

A WORLD OF ENERGY SAVINGS

Cases and inspiration from companies around the world that have saved energy and costs by optimising their processes.

be
think
innovate

GRUNDFOS 

Welcome to a world of energy savings

You will find inspiration and information from a wide range of process industries, water utilities and commercial buildings, which have saved energy and costs by optimising their processes.



Energy Check Advanced

A Grundfos Energy Check Advanced provides you with an overview of the life cycle costs of your pumps. It gives you an indication of possible energy savings, and helps you make decisions on future pump replacements.

- **System evaluation** – Evaluation of the life cycle costs of your pumps and installation
- **Overview** – Detailed information about your energy-saving potential.
- **Sustainability** – Actionable sustainability areas to improve the environmental profile of your facility.
- **Installation suggestions** – Prioritised installation list that details the pumps and systems which could benefit from an upgrade.

Grundfos has performed an Energy Check Advanced on the customers' pump installations and made proposals for replacement of pumps and solutions. All with the purpose of achieving energy savings and improving the environmental footprint.

Enjoy!

The Energy Check Advanced is developed by Grundfos to identify excessive energy consumption in any kind of pumping system.

- **Initial contact** – Prequalification of the site through a discussion of relevant site information or an Energy Check.
- **Diagnosis** – Inspection of the premises and draw up of a list of performance data and installed pumps, pinpointing focus areas.
- **Proposal** – The Energy Audit is carried out by logging data, resulting in a load profile for the audited pump(s).
- **Fulfilment** – Printed report with full details of the audit results and recommendations.
- **Assessment** – Selection of the right pump solutions for the system based on optimum performance, energy efficiency and cost savings.
- **Follow-up** – Review of the Energy Audit to ensure optimal service delivery and satisfactory pump performance.

Images are for illustration purposes only, and not from actual customer installations.

WHY IS ENERGY OPTIMISATION SO IMPORTANT?

A Grundfos Energy Check Advanced can help you find hidden savings in your organisation.

It can identify potential energy savings in your pump installation and help you understand how to save on your pump operating expenses.

85%

ENERGY CONSUMPTION



5%

PURCHASE PRICE



10%

SERVICE & MAINTENANCE



95% of the life cycle cost of a pump is related to energy consumption, service and maintenance.

The price of a new pump typically makes up just 5% of the total lifetime cost of operating it. Maintenance accounts for the next 10%, while the remaining 85% are expenses related to running the pump. Life cycle costs are comprised of many contributing factors, however the energy consumption and maintenance are the most important factors to take into consideration.

Upgrading pumps can have other operational, environmental and business benefits as well.

Deciding to invest in greener and more energy efficient pump solutions will boost your environmental profile and bring down carbon emissions. It will also help your organisation to comply with the latest energy saving regulations.



OPERATIONAL BENEFITS

- Energy savings
- Reliable operation
- Low failure rates
- Reduced down time
- Reduced repair costs
- Complete overview of pump installations



ENVIRONMENTAL BENEFITS

- Reduction in CO₂ emissions
- Greener corporate image
- Pump life-cycle analysis and documentation
- Compliance with energy regulations



Energy
Check Advanced

SMALL IMPROVEMENTS. BIG SAVINGS.

By improving or replacing just ten pumps, a leading food manufacturer saved over AUD 47,549.45 per year.

CASE | FOOD MANUFACTURING

Grundfos performed an Energy Check Advanced on the pump installations of one of the world's leading food manufacturers and established that even with minor improvements there would be considerable savings.

After inspection of ten pumps, it was found that by invest-ing in more energy-efficient pumps and performing other small improvements there was a

potential for savings of AUD 48,281.44 annually. The savings were owed to a reduction in energy usage by 448,207 kWh per year.

The initial outlay for the equipment and improvements was AUD 217,842.10 When the savings were factored in, the payback time for the optimisation was 3.59 years – with the potential for considerable savings well into the future.

