

Delta's Decentralised Energy Outlook **MAY 2010**

- ▶ **Energy Services – Has Its Time Finally Come?**
- ▶ **CHP in Germany 2010 – 2015: Likely CHP Market Upswing After A Recession-Hit Year**
- ▶ **Gas Micro-CHP: A Limited Low Carbon Window of Opportunity?**
- ▶ **Finance – the Key to Unlocking the Decentralised Energy Market**



Delta's Decentralised Energy Outlook

Published four times a year, this newsletter provides highlights of Delta's research, views and analysis on various aspects of decentralised energy. To ensure you receive a copy, please register at www.delta-ee.com.

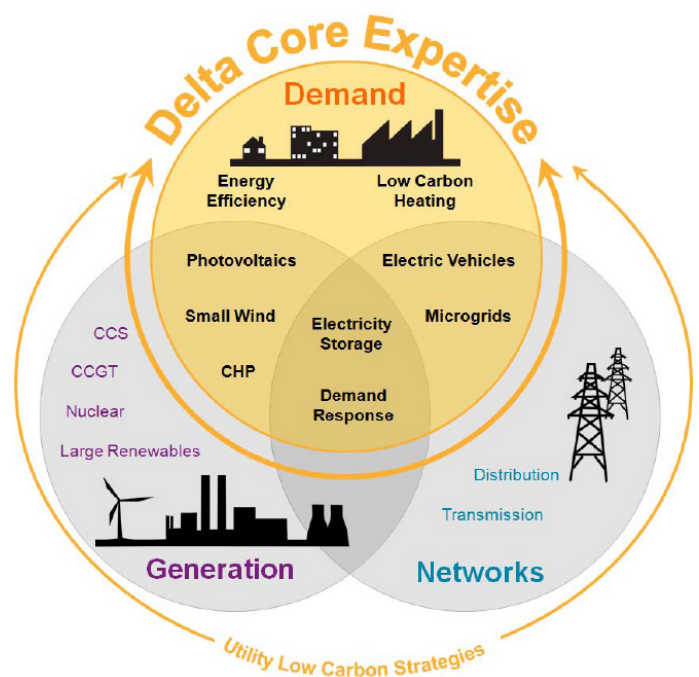
About Delta Energy & Environment

Delta provides commercial insight and market expertise in:

- Decentralised energy - including electric transportation and energy efficiency
- Low carbon strategies

Clients span Europe, North America and East Asia and comprise:

- Energy companies
- Investors
- Equipment manufacturers & technology developers
- Policy makers



Delta Energy & Environment
15 Great Stuart Street
Edinburgh EH3 7TS, UK
Tel: +44 131 625 1011
Fax: +44 131 466 7755

info@delta-ee.com
www.delta-ee.com

Copyright © 2010 Delta Energy & Environment Ltd.

Reproduction of this publication in any form is prohibited except with the written permission of Delta. Because of the possibility of human or mechanical error by Delta's sources, Delta does not guarantee the accuracy, adequacy, completeness, or availability of any Delta information and is not responsible for any errors or omissions or for the use of such Delta information. Delta gives no express or implied warranties, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose or use. In no event shall Delta be liable for any direct, indirect, special, or consequential damages in connection with subscribers' or others' use of this publication.

Unless otherwise credited all diagrams in this report belong to Delta Energy & Environment Ltd.

All rights reserved.

Energy Services – Has Its Time Finally Come?

Delta's 'Energy Services in Europe' 2010 Summit on 16 June in Amsterdam will provide attendees with the opportunity to hear from players – both new entrants and utilities - at the cutting edge of the evolving energy services market. Has the time for mass market energy services finally arrived? And in a market as far removed from the regulated monopolies of the 1970's as Lady Gaga from T-Rex, will utilities have it their own way – or will new entrants be the pacesetters?

The Energy Services Company model¹ (Esco) was first developed in the 1970s following the first oil price crises. However, as the energy crises faded, the model fell out of fashion for most customers, who were no longer sufficiently motivated by future energy savings. Deregulation in the late 1990s led to some commentators expecting utilities to turn to energy services as a means of differentiation and customer retention in increasingly competitive markets. However, these expectations never really turned into reality, as utilities primarily competed on price.

As a result, energy services and Esco's today remain most strongly associated with the B2B market, building energy management and district energy schemes.

