

Bulla Dairy Food's boost efficiency and reduces waste.

Canonical: <https://northmoregordon.com/case-studies/data-case-study-report-bullametering-and-monitoring/>

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Case-study summary

This historical case study records the project, delivery approach and reported results behind Bulla Dairy Food's boost efficiency and reduces waste. . 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 May 13, 2025. 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

About Bulla

Regal Cream Products Pty Ltd trading as Bulla Dairy Foods is an Australian owned and operated company, manufacturing chilled and frozen dairy products including cream, yogurt, sour cream, cottage cheese and ice cream.

Operations take place at five sites in Victoria – Forest Street in Colac, Connor Street in Colac, Mulgrave, Dandenong and Derrimut. A significant quantity of energy is used in the form of electricity, gas, hot water, steam, chilled water, and compressed air. Energy using equipment includes steam boilers, air compressors, vacuum pumps, pumps, cogeneration, chillers, wastewater treatment and various dairy foods production lines.

Project overview

This project is a demonstration of the strong business case for comprehensive but strategic submetering and monitoring of energy and water. Bulla recognises that good metering and monitoring underpins effective energy management and is essential if energy and water waste is to be minimised.

Bulla's visibility of when, where and how energy and water is used throughout its sites has been limited to boundary billing meters and a small number of submeters. Furthermore, many of the sub-meters that do exist were not networked and/or meter data was not readily accessible/viewable by stakeholders. Consequently, Bulla has developed and implemented a pilot metering system at its Connor Street site in Colac, Victoria.

The project scope included:

Map existing sub-metering capability and design a metering upgrade plan.

Specify, source and install meters for all key utilities

(electricity, gas, steam, co-generation, hot water, chilled water, and compressed air).

Select and install a data collection and reporting software platform.

Streamline routine environmental reporting.

Provide a tool to ensure that energy and water consumption does not drift over time.

Provide a tool to track improvements towards water and energy targets.

In total, 35 existing meters were connected to the new energy management software platform and 27 new meters installed. The site is now able to monitor electricity, gas, water, and steam consumption, as well as electricity and steam generation, and waste production, by key plant areas.

This project was made possible with the assistance of funding from two grants; the Dairy Australia Data Technology Assessment Scheme (Co-funded by Dairy Australia) and Food Innovation Australia Limited) and the Department of Environment, Land, Water and Planning (DELWP)

The problem

Bulla has been unable to evaluate the energy performance of plant services and key processes against industry and internal benchmarks, and unable to observe or react to abnormal energy consumption events.

Existing processes for extracting and handling energy use and environmental data were manual and relied on spreadsheets and screenshots from the SCADA system.

Metering can be expensive, especially steam meters.

Gaps in capacity and in-house expertise.

There are many energy data software packages on the market, with variations in capability, features, ease of use, initial costs, and ongoing costs.

Bulla sought external expertise to support the following project steps: 1\ Establish a detailed picture of existing metering capability.

2\ Design a master metering plan.

3\ Evaluate a range of software platforms against Bulla's needs.

4\ Specify, procure, install, commission and validate meters.

5\ Configure software and interface existing and new meters.

6\ End-to-end validation of meter data.

7\ Fine tune dashboards and reports.

Outsourcing of expertise

A key success factor was the use of energy management specialists Northmore Gordon to design the metering plan, provide guidance on meter technology options and installation requirements, develop criteria for software platform assessment, evaluate software products, and assist with selection of the best option. A specialist vendor was also used to install and commission meters and the software platform.

Use of a dedicated data handling platform Another key project decision was to utilise an advanced centralised and dedicated software platform for collecting, collating, displaying, and reporting energy and water data. The tendering selection process weighed ease-of-use, capacity for in-house customisation, and reporting and alarming functions.

Bulla chose the Schneider 'Power Monitoring Expert' platform, implemented by 'Azzo'. The system can issue alerts for abnormal energy usage or energy performance of equipment and processes. It also has the capacity to hold and report other environmental data. The cloud based platform is very customisable and capable of dashboarding, sending alerts, aggregating data, shadow billing, baselining, identifying missing/corrupt data, reporting (daily, weekly, monthly), KPI tracking, and advanced data visualisation, such as Sankey diagrams and heatmaps.

Key outcomes and learnings

Metering in and of itself does not directly produce savings – it is the application of the tools, data and operational insights that this project has realised, that will lead to decisions and actions that create savings.

A metering system needs to be cost-effective, and over-metering avoided.

The cost of purchasing and installing meters varies greatly depending on type and size. Electricity and water meters are lower cost than gas and steam.

It is important to choose a meter data software platform that does not constrain growth.

The cost of expanding an online software platform to other sites is relatively low.

A modern energy data management system provides more than just numbers and trends. It also provides customisable reports, flags abnormal usage directly to relevant staff, provides insight into energy usage performance under different production conditions (e.g. short versus long production runs, and part load versus full load), aggregates data, performs shadow billing, identifies missing/corrupt data, and provides advanced data visualisation, such as Sankey diagrams and heatmaps.

Different stakeholder groups have different information needs. Full value is obtained only if the system can be customised to provide insights in a format that suits a range of stakeholder groups; ranging from plant operators to the Board of Directors.

This project is considered an important element of a robust and productive sustainability program for Bulla.

Pipework modifications were needed in some areas to optimise the measuring data accuracy by installing meters at a proper location.

Next steps

- 1\ Use the system to identify and realise saving opportunities, which in turn will help Bulla meet its energy and greenhouse targets under the Australian Dairy Industry Sustainability Framework.
- 2\ Expanding the software to other sites.
- 3\ Progressively invest in more meters to cover all of Bulla's sites, with a focus on energy intense processes and loads.

