Sustainable action for a better tomorrow

Industry’s leading optimisation and project delivery partner

- Energy management
- Carbon strategy and decarbonisation roadmapping
- Water and wastewater reduction
- Process optimisation
- Project delivery from business case to completion
Real world results
We focus on identifying and implementing practical and realistic improvements, not suggesting what could be theoretically achieved.

Delivering Efficiency Through Analysis
DETA Consulting (DETA) is a young, dynamic and responsive organisation working with some of Australasia’s largest businesses to identify, develop and deliver optimisation services. We were born out of energy efficiency, however deliver services across the project spectrum from business cases, to detailed design, through to project delivery. Essentially, we provide professional services to optimise business processes, drive improved performance and deliver lasting business value.

We are at the forefront of technology in our industries - we have rolled out several ‘first in country’ projects in the refrigeration and energy generation space.
We are more than a consultant - we partner with customers to understand their business, and make a long-term impact to business performance.

Our customers are broad and far reaching and include large industrial processors in the dairy, meat, wood and food production areas, commercial buildings, local and central government, healthcare providers, and SME businesses.

- 2016 EECA Energy Management Award for our work with ANZCO Foods
- The Hellers HTHP project won the Innovation Category at the 2016 EECA Awards
- The Hanmer Springs Generation Project won the Innovation Category at the 2018 EECA Awards
DETA has one of the largest energy management teams in Australasia, with accredited auditors, process heat and refrigeration specialists, and certified measurement and verification professionals. DETA’s expertise in identifying, developing and delivering energy efficiency projects makes life easy for customers looking to reduce their ongoing energy costs and kick-start their short-term low carbon journey.

1st Step

Often the first step of an energy management programme is an energy audit. An energy audit identifies where energy costs can be reduced, provides an overview of how to make these savings, and creates a project list ranked in terms of return on investment.

2nd Step

Enacting energy savings takes planning and resource. That’s why DETA works to partner with customers for a period of time to identify, deliver and show savings – more than just a report!

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ANZCO Foods Energy Management
2012 to current

DETA and ANZCO have a relationship stretching back to 2012. In that time, we have worked together to reduce ANZCO’s energy costs across their group by 24% on a per weight basis. The programme has delivered consistent savings thanks to ongoing investment, and a coordinated effort from the energy management team. A range of projects have been implemented, from lighting and refrigeration upgrades, to process improvement and rendering upgrades. The next phase of work seeks to work more closely with staff to engage and push savings further. DETA won the 2016 EECA Energy Management award for our work with ANZCO.

McCains Foods
2016 to current

DETA has been working with McCains since 2016, delivering an energy management programme and a range of cost reduction projects. Our work has included:

- Energy audits of both New Zealand sites (Timaru and Hastings)
- Monthly meetings and energy steering group facilitation to maintain a strong focus on cost reduction
- Developing projects for implementation
- Applying DETA’s Lean Energy to several blast tunnels at the site, improving product quality while reducing operational costs
- Decarbonisation project at Ballarat

Whakatane Mill
2016 to current

Since conducting an energy audit at Whakatane Mill in 2016, DETA has become the utility optimisation partner at site. DETA has completed a variety of pump, compressed air and process based audits, providing the site with some quick wins which were then implemented by an EECA funded graduate supplied and supported by DETA. Total annual energy savings of 36 GWh/year have been achieved.

Capral Aluminium
2017

DETA undertook an energy audit for a complex aluminium extruder in Brisbane. DETA’s work identified some quick easy wins, such as anomalies on their utility invoicing, and developed a clear action plan for Capral to consider for implementation. The identified savings represent more than 5% of the site energy consumption.

More than 60 GWh per annum of energy savings across our customer base
Carbon Strategy and Decarbonisation Roadmapping

More businesses are recognising the reality of climate change. Taking action on carbon is becoming a key differentiator of your business from the competition. Addressing low hanging opportunities, i.e. energy management, will only get you so far – fundamental operational changes are often needed to make the transition to a low, or zero, carbon operation.

