



End-to-end smart grid & consumer engagement

6th Smart Grids & Cleanpower Conference

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www.hvm-uk.com

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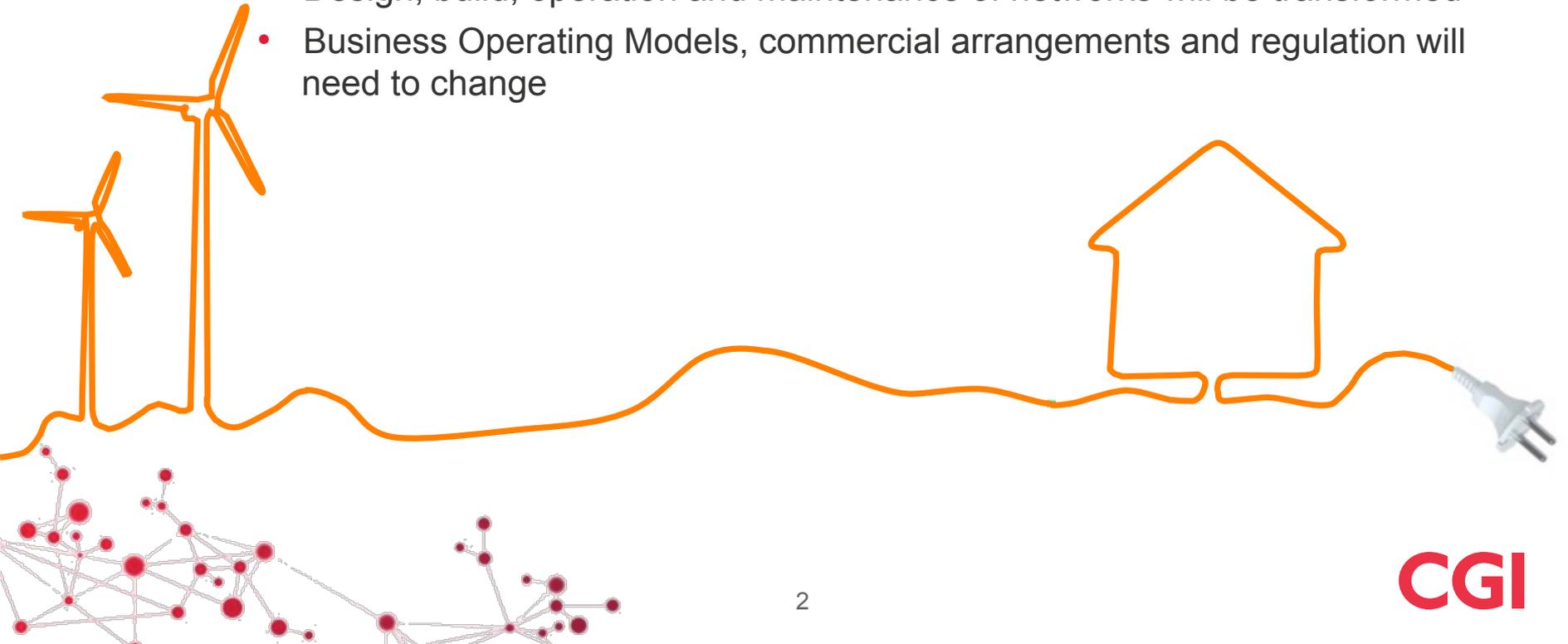
CGI

Defining a Smart Grid

“Electricity networks that can **intelligently** integrate the **behaviour and actions** of all users connected to it - generators, consumers and those that do both – in order to efficiently deliver **sustainable, economic and secure** electricity supplies”

Source: European Technology Platform Smart Grids

- Greater instrumentation of the networks
- Conversion of data into actionable insights
- Design, build, operation and maintenance of networks will be transformed
- Business Operating Models, commercial arrangements and regulation will need to change



... but why do we need a “Smart Grid”?