Existing pump	Quantity	Flow (m ³ /h)	Head (m)	Operation hours/yr	Potential savings (kWh/yr)	Grundfos replacement
Pumps 1&2	2	270.00	40.00	4380	58,692	NB 100-200/192 + CUE 45kW
Pumps 3&4	2	104.00	16.00	4380	46,515	NBE 80-250/247
Pumps 5&6	2	93.00	11.70	4380	32,412	TPE 100-170/4
Pumps 7&8	2	1,170.00	19.60	4380	276,816	NB 250-350/370 + CUE 90kW
Pumps 9&10	2	154.00	30.00	4380	33,771	NBE 80-200/171

48,789

YEARLY SAVINGS (AUD)

3.59

PAYBACK TIME (YRS)

448,207

ENERGY SAVINGS (kWh/YR)

214

EMISSION REDUCTION (CO₂ T/YR)

220,896

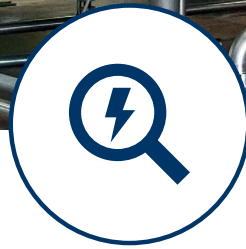
INVESTMENT COST (AUD)

10

NUMBER OF PUMPS ASSESSED

10

NUMBER OF PUMPS WITH POTENTIAL SAVINGS



Energy
Check Advanced

A DEPENDABLE, HIGH-EFFICIENCY SOLUTION.

A new control panel and four new pumps have given this dairy factory peace of mind.

CASE | DAIRY PRODUCTION

A dairy factory uses a clean water booster to feed water around the factory. The performance and dependability of this system is critical to the entire production.

Grundfos performed an Energy Check Advanced on one such system. The four-pump solution's control panel was obsolete and one of the pumps had already failed. The customer wanted reliability and peace of mind, and to -

have the pumps working close to their BEP with lower OPEX costs.

The new system comprised four pumps, installed with cascade operation based on flow demand – duty, assist, assist, assist. The previous system's energy consumption was an estimated 133,240 kWh and the new system's energy consumption is estimated at 80,517 kWh.

Existing pump	Quantity	Potential savings (kWh/yr)	Grundfos replacement
GRUNDFOS CRE 45-2-2, 5.5kW	4	52,723	GRUNDFOS CRE 45 11, 5.5kW + CU352 Panel

11,798

YEARLY SAVINGS (AUD)

2.96

PAYBACK TIME (YRS)

52,723

ENERGY SAVINGS (kWh/YR)

12.92

EMISSION REDUCTION (CO₂ T/YR)

34,879

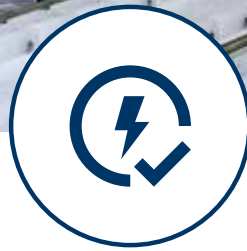
INVESTMENT COST (AUD)

4

NUMBER OF PUMPS ASSESSED

4

NUMBER OF PUMPS WITH POTENTIAL SAVINGS



Energy
Check Advanced

**INCREASED ENERGY SAVINGS.
REDUCED CO2 EMISSIONS.**

A small upgrade saved a cheese producer energy costs and reduced their emissions – with a payback time of just 0.76 years.

CASE | FOOD MANUFACTURING

A cheese producer asked Grundfos to perform an Energy Check on their system to see what size of savings, if any, could be realised by optimising or upgrading.

After performing the check, it was clear that investing in more energy-efficient pumps and other small improvements would reduce energy usage by 306,249.60 kWh

per year. Based on the producer's energy costs, this translated to a payback time of just 0.76 years.

Initial outlay for the equipment was \$ 126,636.06 (\$ 25,183.05 in pump equipment costs and 883 in installation/commission-ing costs). And upgrading would also reduce the factory's CO2 emissions by 14.09 tonnes of CO2 per year.

Existing pump	Quantity	Flow (m ³ /h)	Head (m)	Operation hours/yr	Potential savings (kWh/yr)	Grundfos replacement
Pump 1	1	187.00	46.00	8760	179,580	NK 80-200/211 A2-F-A-E-BQQE + CUE 45 kW+ RPI+T 0-10
Pump 2	1	180.00	22.00	8760	61,582	CUE 3X380-500V IP20 15KW 32A/2+RPI +T 0-6
Pump 3	1	190.00	20.00	8760	65,086	CUE 3X380-500V IP20 15KW 32A/2+RPI +T 0-6

35,761

YEARLY SAVINGS (AUD)

0.76

PAYBACK TIME (YRS)

306,250

ENERGY SAVINGS (kWh/YR)

14.09

EMISSION REDUCTION (CO₂ T/YR)

27,003

INVESTMENT COST (AUD)

3

NUMBER OF PUMPS ASSESSED

3

NUMBER OF PUMPS WITH POTENTIAL SAVINGS



Energy
Check Advanced

REDUCED ENERGY CONSUMPTION AND CO2 EMISSIONS

Improving performance and sustainability at a leading chocolate producer.