DETA are experts in developing carbon strategies and medium to long-term roadmaps, often over 10 to 30 years. These roadmaps identify the lowest costs of achieving and operating in a future carbon market, and provide a clear path for capital investment as equipment falls due for replacement, or forward economics make changes economically viable.

- Carbon footprint
- Carbon strategy
- Decarbonisation roadmap
- Fuel switching

Midlands Carbon Footprint
2018
Midlands is a group of agribusinesses who were looking to get ahead of the curve in analysing and reducing their carbon footprint. We worked with them to identify the key contributors to their carbon output across several of their sites as well as providing advice and guidance on New Zealand’s carbon credit system and how their businesses fitted in. The key outcomes were a long-term carbon monitoring system as well as an action plan of key steps in their decarbonisation roadmap.

Tatua Carbon Footprint
2019
DETA worked with Tatua staff to determine the Scope 1, 2 and 3 greenhouse gas emissions of their present operation. We then used this assessment as the springboard for identifying potential ways to reduce emissions, particularly through carbon management mechanisms and fuel switching opportunities. At the conclusion of the study we facilitated a carbon strategy workshop, with a good cross section of Tatua staff present, to talk through the findings and hammer out the implications of what it could mean for Tatua’s decarbonisation aspirations. The resulting report is a key resource that Tatua is now using to help develop and refine their roadmap going forward.

Nauru Energy Strategy
2019
DETA has been engaged by the New Zealand Ministry of Foreign Affairs (MFAT) to lead a team developing a low carbon roadmap for the for the island nation of Naura. Along with our partners, we are working to identify the most cost effective path towards decarbonisation, and will then work with MFAT to deliver, and verify the recommended outcomes. DETA is engaged across the Pacific in a variety of project roles, with a focus on low carbon roadmaps and strategies.

Whakatane Mill Renewable Thermal Energy Options
2019
DETA carried out a review of renewable thermal energy options available to Whakatane Mill, for when they require additional steam production capacity in future, and how they compare to the status quo of using natural gas. The review considered the practical and economic implications of numerous energy sources including hog fuel from forest residues, wood pellets, mixed wood fuel, geothermal and electricity, alongside natural gas. Insights gained from the review are now being used by Whakatane Mill as they develop their strategy for steam production into the future.

Alliance Group Carbon Footprint
2018
DETA developed Alliance Group’s first carbon footprint assessment, which identified that the majority of their carbon is associated with coal consumption within their boilers. Following an announcement from Alliance in September 2019 that they are seeking to remove coal from their sites by 2030, DETA are currently working with Alliance to develop their roadmap towards this goal. This includes feasibility and business case development of fuel switching projects towards both biomass and electricity, and further energy efficiency improvements.
Water and Wastewater Reduction

Water is a critical resource for many of our customers, and using water in the most efficient manner can de-risk business from an operational and consenting perspective. DETA’s expertise in water efficiency spreads broader than just water reduction, with experience in yield recovery from waste water, hazardous waste stream optimisation and water mitigation strategies.

Fonterra Takanini Water Audit

2019
DETA carried out a water audit of Fonterra’s Takanini manufacturing site to review site water consumption and identify opportunities to improve efficiency. Included among the opportunities identified were a variety of quick wins that combined should reduce site water consumption and wastewater discharge by more than 10% and with a payback of less than 6 months. On the back of this success Fonterra requested proposals from DETA to carry out similar water audits at other Fonterra manufacturing sites.

Fonterra Hautapu Water Reduction

2017 to 2018
Fonterra is targeting substantial water reductions across their manufacturing sites. At the Hautapu site DETA investigated a range of projects to improve water use and reuse efficiency in the existing potable water, demineralised water, RO permeate reuse water and recovered water systems. Upgrading these systems will provide significant process and operational benefits for the site. DETA has identified opportunities to reduce water consumption by more than 1,400 m³/d, developed concept designs and produced cost estimates for capital approval.

