

# energise



Summer 2017

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## CSE exploring smart energy challenges and opportunities for London

Battersea Power Station is an iconic symbol of London's energy past. Smart Energy for Londoners will help the GLA to draw up strategic priorities for London's smart energy future.



What needs to be done to realise the opportunities of smart energy in London in ways which serve the interests of its citizens and businesses?

That's the question which the Greater London Authority (GLA) commissioned CSE to answer.

In the course of this 10-week project we helped the GLA and other stakeholders to:

- Understand the current state of smart energy activities in the capital.
- Explore the future opportunities and challenges of smart energy in London.
- Draw up strategic priorities for London in applying smart energy

approaches (e.g. reduce energy demand and costs, fuel poverty etc).

- Consider the range of options for action, particularly by the Mayor and the GLA, to realise the opportunities.

The work built on the understanding and insights gained from the Bristol Smart Energy City Collaboration – which CSE led – applying them in a new city with its own challenges, opportunities and governance structures. As in Bristol, a key focus was on addressing the challenges of delivering smart energy initiatives that genuinely serve the city's interests.

As the project moves forward, we will work with the GLA and other stakeholders

to develop road maps that detail the steps which need to be taken in the city over the next ten years. CSE will be supported in the project by Liz Warren from SE2 and Syed Ahmed from Energy for London.

CSE's Chief Executive, Simon Roberts, said: "Realising a smarter energy future which truly reflects London's interests and objectives will require purposeful effort – because the current market trajectory isn't heading in that direction. This project provides a great opportunity for London – led by the Mayor and the GLA – to define and initiate that purposeful effort."

More at [www.cse.org.uk/news/view/2176](http://www.cse.org.uk/news/view/2176)

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# Environmentalists need to reach beyond 'the elite'

**Carbon budgets could be next in line for a populist backlash, says Simon Roberts**

**“T**he rejection of the EU by a (slim) majority in the Brexit vote in June 2016 offers a glimpse of how support for actions to cut carbon emissions may be undermined if more is not done to nurture public understanding of, involvement in, and consent for such actions.

What we now have to call 'the liberal metropolitan elite' has been pursuing a social and economic programme which is justified and beneficial in their eyes and which has, by and large, enjoyed popular support in general (though not always in the particular).

But they forgot (for about 30 years) to spend time engaging with the 'general public', listening to their views and developing understanding of what it was all for and why it was the best course to follow – perhaps adjusting that course slightly in response to what they had heard.

In their case, it was deepening membership of the EU. In our case (and that 'our' isn't just CSE but all of the green lobby and many other parts of the liberal metropolitan elite), it's action on reducing carbon emissions. And we, too, have been forgetting to engage, listen and develop understanding – for about 15 years.

I've explored these issues in a new discussion paper, written as a stimulus for a roundtable on engaging the public on emissions reduction, convened by the Children's Investment Fund Foundation and involving a range of policy-makers and influencers including the Behavioural Insights Team from the Department for Business, Energy and Industrial Strategy along with academics, and civil society organisations.

In the paper, I argue that the transition to a low carbon society requires the involvement and consent of 'the people' to an even greater degree than does membership of the EU. This is because it will have even more impact on the way we live our daily lives and the choices available to us.

Public engagement and consent matter because, as we move to the next phase of the low carbon transition, most of the easy stuff has already been done and we cannot

**“The transition to a low carbon society requires the involvement and consent of 'the people' even more than membership of the EU”**

solely rely – as many policy-makers seem to – on the emerging low carbon markets, for example in smart energy services or electric vehicles to deliver the public consent and involvement required.

The CIFF roundtable was a really stimulating discussion. I came away with one

Here at CSE we've had many positive experiences in stimulating meaningful and local peer-to-peer conversations about 'what it all means round here, for us and for me' and the social mechanisms which may explain the success of these in building consent. See for example **'The missing ingredient in UK energy policy governance?'** ([www.cse.org.uk/news/view/1839](http://www.cse.org.uk/news/view/1839)) and **'We should have shouted louder'** ([www.cse.org.uk/news/view/2003](http://www.cse.org.uk/news/view/2003)).



