

THE MEET THE ENERGY CHALLENGE REPORT

# NOW

> Issue 2013

## FAST TRACK YOUR GREEN STRATEGY GOALS



### SUSTAINABILITY IN BUSINESS

Meet Act NOW ambassador  
Helle Bank Jørgensen and Grundfos'  
Director of Sustainability  
Pernille Blach Hansen

### ACTION AROUND THE GLOBE

Four companies from diverse  
countries demonstrate the benefits  
of sustainable practices

### INTERVIEW

Senior Director, Claus Stig Pedersen  
describes how energy efficiency  
means profitability at Novozymes

be  
think  
innovate

GRUNDFOS 



# ENERGY + EFFICIENCY

## WIN WIN WIN

*Legislation around the world sets the stage to reduce CO<sub>2</sub> emissions, save money and create jobs*

In all corners of the world nations are implementing sustainability-focused legislation to reduce greenhouse emissions by promoting energy efficiency. In a nutshell, these measures force companies – and people – to act responsibly and become more energy efficient. Some have regarded the moves as a hindrance to business but in fact the sum of these initiatives offers all of us opportunities to save money, reduce CO<sub>2</sub> emissions and create jobs. On this page we highlight some of the legislative efforts and gains made by governments around the world.

### **EU Energy Efficiency Directive**

In October this year, the European Parliament voted in favour of the Energy Efficiency Directive. The directive comprises legally binding measures for member states to use energy more efficiently and calls for them to establish energy efficiency schemes and policy. With a goal to reduce energy consumption by 20% in 2020 and in doing so save €5 billion, it is designed to lower dependence on energy imports, while creating jobs through the renovation of public buildings, utility savings plans and energy audits.

### **Australia's carbon tax**

Earlier this year, the Australian government introduced a carbon tax to encourage greater energy efficiency and reduce greenhouse gasses. The law primarily affects 300 of the worst industrial polluters by imposing an AU\$23 (€18) levy for every tonne of CO<sub>2</sub> emissions produced. As well as fostering increased innovation into renewable energy supplies and reducing the nation's reliance on fossil fuels, it is hoped the tax will help reduce emissions by 160 million tonnes over the next decade.

### **Rising Asian interest**

In a region that strives to achieve efficiency gains of 12-30 % by 2020, interest in energy efficiency is increasing rapidly. There is growing demand from consumers in industry and business to act, and the initiative is being embraced by both in return.

Indonesia and Malaysia have instigated legislation that equires listed companies to detail their sustainability initiatives and provide information on their corporate social responsibility. Interestingly, other larger companies in the region are choosing to volunteer sustainability reporting and invest in energy efficiency, attracted by the cost savings and enhanced public profile. Singapore and Thailand have commenced accreditation schemes for energy service companies (ESCOs) and the Malaysian government is currently in negotiations with its local associations.





# TO FAST TRACK THE BENEFITS OF A GREEN STRATEGY, **MEET THE ENERGY CHALLENGE NOW**

*Embracing green innovation and promoting change NOW is not only good for the environment; it's good for business.*

Combatting climate change isn't easy, nor is running a business in today's economic climate. Climate change compels us to reassess the way we live and the way we do business. It forces us to think and act responsibly. It increases focus on potential savings and efficiency, which is not necessarily a burden, but is actually good for business.

Rather than waiting solely for innovation, we should all incorporate available, efficient technology into our operations. Doing so will lower our environmental impact and allow businesses to save money immediately. You will see later in this edition just some of the companies who have taken advantage of energy efficiency optimisation with results that show it is well worth the investment.

**“Rather than waiting solely for innovation, we should all incorporate available, efficient technology into our operations.”**

One of the key conclusions of last year's Rio+20 summit in Brazil highlighted how the business community is firing off solutions to global challenges. So while politicians may set the framework for initiatives, it is up to those of us in business to encourage and initiate change.

