

# home energy masterplan

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# ● what do you get?



*Easy to read and understand, strategically relevant for years to come*

*Using trained local surveyors across the UK to carry out an onsite survey*

*Recommendations based on physics and not conjecture or dogma – using our specialist software*

*Takes into account your behaviour and how to use your home*

*You will receive a bespoke report containing:*

- your home's existing energy and CO<sub>2</sub> profile and how you compare to similar homes*
- discussion of all sensible options available – and backed up with detailed, quantified analysis*
- packages of options to suit your budget and payback timescales*
- lots of up-to-date supporting information giving you all that you need to make informed choices*

# ● what is the process?

## 🌿 *home survey*

*Our surveyors perform a detailed survey of the property, they interview the owner about their use of the building and their preferences and collect data from energy bills.*

## 🌿 *identify all possible eco measures*

*Identification of all appropriate energy saving measures for the property. the appropriate measures are based around the owner's specific aims for the future of the property.*

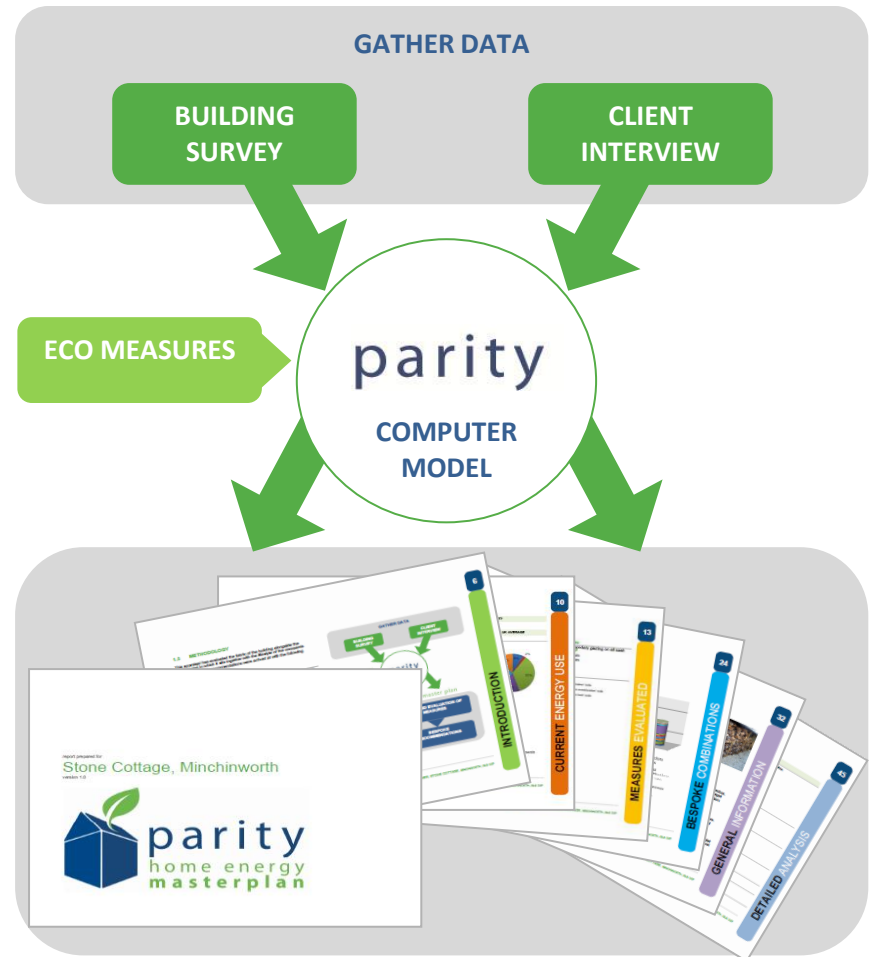
## 🌿 *produce the masterplan*

*Use of the Parity computer model to:*

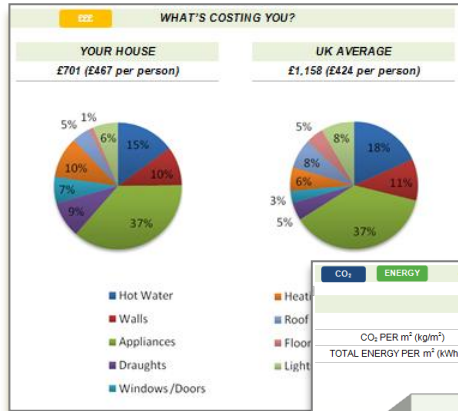
*Determine the current energy profile of the building*

