

# Delta's Decentralised Energy Outlook **JANUARY 2011**

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## Energy Services in Europe – How To Play A Winning Game

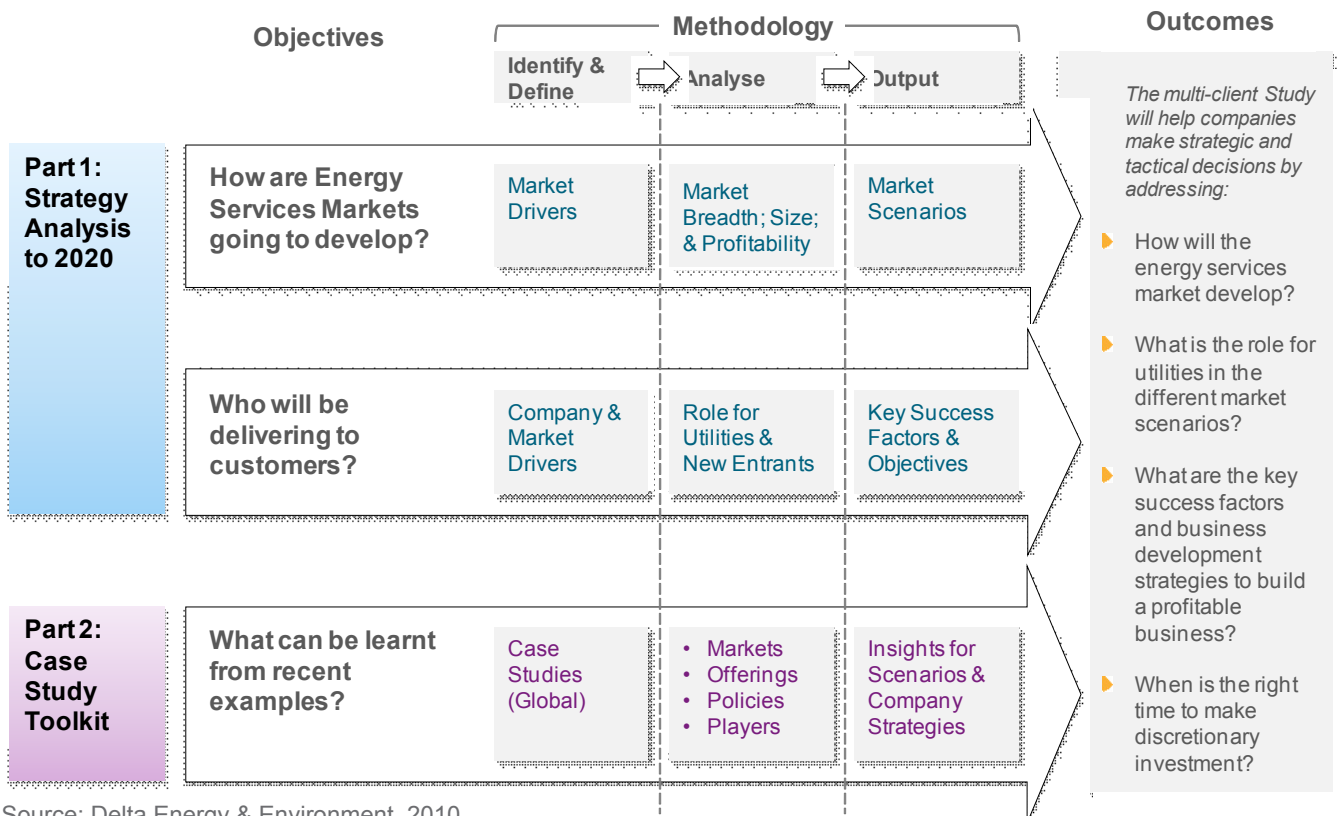
### New Delta Multi-Client Study

By 2020 the retail energy market across Europe will look very different from today. Energy consumption in households – which accounts for some 30% of total European energy demand – is a key focus for government and regulatory intervention, with utilities across the Continent being pushed to encourage their customers to use less energy. At the same time, the ‘smart grid’ initiatives are reaching beyond the meter into customer’s homes.