Fonterra Reporoa Water Use and Wastewater Treatment Strategy

2018
DETA assisted Fonterra to identify a shortlist of water minimisation and reuse opportunities at the Reporoa site, based on their potential to reduce wastewater volumes. The shortlisted projects were expected to reduce the water demand at peak by roughly 1,000 m³/d and included opportunities to recover, treat and reuse washwater, CIP and tanker rinse water, as well as projects to eliminate once-through water cooling systems. DETA then carried out a high level feasibility review of each shortlisted project to assess its likely costs, benefits and other implications.

CHCEC Waste

2016
DETA helped the Christchurch Engine Centre achieve their waste reduction goals by identifying methods for removing several challenging waste streams from their processing facility. DETA undertook some feasibility work, and identified that 95% of hazardous waste by volume could be removed from the waste stream by applying technology from other industries. DETA delivered a full feasibility and business case for CHCEC to implement.

Taranaki Bio Extracts Protein Recovery from Stickwater

2017
DETA provided a peer review of the proposed Protein Recovery from Stickwater project, utilising a new form of filtration technology using Vibratory Shear Enhanced Processing. Our review found that the new vibratory shear technology had a much better payback than other alternatives, and although energy and water savings were substantial, most of the improved benefits could be found through yield improvement. DETA is now assisting Taranaki Bio Extracts on other technology improvement projects.
Optimising the production or manufacturing process can make a world of difference at an industrial site. But it can often be a challenge to identify exactly which parts of the process need to be tweaked in order to get the plant really humming along. This is where DETA can help.

- Process optimisation
- Materials handling systems optimisation

### Danone Balclutha Chiller Optimisation

**2017**

The milk processing plant at Danone Balclutha was not able to cool the milk to the desired set point, which impacted on the rest of the process. DETA investigated the process, identified that the chiller plant settings could be optimised, and recommended practical actions for the plant to take so that production targets could be met all year round, including:

- Improved trending within SCADA to identify trips quickly
- Calibrating evaporator exit temperature probes
- Altering pressure set points

### Waitaki Bioscience Dehydrator Optimisation

**2016**

DETA provided technical engineering support for Waitaki Bioscience to determine why their new dehydrator was not meeting key performance criteria. A thorough process and system analysis by DETA found that the dehydrator tray material was the root cause of the problem. Replacement of the trays rectified these operational issues.

### Kraft Heinz Blast Tunnel Optimisation

**2017**

DETA worked with Kraft Heinz to implement and optimise the operation of new variable speed drives on blast tunnel evaporator fans. This commissioning and optimisation work improved process consistency, resulting in:

- Reduced product loss
- Improved product temperatures (from 30% to 1.5% out of specification)
- Reduced energy consumption (51% reduction for blast tunnel)

### Foodstuffs Plant Layout and Process Review

**2019**

Foodstuffs are relocating two existing manufacturing facilities onto a new greenfield site. DETA completed a plant review to capture improvement opportunities to incorporate into the new facility. DETA developed an in-depth understanding of the 7 production lines and developed a process map of the current operations. We then carried out a high-level methodical review with key personnel. The outcome was a set of recommendations for the new facility that will bring about layout, process and productivity improvements.

### Longburn CIP Optimisation

**2017**

DETA delivered a CIP improvement project to target water, energy and chemical reductions across the site. DETA worked with the site and their suppliers to understand current operations, make changes to CIP practices and develop a business case to install new control equipment to allow more formal CIP process changes to occur. The project will reduce total CIP costs by more than 60% once implemented.
Whether you are looking for a full Project Delivery service with an industrial bent, or assistance with a part of your project – such as contract or Health and Safety management, DETA has the solution. We have the expertise to provide as much support as you require.

### Project Delivery

#### Front-End

- Concept and feasibility studies
- Capital cost estimation
- Design
- Technical specifications for procurement
- Technical and commercial bid evaluations
- Contract preparation, contractor prequalification & selection
- Business cases

#### Hellers HTHP

**2015 to 2016**

Following an energy audit, Hellers requested that DETA investigate a high temperature heat pump to reduce thermal fuel usage at their Ashburton site. After a successful study, DETA developed the business case in conjunction with Active Refrigeration, Heller's refrigeration partner. The project was delivered successfully in 2015, and represents the second ammonia high temperature heat pump in New Zealand.