Exploring ways of stimulating local discussions and connections – which can be the foundation stones of such consent – were the basis of projects such as Future Energy Landscapes and Warmer Bath.

particular new insight which is that when policy makers talk about public engagement they conceive it as a *purely instrumental process* that helps them sharpen up policy to make it better at persuading, requiring, hoodwinking, or nudging people into taking a usually quite specific action. But that characterisation of public engagement ignores the far deeper, more *transformational level* of engagement we need: place-based, peer-to-peer conversations which reveal norms for action and nurture social permission for change.

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You can download the paper at [www.cse.org.uk/news/view/2174](http://www.cse.org.uk/news/view/2174)

## Launch of Healthy Homes Dorset

**G**ood news for Dorset whose residents can now access free insulation improvements through a programme that will support residents who are vulnerable to the health effects of living in a cold home.

“Cold homes exacerbate many health conditions and have a detrimental effect on people's emotional and mental wellbeing,” said CSE's Justin Bear. “By improving the energy efficiency of houses through insulation the



programme hopes to make a substantial contribution to making all Dorset's homes healthy and comfortable.”

Both loft and cavity wall insulation are available under the programme, funded by Public Health Dorset, designed and managed by Dorset

County Council and delivered by CSE and Evolve Home Energy Solutions.

In addition to the free insulation services, Healthy Homes Dorset will offer expert advice and support to residents on how to keep their homes warm, save money on energy bills, and reduce damp, mould and condensation in their homes.

The programme will also ensure that residents are gaining the maximum benefit from their energy tariff and supplier and offer support on switching.

Healthy Homes  
**Dorset**

[www.healthyhomesdorset.org.uk](http://www.healthyhomesdorset.org.uk)





## Helping Birmingham City Council to prepare for a renewable energy future

A unique map, created by CSE for Birmingham Council, could help the city become a leader in solar PV.

The map uses a number of data sources to show not only the best sites for solar PV arrays, but also areas where local residents are most likely to take up a council-supported solar scheme.

The map uses a 3D digital surface model and range of GIS mapping datasets to estimate the solar PV resource on all roofs and open areas across the city, after applying a set of assumptions and constraints, such as orientation of the property, tenancy etc.

One of the data sets is called LIDAR ('light detection and ranging data'), and is generated by the Environment Agency

using plane-mounted lasers to scan the topography of the landscape from above. It was only made public in 2015.

We used this data and combined it with address-level sociodemographic data (i.e. Experian Mosaic) to pinpoint the best sites for solar arrays, how much electricity these installations would produce, and where in Birmingham the households most likely to install their own solar PV can be found.

"The model we've used accounts for year-round localised cloud-cover patterns and shading from nearby trees or buildings," explains CSE's Project Manager Martin Holley. "This allows us to estimate the amount of sunlight reaching a particular surface and the likely energy output of a typical PV array at that location."

"Our mapping show that solar PV rooftop installations across Birmingham could reduce



### Copyright

Digital surface model: Environment Agency (Crown Copyright)  
Buildings and roads (e.g. the lines and shapes): OpenStreetMap  
Satellite image: Google

the council's annual carbon emissions by over 4%, a twenty-fold increase over solar PV's current contribution."

CSE built this map as part of a wider study to explore solar PV opportunities for Birmingham's proposed municipal energy company, and to help the council understand how to meet their legal target to reduce carbon emissions by 60% by 2027, against 1990 levels.

Top left, roads (yellow) and markers for residential and non-residential properties (blue, pink) overlaying a digital surface model; top right, the same information laid over a satellite image; below, the LIDAR map.

