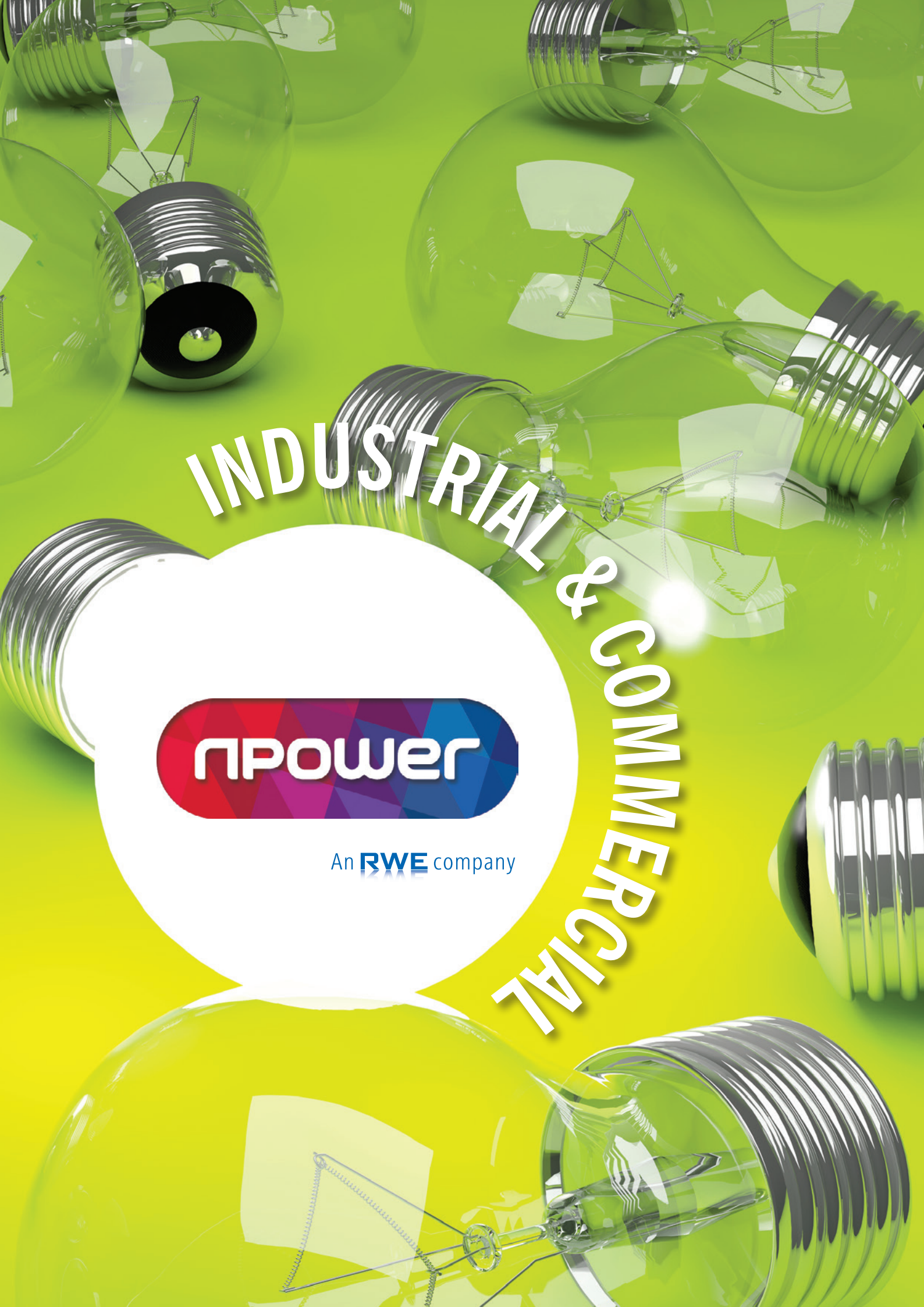
INDUSTRIAL & COMMERCIAL
npower
An RWE company

Walking our talk

As a leading business energy solutions provider, npower serves around 22,000 industrial and commercial customers at more than 100,000 sites across the UK.