- The estimated savings have since been exceeded by 38% - a fantastic result that won the Innovation category at the 2016 EECA awards.

#### Kraft Heinz

**2016**

Following a successful round of energy audits, DETA was appointed to formally develop business cases to seek capital funding. Utilising the internal Kraft Heinz systems, DETA prepared business cases for more than 15 projects, all of which were successfully funded. DETA then undertook full project management of these improvement projects, including:

- Concept and feasibility studies
- Capital cost estimation
- Design
- Technical specifications for procurement
- Technical and commercial bid evaluations
- Contract preparation, contractor prequalification & selection
- Business cases

#### Synlait Separator Capacity Upgrade

**2019**

DETA detailed the technical specifications for the tendering of the process, separator supply and building contracts for the 70 m³/hr separator capacity upgrade project. We then lead the technical and commercial bid evaluation, managed the contract award and variation processes, reviewed and modelled the site utilities, and implemented the vertical start-up procedure and site-based H&S representation. We are now leading the commissioning and standards compliance.

#### ANZCO Foods Canterbury

**2014**

DETA developed the mechanical design and project managed a $3.5M hot water upgrade at the ANZCO Canterbury facility. Key aspects of the work undertaken included:

- Concept and detailed mechanical design including hot water tank sizing, steam and hot water pipework design, heat exchanger sizing and ventilation and preparation of detailed design specifications and drawings
- Risk analysis and health and safety management
- Successful liaison and coordination with civil and electrical consultants and contractors
- Mechanical equipment selection and specification
- Contractor liaison and selection

#### Verkerks HTHP

**2013 to 2015**

DETA worked with Verkerks and their Ashburton Meat Processors site on energy reporting and efficiency. During an audit, DETA identified an opportunity for a high temperature heat pump at site – the first in New Zealand – to reduce energy costs but also resolve capacity issues site was experiencing. DETA developed the project business case in conjunction with Verkerks, and verified the performance of the project upon completion. The unit was installed in 2013 and reduced the site’s annual energy spend by almost $240,000 at payback of less than 2.5 years.

#### St John of God Hauroa Trust

**2014 to 2016**

DETA designed and delivered a domestic hot water ring main and heat pump project in an operating hospital environment under budget, to schedule and with no LTI’s or recordable incidents. Not only that, the project reduced the energy consumption to make hot water by more than 70%, and reduced site maintenance on an aging hot water system. Key to the project’s success was the contractor getting involved early, which assisted identifying piping technologies that required no brazing, important for an operating hospital. DETA’s close contract management and continuous value engineering throughout the project contributed significantly to its success.
Execution Phase

Goodman Fielder UHT Expansion
2015 to 2016
At Goodman Fielder, we provided a contract management service to a $25M process expansion at their Christchurch site. We came onto the project after the project was underway and there was some contractual ambiguity due to variations, resulting in disagreement. Our role was entirely non-technical – we assisted our client and their contractors to reach an amicable solution, and then managed the contract for the remainder of the project. This independent role gave the client confidence that they were getting a complete project, at a fair cost.

Hanmer Springs Capstone Generation Project
2016 to 2018
DETA identified, developed and delivered the first Capstone generation project in New Zealand, and the first in the world using geothermal methane as a fuel source. DETA initially developed a business case to utilise flared methane at Hanmer, and identified that a Capstone Turbine would offer the best generation potential given a variable fuel supply. DETA then project managed the entire project, from preparation of contracts for equipment and contractors, through to site management and commissioning. The result has far exceeded the initial estimates and is testament to the partnership approach that DETA takes to its projects.

ANZCO Foods Automation Upgrade
2017 to current
As ANZCO’s project delivery partner, DETA is delivering an automated cutting project at Rangitikei, their largest lamb production site. Utilising Scott technology, DETA’s project management role includes facilitating contractor and customer interaction, managing a coordinated design and schedule, management of a technically challenging project within an operational processing facility. DETA’s technical and project management skills, combined with a positive relationship with all parties, is resulting in a great outcome for the customer.

