



SustainableEnergy

community energy solutions

e.on

The need for decentralised energy



Lowering CO2 emissions requires long term investment. Meeting the challenges of fuel poverty and competitive energy costs is more important than ever. Combine these vital objectives with maintaining security of supply and we have what looks like an impossible triangle. We have the energy trilemma.

The climate change imperative

Building the low carbon economy we all need means reducing greenhouse gas emissions across every aspect of our society. Improving the security of energy supplies demands the better utilisation of indigenous resources and increasing the capacity of low carbon and renewable resources. We have implemented many initiatives that continue to lower the carbon footprint of our central generation and these are enhanced by our long term commitment to nuclear power generation.

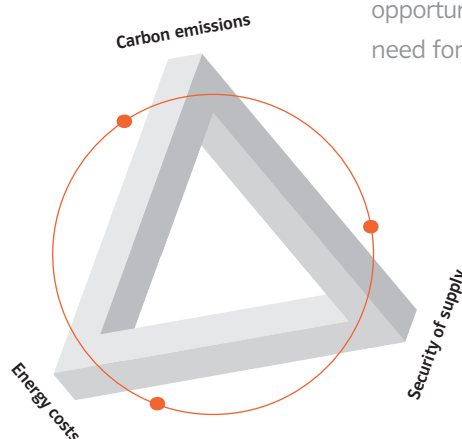
Investment and timescale

However, there is no silver bullet. Renewables may be low carbon but they rely on the sun, the wind or guaranteed supplies of biofuels. And, while nuclear power can provide low carbon energy, it requires major investment and long lead times before energy supplies can be delivered.

Decentralised energy

Decentralised energy has an important role to play and we know it could provide a valuable proportion of the UK's community energy needs. Already, targets are being set. In London, Mayor Boris Johnson has targeted 25% of Greater London's energy to be supplied by local generation by 2025. We're ready to meet the challenges and seize the opportunities presented by the need for change.

The energy trilemma



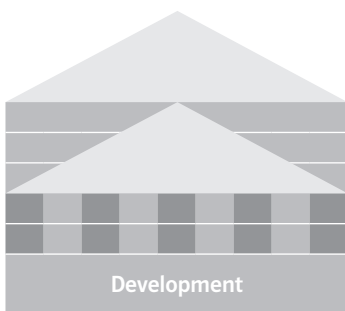
The community solution



From bio-fuelled combined heat and power (CHP) for low carbon villages, towns and cities, through to microgeneration for individual homes, we are working to keep the lights on, costs down and to protect us all from the impact of climate change. Community energy is 'smart' energy - low carbon, economic and secure.

The community solution

We've become a recognised leader in the development of decentralised (community) energy. Created from renewable sources, it brings low carbon heat, hot water and electricity directly to local communities. And, because it is produced close to where it's needed, community energy reduces transmission losses and, over the longer term, the cost of heating and electricity.



What is community energy?

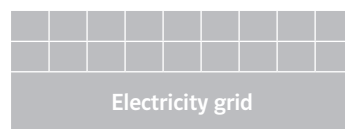
As the name suggests, community energy is produced locally rather than at a large plant elsewhere and sent through the National Grid. This local generation lowers carbon emissions. Security of supply is also increased nationally as customers no longer have to share a supply or rely on relatively few, large and remote traditional power stations. For housebuilders, social landlords, developers and building consortia, community energy is a cost-effective route to achieving carbon targets.



The opportunities

Our approach allows you to promote a locally provided, low carbon, competitive and smarter energy choice and the Government's Feed-in Tariff allows you to generate revenues from electricity produced by eligible technologies¹.

¹ Available from April 2010 on the following available technologies up to 5MW - solar PV, wind, Biomass, hydro and anaerobic digestion if installed after 15 July 2009. If ROCs or LCBP 2 have been claimed, a reduced rate or repayment of grant may be applicable. However, eligibility and rates are subject to a final government consultation when combined heat and power may be added to the list.



Delivering the community energy centre



The Energy Service Company (ESCo) is the optimum vehicle for delivering community energy centres. It's low risk, and ensures a secure, local, reliable and efficient energy centre for your development.