Responding to our customers' needs has shaped npower's evolution over the past decade, and helped us to win a host of industry awards. Instead of simply offering a shop window of ever-changing products and services, npower develops solutions that meet genuine business requirements. This enables npower to work in partnership with its customers, providing innovative and often bespoke tools for energy procurement and risk management, energy efficiency and management, generation and carbon reduction.

Effective energy management is also a key priority at our own offices and buildings. Our team were the first UK energy supplier to become ISO 50001 accredited for their rigorous and effective approach. We have also been awarded the Carbon Trust Standard for our ongoing commitment to reducing both energy and carbon emissions.

We provide commercial clients with a range of services from our full energy solutions offering. These services are designed to ensure that the complexities of a commercial installation are properly installed and conform with local planning, building regulations, licensing. Where applicable the costs for these services will be included in the overall proposal of the work.

npower Energy Solutions and RWE npower renewables is one of the UK's leading renewable energy companies. We have earned this title by partnering with specialist installers who are renowned for their high quality craftsmanship and innovative technologies.

In 2013 npower proudly achieved accreditation to ISO50001 making it one of the first companies in the UK to achieve this certification. Leading by example we demonstrate our dedication to energy management.

Comprehensive Energy Solutions for Large Consumers

A full end-to-end service – from supply to energy and carbon reduction, via monitoring and management, on-site generation, risk management and engagement on key energy issues.

npower is a leading business energy supplier, serving around 22,000 industrial and commercial customers, with more than 100,000 sites.

Over the past decade, we have extended our offering and now work far more closely with our customers to provide bespoke energy solutions across the supply chain – from a supply perspective, through to energy use, management, procurement and reduction. Rather than offering a selection of products and services for customers to choose from, we now work in partnership with each organisation to better understand their issues, challenges and concerns. In doing so we can provide bespoke solutions that meet individual requirements.

Increasing efficiencies

Energy is a vital commodity and we are dedicated to helping UK businesses use it more efficiently. For major energy users, we offer bespoke energy solutions and multi-utility management consultancy to improve efficiencies right across the procurement/ consumption chain.

Buying effectively

We also provide direct access to energy trading services with dedicated support for large consumers. Our award-winning team offers risk management services with comprehensive market intelligence, using a range of products designed to support each buyer's requirements and level of expertise.

Supporting self generation

On-site generation can make sense for many reasons, including reducing energy and related charges, enhancing environmental credentials and maximising potential export revenues. We can support the installation and management of onsite renewable and other generation plants, all the while ensuring the output is offset against your supply contract.

Giving customers a voice

A key part of our service is also about informing and engaging with our customers and other stakeholders such as industry bodies and government. We hold regular events, roundtable discussions and webinars to promote the understanding of key issues, such as Electricity Market Reform and planning for future energy costs. Our aim is to ensure that the views of business customers are properly represented in the ongoing energy debate.

Award-winning service

We are proud to have won a number of awards in recognition of the service we offer businesses, including Energy Supplier of the Year and Excellence in Carbon Reduction at the 2013 Energy Awards.

CHP EXPERIENCE AND CAPABILITIES

RWE npower CHP Experience

RWE npower has been a market leader in cogeneration since 1991. We have a wealth of experience and capabilities in providing end to end solutions for our customers and are responsible for all of npower's combined heat and power activities in the UK.

We have created a diverse portfolio through investing around £500 million at various sites across the country. In total we have developed 17 CHP projects generating a total capacity of over 660MW. We have contracted with customers in diverse sectors including chemicals, pharmaceuticals, refineries and the pulp and paper sector. We are committed to developing cost saving relationships with our customers by providing energy efficiency through the installation of CHP.

We provide our customers a range of long-term contract arrangements offering secure supplies of competitively priced energy. We are a customer focused business that strives to find creative solutions and develop CHP schemes, to provide cost effective heat and power. We are able to demonstrate an ongoing commitment to developing and delivering tailor made energy solutions for our customers.