Given the sheer numbers of pumps in operation from industry to hospitals, breweries to hotels, the difference highly efficient pumps can make to business and the environment is great. We should not be waiting for “something to happen”, we must make it happen, and each of us, regardless of our industry can effect change and secure a healthier bottom line in the process.

**Carsten Bjerg**  
CEO, Grundfos



## **ENERGY EFFICIENCY BRINGS REWARDS**

Energy efficiency equals good business according to Claus Stig Pedersen, Head of Sustainability Development at Novozymes.



## **SUSTAINABILITY IS NOT AN OPTION. IT'S CRUCIAL TO GOOD BUSINESS**

Pernille Blach Hansen and Helle Bank Jørgensen highlight the growing role of sustainability in the business world.

**06 Pumps** – The fast track to your green strategy goals

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### QR codes for further information

On some of the pages you will find QR codes that provide you with more information, related movies, and further inspiration explaining how optimising pumps can help your company save energy and money.

If you do not have a QR code scanner on your mobile phone, you can type reader2.mobi into your browser and download the QR code scanner.





# PUMPS

## – THE FAST TRACK TO YOUR GREEN STRATEGY GOALS

*Only a few years ago very few companies implemented a sustainable practices agenda. Given increasingly strict environmental legislation, they are today seen as virtually essential to a business profile. Attaining the benefits of one can simply be a matter of examining your pump system.*

Contrary to early expectations, investment in a greener profile has become an asset. In fact, it has become essential in today's economic climate. Not only should it increase customer goodwill, through optimising processes and efficiency, having one can actually deliver a positive effect on your bottom line.

Pumps have long been modern society's hidden workhorses. And even though they are at the heart of most processes and operations, their savings potential has never been widely acknowledged. It is up to all of us to change this.

We know for a fact that optimising pump systems can save a business up to 60% of its annual pump energy expenditure and, in the process, considerably reduce greenhouse emissions. The added benefit of a short payback time clearly demonstrates how pump optimisation is an excellent shortcut to a wider, long-term green strategy.







**Claus Stig Pedersen**  
Head of Sustainability  
Development, Novozymes

**INTERVIEW**

## SUSTAINABILITY PAYS

*Energy efficiency equals better profitability and good business, that is obvious to most companies nowadays, according to Claus Stig Pedersen, Senior Director, Ph.D, Head of Sustainability Development at Novozymes.*

Sustainability is deeply ingrained in the corporate DNA of Novozymes, the biotech-based world leader in enzymes and microorganisms. Novozymes has committed itself to responsible business practices since the eighties. Among many other initiatives the company has increased energy efficiency at its own plants, and established itself as a first mover in triple bottom line (TBL) reporting. Today Novozymes is making a good business from helping its customers achieve higher energy efficiency, alongside other improvements to their production processes. Novozymes also helps its customers to design products with a better sustainability performance.

**“ It is our ambition to change the world together with our customers, through our insights and solutions, and thereby contribute to better business, a cleaner environment and better lives around the world.**

### A synchronised effort

Claus believes that effective action requires cooperation.

“Alone we can do something, but together with our customers, suppliers and retailers we can do a lot more. And when we get politicians and investors on board the circle is almost complete. Legislation, investments and marketing must be synchronised to maximise the positive global impact of new innovations, and that is sometimes a challenge.”

Novozymes’ dedication to cooperative sustainable efforts even extends to collaboration with some of its largest competitors. Together they advocate legislation for stimulating the introduction of biotechnology-based solutions such as second-generation biofuel.

“In many cases the technology that could create major sustainability improvements is already available. But due to political and regulatory systems being unaware of these opportunities, as well as to investors holding back because of the financial crisis and, in some cases, strong opposition, we face hurdles to the introduction of solutions that could help make tremendous progress for societies around the world,” says Claus.

### Top management involvement

Sustainability really pays when it is integrated into daily business activities from the CEO level to the factory floor. Claus explains:

“If you say that you are working with sustainability and then park it in a corner, it will only add cost. To really add value, sustainability has to be an integrated part of the business, including at the highest levels. This integration will help filtrate hype and buzz in favour of building a lean, business driven and value adding sustainability strategy.”