# Different rules for different fuels

District heating customers need consumer protection, just like anyone else

If you live in a house that's supplied by a district heating network you have few of the consumer rights – in respect to prices, performance standards, billing, dispute resolution etc – that those of us who buy heat or electricity direct from a supplier.

With a major expansion of district heating planned in Scotland over the next few years, Citizens Advice Scotland (CAS) commissioned Changeworks and us to explore what consumer protections might be needed in future and the options available to secure them.

Alongside interviews with

district heating suppliers and a stakeholder workshop, the study included a review of the consumer protection measures in place in the Scandinavian countries, Germany and the Netherlands, all of which have a longer history and higher penetration of district heating but a range of different approaches to regulation and consumer protection.

The study team also drew up a definition of 'consumer needs' with respect to district heating to provide a framework for considering the different options (see right for simplified version).

The resulting report, maps the different options against

these needs, examines the pros and cons of each, and provides feedback from stakeholders. The 16 possible options identified include approaches such as price caps or not-for-profit supplier requirements (such as exist in Denmark) as well as clearer service standards for fault handling and existing voluntary approaches such as the Heat Trust scheme.

CSE's Chief Executive Simon Roberts, who led our involvement in the project, commented: "It was reassuring to find general support for greater consumer protections in district heating, with a particular focus on ensuring consumers get a fair price, sufficient warmth and comfort (including not being overheated), and access to an independent dispute resolution service."

Download the study, *Different Rules for Different Fuels* at [www.cse.org.uk/news/view/2185](http://www.cse.org.uk/news/view/2185)

1. Consumers should not be overcharged for their heat.
2. Consumers should be provided with sufficient warmth, reasonable controllability and not suffer from over-heating.
3. Consumers should be receiving services with good standards.
4. Consumers should be able to get compensation or dispute-resolution readily if agreed standards are not met, including effective complaints handling.
5. Consumers should receive or be able to easily access information and a level of transparency that proves they are receiving 1–4 above.



If we want more district heating networks to come on stream, then social housing is one place this is likely to happen. But how have social housing providers got on with community heating systems up to now?

This is what a new research report, *District heating: Delivering affordable and sustainable energy*, published by Changeworks and written in partnership with CSE, seeks to find out.

CSE's Dr Nick Banks said the report was an important step in understanding both the opportunities and challenges that social housing landlords face when installing heat networks.

## Pipe dream? How to get district heating into more homes

By operating at scale, district heat networks have the potential to provide low cost and sustainable heat supplies. They are often significantly more efficient than individual boiler and heating systems and offer massive potential to reduce carbon emissions.

In recent years there has been a surge of interest in district heating from social landlords, largely because of its potential to deliver affordable warmth and to realise social and economic benefits. But designing, installing and operating a new

district heating system is a complex undertaking often requiring social landlords to adopt a new role as an energy supplier. It can significantly alter their business model and the types of support they offer to residents experiencing difficulties with energy, fuel poverty or debt.

Four factors are critical for a sustainable and affordable system:

- 1) Robust community and stakeholder buy-in.
- 2) Ensuring effective metering and monitoring so that landlords thoroughly understand system performance.

Left: insulated pipes are used to connect residential and commercial buildings to the centralised boiler.



- 3) Using the technology at a sufficient scale to realise benefit.
- 4) Financing schemes in a way that does not require residents to pay high standing charges and unit prices.

Nick explains further: "This report demonstrates that establishing a sustainable and affordable heat network is dependent on getting things right at all stages of development - from design through to construction, commissioning and operation."

Download the report at [www.bit.ly/2sdKSBm](http://www.bit.ly/2sdKSBm). This research was funded by the Joseph Rowntree Foundation.





## Launch of CSE's community energy consultation methodology

Is there a new approach to planning that could make local people happier to see wind turbines and other energy infrastructure in their neighbourhoods? This is the aim of a consultation tool written jointly by CSE and the Campaign to Protect Rural England (CPRE). Simply put, it's a methodology that lets communities take the lead in planning their own low carbon future. Findings from its use show that putting local people at the centre of energy planning can result in surprisingly ambitious visions and targets.

