



Helping communities to save energy and reduce carbon emissions
through economically-sustainable smart-living

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Tackling the Energy Challenge – what can local communities do?

Peter J. Bates



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Peter Bates – who am I?

- Senior Partner, [pjb Associates](#), Email: pjb@pjb.co.uk
- [PAS2035 Retrofit Coordinator, Advisor, Assessor](#)
- Domestic Energy Assessor (DEA)
- Green Deal Advisor
- Chair/Facilitator, [Cambridge Cleantech](#), “Sustainable Smart Homes” SIG
- Member - [Transition Cambridge Energy Group](#), [Carbon Neutral Cambridge](#), [ECO Ely](#), East Cambs. Climate Action Network
- Organiser of the [Circular Economy Club – Ely](#)
- Former Teacher and Advisory Teacher
- And many other innovative projects over the last 30 years

Global Challenge, Local Action

- CPCA area ... over 350,000 existing homes ... need to be converted to **low carbon heating** ... every new build ... must be **net zero**.
- Engagement of residents is particularly important almost 60% of the changes we need to reach net zero will involve **people changing their behaviour** to some extent and making positive decisions to support emissions reduction





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What is the Energy Challenge?

- **Current Issue** – cost of gas and electricity - both going up in price
- **Long Term Issue** – reducing carbon emissions in order to meet the legal 2050 targets – in particular decarbonisation of heating in homes and transport

What needs to be done?

Retrofitting properties

- Take a “Whole House” approach
- Think “Fabric First” – improve loft, windows, walls, doors and floors
- Develop a “Medium to Long Term” Plan

Each Home Counts

An Independent Review of Consumer Advice, Protection, Standards and Enforcement for Energy Efficiency and Renewable Energy



Domestic Properties are complex
– No home is the same
– always consider the occupants

What needs to be done?

Retrofitting properties

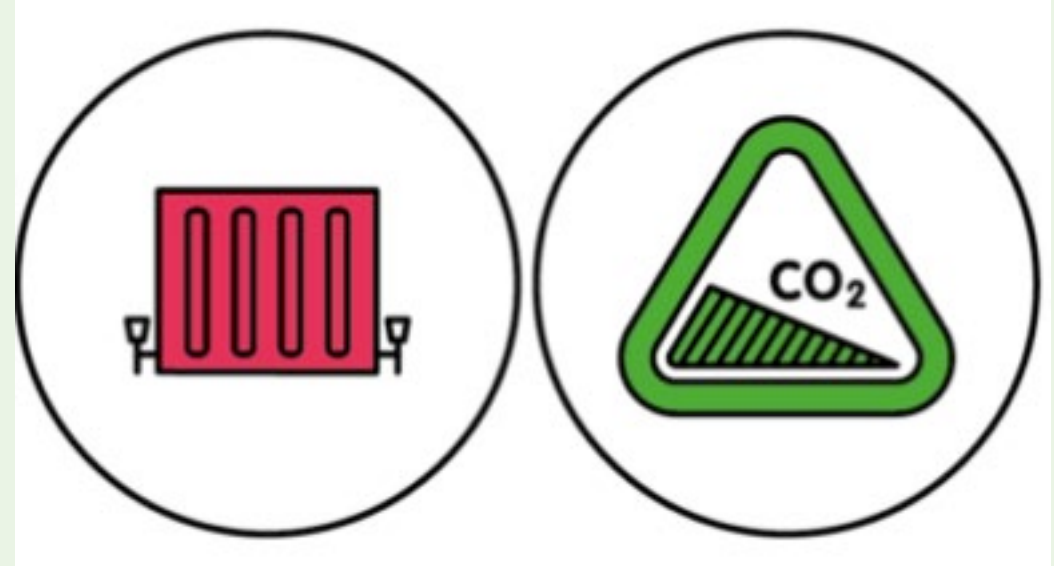
- Government funded schemes have to follow:
 - the PAS 2035 methodology for retrofitting dwellings
 - (installers have to follow PAS 2030)
 - From 31 January 2022, there is new standard BS40101 for Building Performance Evaluation that helps to standardize this process.
 - Later in 2022, BS40102 will be published that covers a standard evaluation methodology and a ratings system for the health and well-being of properties including indoor environmental air quality and thermal comfort.
 - BS40104, due to be published in 2023, will provide a standardized for retrofit assessment as described in PAS2035.