The ESCo

An Energy Service Company (ESCo) is a commercial structure created specifically to deliver a community energy service to your development. We often provide funding to projects and can assume full responsibility for the design, build maintenance and operation of the energy centre. The ESCo is based on a commercial contract for up to 25 years, runs the energy assets and can take responsibility for metering, billing and customer service. This leaves you free to get on with your core business, confident that the energy assets are managed by one of the leaders in community energy and heating design.

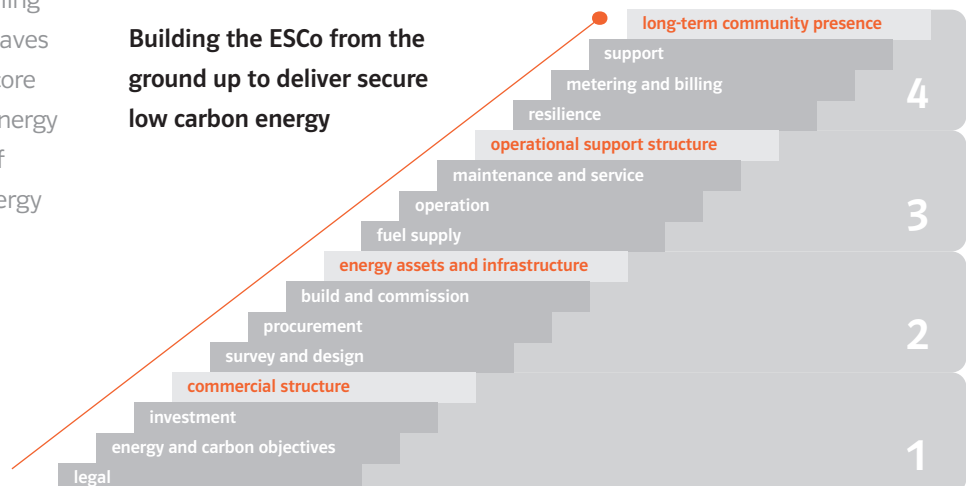
The ESCo transfers risk

Design risk	●
Programme risk	●
Insurances	●
Credit risk	●
Operational risk	●
Efficiency risk	●
Health and safety	●
Regulatory compliance	●

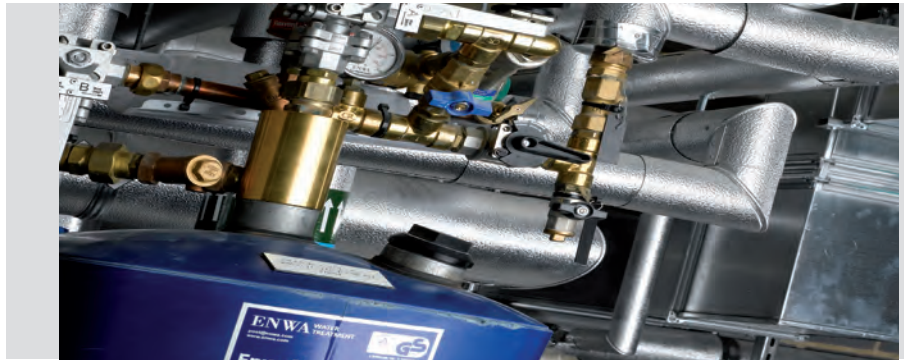
Awareness of risk

A detailed risk matrix is created to ensure that every eventuality has been considered and that all parties involved in the project are aware of their own responsibilities from the outset. With a risk matrix in place, the community energy centre project stands a far greater chance of complete success.

Building the ESCo from the ground up to deliver secure low carbon energy



Secure, low carbon and versatile



The ESCo builds the community energy centre that generates heat, hot water and electricity through its own CHP units and supplementary boilers. Renewable microgeneration technologies can be added to further help meet low carbon targets.

