



Improve efficiency through  
smarter use of energy

Powering a profitable future for the water sector

# Supporting success

A successful US water industry is critical to the health and prosperity of the nation, meeting the daily needs of more than 300 million business and residential customers. However, the industry faces numerous challenges as it faces up to the need to invest heavily in renewal and replacement of aging infrastructure, while finding new sources of supply to meet growing demand, addressing affordability concerns and continuing to meet tough environmental regulations.

Centrica Business Solutions believes that energy has a vital role to play in helping the water industry meet the demands of its various stakeholders – producing the efficiency gains that reduce operating costs, delivering the resilience that satisfies regulatory targets, and unleashing the innovation that drives a more sustainable future.

"Where once companies saw energy as a cost, now they are seeing it as a source of value and sustainable, competitive advantage"

**Jorge Pikunic,**  
**Managing Director, Centrica Business Solutions**



# Powering efficiency with energy

The water sector faces a wide range of challenges. Taking advantage of new energy technologies and new approaches to managing energy can help to alleviate the pressures.

## The drive for efficiency

With public funding constrained, stakeholders resistant to higher bills and environmental regulations allowing for no compromise on water quality standards, driving greater efficiency is essential if water companies are to fund the investments required in infrastructure renewal and replacement.

Energy is a key area where water firms should be looking to improve efficiency. Despite the fact that many water companies self-generate some of their energy through anaerobic digestion, energy costs still typically account for 25 - 30% of a water company's operating costs<sup>1</sup>, second only to staff costs. With energy costs likely to rise in the coming decade, maximizing energy efficiency is essential.

## The need for resilience

Resilience is another critical area for water firms. Water and wastewater facilities are a critical part of the national infrastructure and failures in supply are unacceptable to consumers and regulators.

The United States uses 42 billion gallons of water a day to support daily life from cooking and bathing in homes to use in factories and offices across the country. Water shortages, or degradation of water quality can have a devastating impact on communities and businesses.

Given the water industry's heavy dependence on energy to keep pumping, water treatment and waste management systems working, having a secure and reliable energy supply is clearly essential.

Centrica Business Solutions has deployed over 1200 wireless sensors in water companies, providing real-time energy consumption data for performance and asset health monitoring

The percentage of water industry executives who felt their utilities were currently fully able to cover the cost of providing services through rates and fees.<sup>2</sup>

21%

More than 80% of water sector managers believe that additional regulatory compliance will be imposed upon the industry over the next 5 to 10 years<sup>4</sup>

The percentage of US water companies have so far implemented an energy efficiency program, but of those that have, 86% had achieved cost reductions of greater than 5%.<sup>3</sup>

ONLY  
44%

1. <https://www.thewaterreport.co.uk/single-post/2018/04/28/Regulator-expects-bigger-bill-cuts-at-PR19-to-top-PR14-says-Ofwat-director>

2. 2018 AWWA state of the water industry report, American Water Works Association

3. 2017 Water Industry Outlook, Mazars, 2017  
4. 2017 Water Industry Outlook, Mazars, 2017

## Building a sustainable industry

Overall, drinking water and wastewater systems account for approximately 2 percent of energy use in the United States, adding over 45 million tons of greenhouse gases annually.<sup>5</sup> Therefore it's no surprise that the industry is also under pressure to improve its energy sustainability performance.

With many states and municipalities having committed to ambitious carbon reduction targets, water companies are increasingly expected to report on, and take action to reduce, their greenhouse gas emissions, including carbon. Many water companies have also made public commitments to significantly reduce their carbon footprint as part of their Corporate Social Responsibility goals.

Taking greater advantage of renewable, low-carbon generation technologies has a key role to play in enabling water firms to reduce their environmental impact.

## Innovating for improved performance

Innovation will be key to enabling the industry to meet the challenges of the next decade. Without innovation, it will be impossible for companies to simultaneously invest in infrastructure renewal, improve resilience, control costs and satisfy regulatory requirements.

Making better use of data and analytics, including insights generated from energy systems, has an important role to play in identifying new avenues for innovation. Given the funding pressures facing the sector, exploring innovative approaches to financing energy infrastructure will also be essential.