The way we are using energy is changing

- More journeys will be powered by electricity rather than petrol or diesel
- More space heating by heat pumps rather than gas boilers

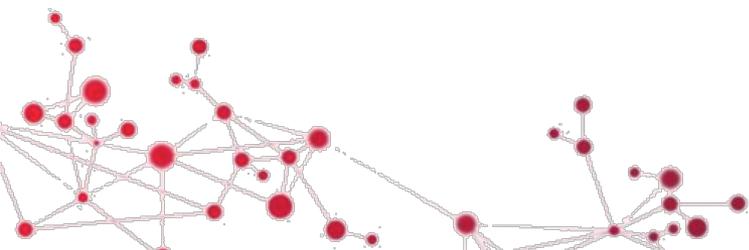
The way we are satisfying or demand for energy is changing

- Replacement of centralised generation with more intermittent, renewable sources
- More energy demand satisfied locally by micro generators

The energy system is becoming **more dynamic and complex**

... and that means we need a more **intelligent energy system**

- we'll be designing and operating our energy networks differently

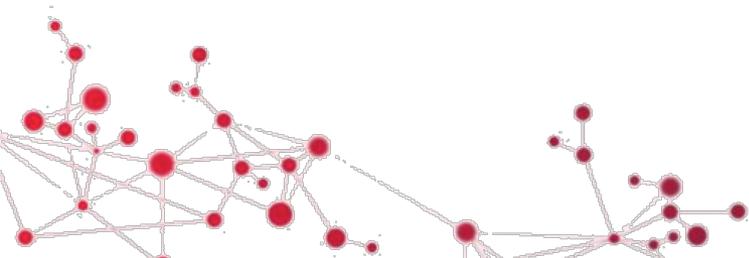


Creating Engagement

Raising awareness and gaining commitment

- Making people feel a part of something
 - Creating awareness of the opportunities and benefits
 - Using Vaxjo's 'Greenest City in Europe' accolade to create a sense of purpose
- Putting people in control
 - Creation of an organisation with responsibility for disseminating information
 - Broad stakeholder group
 - Providing the tools (EnergiKollen)
 - Awareness campaigns
- Engage people in easier activities
 - Quizzes on web sites
 - EnergiKollen competitions
- Engage people to make a change in behaviour
- Feedback of results of changed behaviour
 - Engage media in results of EnergiKollen competitions

Source: [How to Create Energy Efficient Behaviour in a City such as Vaxjo](#)