*Evaluate each individual measure.*

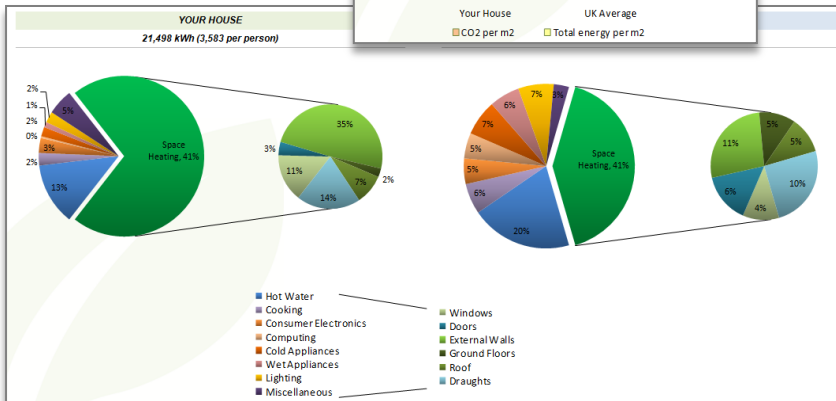
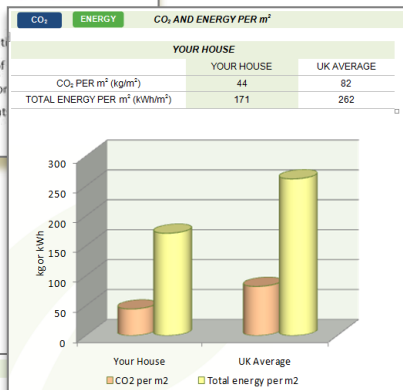
*Group measures into recommended suites of measures*



# current energy use and CO<sub>2</sub> emissions



The first part of the process is to understand where your energy bills and CO<sub>2</sub> emissions are coming from.



The report has lots of graphs and figures to show you where your main areas of focus should be whether you driver is saving money, reducing CO<sub>2</sub> emissions or both.


# measures evaluated

We take each area of the building in turn and outline what can be done and what we have evaluated.

This includes structural elements, heating and hot water systems, behavioural use, electrical items and lighting as well as appropriate renewables.

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### 3.11 SOLAR PHOTOVOLTAIC MODULE (PV)



**ENERGY PROPORTIONS**  
n/a

**CO<sub>2</sub> EMISSIONS PROPORTIONS**  
n/a

**COMMENTS AND OBSERVATIONS**  
There is a south east facing roof of reasonable size which is not shaded, so solar panels are a good possible option for the property.  
All electricity at the property is currently supplied by the national grid.

**DISCUSSION OF OPTIONS**  
PV modules can be installed on sloping roofs, flat roofs and even vertical walls.  
With a property connected to the National Grid, the electricity provided by PV modules is either used by the appliances and lighting in the property or when it exceeds usage can be sold to the National Grid. The recently introduced Feed in Tariff (FIT), a government initiative, provides a significant incentive for solar PV panels by requiring suppliers to buy PV generated electricity from householders for about 4 times more than the standard supply rate of electricity, even if the generated electricity is used by the householder before it can be exported.  
In addition, many local councils offer grants to cover some of the installation cost of the modules.  
Estimating the exact contribution PV modules can offer is difficult to assess. There are a variety of different estimates ranging from pessimistic to those which may be overly optimistic provided by some manufacturers and installers. Our model is based on the Government's Standard Assessment