The tool works through a series of participatory workshops that combine a community's understanding and 'sense of place' with the needs of local planners seeking suitable sites for renewable energy. Together, local planners and communities can create robust energy strategies that can both deliver reductions in carbon emissions *and* enjoy genuine local backing.

The methodology was trialled in Congresbury, Somerset and Moreton-in-Marsh, Gloucestershire.

CSE's Rachel Coxcoon, who led the research, says: "Our aim was to develop a new approach to energy planning that would reduce local opposition to new energy infrastructure by putting local people at the heart of the process. Communities who trialled this approach developed plans for future energy developments that were ambitious in scope, but grounded in local realities".

Kim Hagen, Senior Energy Campaigner at CPRE, comments: "Moving towards a low carbon future needs to happen in a socially just way that doesn't harm the countryside. This new approach puts communities in the driving seat for energy planning, ensuring local voices are valued and increasing local pride in shaping the energy transition we urgently need. At the same time, the approach puts landscape character at the heart of renewable energy planning, simply by carefully listening to those who live in, and care for, their local area."

**This approach puts communities in the driving seat for energy planning, ensuring local voices are valued**

## 180,000 households could be lifted out of fuel poverty by smart meters

Impact of smart prepay meters on fuel poverty could be profound and positive

Smart prepay meters could significantly improve the lives of people in fuel poverty.

This is the conclusion of a new report, written by CSE for Eaga Charitable Trust and Citizens Advice, that researched the effects on fuel poverty of smart prepayment meters, particularly amongst households already using conventional prepayment meters.

Nicky Hodges was the lead author. "This group has historically been poorly served by the energy market, for example in lack of access to the cheaper tariffs available to direct debit customers who are usually better off.

"Our modelling indicates that smart prepayment meters could lower the cost of energy enough to lift around 180,000 households out of fuel poverty whilst narrowing the fuel poverty gap [e.g. the amount of money those remaining in fuel poverty fall short of being able to heat their homes adequately] on average by £108, or from £449 to £331."

To date, installations and consumer trials of smart prepayment meters by energy suppliers have been relatively few, with Utilita, Ovo and British Gas at the forefront of a generally sluggish field. The industry-wide schedule for smart metering has been

repeatedly delayed, with the rollout for prepayment-enabled meters coming later than that for credit meters.

Smart meters come with an in-home display for consumers to view information on their energy usage in terms of money or kWh (see photo). The research investigated how early adopters of smart prepayment meters use their in-home displays for credit checking purposes and to keep track of and make choices about their energy usage.

The findings emphasise the importance of the Smart Meter Installation Code of Practice requirements for guidance on using the in-home display and providing energy efficiency guidance for prepayment consumers. It identifies recommendations aimed at Ofgem, BEIS, Smart Energy GB, Energy UK (the industry umbrella body) and suppliers designed to enable fuel poor prepayment consumers to realise the benefits offered by smart metering.

Download the report at [www.cse.org.uk/news/view/2148](http://www.cse.org.uk/news/view/2148)  
This research was funded by Eaga Charitable Trust and Citizens Advice.

**In-home displays like this one can work for smart meters in both prepay and credit modes.**



# Bristol Fuel Poverty Partnership

New fuel poverty collaboration between CSE and Bristol partners

A new CSE project began this summer that aims to lift many of Bristol's poorest people out of fuel poverty.

In collaboration with local agencies, Talking Money and WE Care & Repair, and with funding from the Bristol Impact Fund, this four-year programme will focus on helping those on a low income, single parents and unemployed people living within the private rented sector.