What needs to be done?

Decarbonisation of Heat

- Utilising renewable energy (electricity)
- Removal of oil and gas boilers – replacement with renewable low carbon solutions



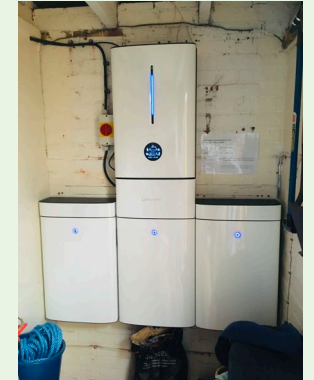
Domestic heating is a major source of carbon emissions

Only about 5% of homes currently have low carbon heating

What needs to be done?

Decarbonisation of Heat

- Utilising renewable energy (electricity)
- Using off-peak timer of use tariffs
- Battery storage
- Smart thermostats



What needs to be done?

- **Decarbonisation of transport**
 - Electric Vehicles – EV charging points, car share schemes, Co-chargers (sharing EV charging points)
 - Demand Response Transport – with electric mini-buses (door-to-door)
 - Active Mobility – using shared e-bikes, e-cargo bikes, e-scooters
 - Better integrated low-carbon solutions – that make it easier to use than a private car



What can local communities do?

- Encourage “Energy Champions” – who can help people :–
 - Understand their energy bills
 - “Walk through” their homes to identify “quick wins” to energy reduction
 - Guide people to other sources of information, experts, grants and loans
 - Be a “trusted person” – to “hold their hand” when retrofitting a property
 - Organise information “walk in” and “ask an expert” events in local suitable locations
 - Laisie with GP surgeries and Healthcare organisations

Energy performance certificate (EPC)

Certificate contents

- Rules on letting this property
- Energy performance rating for this property
- Breakdown of property’s energy performance
- Environmental impact of this property
- How to improve this property’s energy performance
- Estimated energy use and potential savings
- Contacting the assessor and accreditation scheme

52, St. Andrews Way ELY CB6 3DZ	Energy rating C
Valid until 20 June 2029	Certificate number 8861-7926-0960-2398-2996

[Print this certificate](#)

Property type	This property is a semi-detached house.
Total floor area	It has a total floor area of 119 square metres.

Energy efficiency rating for this property

This property’s current energy rating is C. It has the potential to be C.

[See how to improve this property’s energy performance.](#)

Score	Energy rating	Current	Potential
92+	A		
81-91	B		
69-80	C	73 C	80 C
55-68	D		
39-54	E		
21-38	F		
1-20	G		

The graph shows this property’s current and potential energy efficiency.

Properties are given a rating from A (most efficient) to G (least efficient).