parity home energy masterplan

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### 3.5 WALLS



**ENERGY PROPORTIONS**  
13.7% of energy bills - £121

**CO<sub>2</sub> EMISSIONS PROPORTIONS**  
14.8% of the CO<sub>2</sub> emissions – 619 kg

**COMMENTS AND OBSERVATIONS**  
The property has solid 9" brick walls which provide relatively little thermal insulation. Heat will be lost through solid walls about seven times faster than through a wall built to Building Regulations.  
The side of the attic room also has a solid brick external wall because the terraced house is on a slope and so is higher than the next door property.

**DISCUSSION OF OPTIONS**  
Internal and external insulation are both valid options. External insulation is considerably more expensive as it needs to be weatherproof. Internal insulation is more cost effective but will reduce the area of rooms by about 60-110mm (depending on option chosen) for all external walls, and is quite disruptive to install as fittings such as skirting, radiators and switches/plugs need to be relocated.  
A variety of internal wall insulation options are available in varying thicknesses. For any given material the thicker the insulation the greater the heat loss reduction, albeit with diminishing returns for each addition of thickness.  
Therefore there is a decision to be made with regards to balancing cost, reduction of room space and reduction of heating bills and CO<sub>2</sub> emissions.  
Internal insulation can be installed either throughout the flat or on a room by room basis as they are redecorated over a number of years.

**KEY TO OPTIONS**  
The symbols indicate whether a measure is included in a recommendation suite (see section 4).

- ✔ No Brainer
- ✔ Some Consideration
- ✔ Green Halo

masterplan

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MEASURES EVALUATED

# recommended packages of measures

## 4.4 NO BRAINER

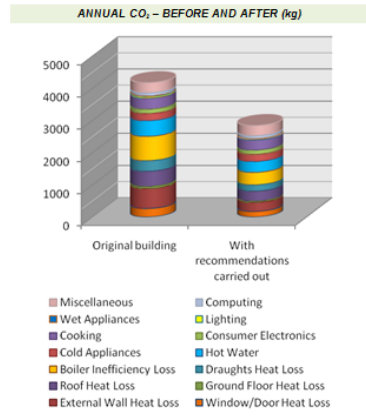
For this Masterplan the 'No Brainer' threshold for individual measures has been set at £200 and a payback of 6 years.



RECOMMENDED MEASURES	
	DIY/Professional
Add 300mm mineral wool batts to the room in roof walls from inside the crawl space	Pro
Change remaining incandescent bulbs to compact fluorescent alternatives	DIY
Install an ultra low flow showerhead	Pro
Stop using the gas effect fire	Pro
Install a programmer and set heating to come on for 2 hrs in the morning and 3 hrs in the evening	DIY
Block off the two passive vents	DIY
Change the electric kettle for an eco-kettle	DIY

STATISTICS	
Estimated annual saving	£265
Estimated cost of measures	£379
Estimated annual CO <sub>2</sub> saving	32% - 1.33 tonnes
Estimated annual fuel bill reduction	30%
Estimated Payback Period	1 year



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BESPOKE COMBINATIONS






Based on your ambitions, budget and timescales we group complementary measures into recommended packages to show you their net effect.

The packages can be stand alone or can reflect progressively higher budgets.

Our standard packages are 'No Brainer', 'Some Consideration' and 'Green Halo' but you determine what will best meet your needs.









# detailed analysis

**RANKED BY ANNUAL SAVINGS** This is a listing of the savings that could be made if each initiative were to be carried out individually.