The implications for utilities are clear: retail energy demand will decline. However, an opportunity exists to lever advances in technology and infrastructure to develop broader relationships with retail customers, expanding the traditional utility offering into what we generically call ‘energy services’ – products or services that assist customers to lower energy consumption, carbon emissions or bills.

Delta is therefore undertaking a new multi-client Study: “Mass Market Energy Services – Strategies For Success”. The Study will develop energy services market scenarios and evaluate the criteria for winners in each scenario. The scenarios will take into account future market evolution (eg electric vs non-electric heating) as well as the potential for new technologies to emerge (eg for home energy management, demand response or EV charging). The methodology and scope of the Study is illustrated below.

**FIGURE 1: METHODOLOGY & SCOPE OF MASS MARKET ENERGY SERVICES STUDY**



Source: Delta Energy & Environment, 2010

The utilities are not alone in looking at what, by some estimates, could be a €1 trillion market in Europe. Energy in buildings may be a larger market than power generation according to one International Energy Agency scenario. Start ups and new entrants such as high street retailers, telecommunications, TV and media companies could all try to capture a share of this huge emerging market. Each company will have its specific strengths and weaknesses, but success will depend more on capacity for future innovation than on past record.

The direction of travel is clear: mass market energy services are set to become an important business for utilities in the future, whether or not they decide to actively play in them. And for those that decide to participate, the challenge is to identify the blueprint that not only incorporates the key ingredients of success but also creates a profitable business that is flexible enough to respond to uncertainties in policy, technology and customer attitudes.

**Mass Market Energy Services – Strategies For Success** will support subscribers in their strategic planning and business development activities - from helping to decide the strategic role of energy services within their overall business portfolio, through to understanding the key success factors to win in their markets and determining when is the right time to move ahead of regulatory requirements and commit discretionary investment.

In particular the Study will answer the following questions:

- ▶ How will the energy services market develop?
- ▶ What is the role for utilities in the different market scenarios?
- ▶ What are the key success factors and business development strategies to build a profitable business?
- ▶ When is the right time to make discretionary investment?

**If you would like more information, or the detailed 'Mass Market Energy Services – Strategies For Success Study prospectus, please contact Andy Bradley on +44 (0)131 476 4259 or [andy.bradley@delta-ee.com](mailto:andy.bradley@delta-ee.com).**

Delta held its annual 'Energy Services in Europe' Summit in Amsterdam in June 2010. Please visit [www.delta-ee.com/downloads/Summit\\_note\\_website3rdAugust2010.pdf](http://www.delta-ee.com/downloads/Summit_note_website3rdAugust2010.pdf) to see "Energy Services – Momentum Building, But Still In Early Stages" summarising highlights from the event.



## Understanding Customer Attitudes Towards Decentralised Energy

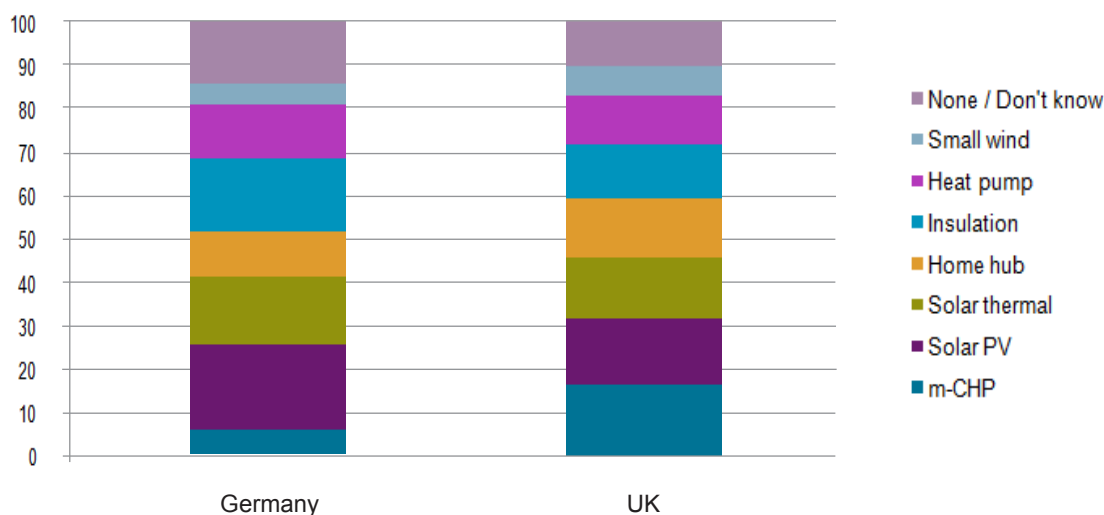
Investment in decentralised energy – energy assets at customer's buildings – could be larger than investment in power plants, according to the International Energy Agency. **Understanding consumer attitudes** is critical to securing a stake in this market.