For many municipal governments, drinking water and wastewater plants typically are the largest energy consumers, often accounting for 30 to 40 percent of total energy consumed<sup>6</sup>

\$105 billion – the estimated additional funding required by the water and wastewater sectors by 2025<sup>7</sup>

Centrica Business Solutions has installed 22MW of solar PV across 37 UK water company sites generating 20GWh of electricity and saving 7800 tons of CO<sub>2</sub> per year

7800

Centrica Business Solutions has helped a Belgian water company leverage the power of demand side response to make 5MW of load reduction available to support the local grid

5MW

5. <https://www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities>

6. <https://www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities>

7. American Society of Civil Engineers, "Infrastructure Report Card," 2017

# The energy opportunity

New approaches to generating and managing energy have an important role to play in enabling the water industry to respond to the challenges it faces. For example:

- Energy Insight solutions can help to identify current operational inefficiencies and risks, informing a data-driven approach to running a water operation
- On-site generation and storage technologies improve operational resilience and reduce the costs of consuming energy from the grid
- Renewable energy technologies, such as solar, reduce carbon emissions and lower costs
- Demand Response schemes enable water firms to generate new revenue streams from on-site assets and access incentives for managing grid consumption
- Flexible funding models and innovative commercial contracts help water companies overcome the capex constraints that often prevent them from deploying more efficient energy technology, and also provide certainty over future returns

Working with the right partners will be key to enabling water companies to unlock the opportunities presented by energy. Centrica Business Solutions has extensive experience working with many of the US's leading water companies, and can deliver the combination of innovative technology and end-to-end solutions required to deliver increased efficiency, improved resilience and a more sustainable future.



# Our end-to-end solutions

Centrica Business Solutions offer new thinking, new technologies and new ways of working so that our customers experience the benefit of our end-to-end energy management strategies and services.



## Energy Efficiency

Save energy over the long-term and improve your operational efficiency. Audit your facility, get detailed information of your energy usage and use the intelligence to identify an actionable energy efficiency plan



## Combined Heat and Power (CHP)

Save on energy costs, reduce CO<sub>2</sub> and make your business more resilient by generating your own electricity and heat on-site in a single, efficient process



## Energy Insight

Identify opportunities to improve energy usage and efficiency, and enable early detection of potential equipment failures to inform preventative maintenance programs



## Power Generation

Ensure continuity of supply in the event of a grid outage, and create new revenue generation opportunities



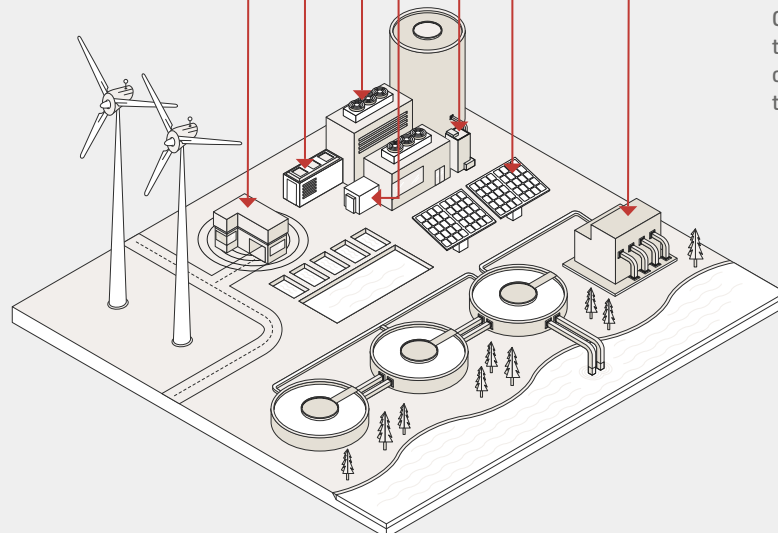
## Solar and Storage

Reduce reliance on the grid and save money with renewable energy sources such as solar power generation. Store energy in low demand periods, use it during high cost peaks and sell it back to the grid to benefit from supply side incentives



## Demand Response

Connect your assets to the grid to help balance supply and demand and access opportunities to generate new revenue streams



