

What Use Are Even More “Zero-Carbon” Homes?

(Don't Worry There Is An Intelligent Solution ~ We Just Need An Intelligent Government Policy!)

Let's be honest; building or constructing “zero-carbon houses” is extremely easy ~ there are thousands upon thousands already built across the UK ~ unfortunately they all share one major fault ~ “zero-carbon houses” literally only exist for as long as nobody lives in them!

The sad fact is that it is impossible to build or construct any dwelling that will still be a genuine “zero-carbon home” after people start living in it!

- Zero is ‘nought’, ‘nil’ or ‘nothing’; so by definition; the ONLY genuine “zero-carbon home” is a home where nobody ever switches anything on (or even lights a ‘candle’) thereby ensuring that no energy; i.e. zero energy; is ever used. Even living out in an open field or in a cave; energy will be used as soon as somebody lights some sort of ‘fire’ for cooking or warmth!

Even worse are the proposed “carbon-neutral homes” we are supposed to be building by 2016!

- These were announced by Gordon Brown (to great fanfare) as being a major part of how Britain will start to reduce our ‘greenhouse gas’ emissions and help prevent ‘climate change’. Whilst sounding like a major step in the right direction when Gordon Brown first made the announcement; nobody knows what they are or how the ‘target’ can ever be achieved because even the Government hasn't been able to define what a “carbon-neutral” home is!

At least we can define exactly what a “zero-carbon house” is; even if it is always going to be totally impossible to ever achieve a “zero-carbon home”! The question is how can anybody actually design or build “carbon-neutral” homes if nobody even knows what they are?

“So What's In A Name?” ~ Why The Government Policy To Make Every New Home “Zero-Carbon” Was Always A ‘Half-Baked’ Idea At Best!

Whatever name it eventually ends up with; blindly trying to make every new home “zero-carbon”/ “net-zero carbon”/ “zero net-carbon”/ “zero-energy”/ “energy self-sufficient”/ etc. by 2016 (or any other date) would be an incredibly stupid objective for the vast majority of UK houses ~ new or otherwise; i.e. virtually everybody.

- No matter how much energy any individual home uses each year; given enough money and space it will always be possible to erect a big wind-turbine/solar-panel array to create more electrical power than that home will use; i.e. we can always build a so-called “zero-carbon” home.

But certifying any house as “zero-carbon” simply because it includes a big enough wind-turbine or solar-panel array totally ignores how financially and environmentally expensive it might be to create OR how huge its ‘carbon-footprint’ is OR how energy inefficient the house may be!

All of which makes a complete mockery of what the Government claims to be seeking to achieve!

- The ONLY winners will be the manufacturers and suppliers making huge profits from selling the equipment!

“Common-Sense Is Better Than Political ‘Spin’!

Unfortunately; our climate makes all small-scale and most large-scale “renewable-energy” sources inconsistent and unreliable. Despite our maritime climate; the wind doesn't always blow and even when it does, it isn't always in the right ‘speed range’ for the turbines to operate ~ hence the general ‘expectation’ of just 30% efficiency. The sun doesn't always penetrate the clouds to allow solar-arrays to gain the maximum advantage; especially in the cooler ‘winter’ months when power and energy requirements are at their highest! None of our rivers has the necessary size and power for large-scale hydro-electric power generation. Tidal ‘barrages’ are at

least relatively predictable but the limited number of suitable locations limit their overall contribution to national energy requirements.

- When considering any individual new home; the location is fixed and, for the vast majority, that means that it is totally impractical to use most “renewable-energy” options. The Government’s push for higher and higher housing density to maximise land-usage also directly negates the ability of most homes to have any sort of wind-turbine, solar-panel array, etc. let alone an adequately sized wind-turbine or solar-panel array! Then there is the huge cost of installing, maintaining and ultimately replacing the “renewable-energy” sources relative to the energy that they are actually likely and/or able to create - these huge costs are not purely financial either - there are huge environmental costs involved too; especially for wind-turbines with their massive concrete foundations that use the most environmentally damaging of all construction materials - cement - **NOT** very clever!

Whatever our individual thoughts may be about “renewable-energy”, it seems eminently more sensible to concentrate instead upon ways to minimise the amount of energy that we need to produce; whether collectively as a community or nation, or individually as a household; i.e. by how we build new houses. Such an approach would be much more practical because every new home can contribute to the reduction of energy demand irrespective of where it is built.

The capital cost and running costs; both financial and environmental; of building and living in very energy-efficient houses are extremely low and constant - whereas constructing and maintaining “renewable-energy” sources is both universally expensive and also very unreliable due to the actual performance being subject to the UK’s notoriously unpredictable weather!

‘Super-insulated homes’ **DO** make the quality of design-work critical!

A well-insulated building envelope requires less heating and/or cooling but that very low heating requirement means that conventional ‘calculation’ methods can be totally inadequate to deal with the building’s greater sensitivity to ‘background’ heat and solar-gain!

Efficient heat distribution and moisture control becomes a major challenge when heating and cooling equipment doesn’t need to be run very often. Whereas heating requirements for “conventional houses” can be calculated on a quite simplistic basis; “super-insulated houses” need calculations that take full account of the heat generated by people, pets and the electrical appliances! In some instances, a small space heater, used intermittently, is all that’s needed to heat an entire house.

When houses are designed and built to “minimum-energy” standards; houses are so airtight and so well insulated, that additional heating rarely needs to be turned on. The design of the house alone can carry much of the heating and cooling loads via the careful use of passive-solar design; but when it comes to choosing mechanical equipment to fill the gaps, there are no easy ‘pat’ answers. The best solution depends on a variety of factors, including climate, geography, and the site’s solar potential.

For instance; the “Passivhaus” approach uses a mechanical heat recovery system in conjunction with an air heat-pump to meet the needs of a “minimum-energy” designed house; but it still requires the careful use of rather sophisticated ‘planning’ software in order to get the design right and achieve the desired end result and “Passivhaus” certification.

But; whilst building to “Passivhaus” standards will create an excellent home by combining all the various factors to produce an optimum solution with minimized running costs, energy consumption and associated ‘greenhouse gas’ emissions; it still won’t make the house “zero-carbon”.

For that the house will also need to produce sufficient “renewable-energy” every year within the curtilage of the property to match or exceed the residual “minimum-energy” requirements of the house; i.e. it must have **NO** overall annual energy need from any external energy source - such as the national grid!

The ‘bottom-line’ is that no matter how efficiently energy needs are reduced; it is impossible to achieve “zero-carbon” without the addition of a “renewable-energy” source; i.e. an energy generator that does not burn a fossil fuel. The choice is typically between one or more direct electricity generators using “photovoltaic” panels or “wind turbines” and indirect energy generators such as “solar” hot-water collectors linked to the domestic hot-water. How much energy needs to be generated by on-site “renewable-energy” sources will depend upon how efficiently the energy requirements for the new house have been managed and reduced!

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