He adds that the CEO and top management need to buy into and play an active role in driving the corporate sustainability agenda. Only top management can ensure a strategic anchoring of sustainability that matches the potential of the company and its technology, and only top management can ensure the priorities and investments needed to realise the potentials.

### THE BENEFITS

**Novozymes sustainability work has yielded several benefits:**

- Reduced risks and cost of operations and supply chain
- Improved image, reputation and brand
- Employee and investor attraction, satisfaction and retention
- Dialogue with opinion leaders, politicians and regulators
- Market differentiation and sale - marketing support
- Added value to customers through partnerships, innovation and market development support

**INTERVIEW**

## ENERGY CONSERVATION ENTERS PHASE TWO

*Senior Energy Consultant Christian Mou from COWI says companies have moved on from only initiating the most cost-effective energy saving measures, to also considering those requiring an investment with a longer-term return.*

### Three types of companies

During his 15 years as an energy consultant, Christian Mou has identified that when it comes to energy conservation, companies can generally be divided into three types:

First there are the large companies who view energy efficiency within a wider context of branding and social responsibility. These are likely to have committed themselves to reducing CO<sub>2</sub> emissions or even CO<sub>2</sub> neutrality. This kind of company has dedicated resources for energy efficiency initiatives and is willing to accept projects with pay back periods of 5 years or more. The second group is industrial manufacturing companies where energy costs constitute a significant part of the production costs. Progressively tightening legislation and energy taxation provide these companies with strong incentives to reduce their energy consumption. The last group is small- and medium-sized companies. Christian regards this to be a very interesting group, primarily because the typical energy saving potential within this group is still 20-30%, but also because it is so extensive.

“This group has not yet realised their great potential. Their energy-saving initiatives generally revolve around instantly tangible savings. Large scale energy-saving initiatives are generally not top of mind”, he adds.

### A question of costs

Looking forward Christian believes that the larger companies can help speed up the conversion to more energy efficient business by insisting their suppliers live up to specific standards. He adds that many companies, especially the small- and medium-sized ones, are hesitant about the costs associated with longer-term energy saving initiatives. He says:

“I often hear concerns regarding the investment necessary. Most companies have limited funds, and they prioritise new production equipment and productivity initiatives above energy saving measures. The challenge here is to make these companies realise that energy efficiency and productivity gains go hand in hand.”

### The deciding factor

But ultimately Christian believes that it may be pressure from consumers, and their increased awareness about CO<sub>2</sub> emissions and energy costs, that will provide the impetus for companies of all sizes to make the investment and effort necessary to drive corporate energy savings up – and forward.



# NO MATTER YOUR INDUSTRY, ENERGY EFFICIENT PUMPS WILL BRING BENEFITS

*From delivering water and regulating heat in the home to removing liquid waste, pumps perform countless functions the world over. But most waste energy and water, which is where Grundfos solutions can make a difference and keep life and production rolling.*

You have probably never come across a pump in day-to-day life but they are there, ensuring you have fresh drinking water, hot water to shower in, food in your cupboards and a beer or wine at the end of the day. They are usually installed out of sight, which is why most of the world is unaware they consume 10% of the world's electrical energy. Given that most are anything but efficient, their potential to reduce energy wastage – without compromising productivity, lifestyles or comfort – is enormous.

Grundfos is making strides in reducing wastage by increasing the operational performance of our pumps through high-efficiency component design and smarter technology. Just think: if everyone were to switch to high efficiency pumps like those manufactured at Grundfos, we could immediately reduce 4% of the world's electricity consumption.

Scan the QR code to explore case stories and discover the lucrative opportunities available to businesses everywhere. These are just some examples of how Grundfos can help you reduce energy consumption and save money.