RWE npower CHP Capabilities

Since the inception of the RWE npower's CHP business, the electricity and gas markets have undergone (and continue to face) substantial changes. RWE npower has developed the skills and knowledge to respond to the changing market and maximise the commercial potential of CHP ownership / operation.

Areas that npower Cogen manage as part of the current portfolio of Energy Supply Contracts include (but are not limited to):

- Provision of standby and top up electricity supplies
- Dealing with settlements disputes and metering problems with the data collector
- Managing the interaction with the Distribution Networks
- Managing the interaction with Transmission Network Operators
- Ensuring compliance with existing and any new regulatory codes and legislation
- managing CHPQA data submissions and associated audit, LEC tracking and reporting

A management system which provides a facility to fine tune contract positions prior to Gate Closure. The key elements of this effective management are:

- Half hourly data collection and monitoring from central office
- Continual monitoring and adjustments of contract positions
- Provision of weekly performance reports and training to site personnel
- Optimisation strategies
- Risk management knowledge and hedging strategies

Additional areas of commercial expertise include:

- Gas purchasing, aggregation and netting optimisation
- NGT interface with respect to network transportation charging for both electricity and gas market driven plant optimisation and modelling
- Response to and influencing of legislation through CHPA, DEFRA, DTI and Ofgem carbon (CO2) position management

CHP and downstream process Optimisation

RWE npower is able to offer innovative commercial structures to 3rd party owned CHP plants delivering comprehensive power sector expertise and energy risk management whilst the customer retains ownership of the CHP and focuses on their core business and expertise. Services in the 'economic JV' include the management of operations, maintenance, outage planning

MORE ON PAGE 6

CHPA

The Combined Heat and Power Association (CHPA) is the leading advocate of an integrated approach to delivering energy services using combined heat and power district heating.

The Association has more than 100 members active across a range of technologies and markets, and is widely recognised as one of the leading industry bodies in the sustainable energy sector.

The CHPA works to promote a greater awareness and understanding of combined heat and power (CHP) and district heating to create a strong, dynamic and sustainable environment for its members and the communities, businesses and households they serve.

CHP is an energy efficient technology that provides a means to substantially reduce fuel, or primary energy consumption without compromising the quality and reliability of the energy supply to consumers.

As a result it provides a cost effective means of generating low carbon or renewable energy.

CHP provides a number of benefits such as a minimum of 10% energy savings that are required by the CHP Quality Assurance scheme – although many installations will deliver much higher savings.

Cost savings of between 15% and 40% can be expected over electricity sourced from the grid and heat generated by on-site boilers.

As a proven and reliable technology with numerous successful installations throughout the world, a minimum of 10% carbon dioxide savings can be expected for good quality natural gas CHP in comparison to conventional forms of energy generation.

CHP also provides high overall efficiency of up to 80% or more at the point of use.

Prior to the Government's Heat Strategy being released, CHPA launched a report to set out a pathway for the decarbonisation of heat.

*'**The Heat Revolution:** Meeting Consumers' Needs in a Decarbonised Economy,'* focuses on the needs of all heat users and lays out the CHPA's vision for reducing heat's contribution to the UK carbon emissions securely, efficiently and competitively, while also facilitating the decarbonisation of wider energy use.

Heat provision currently accounts for over half of the UK's energy demand and without a robust plan for heat decarbonisation, abating the UK's overall emissions is likely to prove more costly for energy users at all scales.

The Government's Heat Strategy identified pathways for the transition of the UK's heat supply to low- and zero-carbon energy sources.

The strategy points the way to a major expansion of new district heating networks in the nation's towns and cities, driving a multi-billion pound investment programme in green infrastructure and creating an additional 40,000 jobs in construction and engineering.

April saw the unveiling of eight major renewable electricity projects as part of the government's world leading electricity reforms, giving a massive boost to green growth and green jobs.

By 2020, the projects will provide up to £12Bn for private sector investment, supporting 8,500 jobs and could add a further 4.5GW of low carbon electricity to Britain's energy mix – which is approximately 4% of capacity – thereby generating enough clean electricity to power more than three million homes.

Once completed, the successful projects will contribute about 14% of the renewable electricity expected to come forward by 2020, helping to put the UK well on the way to meeting the renewable energy target.