Founded in 1910, Bulla is one of Australia's oldest family-owned dairy companies, producing ice cream, cream, yoghurt, and cheese for local and export markets.

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.

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Why is metering and monitoring foundational to energy management at a dairy manufacturing facility like Bulla?

Metering and monitoring collects the energy consumption data necessary to support energy management decision-making. Without visibility into when, where and how energy is used—beyond boundary billing meters—a facility cannot identify which systems drive costs, detect waste, or verify that improvements achieve their intended outcomes. At Bulla, limited metering and manual data extraction prevented stakeholders from acting on consumption patterns. A comprehensive but strategic metering plan establishes the evidence infrastructure needed to investigate opportunities, prioritize investments, and track progress toward operational and sustainability targets.

What is the difference between installing meters and delivering energy savings through metering?

Metering provides the data foundation; it does not by itself reduce energy consumption. As Bulla's experience demonstrates, the application of the tools, data, and operational insights derived from metering leads to savings. A metering system must answer a specific operational or investment question—which system accounts for the load, why did performance change, did an upgrade improve performance. Once that question is clear, the data can inform decisions about process control, equipment replacement, or operational scheduling. We assist by designing metering plans aligned to real business decisions rather than over-metering.

How should a manufacturer choose which utilities and plant areas to meter?

Prioritize strategic, cost-effective metering that serves actual decisions. At Bulla, the Connor Street site focused on key utilities (electricity, gas, steam, co-generation, hot water, chilled water, compressed air) and major plant areas. Avoid over-metering and select measurement boundaries matched to the investigation scope. Electricity and water meters typically cost less than gas and steam meters, so budget constraints may guide phasing. The metering design should identify which systems account for material consumption, which drive peak demand, or which are approaching replacement—then focus measurement on those boundaries. We help match metering scope to business priorities and equipment criticality.

What data responsibilities must be established before installing a metering system?

Before installation, identify who owns the data, who can access it, how it will be exported, and how equipment changes will be recorded. Establish protocols for detecting and documenting missing

periods, resets, duplicates, and implausible values. Record whether readings are interval energy, cumulative register values, or power measurements—these cannot be combined without understanding their meaning. Specify time-zone and daylight-saving treatment. At Bulla, connecting 35 existing meters and installing 27 new meters required clear ownership and access protocols so that diverse stakeholder groups—plant operators, energy managers, finance, the Board—could retrieve and interpret the data appropriately for their decisions.

What features should a software platform provide to make metering data actionable for operations and management?

A software platform should answer the business question the metering was designed to support. Bulla selected a cloud-based platform supporting dashboarding, alerts, data aggregation, shadow billing, baselining, identification of missing or corrupt data, and reporting at multiple intervals (daily, weekly, monthly). Advanced visualizations such as Sankey diagrams and heatmaps help different stakeholder groups—plant operators, energy managers, senior management—interpret consumption patterns in their context. The platform should be customizable without constraining future expansion to additional sites, and relatively low-cost to scale. Ease of use and in-house customization capacity are practical selection criteria.

How does metering support compliance and target-setting in the dairy industry?

Accurate metering provides the measured data foundation for tracking progress toward industry and organizational targets. Bulla plans to use its metering system to identify and realize saving opportunities to help meet energy and greenhouse targets under the Australian Dairy Industry Sustainability Framework. Without metering, target claims rest on estimates or proxy calculations. With comprehensive monitoring of electricity, gas, water, steam, and co-generation, Bulla can demonstrate actual consumption reduction, verify that investments deliver intended outcomes, and report credible baselines and improvements. This supports both internal management accountability and external sustainability reporting.

What practical constraints should be considered when designing meter installation locations?

Pipework modifications are sometimes necessary to ensure accurate meter placement and measurement. At Bulla, the project experience showed that meter location affects data quality and representativeness—poor positioning can introduce errors or miss important load variations. When designing a metering plan, account for physical access, pipe diameter compatibility, temperature and pressure conditions, and the need to isolate meters for maintenance or replacement. These constraints may increase installation cost and require coordination with operations during commissioning. Our role includes advising on feasible, cost-effective meter placement that balances data quality with practical installation requirements.

How should a food and beverage manufacturer phase metering investment across multiple sites?

Begin with a pilot site—Bulla started at Connor Street—where metering scope can be designed, vendor and platform selection tested, and operational workflows established. Use that experience to refine the business case and expand progressively to other sites. Bulla's plan focuses initial additional investment on energy-intensive processes and loads, applying lessons from the pilot to prioritize measurement. Cost-effectiveness matters: electricity and water meters are typically less expensive than steam or gas meters, so sequencing can reflect budget constraints. A software platform selected for one site should support low-cost expansion if it meets growth needs, allowing the organization to scale measurement discipline across the estate without replacing core infrastructure.

What does 'metering and monitoring planning' as a service include, and when should it be commissioned?

Metering and monitoring planning, as we describe it, includes mapping existing metering capability, identifying data gaps and quality issues, designing an upgrade plan matched to business questions, specifying meter types and installation requirements, assessing software platform options against functional criteria, and planning the phased implementation. It should be commissioned before procurement and installation, when budget options and technical choices are still open. Early planning prevents over-specification, ensures cost-effectiveness, and establishes clear data responsibilities and handover procedures. It is particularly valuable in mature facilities like Bulla where some legacy metering exists and the goal is strategic expansion rather than starting from zero.