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the **hybrid home**

tomorrow's home today



## consider this...

The next time you leave home and get into your car just think about all the energy efficiency tech you have in your car: an engine management system, on-board computer, stop-start functionality - you might even have a plug-in hybrid with battery storage. Now look back at your house and think what you have there... Chances are it will be very little: insulation, possibly solar panels and perhaps a smart

thermostat. None of it works together and most of it requires a lot of input from you to buy it, have it installed and then to make it work. And do you get any feedback on what it has done for you? Was the investment worth it or will it be the next owner that benefits most?

Does it have to be like this?

No, it doesn't.

## introducing the hybrid home

If we start with a new home, why shouldn't it be built like a hybrid car - integrated right from the start. The technology to do this is available, there are multiple benefits from doing so and what is more, there is a simple way to monetise these benefits so that it is immediately a positive financial proposition not a pay-back calculation.

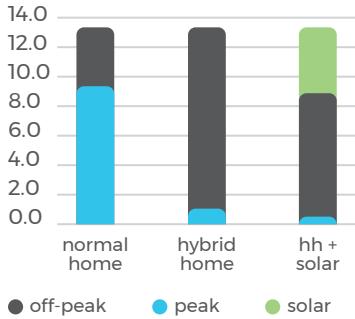


## household benefits of a Hybrid Home

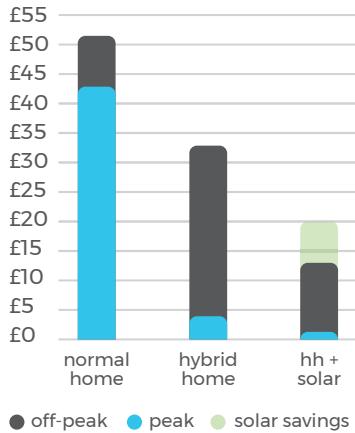
At its simplest, a hybrid home has a large battery – large enough to store enough off-peak electricity to run the home at peak periods. From the UK household data we hold, this is two-thirds of the daily electric consumption of an average home – this is approximately 10kWh, 75% of the daily electric demand of an average home. As off-peak electricity is often half the price of peak electricity, immediately offering savings in excess of 40%. Add to this heat storage, solar panels and other forms of energy efficiency and you can easily get more than 74% savings. What is more, it all runs in the background so, like a hybrid car, the user does not need to change their habits – although it helps!

Illustrative savings for average electricity usage with no efficiency components

daily consumption (kWh)



monthly electricity costs



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## costs

By starting with new homes several costs such as installation, procurement, sales and site electrical infrastructure costs (substations etc.) will be minimised. With incentives, similar to those that a hybrid car attracts, a Hybrid Home could be purchased for the same cost as an ordinary home – making it an appealing option for prospective homeowners. There are a number of possibilities for incentives in the UK, such as green mortgages, evolving the ‘help to buy’ scheme to help buy energy efficient homes, reducing Stamp Duty by two per cent for a Hybrid Home and looking at the next iteration of the ECO Supplier Obligation.

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## the retrofit market

New build incentives could be extended to all house sales by allowing them to be claimed up to six months after purchase. By starting with the new build and refurbishment markets the whole proposition is ‘professionalised’ right from the start – buying, installing, running, maintaining, changing ownership etc. and this, together with the initial volumes, means that costs will fall. In parallel, new revenue streams are emerging in the domestic flexibility markets, where households will be able to sell their demand flexibility to Aggregators. Thus the market opportunity is poised to scale.



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# the benefits

One of the biggest attractions of the Hybrid Home is that the benefits it delivers are both significant and evenly spread across all stakeholders



## Consumer benefits

Affordable living:

- Reduced running costs - reduces electricity bill by one-third in all homes (approx. £220 on average per year) - or more than 70% with microgeneration
- Affordable comfort - some savings may be taken as higher living standards
- Ability to also sell their flexibility to Aggregators

Simple to understand, to operate, and to trade:

- Technology does the work - no need for behaviour change (but it helps!)
- No complex agreements - bought on the mortgage
- Not locked into any one provider

Help to Buy (or equivalent) incentive:

- Reduces up-front cash requirement for a house purchase
- Could be adjusted to incentivise subsequent sale, enhancing the value of the home



## Government benefits

CO2 reduction:

- Off-peak vs. peak energy mix
- Increased penetration of PV - reduced limitations
- Increased penetration of EVs over life of the estate

Improves energy affordability and alleviate fuel-poverty

Keeps energy costs low and the supply secure

Generates employment and supports UK Clean Growth

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## Property Market benefits

Single solution to meet 'energy hierarchy' planning requirements

Infrastructure savings on local distribution network

Infrastructure savings on heating connection equipment (no gas boiler/district heating requirement)

Increased penetration of solar generation possible

Future proofed for Electric Vehicle charge point integration

Enhanced sales proposition – reduced running costs, enhanced living, enhanced green credentials



## Energy Industry benefits

Enhanced smart metering benefits through:

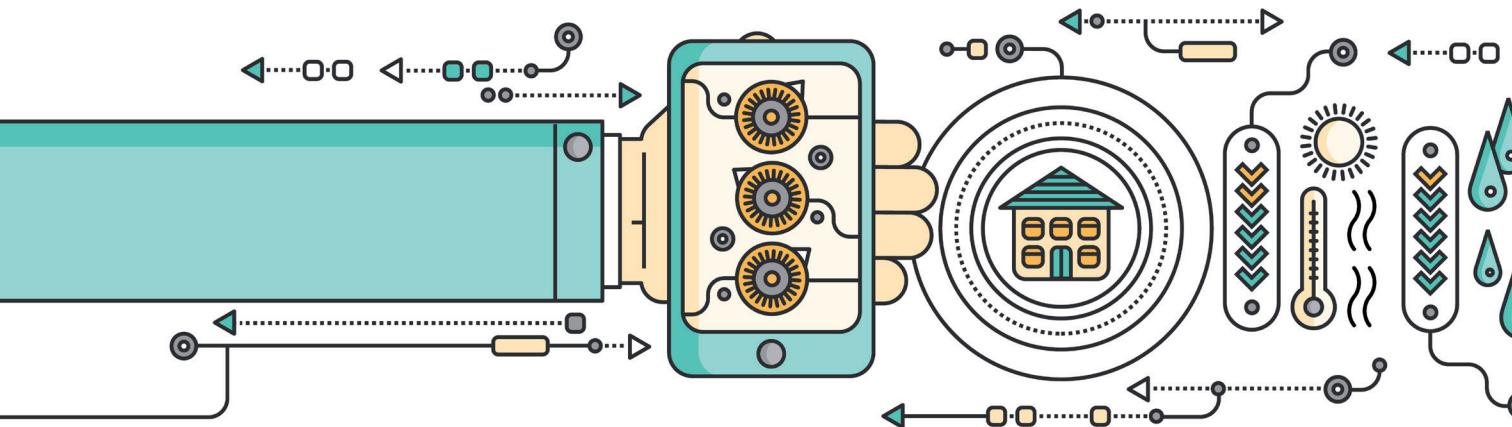
- use of dynamic time of use tariffs to benefit suppliers and consumers
- matching roll-out timescales – exploiting consumer interest opportunity

Greater opportunity for Energy Retailers to diversify their business model with demand side control to optimise energy procurement, without complications of asset management

Enhances opportunities for asset providers and 'Virtual Power Plants' (VPP) operations, with associated revenues from the emerging domestic flexibility markets

Addresses local network challenges at minimal cost

Contributes to network stability, at lowest cost, enabling standing charge costs







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## need more info?

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