New research by Delta Energy & Environment shows that **UK** customers are most attracted to micro-CHP and photovoltaics but only just ahead of a range of other technologies. Electricity and gas suppliers are the most trusted types of companies for installing such products.

In **Germany**, photovoltaics, solar thermal and insulation stand out as the most popular technologies. Installation companies and manufacturers are the most trusted – electricity and gas suppliers fall along way down the list.

### FIGURE 2: GERMAN AND UK ATTITUDES TOWARDS DIFFERENT DECENTRALISED ENERGY TECHNOLOGIES

These responses were in response to short descriptions of the technology – without any information on paybacks, performance, savings etc. Consumers were asked 'Which kind of energy saving products and services are you most interested in using in your home?' The results incorporate respondents' top three choices.



Source: Delta Energy & Environment, 2010

For more information see the full article: [http://www.delta-ee.com/downloads/Delta\\_Customer\\_Attitudes\\_to\\_DE.pdf](http://www.delta-ee.com/downloads/Delta_Customer_Attitudes_to_DE.pdf). To learn more about Delta's research on understanding customer attitudes towards decentralised energy, Delta's energy services multi and Delta's wider research, please contact Andy Bradley on +44 131 476 4259, [andy.bradley@delta-ee.com](mailto:andy.bradley@delta-ee.com).

## Home Energy Management – Part of a Low Carbon Future?

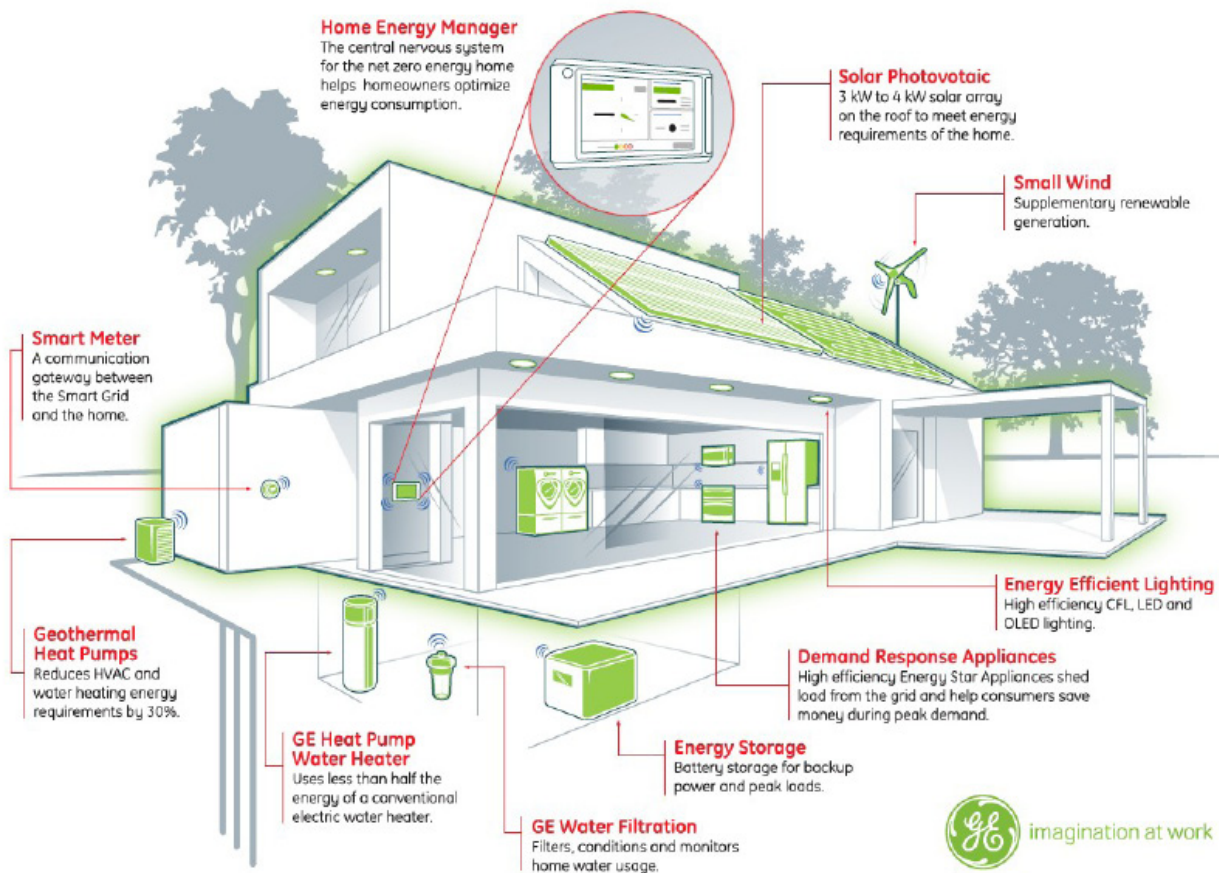
### Home energy management innovation - a critical enabler of the 'smart demand' market