Creating Engagement | Making it Interesting and Rewarding

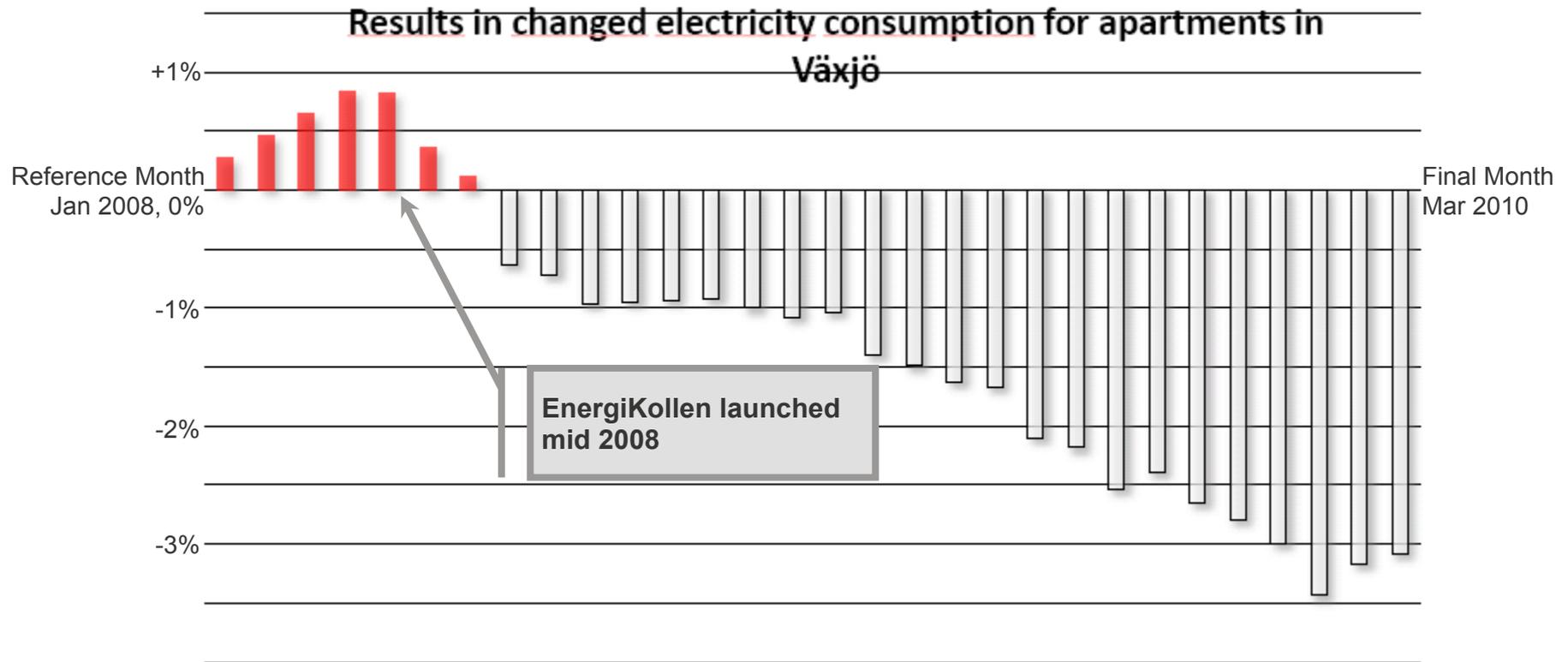
ENERGIKOLLEN



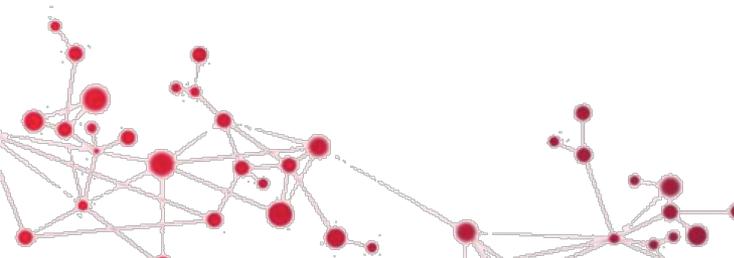
- Transforms data into easily understandable information
- Engaging consumers in a new and interesting ways through gamification
- Promotes discussion raising awareness
- Creates motivation to take control of energy consumption and costs



