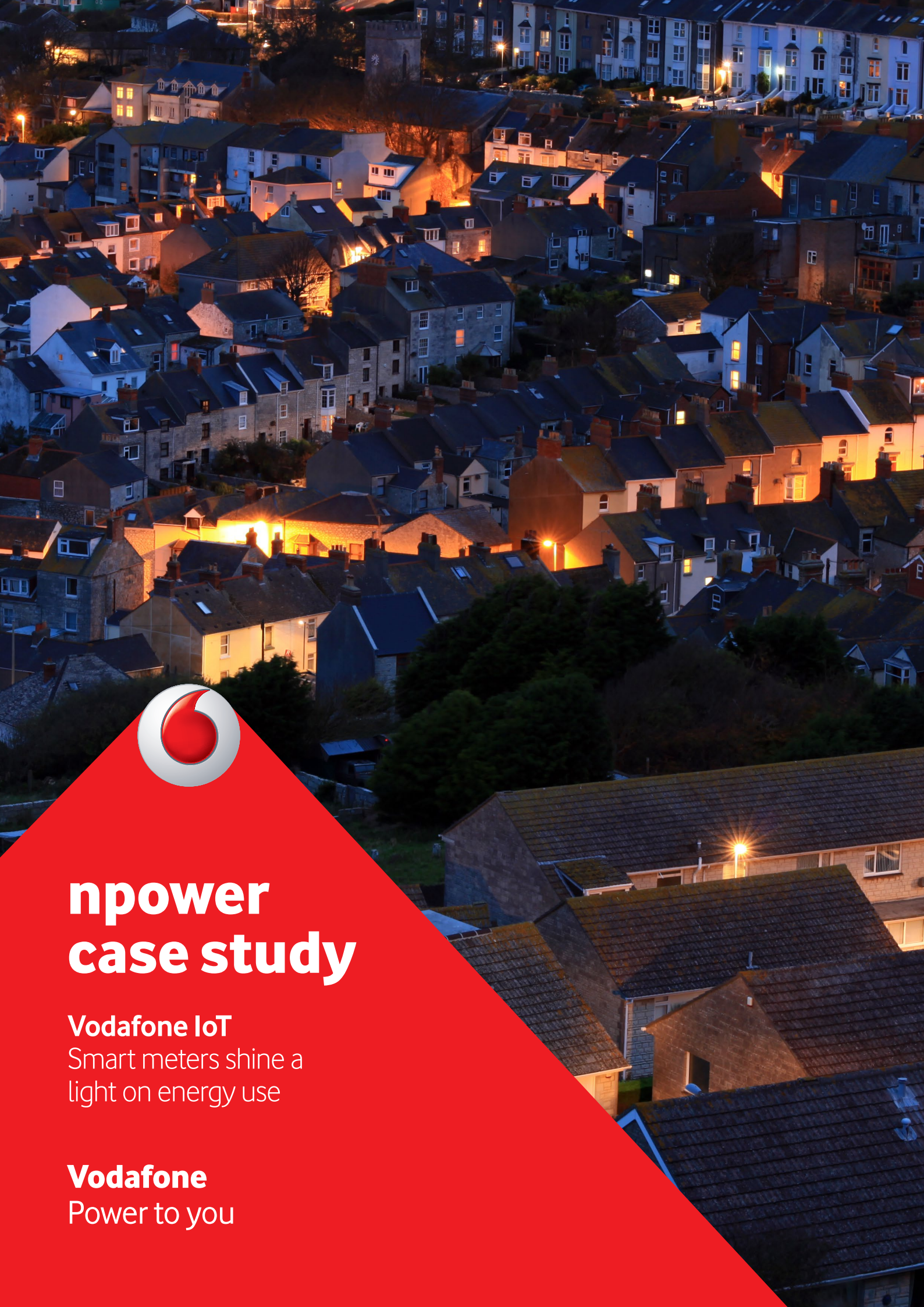

npower case study

Vodafone IoT
Smart meters shine a light on energy use

Vodafone
Power to you

Smart meters shine a light on energy use

What uses more electricity, three table lamps or one flat screen TV? Is running a hair dryer on full blast for five minutes more costly than a day's worth of phone charging?