CASE | FOOD MANUFACTURING

An Energy Check Advanced showed that a leading chocolate producer could save over \$ 26,326.56 per year by replacing 12 of their factory's 14 pumps. In addition to the substantial cost sav-ings, there was also the potential to reduce 57.97 tonnes of CO2 emissions at the factory.

Energy savings from upgrading the pumps was 140,375 kWh per year. The initial investment for the solution was \$ 98,928.63 and had a payback time of just 3.05 years. The 10-year savings forecast for the pumps is \$ 334,702.78.

Existing pump	Quantity	Operation hours/yr	Potential savings (kWh/yr)	Grundfos replacement
Pump 1	1	4380	32,850	TPE 100-390/2-S AF-A-BQQE
Pump 2	1	4380	32,850	TPE 100-390/2-S AF-A-BQQE
Pump 3	1	8760	2,448	MAGNA3 40-120 F
Pump 4	1	4380	12,045	TPE 50-430/2-S AF-A-BQQE
Pump 5	1	4380	12,045	TPE 50-430/2-S AF-A-BQQE
Pump 6	1	4380	5,825	TPE3 50-240-S A-FA-BQQE
Pump 7	1	4380	5,825	TPE3 50-240-S A-FA-BQQE
Pump 8	1	4380	12,045	TPE 50-430/2-S AF-A-BQQE
Pump 9	1	4380	12,045	TPE 50-430/2-S AF-A-BQQE
Pump 10	1	4380	5,825	TPE3 50-240-S A-FA-BQQE
Pump 11	1	4380	5,825	TPE3 50-240-S A-FA-BQQE
Pump 12	1	8760	744	MAGNA3 25-40 N

28,099
YEARLY SAVINGS (AUD)

3.05
PAYBACK TIME (YRS)

140,375
ENERGY SAVINGS (kWh/YR)

57.97
EMISSION REDUCTION (CO₂ T/YR)

100,278
INVESTMENT COST (AUD)

14
NUMBER OF PUMPS
ASSESSED

12
NUMBER OF PUMPS
WITH POTENTIAL SAVINGS



Energy
Check Advanced

FAST PAYBACK AND INCREASED PERFORMANCE

Upgrading a boiler feed pump saves 90,600 kWh and 37.41 tonnes of CO2 per year.

CASE | FIBRE MANUFACTURING

After an Energy Check Avanced was performed at a fibre manufacturer having issues with a boiler feed pump, it was esti-mated that upgrading the pump could deliver savings of over \$ 16,449.21 per year.

The initial investment for the pump and installation was \$ 13,159.68, and would save \$ 17,884.01 per year – resulting in a payback time of just 0.69 years. The new pump would also deliver energy savings of 90,600 kWh/year and reduce emissions by 37.41 tonnes per year.

Existing pump	Quantity	Operation hours/yr	Potential savings (kWh/yr)	Grundfos replacement
Boiler feed pump	1	6000	90,600	CRIE 10-17 A-FGJA-E-HQQE

18,133

YEARLY SAVINGS (AUD)

0.69

PAYBACK TIME (YRS)

90,600

ENERGY SAVINGS (kWh/YR)

37.42

EMISSION REDUCTION (CO₂ T/YR)

13,336

INVESTMENT COST (AUD)

1

NUMBER OF PUMPS ASSESSED

1

NUMBER OF PUMPS WITH POTENTIAL SAVINGS

ENERGY SAVINGS COMING YOUR WAY?

Contact us, if you want to speak with one of our energy experts about how energy savings can be realised in your building or process plant.

<https://grundfos.to/au-book-an-eca>

<https://grundfos.to/nz-book-an-eca>