Creating the energy centre

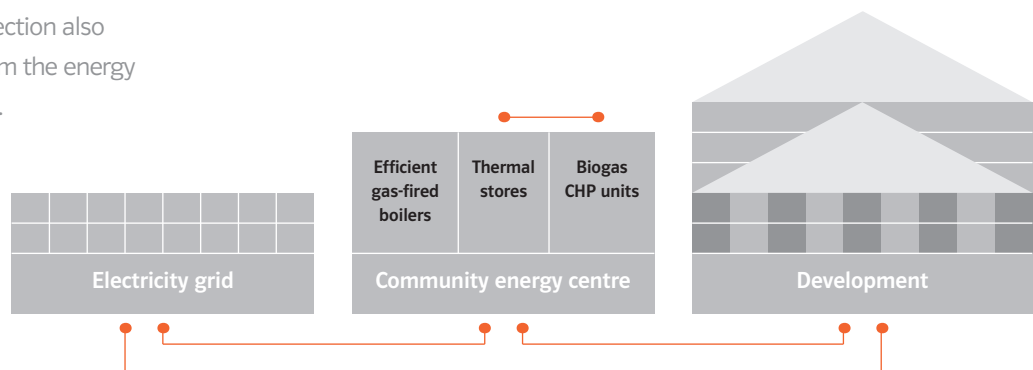
At the heart of the energy centre is the primary generating plant such as a combined heat and power (CHP) unit, supported by a secondary and back-up plant to provide the correct balance to meet renewable energy and carbon saving targets.

To ensure that the development always has the heat and power it needs - at peak periods or in the event of an outage at the energy centre - connection is maintained with the grid. This connection also allows for the export from the energy centre of unused energy.

In some instances, it is possible to introduce renewable microgeneration technologies into the energy centre or to add them to the development it serves. While this can be done as an integral part of the ESCo arrangement, it is usually undertaken as a separate exercise, helping you extend your leadership in low carbon or renewable energy generation.

Typical microgeneration technologies that can be added to the energy centre or your development by E.ON Sustainable Energy include -

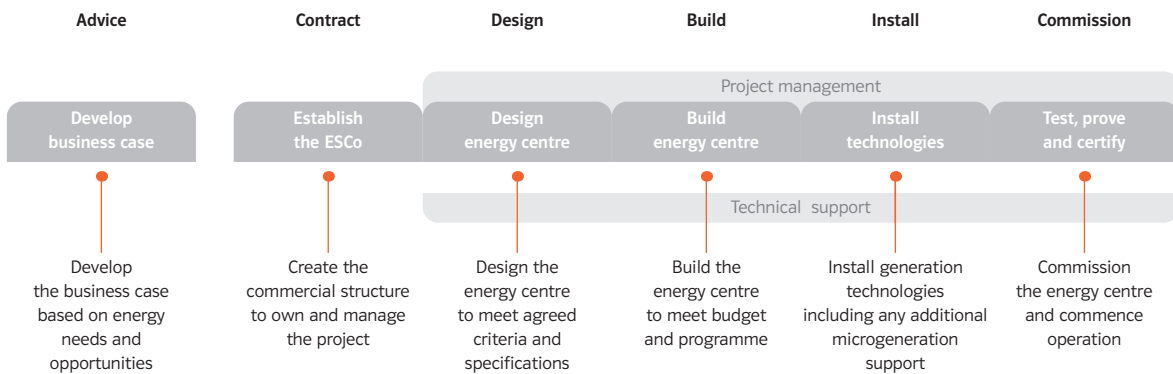
- Biomass boilers
- Ground source heat pumps (GSHP)
- Air source heat pumps (ASHP)
- Wind turbines
- Solar photovoltaic (PV) panels
- Solar thermal panels



Professional expertise giving peace of mind



When it comes to developing and implementing the community energy solution you need, we've assembled a comprehensive portfolio of services and professionals to ensure the successful building of the optimum design.



Professional approach

We're here to help you achieve your low carbon energy objectives. From initial advice and planning to solution design, build, installation, maintenance, metering, billing and providing your customers with 24 hour support, all year round, E.ON Sustainable Energy will provide a comprehensive and professional service designed to produce and

deliver a bespoke, community based energy centre. It offers security of supply for your customers with the additional benefit that any excess electricity generated from eligible technologies - whether it's used by you or not - can be sold back to the grid, further reducing the cost of energy for you and your customers and occupiers.