INITIATIVE AREA	DETAILS	DIY / PROFESSIONAL INSTALL	ANNUAL FUEL COST SAVING	INSTALL COST	PAYBACK PERIOD (yrs)	
	RENEWABLES	Install 8.3m <sup>2</sup> solar PV panels with the Feed In Tariff	Pro	£368	£6,400	17.4
	RENEWABLES	Install 5.5m <sup>2</sup> solar PV panels with the Feed In Tariff	Pro	£246	£5,200	21.2
	HEAT SETTINGS	Install a programmer, set heating for 2 hours in the morning, 3 hours in the evening, add a room thermostat in the living room and install thermostatic radiator valves and keep upstairs 1 degree lower than downstairs	DIY	£187	£400	2.1
	HEAT SETTINGS	Install a programmer and set heating to come on for 2 hrs in the morning and 3 hrs in the evening	DIY	£173	£100	0.6
	ROOFS	Add 50mm PIR to loft ceiling	Pro	£159	£965	6.1
	WALLS	Add 100mm PIR to all solid external walls including loft end wall	Pro	£145	£1,870	12.9

So you have all you need to make informed choices we provide all the detailed analysis results in an appendix.

**RANKED BY £ PER kg CO<sub>2</sub> SAVED**

INITIATIVE AREA	DETAILS	DIY / PROFESSIONAL INSTALL	ANNUAL CO <sub>2</sub> SAVING (kg CO <sub>2</sub> )	INSTALL COST	£ per kg CO <sub>2</sub>	
	HEATING	Stop using the gas effect fire	Pro	57	£0	00
	HEAT SETTINGS	Install a programmer and set heating to come on for 2 hrs in the morning and 3 hrs in the evening	DIY	883	£100	0.11
	HOT WATER	Install an ultra low flow showerhead	Pro	113	£30	0.26
	DRAUGHTS	Block off the two passive vents	DIY	64	£20	0.31
	WALLS	Add 300mm mineral wool batts to the room in roof walls from inside the crawl space	Pro	383	£150	0.39
	HEAT SETTINGS	Install a programmer, set heating for 2 hours in the morning, 3 hours in the evening, add a room thermostat in the living room and install thermostatic radiator valves and keep upstairs 1 degree lower than downstairs	DIY	955	£400	0.42
	ROOFS	Add 50mm PIR to loft ceiling	Pro	809	£965	1.19
	LIGHTING	Change remaining incandescent bulbs to compact fluorescent alternatives	DIY	22	£34	1.52

You also get an excel spreadsheet for you to manipulate the prices when you get actual quotes in order to see how that affects paybacks and £ pre CO<sub>2</sub>.

# general information

## additional information

The masterplan contains sections with more information to help you make changes whether they be in a large refurbishment or carried out over a number of years.

SEQUENCING - DEPENDENCIES, CONCURRENT AND SUBSEQUENT WORK		
POTENTIAL PRECEDING ACTIVITIES, CONCURRENT ACTIVITIES AND DEPENDENCIES	INITIATIVE	POTENTIAL FOLLOWING ON ACTIVITIES
<p><i>Concurrent:</i></p> <ul style="list-style-type: none"> <li>Lag primary hot water pipes behind appliances</li> <li>Install internal wall insulation behind appliances</li> <li>Add Heat Exchange Extractor Fan</li> </ul>	Replacing kitchen appliances	<ul style="list-style-type: none"> <li>Periodically defrost freezer to improve its efficiency</li> </ul>
<p><i>Potentially preceding activities:</i></p> <ul style="list-style-type: none"> <li>Changing light fixtures and fittings</li> </ul> <p><i>Concurrent:</i></p> <ul style="list-style-type: none"> <li>Accessing roof or floor voids</li> </ul>	Systematically replace all inefficient lamps with energy efficient alternatives	<ul style="list-style-type: none"> <li>None</li> </ul>
<p><i>Potentially preceding activities:</i></p> <ul style="list-style-type: none"> <li>Installing underfloor insulation or heating that may affect floor heights</li> </ul> <p><i>Concurrent:</i></p> <ul style="list-style-type: none"> <li>Add Heat Exchange Extractor Fan</li> </ul>	Upgrading glazing and doors	<ul style="list-style-type: none"> <li>Add internal wall insulation</li> <li>Add external wall insulation</li> <li>Add Heat Exchange Extractor Fan</li> </ul>
<p><i>Potentially preceding activities:</i></p> <ul style="list-style-type: none"> <li>Changing light fixtures and fittings</li> <li>Cleaning out the loft or attic</li> <li>Treating rafters and joists for disease or pests</li> <li>Removing vermin and pests from the attic</li> </ul> <p><i>Concurrent:</i></p> <ul style="list-style-type: none"> <li>Adding piping for solar thermal or wiring for solar pv</li> <li>Maintenance on water tank</li> <li>Draught-proofing loft hatch</li> </ul>	Adding insulation to the loft or attic	<ul style="list-style-type: none"> <li>Adding boarding to the loft or attic</li> </ul>