# Solar and Storage



## Benefits of Solar and Storage

- Solar saves you money on your kWh energy charges
- Storage saves you money on your kW demand charges
- Lower electricity cost, generate your own and reduce reliance on the grid
- Improve the flexibility of on-site renewables by storing energy to use later (e.g. for use at peak times)
- Storage provides a reliable energy source which is extremely efficient and ensures you keep running in the event of loss of power
- Financially sound, increased affordability and flexible finance options
- Sustainable source of renewable energy
- Access financial incentives using your stored power to assist the grid balance



## Our expertise to deliver

- Proven track record and experts in delivery of Solar and Storage projects across the globe, and integration with end-to-end energy solutions
- Range of optimization services enables you to maximize the value of your solution and turn it into a revenue stream
- Range of commercial options made available to support your project
- 10 year workmanship warranty and production guarantee ensure a worry-free investment
- 20 year+ manufacturer warranties combined with Tier 1 equipment ensure a highest quality installation
- 25 year+ support for the lifetime of your system, provided by our Customer Care team to help protect your investment

9,000+

solar systems installed by Centrica Business Solutions in the United States

273

gigawatt-hours (GWh) of energy produced by our solar installations thus far

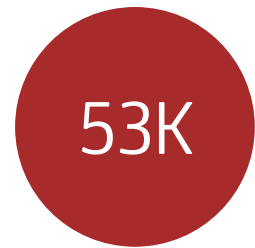


# Energy Insight



## Benefits of Energy Insight

- Comprehensively understand your entire energy consuming infrastructure
- Identify energy waste or inefficient processes and take proactive action
- Prevent device or equipment failure with energy insight analytics
- Recognize energy consuming assets that can unlock revenue opportunities



**sensors installed on customer sites**



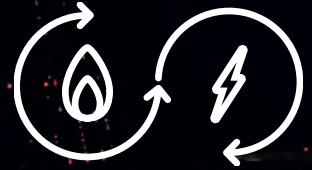
## Our expertise to deliver

- Our non-invasive sensors are easily installed and require no maintenance
- Wirelessly capture multiple data points across a range of assets and multiple sites
- Real-time data collection for up-to-the-minute energy analytics
- Access your data in a way that suits you, with mobile, tablet and desktop options
- Our device-learning algorithm learns your processes and flags anomalies
- Continuous platform enhancements, including integration of other solutions (i.e. Demand Response, Solar etc.)



**data points collected monthly**

# Combined Heat and Power (CHP)



## Benefits of CHP

- Convert a single fuel into both electricity and heat in a single process at the point of use
- CHP engines are almost twice as efficient as traditional generation
- Generate electricity at savings over grid prices
- Utilize captured heat on-site for critical operations and processes
- Adds resilience to sites, allowing you to continue to operate at times when the power grid is down

40%

Reduction in overall energy costs



## Our expertise to deliver

- Over 30 years' experience as a global pioneer of modern CHP technology
- End-to-end solution development, installation and ongoing maintenance
- Advanced operating and monitoring equipment of over 200 parameters
- A range of purchase options available to suit your organization's goals
- Externally recognized, many units have Underwriters Laboratories (UL) certification
- State of the art manufacturing facility in New Jersey

15  
YEARS

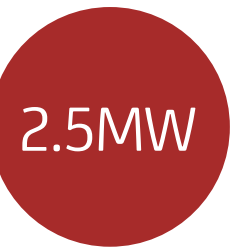
average lifespan of equipment

# Power Generation



## Benefits of Power Generation

- Ensure backup power instantaneously in the event of a grid outage
- Monitor assets remotely in conjunction with scheduled and reactive maintenance
- When grid demand is at its highest, switch to your backup generator to alleviate energy consumption



units from 30kW to 2.5MW



## Our expertise to deliver

- Customized optimal power solutions developed to fit any location
- Flexible generator options fully scalable through multiple engines from 30kW to 2.5MW
- A range of diesel and natural gas units available
- End-to-end managed solution from build, to installation, to ongoing maintenance
- 24/7 service guarantee



providing power systems for over 70 years

# Demand Response (DR)



## Benefits of Demand Response

- Access real-time consumption data on all equipment you wish to monitor
- Increase your Demand Response efficiency and automatically receive payments
- Optimize your curtailment strategy, maximize revenue and minimize risk
- Real-time energy asset monitoring and insights into operational performance
- Gain a deeper understanding of your operational activity