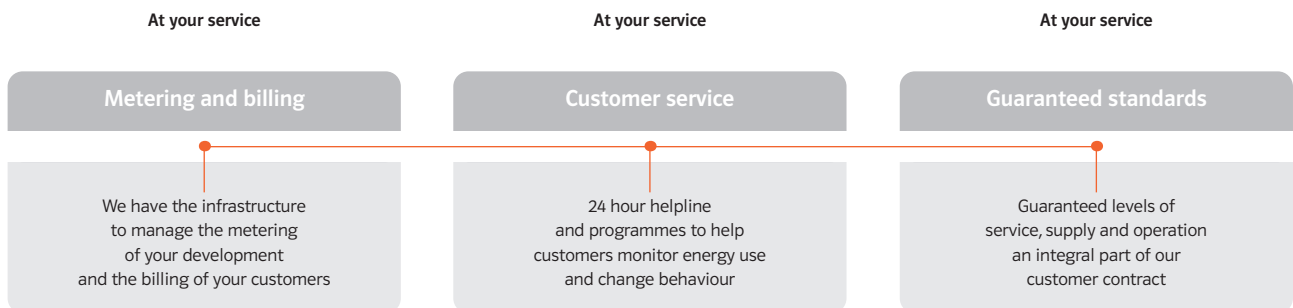
Comprehensive service

- A practical energy strategy to suit your development
- The optimum bespoke solution
- Design of the energy centre
- Professional build and installation of generation technologies
- Full maintenance, operation and customer support resources
- Guaranteed levels of service and supply

Guaranteed standards and expert service



Our service doesn't stop there. We'll operate and maintain the centre, take care of metering and billing on your behalf and provide full support for you and your customers, all underwritten by our Guaranteed Standards of Service.



Account management

As one of the world's largest investor owned power companies, we already have the infrastructure to manage and install meters in your development, whether it's residential or commercial. And, on an ongoing basis - and for the duration of our contract with you, we can manage the billing of your customers and occupiers.

Service commitment

We provide the highest service levels to ensure your customers and occupiers are never more than a phone call away from the support they need. A 24 hour helpline, supported by qualified engineers, comes as standard with our ESCo agreement for servicing your development's energy assets and looking after your customers.

Quality and fairness

We guarantee minimum levels of response for operation, maintenance and outages to give you peace of mind. We operate a Fair Pricing Policy because we believe customers should pay no more for low carbon energy. We'll provide a Price Comparator so they can see the expected cost savings that they should enjoy.

The ESCo in action



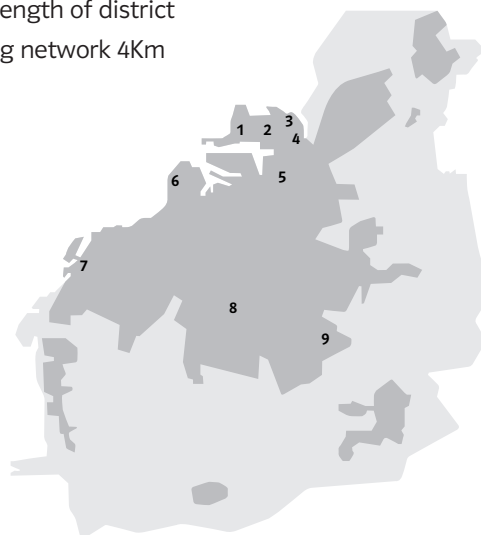
Our expertise and experience extends from small, microgeneration solutions to the heating, cooling and power requirements of entire cities and communities. Malmö in Sweden is one example of a city-wide solution.