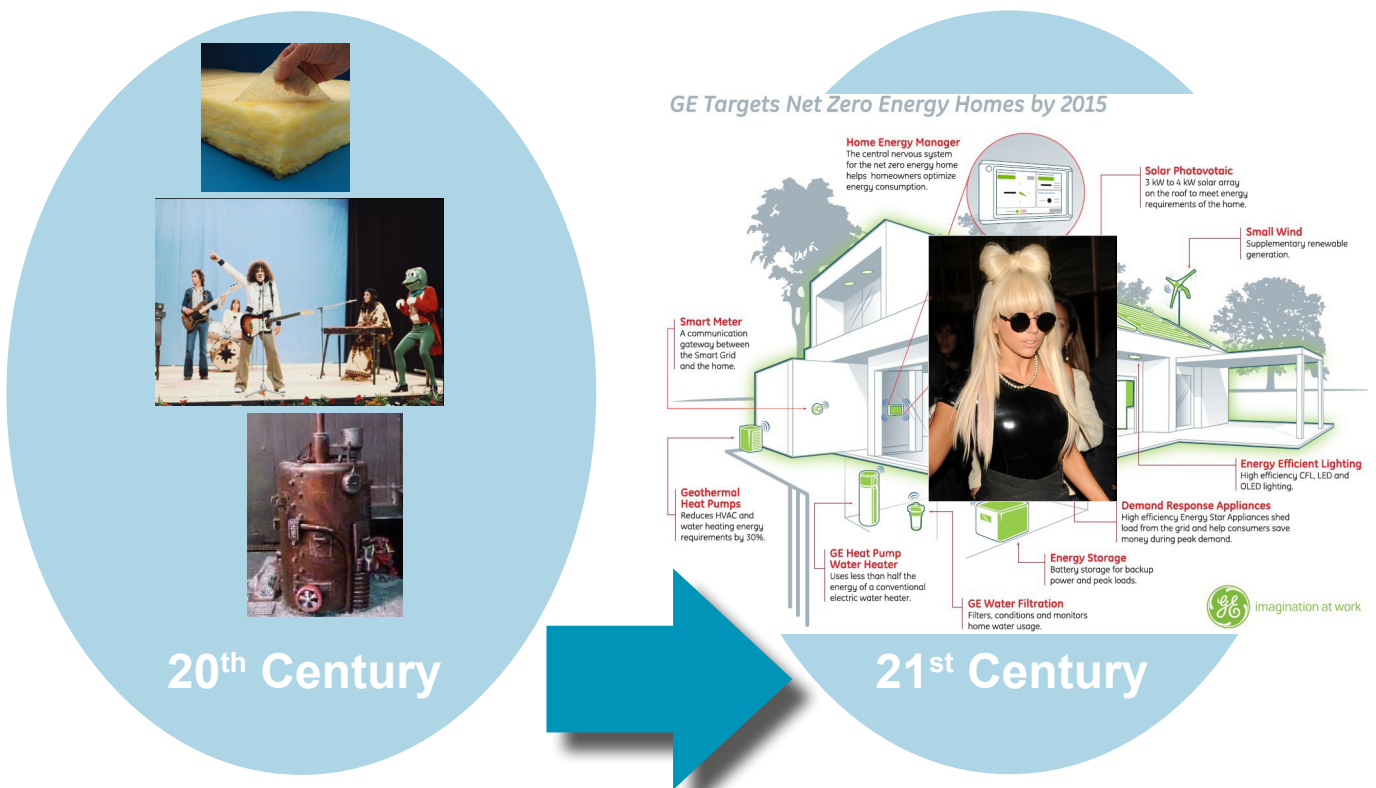
Today, new drivers are tantalising some with development of energy services into a more diverse business that will extend its reach deeply into the retail (B2C) mass market. These drivers include:

- The accelerating low carbon agenda. Energy suppliers are increasingly expected to actively support their customers in using less energy – pushing utilities towards a deeper and more complex relationship with their customers.
- The European mandate to roll out smart meters by 2020 will be a key enabler in the development of the smart grid and energy services, facilitating smarter integration of micro-generation, renewables and demand-side management. From a utility perspective, opportunities to influence and control the timing of demand become increasingly relevant as renewable energy production rises.
- Higher energy prices and energy security, particularly a dependence upon imports, are continuing to push energy services up the political agenda across Europe.
- Technology developments and cost reductions in small scale energy production (such as PV, small wind, solar thermal, heat pumps, micro-CHP), combined with policy incentives, are making them a viable proposition for many retail customers for the first time. Micro-CHP is poised for take-off in the next few years as developers bring new products and technologies to market.
- The growth of energy efficiency, distributed generation and low carbon heat combined with the maturity of many markets means that utilities have to seek ways to broaden their offerings if they are to grow their revenues over the coming decade.
- The market is more competitive than ever and by providing high quality energy services, utilities can build competitive advantage and improve customer retention.