Home energy management devices (HEM) offer consumers an opportunity to cut their energy consumption and bills by providing them with real-time information on energy demand and prices, and by enabling control of in-house appliances, microgeneration and electric vehicles. By shifting demand to times when energy is 'cheap', these devices enable greater cost savings for the consumer, but also support utilities in matching supply and demand.

*These devices represent a key part of the 'smart' home (see Figure 3), and with emerging smart grid initiatives trying to reach beyond the meter, into customers' homes, HEM can be a key enabler of the future smart grid.*

#### FIGURE 3: GE'S HOME ENERGY MANAGER

*This energy manager is planned to be available in the UK in 2011 and integrates control of DG and energy storage as well as other household appliances.*



Source: GE, 2009

(continued)

## Shaping a UK HEM trial

With part of its mandate being to help people use energy more efficiently, the home hub concept has potential to play a significant role in achieving the Energy Saving Trust's (EST) objectives. Delta worked with the EST in developing a potential home hub field trial to address some of the knowledge gaps in the industry and to support the development of the market in the UK. Specifically, Delta scoped out the key goals a trial needs to achieve and the shape of the trial itself.

For more information on this trial, please contact Stephen Harkin on +44 (0) 131 623 1005 or via email at [stephen.harkin@delta-ee.com](mailto:stephen.harkin@delta-ee.com).

## Delta grows its expertise in smart home energy management

Energy suppliers in the future may well be communicating with appliances in the customer home, turning off refrigerators or electric vehicle charging during times of peak demand, and dispatching micro-CHP. For a possible vision of this future, follow this Delta article link: [http://www.delta-ee.com/downloads/delta\\_2020Vision.pdf](http://www.delta-ee.com/downloads/delta_2020Vision.pdf). Delta presented this paper at its Energy Service's Summit in Amsterdam in June 2010 at which the role for electricity utilities in the future development of energy services and smart homes was a hot topic.