Ravensdown Tank Replacement
2017 to current
DETA provided a turnkey service to deliver two waste water dosing systems including the replacement of a HSNO certified Caustic tank. Both installs required integration with existing plant operations and were delivered with minimal plant disruption. The designs both successfully neutralised site acidic waste water, reducing the impact of the Chemical plant on the surrounding environment. Due to the project’s success DETA are currently delivering a Sulphuric Acid tank to HSNO and API standards, with another two tank projects likely to go ahead in the future as part of our ongoing partnership with Ravensdown.

Oceania Dairy Heat Recovery Project
2018
Through an energy audit, DETA identified that a refrigeration heat recovery project could significantly reduce energy costs at Oceania Dairy’s Glenavy site. DETA prepared a successful business case, and was then appointed to provide a turnkey project delivery solution to simplify procurement for Oceania Dairy. DETA worked closely with both customer and contractors to achieve a great outcome at site, with savings exceeding business case estimates.

Tetra Pak Commissioning Support
2017
DETA provided two fulltime resources to support Tetra Pak’s offering to Synlait for their new wetmix kitchen. DETA staff integrated into the project delivery team, and were responsible for commissioning all services, including CIP, HVAC, and product pumping. DETA remained on site until the project received first product, which was a major milestone for the contract, and our technical problem solving expertise was well received throughout the entire project.

Alliance Group Project Management
2016 to current
DETA has taken responsibility for the delivery of many technical productivity improvement projects across the Alliance Group. Initially focussing on energy improvement projects, such as water recycling and hot water management projects, DETA are now delivering major capital projects including deaerator and gearbox replacements for major equipment.

Execution Phase

- Onsite contractor management
- Project scheduling
- Cost tracking
- Change management and contract administration
- Turnkey if requested by the client
- Commissioning planning and supervision
- Troubleshooting
Brownfield Site Services

- Shutdown planning
- Reliability engineering
- Building compliance
- As-building
- Process control, automation and networking upgrade design

**Talleys Ashburton 2017**
DETA provided full as-building services for Talleys Ashburton site as part of scoping their expansion project at site. To minimise the amount of additional building required, DETA as-built the existing lines to identify if they could be moved to optimise the layout, and then provided planning assistance to site. DETA uses Revit, a 3D BIM package, to represent the process equipment and make quick changes to the design as required.

**Synlait Milk Reliability Engineering 2019**
DETA has worked with several sites to deliver reliability engineering services, developing the connection between project and operation, and improving the longevity, operability and maintainability of plant. At Synlait, DETA worked to coordinate the new lactoferrin plant into Synlait’s existing reliability engineering systems. This required significant site time, and tight coordination with the Synlait team, as well as contractors.

**Westland Milk Products Building Compliance 2019 to current**
Our experienced consultants can take the complications out of understanding and meeting your legal building compliance obligations – whatever your issues we can develop a bespoke offering balancing compliance requirements and the capital cost of implementation. Compliance can be a challenge – DETA can use our technical knowledge, industry insights and ability to draw upon strong council relationships to help make compliance a simple and easy process. At Westland Milk Products, DETA is supporting Westland’s internal facilities management team to coordinate with local councils and manage their expectations, develop and deliver on forward project plans, all with the intent of achieving compliant buildings across Westland’s sites.

**Westland Milk Products Shutdown Management 2018**
There are few activities on the maintenance calendar that pose a bigger risk to your production than shutdowns. They consume resources, create downtime, and are often plagued by over-runs and restart issues due to poor planning or scheduling. Shutdown Management is key to executing a successful and efficient shutdown programme of work through an integrated process between maintenance works and project works. DETA delivered a shutdown management service to Westland Milk Products during the 2018 winter shutdown and delivered significantly improved outcomes from previously unplanned shutdowns.

10 m³ hourly hot water savings resulting in 2.5 GWh per annum energy savings

**Alliance Group - Pukeuri Hot Water Systems Upgrade**
100% managed by DETA of a $9M+ CAPITAL PROJECT on schedule in a complex operating site

ANZCO Foods Automation Upgrade

1400 m³/day of water savings equivalent to

1600 Households worth

Fonterra Water Reduction