Electricity, heating and district cooling in Malmö, Sweden

For the residents of Malmö in Sweden (above) our participation in this major project helped to create a solution that delivered energy from 100% local and renewable sources. Wind power, solar thermal, solar PV, heat pumps and district heating and cooling have all been employed in this comprehensive solution. In 2004, we supplied more than 4,500MWh of district cooling throughout Malmö. District cooling generates environmental benefits that are expected to reduce CO₂ emissions by around 600 tonnes per year. The solutions adopted here can be transferred to both new and existing, large or small environments.

Facts and figures

- District heating of 2,250GWh for customers
- Electricity production of 340GWh
- Maximum heat required at -15oC - 900MW
- Total length of heat culvert 545Km
- Approximately 10,000 customer facilities
- Total length of district cooling network 4Km



- 1 District Heating Plant
- 2 Nordisk Carbon Black
- 3 Wastewater heat pumps
- 4 Waste incineration plant
- 5 Heat Only Boilers
- 6 Heat Pump
Also part of the concept-aquifers, solar panels, solar cells and wind power
- 7 District Heating Plant
- 8 Cogeneration Plant
- 9 District Heating Plant

Achievable and reliable



Dalston Square in East London illustrates how a community based energy centre can provide low carbon heating, hot water and electricity to residential tenants and local commercial enterprise alike, as well as to an integrated public building.

London community energy centre

One of a number of recent, large scale energy projects is our management of a community energy centre at Dalston Square in East London. Operated and maintained by an ESCo set up by E.ON Sustainable Energy, the centre serves 553 residential units in 5 separate blocks, several retail units and a public library. The energy centre is powered by gas-fired combined heat and power (CHP) units and gas/biomass boilers. E.ON Sustainable Energy is proud to have received the 2009 CHPA Award for Community Heating.

Having a local, community energy centre at Dalston Square means that each of the residential units can enjoy an average saving of around 23%¹ on the costs of heating and hot water compared to similar, traditional homes. Carbon emissions at Dalston Square are estimated to be up to 25%² lower than if they were served from the National Grid or by oil-fired systems.

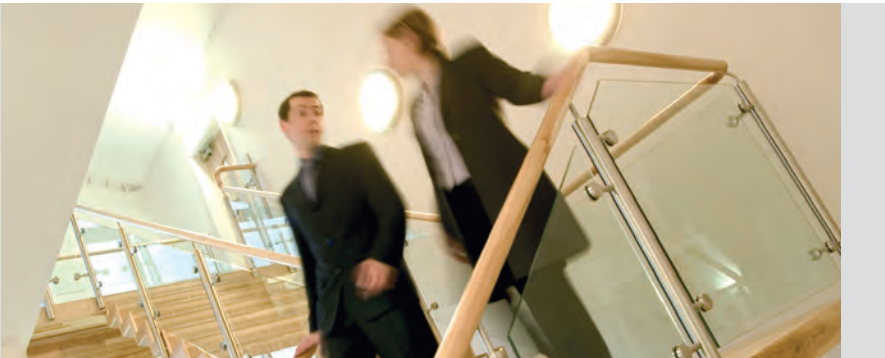
- 5 development blocks
- 553 residential units
- Retail units and public library
- Heat and power from gas-fired CHP and gas/biomass boilers
- Private wire to library
- Public wire to residential

¹ Based on industry average gas consumption of 20,500kWh per annum for an average dwelling of 100m² with traditional heating costs based on an average gas consumption of 205kWh per m². Consumption per house varies depending on size, number of people, number and type of appliances, location etc.

² Carbon savings based on Code for Sustainable Homes Level 3.



Independent expertise



Our expertise and experience are at your service . . .

Sustainable Energy is the low carbon, decentralised energy expert within E.ON. We have the capabilities that come from being part of a major energy company. We are leaders in providing energy from more sustainable sources and technologies - from small microgeneration systems to large decentralised, ESCo funded, community based energy centres.

We're here to help you achieve your low carbon and energy reduction targets in any way we can. Our experience of implementing sustainable solutions in a wide range of situations gives us a unique insight into the problems and opportunities that you face.



Imagine what we can do together



If you are considering how your organisation should address its low carbon obligations and opportunities, or if you want to explore how low carbon or renewable energy could enhance your business or brand, call E.ON Sustainable Energy - today.

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