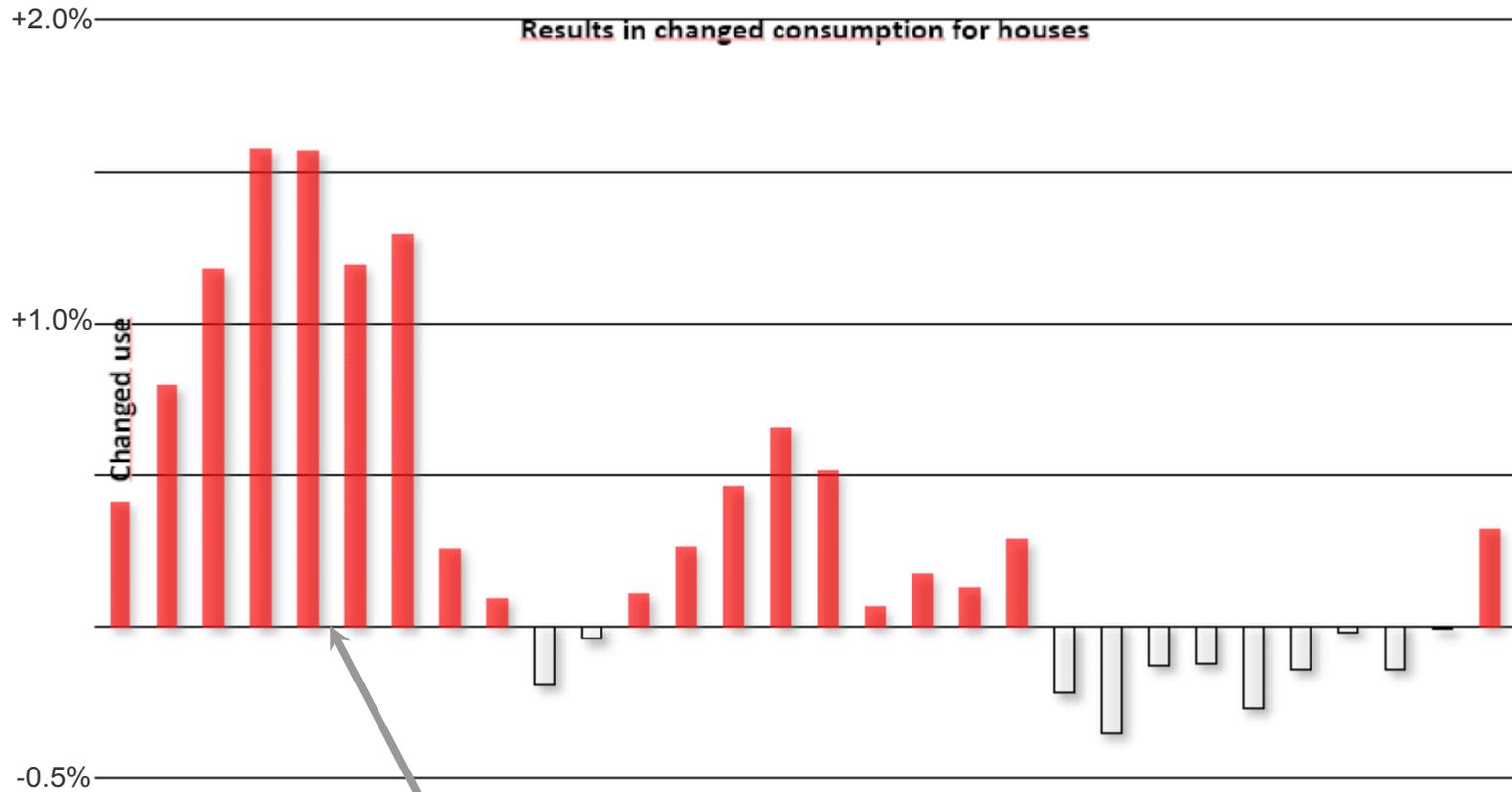
Apartments



Source: Figure 3.1, [How to Create Energy Efficient Behaviour in a City such as Växjö](#)