## Our expertise to deliver

- In-house technologies maximize value through deeper insight into consumption
- System-provided identification of assets to curtail during event and instant action
- Market-leading technology enables visualization of Demand Response capability at device level
- Single screen to validate performance during an event, and payments
- Fully managed solutions that simplify inherent market complexity



total Demand Response load under management by Centrica Business Solutions in North America



proven track record of involvement in Demand Response markets

# Energy Efficiency



## Benefits of Energy Efficiency

- Understand your energy usage in more detail and identify actionable improvements
- Access a range of services and products to implement on your site(s)
- Better manage your energy with expert assistance in strategy and long-term planning
- Improve your operations and energy use, and reduce risk

25%

potential reduction in energy usage from energy efficiency measures



## Our expertise to deliver

- Helping you develop an Energy Efficiency strategy to optimize your operations
- Unrivalled capability
- Fully managed solution
- A range of financial options to suit business needs

100%

fully funded options available with no capital outlay

# Why Centrica Business Solutions

## Breadth of portfolio

In collaboration with our sister company, Direct Energy Business, we offer a suite of next-generation energy services for businesses. Our ability to supply energy, deliver a comprehensive portfolio of energy solutions, provide an end-to-end delivery capability, and use innovative technologies make us a powerful single supplier solution. We can deliver market-leading solutions that help you to meet the energy and sustainability objectives of your organization.

## Industry and technical expertise

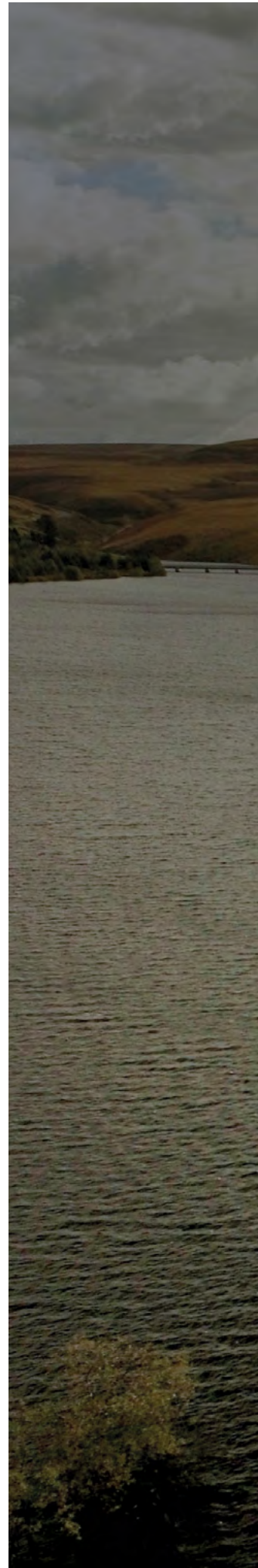
As thought leaders in world energy market trends and developments, we have an innovation program that incubates and accelerates new technology. Our global workforce of energy experts combine their exceptional knowledge with insightful vertical expertise to develop effective long-term energy strategies for our customers – with the end-to-end capabilities to deliver managed services. We provide the experts so you can stay focused on your business.

## Global player in the energy markets

All our customers benefit from the unmatched insight into regulatory environments and market structures that we gain from our global footprint. Centrica works with enterprise customers as their single supplier in multiple markets throughout the world and occupies market-leading positions in several national markets, including the US and Europe.

## Financial stability and de-risked financial proposition

We're a leading player in the global energy industry. As a FTSE 100 company with a £28 billion annual revenue and a proven provider on numerous energy solution frameworks, our financial strength allows us to invest in the very latest innovations and market-leading technology.







## Centrica Business Solutions

Centrica Business Solutions is part of Centrica – a global energy and services company dedicated to satisfying the changing needs of its customers. It is a sister company to Direct Energy Business, a leading North American retail energy supplier.

- Well-established, 200-year old FTSE 100 company
- 12,000 Centrica engineers and technicians
- £28bn revenues in 2017
- 28m Centrica customer accounts mainly in North America, the UK and Ireland

“Where once companies saw energy as a cost, now they are seeing it as a source of value and sustainable, competitive advantage.”

**Jorge Pikunic, Managing Director,  
Centrica Business Solutions**

**centrica**  
Business Solutions

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