INDUSTRY

COMMERCIAL BUILDINGS

PUBLIC BUILDINGS

MANUFACTURING FACILITIES

WATER UTILITY

RESIDENTIAL BUILDINGS



EXPLORE GRUNDFOS BLUEFLUX®



# MEET SOME OF THE NEW STARS OF **ENERGY EFFICIENCY**

*Pumps may not yet be at the forefront of the challenge to reduce energy consumption, but as you can see, the benefits of energy efficient pump solutions are clear.*

## **Circulator pumps' new efficiency benchmark**

MAGNA3 and NEW ALPHA2 are by far the world's most energy efficient circulator pumps. Circulator pumps move liquids around for processes such as heating and air conditioning. MAGNA3 is used for industrial applications, while ALPHA2 is the domestic version. Their release signals a new era in heating system installation and control.

Intelligent control mode options include AUTOADAPT in the NEW ALPHA2 and, in the MAGNA3, FLOWADAPT, a built-in heat energy meter, reduced valve-balancing requirements and wireless communication between pumps. Together these features ensure that electricity usage in buildings today can be optimised like never before.

## **A new era in wastewater has begun**

The SE and SL ranges of wastewater pumps are used to handle wastewater as well as to process water and unscreened raw sewage in heavy-duty municipal, utility and industrial applications. The updated and extended range has been fitted with an IE3 motor and the new S-tube impeller to provide the highest total efficiency on the market – without compromising the free passage. Innovative technologies from Grundfos bring together intelligence, motors, hydraulics and functionality to meet the challenges of modern wastewater, maximising the hydraulic, electrical and mechanical efficiency of your pumps.

## **Grundfos Blueflux® high efficiency motors**

Without precisely the right motor, even the best pump will consistently waste energy – and money. This is why Grundfos has developed our own motor technology to drive pumps. We call it Grundfos Blueflux®. So when you see a Grundfos Blueflux® mark on a product, you will know you are purchasing a top-of-the-range pump motor solution. Grundfos Blueflux® solutions either meet or exceed international legislation, such as the EuP IE3 grade.





# OPTIMISATION & CONSULTANCY

## GET A HEAD START

### | Grundfos Optimisation and Consultancy services will be your guide

Knowing how and where to reduce electricity consumption is a common dilemma for companies. Energy efficiency is still fairly new territory, so exploring the available options can be confusing, even daunting. Grundfos Optimisation and Consultancy Services are dedicated to helping you explore and make the most of your company's energy saving opportunities. All it takes it a few simple steps.

#### A simple start with radical implications

The Grundfos Energy Check tool is the ideal way to start. It will help you determine your current energy consumption and the probable life cycle costs of your installed base. The Energy Check will help you pinpoint where pump replacement would save energy and costs and, consequently, reduce your carbon footprint. It will even assist with new pump selection.

This is how you get started:

1. Contact your maintenance or facility manager and ask the following questions:
  - Who is in charge of our pump installations?
  - What is our annual electricity consumption?

2. Team up with the pump responsible and contact Grundfos to gather the input for the energy check:
  - How many pumps are installed?
  - How old are the pumps?
  - What types of pumps are installed?

3. Get the full picture
  - Grundfos provides a preliminary overview of relevant pumps

Based on these steps, Grundfos will prepare a report including a prioritised installed base list detailing the pumps/systems that might benefit from replacement. Using it, your maintenance manager can avoid unnecessary breakdowns due to worn-out pumps. With larger applications, we offer the even more in-depth Pump Audit in which our experts conduct an onsite assessment.

Ultimately the Grundfos Energy Check is a relatively fast and simple way for companies to take stock of how efficient their systems are compared to how much they could be. As is generally the case with energy efficiency initiatives, the initial investment in time and effort is returned many times over by the energy and cost savings created.





# ACTION AROUND THE WORLD

Energy efficiency initiatives across the globe highlight what a green strategy can achieve



## Pumps help PepsiCo Roha's get closer to their energy goals

**The challenge:** PepsiCo in Roha, Maharashtra, India commissioned a Grundfos Pump Audit as part of their energy conservation initiative. The audit results highlighted an over consumption of energy and noticeable water wastage. As a consequence, PepsiCo decided to replace existing critical systems with energy efficient pumps.