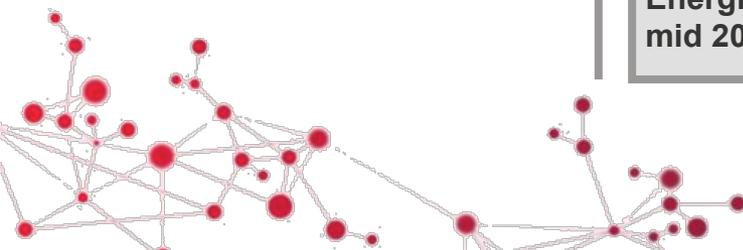


Houses

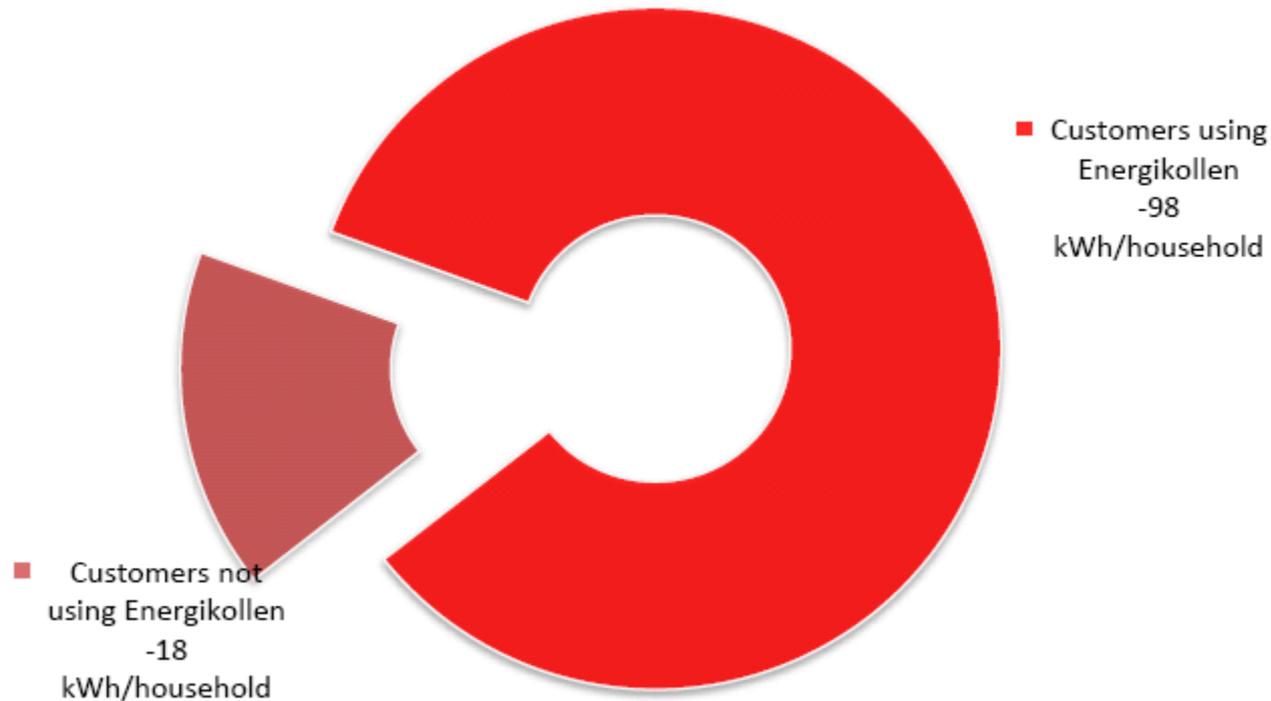


EnergiKollen launched mid 2008

Source: Figure 3.2, [How to Create Energy Efficient Behaviour in a City such as Vaxjo](#)



Impact of EnergiKollen



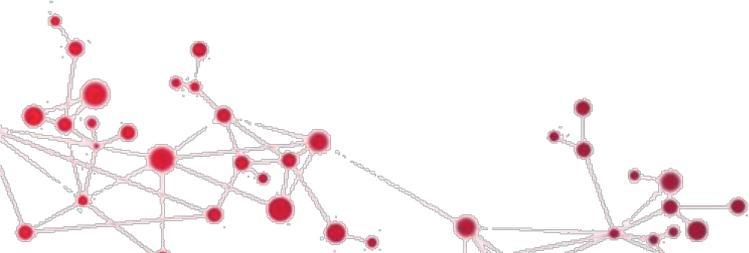
- Consumers using EnergiKollen saved >5 times that saved by those not using EnergiKollen
- Normalised information and gamification therefore seen as an important enabler to behaviour change

Source: Figure 3.3, [How to Create Energy Efficient Behaviour in a City such as Vaxjo](#)

Impact of Sustained feedback and Gamification

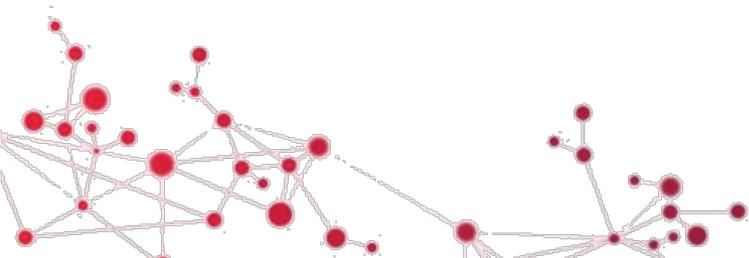
	2008	2009	2010
Apartments Total (N=108)	1.87%	-2.30%	-1.40%
Apartments that did not visit the web-site (N=85)	2.15%	-1.90%	-1.29
Apartments that visited the web-site (N=18)	-11.20%	-16.70%	-17.50%
Houses Total (N=391)	-0.79%	-4.31%	-3.40%
Houses that did not visit the web-site (N=241)	-0.25%	-2.65%	-0.83%
Houses the visited the web-site (N=140)	-1.20%	-9.40%	-11.90%

- Awareness campaigns change behaviour, but impact wains post campaign
- Those homes using web based tools sustain and increase impact



What is the consumer awareness of smart grids

- More than half (52%) of consumers believe renewable energy is at the heart of a sustainable future
- 7 out of 8 people haven't received information on smart grids
 - Yet, more than 1 in 3 (35%) anticipate it will help them manage energy consumption
 - And almost 1 in 5 (19%) believe being connected to a smart grid will help them to lower energy consumption
- But there's contra-indications that tell us we need to engage people
 - 1 in 6 (17%) of respondents said they wouldn't use low carbon technologies connected to a smart grid
 - And the percentage grows in the over 55s
 - 34% always opt out of allowing use of their data