## what else you get


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Along with your bound Masterplan you will receive a CD with:

- an electronic copy of your Masterplan
- an excel worksheet that allows you to input actual prices from quotes and see how paybacks change
- any photos or videos that were taken during the survey


# some things we've analysed in the past

 **Walls** cavity filling  
dry lining/internal insulation with any material including environmental options  
external insulation with any material  
individual walls and rooms where redecoration is taking place  
unheated elements e.g. conservatories and garages


 **Floors** insulating under floorboards (including garage roofs in integrated garages)  
insulating above solid floors and floorboards  
edge insulation  
sealing floorboards  
adding underfloor heating


 **Roofs** between and over joists, or in rafters  
loft boards  
internal ceiling insulation (where there is limited space or access e.g. bay window roofs)  
loft extensions  
flat roofs internally and externally (including conversion to green roofs)


 **Windows and Doors**  
secondary glazing  
upgrade to Building Regulations and beyond  
custom doors and windows as specified by you  
draught proofing and rebuilding  
add a draught lobby  
adding or removing shading  
adding or removing openings (e.g. extensions)  
adding curtains


 **Draughts and ventilation**  
sealing fabric holes and excessive ventilation points e.g. chimneys, vents, unsealed loft hatches, floorboards, draught lobbies  
adding ventilation controls e.g. humidity controlled fans, heat recovery units

**Extension**  
modelling up extensions and other major building alternations


 **Heating Systems**  
boiler upgrades and conversion to combination systems  
boiler controls such as weather and load compensators  
wholesale changes to system including fuel i.e. convert to a pellet boiler or ground source heat pump  
adding underfloor heating  
controls such as thermostats, radiator valves, programmers  
converting room heaters e.g. open or gas fire to wood burner  
evaluated systems include: room heaters (fires, stoves, convectors etc), storage heaters, community heating  
behavioural changes including temperature settings, timing settings and zoning  
converting room heaters e.g. open or gas fire to wood burner

 **Hot Water** (other than those include in heating systems)  
behaviour changes (e.g. washing up bowl rather than hot taps running, shower times etc)  
low flow showerheads  
changes to hot water cylinders and their insulation  
insulating pipework  
addition of solar thermal systems

 **Appliances**  
additions, removals and changes of use e.g. different washing machine temperature settings  
replacements with different models e.g. upgrading the fridge freezer  
standby evaluations

 **Lights**  
changes to use using sensors  
replacements with compact fluorescents and LEDs

 **Renewable Technologies**  
PV, solar thermal, wind turbines, biomass heating systems

 **Lower CO<sub>2</sub> systems**  
air and ground source heatpumps

...and much more so please ask if there is something specific you would like to have evaluated that is listed and we can tell you whether it is possible

# what it costs

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These prices include VAT at 17.5% and may be subject to review following the upcoming VAT adjustment.

## **Type of dwelling**

Dwelling houses up to 7 qualifying rooms*	£290
Purpose built flats up to 5 qualifying rooms	£250
Flats converted from dwelling house with up to 6 qualifying rooms	£290
Maisonettes with up to 5 qualifying rooms	£250
Additional qualifying rooms (to a maximum of 12)	£40
Dwelling with more than 12 qualifying rooms	price on application

\*Walk in cupboards, toilet only WCs, corridors and stairwells are not deemed to be qualifying rooms. However bathrooms, halls and conservatories are qualifying rooms.