¹ Also known as energy 'contracting' or 'chauffage'

Some utilities – and new entrants – are already starting to build value and identify synergies with smart grid developments. For example, exploiting energy services opportunities on the customer-side of the meter extending beyond efficiency measures, such as low carbon heat, distributed generation and 'smart' demand.

Figure 1: Energy Services In The 21st Century.....Will Utilities Play The Right Tune?
Moving with the times – from simple offerings to dynamic and integrated energy solutions



Source: Delta Energy & Environment, 2010

However, are the utilities best placed to engage with the customer and excite them with the potential of new energy services offerings? Utilities may find themselves competing with new entrants who have strong brands and deeper customer relationships. And these new entrants, such as from the retail, media or telecom sectors, may already be 'in the home', and be able to quickly build innovative customer propositions.

So it is by no means certain that the utilities will have it their own way – especially if they play the same old tune: if customers like "Poker Face" there's no point playing "Children of the Revolution".

The **"Energy Service in Europe" Summit** takes place on 16 June in Amsterdam, with an optional drinks reception and dinner on the evening of the 15 June.

For details on the Summit programme and registration information, please visit <http://www.delta-ee.com/ES2010.asp>

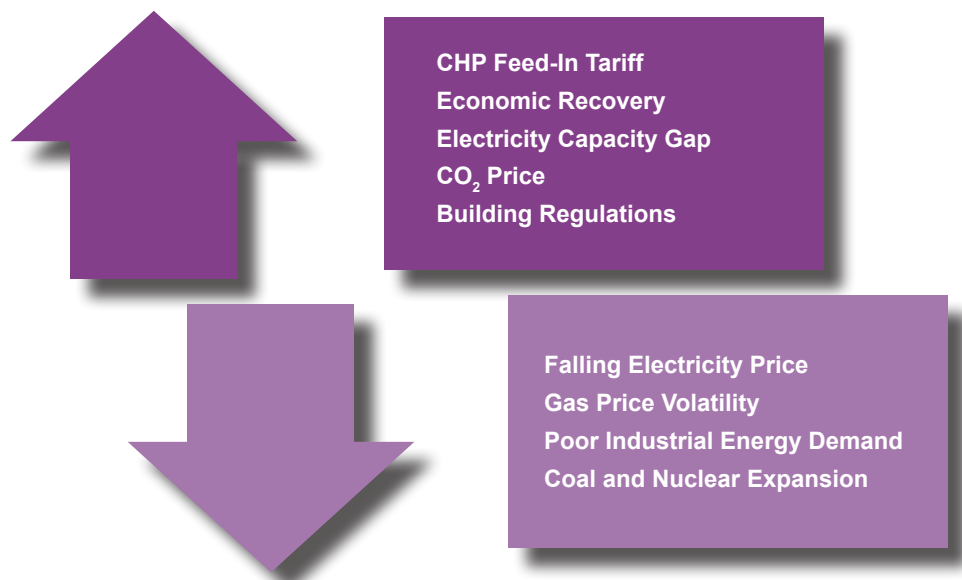
[back to top](#)

CHP in Germany 2010 – 2015: Likely CHP Market Upswing After A Recession-Hit Year

In Delta's view, the current CHP market slowdown in Germany, despite new CHP incentives, will be followed by growth across several CHP sectors, especially the small gas engine market.

Our view is based on specific analysis of trends amongst several key market drivers shown in Figure 2. The balance between the two sets of drivers is now set at 'positive' based on the existence of the CHP law and feed-in tariffs introduced in 2009.

FIGURE 2: Drivers and Barriers for CHP in Germany



Source: Delta Energy & Environment, 2010

Other drivers include:

- [+] The capacity gap – as old plants close and new ones are slow to be built.
- [+] Building regulations – a part of the Renewable Heat Law that can incentivise the development of smaller-scale CHP.
- [-] The main barrier is currently an adverse trend in CHP spark spreads – although we expect this to reverse with renewed economic growth and rising energy demand.

The government is unlikely to introduce new pro-CHP measures in the next few years, as it will first assess the impact of the 2009 CHP law. However, pressure on government budgets creates some uncertainty for the next few years – new funding is probably out of the question. Figure 3 provides a summary of Delta's view of future market development, for four CHP sectors, over a 1-5 year horizon.

FIGURE 3: Future Germany CHP Market Overview and Trends

This forward view is based on Delta's CHP Economic Modelling: eg, the FiT has benefitted gas turbine CHP: paybacks have fallen from 10-20 years to below 5 years. While for gas engines, they are down from 6-7 years to 3-4 years.



Small industries are keen to explore CHP opportunities (1 to 5 MWe), but getting commitment to invest takes time. Altogether, project development can take anything from one to three years. Projects could proceed more rapidly as the economy recovers and confidence returns.