Source: CGI Eco Environment and consumer attitudes surveys

Evolution of a More Intelligent Energy System



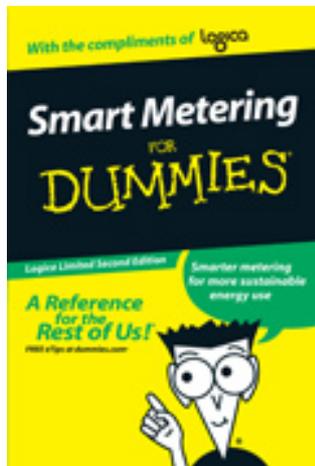
Closing thoughts...

- **Smart grids are a mitigation** to some of the impacts of the shift to a low carbon economy...
 - ... and the associated cost implications if we continue to design and operate our networks in the way we do today
- For consumers who have the **ability to manage** how and when they consume energy, and **embrace the opportunity** to do so, they can **reduce their exposure** to rising energy costs
- This is a **long term revolution** in how we meet our energy needs
 - Technological innovation and commercialisation
 - Changing consumer attitudes
- Business Models will change
- It's driven by **information**
 -but don't forget to help customers understand the benefits of allowing access to their data
 -and give them **positive choices**

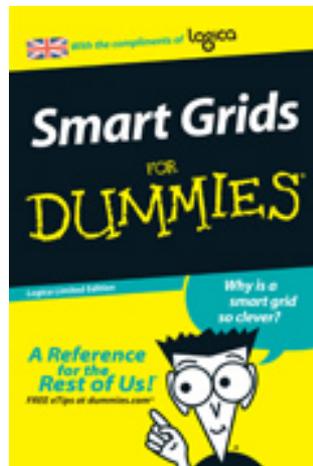


More Information for Utilities

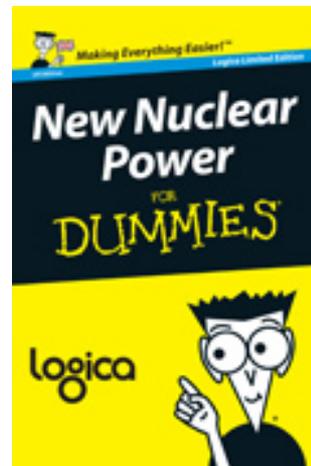
More information about Utilities can be found in CGI's "Smart Metering for Dummies", "Smart Grids for Dummies", "New Nuclear Power for Dummies", "Implementing EAM for Dummies" and "GB Electricity Industry for Dummies"



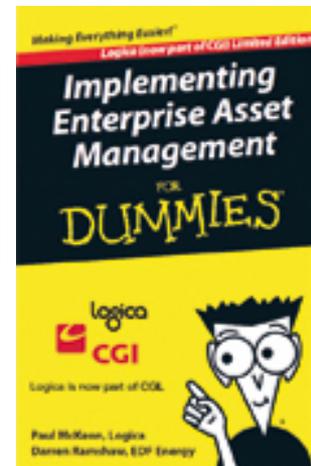
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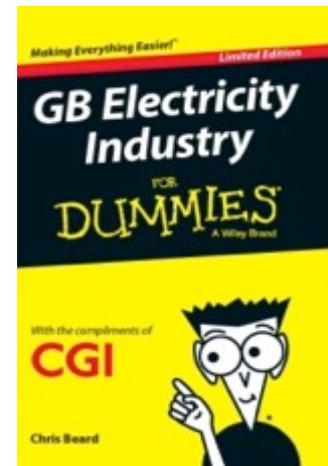
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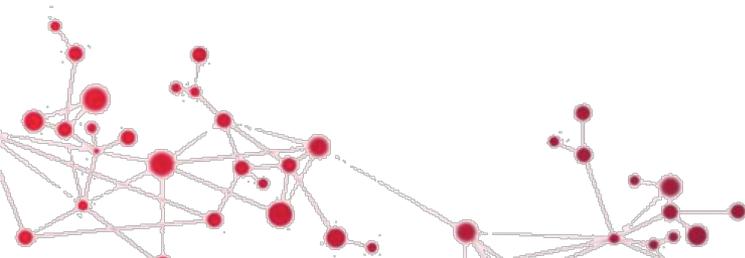
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