**The solution:** On recommendation, vertical pumps and closed couple end suction pumps were installed in the utility and process systems in order to optimise the water-energy performance.

- **RESULTS:**
- Monthly savings of 5625 kWh units or 41% of their old pumps' electricity consumption

## Kia Motors cuts daily energy consumption by over half

**The challenge:** To cool lubricants, Kia Motors uses pumps powered by fixed speed motors to deliver cooling emulsion. Like leaving a tap on all day, fixed speed motors run at full capacity even though demand fluctuates. On top of this, the pumps performed poorly and broke down regularly. This necessitated replacing entire pump systems after breakdowns, which increased costs.

**The solution:** To confirm the potential benefits of pump system optimisation, Kia Motors implemented a test trial of an MTS (Machine Tool Screw) pump with a CUE frequency converter, which unlike a fixed speed motor increases speed on demand. The trial saw the bypass flow waste reduced and the flushing flow eliminated, so pump speed could be set at 49% (approx. 30Hz) while still keeping high pressure. Another bonus was a noise reduction.

- **RESULTS:**
- MTS reduced power consumption by 60%
  - Electricity consumption reduced from 110 kWh/day to 45 kWh/day



## Sheraton Wall Centre on track to drastically reducing energy consumption

**The challenge:** With a commitment to sustainability and water conservation, the 733-guest room Sheraton Wall Centre in Vancouver, Canada commissioned an audit of its pumps when it considered replacing its 13-year-old water pumps in its south tower.

**The solution:** MPC BoosterpaQ with 3CR pumps with variable speed and a controller package were recommended in order to save energy and achieve optimal water pressure.

- **RESULTS:**
- The centre is on track to reducing electricity consumption from 192,000 kWh per year to 58,000kWh – providing strong water pressure for about CAD\$100 per month.

## Wastewater plant sets 2025 deadline on CO<sub>2</sub>

**The challenge:** Danish water sector branch organisation, DANVA, aims to make the sector CO<sub>2</sub> neutral before 2025. Drøsbro, a small wastewater treatment plant commissioned an analysis of their pumps and mixers in order to ascertain how much energy they could save and how much they could lower their greenhouse emissions by replacing equipment.

**The solution:** Analysis of velocity flow fields indicate that upgrading mixers in mixing tanks could reduce electricity consumption by just over half.

- **RESULTS:**
- Payback time of only 4 years
  - Reduced performance figures from 39 kWh/PE to 36 kWh/PE
  - Reduction of over 11 tonnes of CO<sub>2</sub> emissions annually



DISCOVER HOW COMPANIES ARE LEADING THE WAY IN REDUCING CO<sub>2</sub> EMISSIONS AND MAKING SIGNIFICANT FINANCIAL SAVINGS IN THE PROCESS



# SUSTAINABILITY IS NOT AN OPTION. IT'S CRUCIAL TO GOOD BUSINESS

*Act NOW ambassador Helle Bank Jørgensen and Grundfos' Director of Sustainability Pernille Blach Hansen, discuss the importance of companies prepared to act responsibly and the challenges they face.*



Not so long ago, the urgent need for alternative energy resources and the repercussions of CO<sub>2</sub> emissions were simply not up for debate. Today, that's all changed. Our traditional energy sources – oil, gas and coal – are depleting, while the effects of greenhouse gases on the planet's climate are escalating. The time has come to act. But do we actually have the technology to make a difference, and who should make the first move?

■ **Pernille Blach Hansen:** "The world's energy usage continues to increase at an astonishing rate. Listening to most scientists and forecasts, we need to act now in order to reduce CO<sub>2</sub> emissions and create sustainable living patterns. We have the technologies needed – we just need to start using them, especially in the larger industrial sectors. As companies we have a huge responsibility and societal obligation to lead the way."