The **district heating (DH) CHP** market is gearing up for renewed activity. Over 10 GWe of existing capacity needs replacement by 2020. Stadtwerke are also extending heat networks to tie in new customers, increasing demand for DH CHP. Modernisation or new-build CHP plants are the likely next step.



The German **gas engine CHP** market has just finished a good year, with sales up 43% - and it shows no signs of slowing down. The 2009 CHP law has opened up the potential in apartment buildings in particular, now that all CHP-generated electricity receives the feed-in tariff.



Biogas CHP development is slowing down. Uncertainty about implementation of the CHP law affected the market in 2009, and the sector suffers from other problems. The obvious sites have been developed, and bio-methane preparation for insertion in the gas grid is diverting feed-stocks.

Source: Delta Energy & Environment, 2010

Delta's White Paper on [CHP Policy & Markets – Germany Update 2010](#) provides an update on the current status and future market opportunity for CHP in Germany. It represents an example of Delta's ongoing CHP market coverage in a range of European and global markets and our capability to provide a robust future view of market development.

The report is available for download at www.delta-ee.com/downloads/Delta_Germany_CHP_Market_Update_19mar10.pdf.

To discuss this topic with Delta, please contact Michael Brown (+44 131 466 5544, michael.brown@delta-ee.com).

[back to top](#)

Gas Micro-CHP: A Limited Low Carbon Window of Opportunity?

Gas micro-CHP is a low-carbon technology – compared to the incumbent fossil fuel alternatives of supplying heat and power. This underlies the argument for governments to support its market introduction and widespread deployment.

Delta's report explores when – if at all – gas micro-CHP will cease to be a low carbon technology.

As the electricity grid decarbonises, micro-CHP's carbon savings will be squeezed. How squeezed depends what micro-CHP is compared with. For example:

- To a condensing boiler and:
 - The average grid carbon intensity
 - A combined cycle gas turbine power plant
 - The average of the fossil fuel part of the grid mix

- To a heat pump and any of the above.

Depending on the approach taken and the type of technology, the low carbon window of opportunity may close before 2025, or after 2040.

Please contact David Morgado to discuss this topic and for a copy of the executive summary (david.morgado@delta-ee.com or +44 131 625 32 13).

For more on Delta's Micro-CHP Service, visit www.delta-ee.com/studies_and_services_micro_chp.asp.

[back to top](#)

Finance – the Key to Unlocking the Decentralised Energy Market

If the International Energy Agency's 20 year forecast of US\$382 billion invested in energy measures in European buildings is to come true, one thing is for sure – energy users will not dip their hands in their pockets to provide all of this capital. The financial markets are currently comfortable financing large-scale power assets. They are not typically comfortable financing large numbers of small, decentralised assets.

In Delta's view, companies that can fill this gap stand to unlock – and profit from – much of the potential growth in decentralised energy.

A few companies are starting to make some inroads – albeit very small inroads - into this sector. Examples include:

- German utility EWE owning and operate high efficiency boilers in customer's homes with long term heat supply contracts. This regional utility hopes to replicate this model with fuel cells, when they come to market.
- US utility Southern California Edison leasing roof space from its customers to install, own and operate photovoltaics.
- Packaged CHP companies such as ENER.G and Cogenco owning and operating CHP plants at users such as hotels, hospitals and leisure centres – selling the electricity to the users.
- More conventional energy service / contracting companies, providing comfort and light to larger commercial buildings, such as Berliner Energie Agentur with groups of commercial buildings in Berlin.

In the UK, EAGA, a UK-based energy efficiency company with international ambitions, has developed a model to provide social housing tenants with 'free' electricity in return for access to the feed-in tariff from rooftop PV modules.

Delta recently worked with the UK Finance and Leasing Association to explore the role of asset finance (or leasing) to provide the upfront investment for decentralised energy. Under such a model, the end user pays an annual fee to lease the decentralised energy product. After a certain period, the lease can be extended; the asset bought by the end user; or the asset removed and re-used by the leasing company. The Finance and Leasing Association / Delta paper is available online and can be viewed online at http://www.delta-ee.com/downloads/Delta_FL_A_Sset_Finance_Paper_22feb10.pdf.

Companies looking to sell high capital cost products such as heat pumps, CHP, photovoltaics and even electric vehicles will boost their markets by providing finance solutions for their products. And the finance industry, if they have sufficient understanding of decentralised energy, can open up new and potentially very large markets.

To discuss this topic with Delta, please contact Andy Bradley (+44 131 476 4259, andy.bradley@delta-ee.com).

[back to top](#)