temperature → measured supply/return data enables safe setpoint reduction, improving heat pump COP and cutting energy use (remember the ~2–3% per °C rule of thumb noted above). • Validate business cases → interval data builds confidence in savings and supports funding and certificate claims. NSW funding Metering & Monitoring and Heat pump Feasibility NSW is actively co-funding M&M; because right sizing depends on quality data: • Metering & Monitoring Planning – funding of up to \$15,000 per plan (paid to the service provider) to assess gaps and produce a costed plan for complex sites. • Metering Plan Implementation – up to \$100,000 per site, co-funding 50% of priority meters and the monitoring system recommended in your plan. Whilst Round 1 has closed we expect further rounds. • Heat Pump Feasibility Grant – up to \$30,000 , covering up to 75% of consultant costs to produce a high confidence feasibility study; the grant framework explicitly requires a metering & barriers assessment up front. These programs exist for exactly the reason outlined in this article: better data leads to better sized, better performing projects. Build a strong Metering & Monitoring plan: a practical checklist From our work across food & beverage, manufacturing and resources, here's what “good” looks like: • Start with decisions, not devices. Define what you must know to size the project (loads, temperatures, duty cycles, tariff windows). Then pick meters. • Use the four stage rollout: boundary → generation/services → systems/areas → end use equipment. • Target Energy Performance Indicators (EnPIs). Tie energy to “work done” (e.g., GJ A gigajoule (GJ) is the equivalent to 1 billion joules. A joule is a measure of the energy required to send an electrical current of one ampere through a resistance of one ohm for one second. One GJ is equal to 277.8 kilowatt hours ( kWh), 1.055 million British thermal units (Btu) or 0.17 barrels of oil. /tonne, kWh/kg) so improvements are visible and persistent; automate weekly reporting and alarms. • Log at the right resolution. For major loads capture 5–15 minute data, and, where practical, at least 12 months to cover seasonality and production changes. The Heat Pump Milestone 1 template lists 12 month interval data for gas, key heat sources/sinks and 5 minute site electricity as best practice inputs. • Connect to a central historian & energy platform. Automate data collection, reports and alarms so the numbers get used – not filed. • Plan integration. SCADA/PLC tags, OPC/Modbus gateways, simple exports to finance/BI. • Design for data quality. Specify calibration, pulse scaling, CT ratios and comms; validate with spot checks during commissioning. What to meter first (E, G, S, W, Air) Prioritise the meters that unlock design confidence and quick wins: • Electricity: site NMIs, refrigeration plant(s) kW, air compressor kW/flow, major MCCs/boards that aggregate SEUs, significant chiller/pump power. • Gas/thermal: boiler and hot water heater fuel flow, feed water make up and stack temperature to calculate efficiency. • Steam/hot water: main header flow/pressure, large user flow, supply/return temperatures, condensate return %. • Water: site supply, major cooling/process users, recycled loops; include temperature where it affects heat recovery. • Compressed air: per compressor flow & pressure, ring main flow, and afterhours baseline to quantify leaks. Real world Case Study: Bulla Dairy Foods Bulla implemented a comprehensive but targeted Metering & Monitoring system at its Colac site to improve visibility of energy and water. The project connected 35 existing meters to a new platform and

installed 27 new meters across electricity, gas, steam, hot/chilled water, cogeneration and compressed air. The outcome was a robust data set to manage costs, streamline environmental reporting and track savings over time – the foundations required to right size future upgrades. Common pitfalls we see (so you can avoid them) • Relying on bills : monthly totals hide peaks and process diversity; they are not a design basis for electrification. • No temperature data : without accurate supply/return and deltaT, heat pump modelling is guesswork. (This is why Milestone 1 emphasises temperature testing and not recommending like for like swaps.) • Metering what's easy, not what matters : start with Significant Energy Users (SEUs) and end uses tied to the project boundary. • Skipping commissioning : unscaled pulses and swapped CTs lead to bad decisions; schedule validation and sign-off. • Treating Metering & Monitoring as 'one and done' : build weekly rhythms – exception reports, alarms, short stand-ups – so data drives action (see reporting and alarms sections in the plan). How Northmore Gordon helps We've authored government guides on metering and monitoring and delivered many site-specific plans and feasibility studies. (The NSW Gas Measurement & Monitoring Guide credits Northmore Gordon for content development.) Our expert services means you get senior engineers who design your metering scope, integrate with SCADA, and deliver analytics your team will actually use – quickly. It's how we help clients do more with less : less capex, less energy, less stress. Next steps • If you're NSW based , check your eligibility and secure planning and implementation funding before you buy equipment. • If you're planning a heat pump , run Milestone 1 properly – close the metering gaps, confirm temperatures and develop multiple concepts before you set a capacity. • If you want help , talk to us about a metering plan or an electrification feasibility. We'll right size the solution with you. Let's have that conversation. Call or email Craig Morgan or submit your interest here today. Sources (web) • NSW Climate and Energy Action – Metering plan implementation grants (up to \$100,000 / 50%): [energy.nsw.gov.au](http://energy.nsw.gov.au) • NSW Climate and Energy Action – Metering & monitoring planning (up to \$15,000): [energy.nsw.gov.au](http://energy.nsw.gov.au) • NSW Climate and Energy Action – Supporting your business to decarbonise (Heat Pump Feasibility Grant up to \$30,000 / up to 75%): [energy.nsw.gov.au](http://energy.nsw.gov.au) • NSW Electricity Metering & Monitoring Guide (2019): [energy.nsw.gov.au](http://energy.nsw.gov.au) • NSW Gas Measurement & Monitoring Guide (2016): [energy.nsw.gov.au](http://energy.nsw.gov.au) • Northmore Gordon – Creating a gas M&M; plan : Northmore Gordon • Northmore Gordon Case Study – Bulla Dairy Foods : Northmore Gordon Carbon Emissions , Certificates , Energy Efficiency , Metering & Monitoring , Renewable Energy You may also like: Welcome to our August & September 2026 Compliance Update. 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