The Bristol Fuel Poverty Partnership, as the cooperation is

known, will see staff from each organisation contributing their particular expertise, with CSE and Talking Money providing financial capability, money, debt and energy advice with WE Care & Repair carrying out repairs and improvements, to make homes safer, warmer and more secure. This will be the first time that eligible Bristol residents will be able to access all these services through a single point-of-contact.

The partnership will employ two caseworkers who will work

across all three organisations, training them to offer advice and guidance across the three relevant spheres – energy, finance, and housing. This should create a streamlined referral service so that other organisations can confidently refer clients on – knowing that their problems will be dealt with comprehensively. Caseworkers will act as project navigators; carrying out home visits and facilitating and joining up professional support for the households in need.



CSE, WE Care & Repair and Talking Money staff.

## Three causes of fuel poverty

Over 10% of the population of England are living in fuel poverty. In Bristol, the figures are even higher. Here, 13.6% of people in the city are fuel poor, in part due to the age and condition of many of the privately rented houses in Bristol.

But this figure, high as it is, doesn't capture the often complex and overlapping problems that a family in fuel poverty might face. Fuel poverty is caused by three issues: energy-inefficient housing, high fuel prices and low incomes. By providing a complete service that deals with housing, energy bills and wider financial issues, the Bristol Fuel Poverty Partnership will therefore tackle the three underlying causes of fuel poverty at the same time.

## New website for THERMOS



[www.thermos-project.eu](http://www.thermos-project.eu)

THERMOS, our multi-national, EU-funded project to optimise the planning of new heat networks has a new website designed and built by Tim Weisselberg and Glenn Searby at CSE. Parts of the site will be translated into the various partner languages: Danish, German, Spanish, Latvian, Polish, Portuguese and Romanian. See [www.thermos-project.eu](http://www.thermos-project.eu).

THERMOS will provide the methods, data, and tools to make planning complex thermal energy networks quicker and

cheaper. A key part of this is creating open source modelling software, comprehensively testing this with pilot cities and finally widely and freely disseminating the resource.

"We want the process of planning a new district heating or cooling system to be transparent and cost-effective" said Martin Holley, CSE's project manager. "An important part of that is sharing the experiences of planners and developers in different cities and countries at conferences and seminars, and, not least, through this new website."



The matrix is a simple tool for assessing the quality and extent of local energy action, and what steps to take next to improve. So simple, all you need is a pencil (and a printer!)

# How good is your local area at sustainable energy?

New 'old school' assessment tool helps councils, communities and citizens find out and improve

**A** starting point for any local energy action should be to assess the current 'state of play'. Until you know what's already going on and how good it is relative to what could be done, setting priorities for improvement or initiating new activities risks duplicating effort or missing obvious opportunities.

That's why we've created the Local Sustainable Energy Assessment Matrix – a paper and pen assessment tool to help local councils, community organisations or anyone else who is interested to benchmark their area's current performance and identify and prioritise opportunities for improvement.

The assessment matrix has five dimensions of action, each with three or four sub-elements. It provides brief descriptors of what 'weak', 'fair', 'good' and 'excellent' action might look like for each element, thus providing the opportunity for performance assessment either by local actors themselves or by a third party.

The five dimensions are:

- 1) Domestic sector energy.
- 2) Commercial sector energy.
- 3) Fuel poverty and affordable warmth.
- 4) Low carbon energy infrastructure and markets.
- 5) Institutional ecosystem and resourcing.

By picking an accurate description of the current local 'state of play' on each aspect, users can benchmark their area's performance accordingly.

This approach will help users to understand how their performance compares with what could be achieved –

and therefore what they need to be doing to improve. Thus an area which rates its performance as 'fair' can see what 'good' looks like and then consider what might be involved in making the next grade.

Using the assessment matrix is really straightforward. Simply download it here, print it out and sharpen your pencil. Then work through each element of the five dimensions, considering the current state of relevant activity locally. Then just pick which of the four descriptors best describes it.

Repeat for each element to build up a reasonably detailed picture of the strengths and weaknesses of the area's performance.