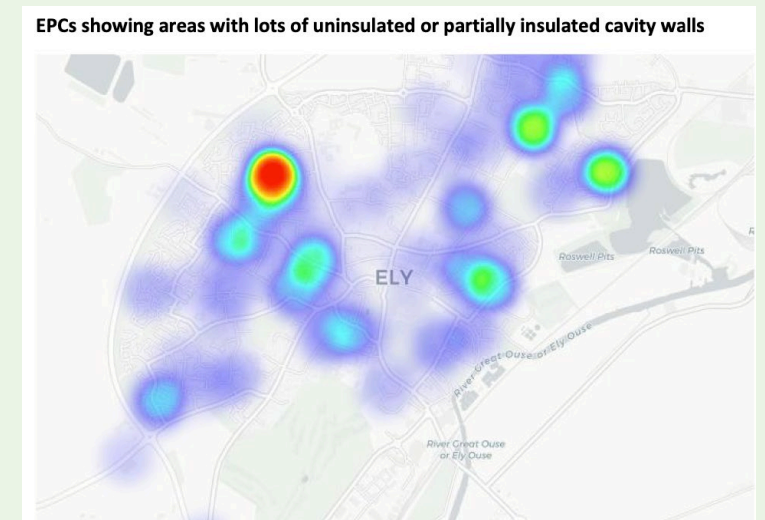
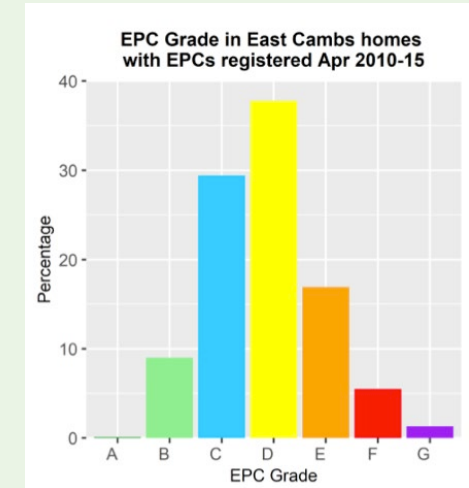
Properties are also given a score. The higher this number, the lower your carbon dioxide (CO₂) emissions are likely to be.

The average energy rating and score for a property in England and Wales are D (60).

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What can communities do?

- Conduct local surveys: -
 - Using the EPC Register – to identify poorly rated properties and create heat maps to identify any clustering of properties
 - Of home owners who may be interested in improving the energy efficiency of their property and approach installers for “economy of scale” deals that may be able to take advantage of any loans or grants
 - Solar PV installations/battery storage and the potential for buildings or land for installation
 - Suitable locations for a community wind turbine
 - Suitable locations for Electric Vehicle Charging Points – take advantage of any grants that become available. Utilise an “EV Expert” (£50m available from UK government to appoint experts)

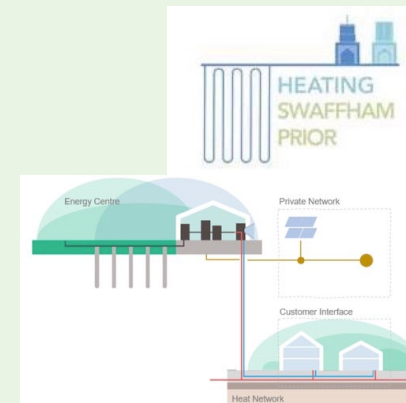


What can communities do?

Develop Community Energy Initiatives

- Solar PV installations/battery storage and the potential for buildings or land for installation
- Suitable locations for a community wind turbine

REACH
community solar farm



What can communities do?

Develop Community Energy Initiatives

- Suitable locations for Electric Vehicle Charging Points – take advantage of any grants that become available. Utilise an “EV Expert” (£50m available from UK government to appoint experts)



What can communities do?

New Building Control Legislation

- Every new home, including those created from a change of use, with associated parking must have an EV chargepoint.
- Residential buildings undergoing a major renovation which will have more than 10 parking spaces must have at least one EV chargepoint per dwelling with associated parking, along with cable routes in all spaces without chargepoints.
- All new non-residential buildings with more than 10 parking spaces must have a minimum of one chargepoint and cable routes for one in five (20%) of the total number of spaces.
- All non-residential buildings undergoing a major renovation that will have more than 10 parking spaces must have a minimum of one charge point, along with cable routes for one in five spaces.



What can communities do?

On-Street Residential Chargepoint Scheme

- It provides up to £7,500 to fund the on-street residential chargepoint.
- It aims to provide charging infrastructure for drivers who can't have a home charging point because they have no off-street parking.
- Funds are made available to **local authorities** to install the charging infrastructure.
- The scheme is funded by the Office for Zero Emissions Vehicles (OZEV) and run by the Energy Saving Trust (EST).





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What can communities do?

Visits, online tours and talks and setting up energy groups