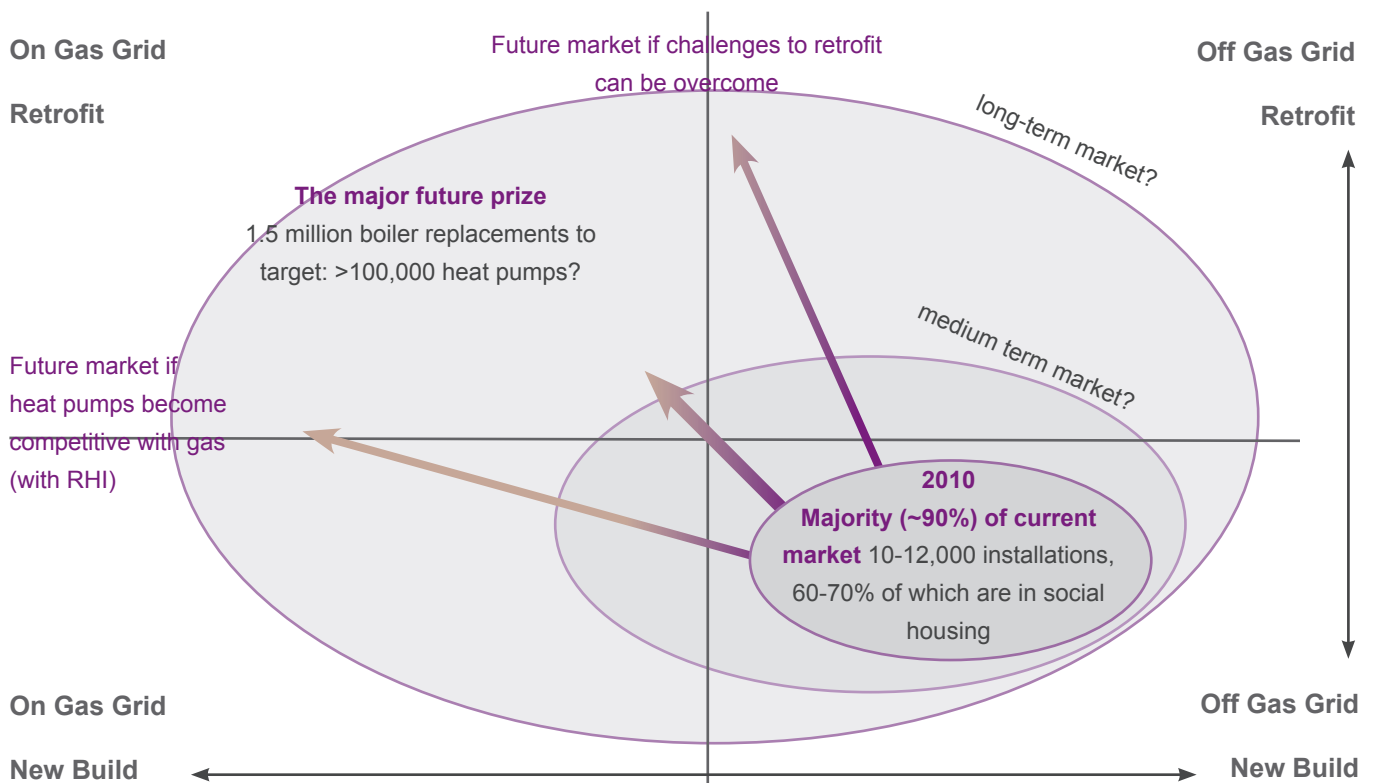
Based on its growing insight in this area, Delta chaired a session at the 'Smart Homes' conference (link [http://www.smarthomes2010.com/General/Home\\_6558.aspx](http://www.smarthomes2010.com/General/Home_6558.aspx)) in Vienna in September 2010, exploring the business models and strategies of companies in the smart homes area. To discuss key issues raised at this event contact Michael Brown on +44 (0)131 466 5544, email: [michael.brown@delta-ee.com](mailto:michael.brown@delta-ee.com).

## The Retrofit Heat Pump Market Remains Challenging, but if it can be Tapped into Represents a Massive Prize

The next decade could see the UK heat pump market transform from embryonic to mass market. 10-15,000 heat pumps were installed in 2009 (doubling the installed base) - most of which were in off-gas grid new builds and refurbishments. Given sufficient policy support - and if barriers to uptake can be overcome - the industry believes that annual installations could reach 2-300,000 by 2020, implying that heat pumps will be (i) taking market share from gas boilers and (ii) penetrating the retrofit market. Delta sees the level of growth anticipated by the industry as optimistic, but believes that more conservative scenarios, projecting a 2020 market size of around 100,000 / year could be achievable. Figure 4 below illustrates the growth trajectories possible for the market.

**FIGURE 4: TRANSFORMATION OF UK THE UK HEAT PUMP MARKET**

The current residential heat pump market is focused on the off-gas grid, new build sector. Around two thirds of the installed heat pumps are in social housing (new build and refurbishments). There is very little penetration of the retrofit or on-gas grid sectors (<10% of current heat pump market). Future market growth will drive further into the on-gas grid and retrofit sectors.