Emissions will also be reduced, compared to fossil fuel power generation.

These projects have been offered under Contracts for Difference (CfD), which form part of the government's world leading Electricity Market Reform programme.

They include offshore wind farms, coal to biomass conversions and a dedicated biomass plant with combined heat and power.

The eight successful projects have been awarded under the Final Investment Decision (FID) Enabling for Renewables process, allocating the first CfDs that are being introduced through the Electricity Market Reform.

Under CfDs, generators and developers receive a fixed strike price for the electricity they produce for 15 years.

Edward Davey, Energy and Climate Change Secretary, said: *"These contracts for major renewable electricity projects mark a new stage in Britain's green energy investment boom."*

"By themselves they bring green jobs and growth across the UK, but they are a significant part of our efforts to give Britain cleaner and more secure energy."

Ambitious new targets announced in March will see Scotland deliver five times more heat through district heating to help Scottish householders and businesses lower their energy bills.

CHPA welcomed the Scottish Government's heat generation policy document, which puts district heating at the centre of its strategy for delivering affordable, low carbon heat by 2020.

The proposals commit the Scottish Government to connect up to 40,000 more homes to heat networks by 2020 and double the money available for the District Heating Loan Fund to £8M.

CHPA Director, Dr Tim Rotheray, said: *"District heating is one of the most cost effective methods for tackling fuel poverty, making it an important tool to help the nearly one-third of Scottish households classed as 'fuel-poor'."*

"This is the first scheme of its kind in the world – showing yet again that the UK is leading the way in the clean energy sector."

"These ambitious targets will be vital for attracting the additional investment needed to benefit the thousands of families across Scotland that struggle to pay their heating bills."

"To make sure that this ambition is delivered, it is essential industry continues to take the lead in strengthening consumer confidence through strong standards and independent customer protection."

"We look forward to working with the Scottish Government to ensure industry can help deliver Scotland's ambition for affordable, low carbon heat."

CHPA congratulated the 26 local authorities that were awarded funding in January to support the development of their heat network projects.

In addition to the £1.9M of funding, the Heat Networks Delivery Unit will also provide these local authorities with commercial and technical expertise to help develop attractive investment propositions for the supply of cost effective, low carbon heat to homes and businesses.

Dr Rotheray commented: *"The success of these applications is a great first step towards realising the Government's ambitions for district heating.*

"By delivering heat to homes more efficiently, each of these schemes has the potential to benefit their local community and curb rising energy costs for thousands of people across the UK.

"We look forward to working closely with Government and industry to ensure that local authorities have the capacity to turn these projects from lines on a page to pipes in the ground."

The final passage of the Energy Act was also warmly received by CHPA.

The Act, which received Royal Assent in December 2013, offers an opportunity to begin transitioning to a more efficient, consumer-led energy system.

It brings in new measures to incentivise energy efficient renewable CHP, reduce electricity demand and ensure consumers can be active participants in providing capacity to the energy system through demand side response.

Dr Rotheray said CHPA is committed to meeting the challenges about the cost of energy, and the Act will create a system with *'the consumer at its heart'*.

"At a time when consumers are increasingly asking questions about the cost of energy, we need to make sure we are meeting the challenge in the most cost effective way," **he said.**

"The Energy Act could help to create a smarter, more efficient energy system, with the consumer at its heart. We do not yet have all the policies in place to reach that goal, but some of this Act's key measures will help to move us in the right direction.

"Support for highly efficient renewable CHP will ensure we are using renewable energy efficiently to decarbonise UK industry.

"The inclusion of demand-side measures in the capacity market could give consumers the opportunity to engage with and benefit from a more secure and efficient energy system."

April also saw the launch of the domestic Renewable Heat Incentive (RHI), which offers homeowners payments to offset the cost of installing low carbon systems.

This new and innovative government scheme will pay people for the green heat they generate for their homes.

It is the world's first long-term financial support programme for renewable heat, offering homeowners payments to offset the cost of installing low carbon systems in their properties.

Open to everyone, including homeowners, social and private landlords and people who build their own homes, the scheme also incorporates households on and off the gas grid.