■ **Helle Bank Jørgensen:** "We're getting better and better at producing renewable energy, so why not use all energy sources efficiently? Industry has the power to do so, and luckily we're now seeing businesses follow the trend. Sustainability work used to be regarded as merely a marketing expense by many companies – something you simply had to do. But today, more and more realise that it is an area that offers the benefit of both savings and a return on investment. I'm seeing many

companies that talk about economic savings before they mention the positive environmental impact. And companies like Walmart, with more than 100,000 suppliers, are now requiring those suppliers to comply with set standards on greenhouse emissions, energy use and packaging. Another example is Novozymes, who are helping their customers save energy and CO<sub>2</sub> by using Novozymes' enzymes. Being energy efficient is smart business that can help companies strengthen their own value-chain and their future business opportunities."

■ **Pernille Blach Hansen:** "In my opinion, the best we can do is to partner with other companies, NGOs and local and governmental authorities to promote the use of existing and upcoming energy efficient solutions. On top of that, we must engage in the public and political debate and encourage politicians to promote regulation and market conditions that facilitate energy efficient solutions."

If that's the case, then why aren't more companies taking action today and enjoying the benefits?

■ **Helle Bank Jørgensen:** "Many are, but there are also a lot of companies that simply don't know about the "hidden solutions" available with their short pay-back times. That's why, in the current economic situation, many companies have put any discussion about energy efficiency on hold. Best practice cases that clearly show the economic benefits help are therefore excellent tools for creating dialogue between Chief Sustainability Officers and key economic decision-makers such as CFOs."

■ **Pernille Blach Hansen:** "Unfortunately businesses still often see sustainability as a hassle – a lot of trouble and expense. The biggest challenge is to get companies to change their mind-set from thinking in terms of "here and now" costs, to lifetime costs and benefits. We have to think more long-term, and that demands both knowledge and insight."

What can be done to push the use of energy efficient solutions forward?

■ **Helle Bank Jørgensen:** "Not all businesses need to push the energy movement forward outside of their own value-chain. But it would be wise for all companies to act, as there is much to be gained. Leading companies should join forces – as they do in Act NOW – to build up a strong network that can help facilitate information-sharing about energy efficiency. By learning from one another, companies can avoid fumbling in the dark and instead gather knowledge, experiences and best-case scenarios to help inspire and influence politicians and other important decision-makers. As I see it, it's a win-win-win solution that in the end will result in better products, better bottom lines and a better environment."

## SUSTAINABILITY INSIDE AND OUT

Although Grundfos' production continues to grow, the company has declared that its CO<sub>2</sub> emissions will never exceed their 2008 level. This puts pressure on the company to ensure its innovative efforts in this area are ongoing, and requires a shared dedication to energy saving by all employees.

The same sustainability ethos is applied to Grundfos internationally. For instance, Grundfos UK's refurbished headquarters integrate energy efficient pumps along with solar roof panels that supply hot water and supplement electricity usage. Similarly, Grundfos' new complex in India is packed with sustainable initiatives that have made it that country's first gold rated green building\*.

Grundfos is also a founding partner of Act NOW, an alliance of businesses that promote and enhance public awareness of the energy efficient solutions offering immediate benefits for the climate and the economy.

\* Rated by LEED (Leadership in Energy and Environmental Design) certification by the US Green Building Council

## GET TO KNOW



### PERNILLE BLACH HANSEN

As Grundfos' Sustainability Director, Pernille Blach Hansen is working to improve the company's sustainability footprint. She believes Grundfos must set an example and take its own medicine, e.g. by replacing pumps and motors in its factories. She works to facilitate more sustainable development by engaging important figures and groups and by taking part in the global sustainability debate.



### HELLE BANK JØRGENSEN

Helle Bank Jørgensen has worked in sustainability and corporate social responsibility for more than 20 years with a range of companies including Novozymes, Novo Nordisk, Maersk, Unilever, Shell, Nike and Ikea. Today she is an independent Sustainability and Climate Change Advisory Leader in North America and Europe. She is also an Act NOW ambassador, United Nations Special Advisor to Global Compact in Canada and partner in World Climate Ltd.

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