Download the assessment tool from [www.cse.org.uk/news/view/2172](http://www.cse.org.uk/news/view/2172)  
Let us know how you get on!



## Looks familiar? Because it is ...

The matrix's origins are in work we did some 10 years ago. That produced a set of balanced scorecards which were widely used at the time by local authorities.

As part of a study in 2016 for DECC (now BEIS), we have integrated these into one assessment tool, reflected the current policy context, recalibrated the performance benchmarking (because what was once 'excellent' may now be little more than 'fair' as a result of widespread adoption of better practice), and re-oriented the structure so it can be used to assess local energy action taken by any party, rather than just a local authority.

## Green Deal Communities: what we learnt

**T**he Green Deal Communities funding scheme, announced by DECC in 2013, was a £80m pot designed to encourage new approaches in delivering Green Deal plans. Local authorities were given a high degree of flexibility on how to deliver on this aim but were encouraged to focus on a "street-by-street" approach.

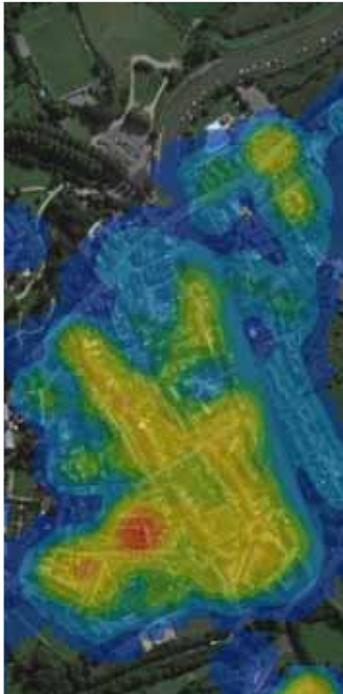
The initiative ran until October 2016, during which time 24 local authorities benefitted from the funding. One of these was Bath & North East Somerset council, whose Energy at Home scheme was run in partnership with CSE.

When Green Deal Communities closed, we and the National Energy Foundation organised a review event for the local authorities involved, along with a number of delivery partners and Ofgem. The purpose of this event - supported by DECC's successor, BEIS - was to share feedback and lessons from the scheme, of which there were plenty!

These were compiled into a report, *Learnings from Green Deal Communities*, which sets out a number of recommendations on the design and management of future similar projects. These range from establishing a clear system for evaluating projects to providing customer focused service on installations.

Download the report at [www.cse.org.uk/news/view/2173](http://www.cse.org.uk/news/view/2173)





# National Heat Map address-level data

The address-level data underlying the National Heat Map – commissioned by the Department of Energy and Climate Change and created by CSE back in 2010 – is available to local authorities in order to aid in the planning of low carbon heat distribution networks.

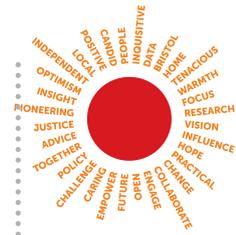
The aim of the Heat Map is to boost the take up of heat networks in England through the provision of web-based maps of heat demand by area. (You can read more about the heat map

itself at [cse.org.uk/heatmap](http://cse.org.uk/heatmap).)

If you're a local authority and you want to receive the data for your area you need to fulfil some licensing conditions plus pay an administration fee – £210 + VAT per request – to CSE to cover the time it takes us to sort out the data and check the license details.

Data can be requested by and individual council or groups of groups of councils.

Interested? For more information about how to access the address-level data, see [www.cse.org.uk/news/view/2178](http://www.cse.org.uk/news/view/2178)



## centre for sustainable energy

We updated our logo recently. Like it? Here are different versions we used from 2007 to 2017 (left) and before 2007 (right)



## Centre for Sustainable Energy

Switched on since 1979



We are an independent national charity that shares our knowledge and experience to help people change the way they think and act on energy.



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