For more information see the full article: [http://www.delta-ee.com/downloads/Delta\\_Decentralised\\_Energy\\_Outlook\\_Jan2011\\_Transformation\\_of\\_UK\\_Heat\\_Pump\\_Market.pdf](http://www.delta-ee.com/downloads/Delta_Decentralised_Energy_Outlook_Jan2011_Transformation_of_UK_Heat_Pump_Market.pdf). For more information on Delta's heat pump research including our soon-to be launched Heat Pump Innovation Monitor, contact Lindsay Sugden: [lindsay.sugden@delta-ee.com](mailto:lindsay.sugden@delta-ee.com) or +44 (0)131 625 1006.

## Delta Provides UK CHP Policy and Value Chain Analysis for Caterpillar-led Energy Technologies Institute Project

Multi-megawatt CHP / distributed energy (DE) projects linking several heat loads have potential in many European towns and cities to improve overall energy system efficiency and lower carbon emissions. However, aggregating multiple heat demands and making the economics of the projects stack up remain as significant barriers.

The UK industry-government funded research body, the Energy Technologies Institute (ETI), has commissioned research to develop a software tool that will enable it to model and optimise the deployment of DE in the UK to serve aggregated demand centres. By aggregating demand centres and deploying DE in a zonal approach, the ETI aims to improve the overall efficiency of the UK energy system, and reduce carbon emissions.

Delta has applied its deep knowledge of the UK CHP / DE industry for Caterpillar, as part of this major project (link to project: <http://www.energytechnologies.co.uk/Home/Technology-Programmes/Distributed-Energy.aspx>), which is being led by Caterpillar.

Feeding into Work Package 1 of this project is Delta's:

- ▶ Knowledge of the UK DE industry
- ▶ View of future policy frameworks for DE in the UK
- ▶ Analysis of the business models, value chains and commercial rationale for deploying DE

This will help the ETI understand current industry practises, and how best to support the uptake of DE in the UK.

The UK ETI is a significant public-private initiative for delivering low carbon innovation in the UK. It brings together leading industrial players (Caterpillar, EDF Energy, E.ON UK, Rolls Royce, BP and Shell) and government to coordinate projects that create affordable, reliable, and clean energy for heat, power and transport in the UK. For more information on the ETI, please follow this link: <http://www.energytechnologies.co.uk/Home.aspx>.

For further information and insight on this project, please contact Stephen Harkin on +44 (0)131 625 1005, [Stephen.Harkin@delta-ee.com](mailto:Stephen.Harkin@delta-ee.com)

## Micro-CHP Finally Arrives in Europe – But Future Growth Uncertain

After many years of waiting, households in a number of European countries can now purchase a micro-CHP appliance instead of a boiler. But participants at Delta's Fifth Annual 'Micro-CHP in Europe' Summit - held in June 2010 - had a range of views about how the market would emerge. Estimates for the European annual market size in 2015 ranged from less than 50,000 to more than 150,000 units per year.

### The emerging global micro-CHP market is worth €269 million, or over 20,000 units a year

Delta's latest 'Micro-CHP Annual Roundup and Outlook' report, published as part of the Delta Micro-CHP Service, showed that global micro-CHP sales actually fell slightly in the last year, to 20,930 units (>80% in Japan). However the market size actually grew slightly to 37.8 MWe of capacity, with a market value of €269 million. This was because sales of 5 kWe products to the German market (to a mix of multi-family homes, single family homes and small business) grew slightly from the previous year, whereas the sales of 1 kWe units in Japan fell.

For more information, see the full article ([http://www.delta-ee.com/downloads/Delta\\_Micro\\_CHP\\_arrives\\_in\\_Europe.pdf](http://www.delta-ee.com/downloads/Delta_Micro_CHP_arrives_in_Europe.pdf)). For information on Delta's micro-CHP research, or the Delta Micro-CHP Service, please contact Jon Slowe, [jon.slowe@delta-ee.com](mailto:jon.slowe@delta-ee.com), +44 131 625 1004.