Greg Barker, Minister for Energy, said: *"This is the first scheme of its kind in the world – showing yet again that the UK is leading the way in the clean energy sector.*

"Not only will people have warmer homes and cheaper fuel bills, they will reduce their carbon emissions and will also get cash payments for installing these new technologies.

"It opens up a market for the supply chain, engineers and installers, generating growth and supporting jobs as part of our long-term economic plan."

Technologies that are covered by the scheme include:-

- Biomass heating systems that burn fuel such as wood pellets, chips or logs to provide central heating and hot water in a home
- Ground or water source heat pumps that extract heat from the ground or water. This heat can then be used to provide heating and hot water in a home
- Air to water heat pumps, which absorb heat from the outside air
- Solar thermal panels, which collect heat from the sun and use it to heat up water that is stored in a hot water cylinder. The two types of panels that are eligible are evacuated tube panels and liquid-filled flat plate panels

npower can provide you with a range of comprehensive end-to-end solutions across a range of technologies, helping define your energy management objectives and support you on the journey towards long-lasting and sustainable carbon, energy and cost reductions.

and procurement (commensurate with client risk appetite), development of a whole site heat balance model that 'drives' an economic optimisation model based on dynamic market prices, maximisation of Triad revenue and plant scheduling. RWE npower also provides a route to market for power export and acts as supplier of imported power and gas. Incentive mechanisms within the contract avoid conflicts of interest by linking rewards to reliability targets and delivery of optimisation revenues. The removal of commercial boundaries between the CHP and the host processes, combined with decision making based on the whole site heat balance model, can lead to the minimisation of energy supply costs.

Given the uncertainty of energy markets and the challenges of short term energy trends, these new contracts create options for CHP owners whilst providing expert support in regulatory and market development. Expert engineering & maintenance services enable focused investment, which together with active market management minimise energy costs.

Cost reductions help clients manage operating costs, thus improving global competitiveness, supporting employment prospects and maintaining CHP capability.

Grid reserve services

The operation of the Great Britain transmission system is fundamentally changing - moving from a relatively predictable generation and demand base to one that includes a significant level of renewable generation with more variable output and demand that will become increasingly flexible, smart and price sensitive towards the end of the decade.

The greater variability in system dynamics will inevitably increase the number of energy balancing actions taken by National Grid and, as a consequence, there will be an increase in the cost of managing this uncertainty. In their 'Operating in 2020' document, National Grid suggest that by the end of the decade the forecast for procuring the full Operating Reserve Requirement would rise to be between £565m and £945m per annum (currently c£300m).

RWE npower is the largest provider of reserve services to National Grid (NGC) with over 20% Short Term Operating Reserve (STOR) market share from over 600MW of large conventional and cogeneration assets. Recognising the significant growth potential in the range of services required by NGC and the Distribution Network Operators (DNOs) in the coming years, RWE npower have also created a leading Reserve Management capability for our key customers and their assets.

Short Term Operating Reserve (STOR)

Short Term Operating Reserve is a service for the provision of additional power to grid from generation and/or demand reduction during infrequent, unforeseen events (for instance when a conventional power station trips). A large range of businesses can participate without disruption to normal activity if embedded diesel or CHP generation can run to displace power that would normally have been imported.

Triad Avoidance

RWE npower despatches the on site-diesel gensets and any available CHP capacity during the winter peak Triad periods, effectively self-supplying the site and exporting any excess to the grid. The site would benefit from the pass-through of savings against the TNUoS elements of the power supply contract together with any associated spill payments from an RWE npower Power Purchase Agreement (PPA).

Firm Frequency Response and Frequency Control by Demand Management

System frequency is controlled in real time by National Grid by balancing electricity demand with generation. If there is a shortfall in generation, such as when a large power station fails, frequency can fall rapidly. FFR and FCDM are automated smart grid services aggregating frequency responsive capacity for National Grid, reducing (or increasing) load and starting generation within seconds of an event.

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Over the past decade, we have developed our service, extended our offering and now work far more closely with our customers to provide solutions to their energy needs.
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