Who knows? By 2020 the UK government hopes we'll at least have the means to check, as energy companies are being mandated to offer smart meters to all 26 million homes across the UK by then.

The challenge

Creating the connected home

The UK government wants energy smart meters in every home by 2020. The thinking is the better able consumers are to monitor their energy use, the more likely they will be to reduce their consumption or choose a better tariff.

Six energy firms supply 26 million homes across the UK, more than 90% of the market. These six will lead the roll-out of smart meters.

Understandably, energy firms see smart meters as an opportunity which goes beyond energy reduction. The most visionary see the smart meter acting as an interactive hub, able to send and receive data throughout the day, the centrepiece of a connected home. This hub could check whether doors and windows are locked, activate home appliances and adjust the central heating.

But that is a long way down the line.

npower, part of the RWE Group, serves around 6.5m residential and business customers in the UK. RWE is one of Europe's top five electricity and gas companies.

For npower, the challenge is to have the capacity to potentially install smart meters in more than one million homes a year, nearly 19,000 each week. These meters must be secure, easy to deploy and super-reliable. The project which started in 2010 is under scrutiny from both government and consumers so technical failure is not an option.

The solution

Secure, reliable and easy to deploy

For Dave Clarke, Smart Metering Technical Business Architect at RWE npower, the search for a solution began globally: "We wanted to see who was already doing this. Who were the best service providers?"

That search led to a global systems integrator and a US smart metering specialist to supply the communications hub, with Vodafone providing secure connectivity. "A Vodafone global SIM allows us to install a smart meter anywhere in Britain, secure in the knowledge that the Vodafone SIM will automatically connect to the strongest signal," says Clarke. "This also allows us to send and receive over the air from the SIM – we can communicate back and forth."

This means the smart meter can fulfil its basic function – to send a monthly or daily read and 48 half-hourly profile readings where consent is given. npower can update the customer tariff or take a meter reading as instructed. All updates, along with a map of the daily usage, can be seen via the customers' In Home Display (IHD).

"Vodafone's input goes beyond connectivity, though," says Clarke. "The solution requires a highly complex architecture. It's fine to look at tried and tested solutions, but each implementation is different and poses its own unique problems to overcome."

"We have three environments – development, pre-production and live, and Vodafone has provided a solution, the Managed IoT Connectivity Platform , to connect these environments through their network to the Smart Metering Systems. With the Vodafone MachineLink 3G terminal we can test connections independently of the communications hub. This hugely improves our diagnostic capability. Vodafone's network experience has proved invaluable."

Early trials went live in November 2013, with Clarke describing the initial feedback as positive. The plan is now to extend its foundation phase to 40,000 users, starting with npower staff, before full roll-out in 2015.

"The next phase will allow our engineers and service teams to gain essential learnings in technology and the delivery," says Clarke. "We want to showcase an excellent npower experience during roll-out. This is not simply a question of dropping off a smart meter with a customer. We are regulated to spend time face-to-face with each customer and ensure they understand the benefits of Smart Metering. It's no small venture."

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Dave Clarke, Smart Metering Technical Business Architect, RWE npower

The bottom line

The future

"Smarter homes, lower energy, this is the stuff of the future," says Clarke. While solutions such as these won't be in place in 2015, a vision of how connected homes could work in the future is being considered. npower has a dedicated team looking at the possibilities of the connected home and is forging alliances with third party manufacturers and developers.

"The smarter home is a journey," says Clarke. "We want to be at the forefront of this journey. This is an opportunity for npower to demonstrate its abilities in energy management, across a range of new services."

International expansion

- Solution capable of connecting to all UK homes, with the ability to send and receive data
- Creates a roadmap to deliver a true smart home experience
- Able to ensure a roll-out of 19,000 smart meters each week, for six years
- Provides network testing environment to ensure flawless technical infrastructure

About the customer

- 6.5m business and residential customers in the UK, strong in the Yorkshire and North East region
- Parent company produces 10% of UK electricity
- Employs 9,600 people in the UK
- Operating profits of £176m in the first six months of 2013
- **www.npower.com**

vodafone.com/iot