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Response to consultation document "Consultation on a Microgeneration strategy"  
URN: 10D/979 for the Department of Energy and Climate Change.

This is a private response from a private individual

Point i page 2:

Homeowners and businesses do not have the finances to pay for microgenerators therefore the government will find it very difficult to grow their large scale usage. It is the contention of this writer that on the contrary, the only way to successfully establish their large scale proliferation and meet Government emissions targets is if it will be driven from the top down. Global Warming, reducing emissions, reducing your energy bills over a long period in the future , or even saving the planet, are slogans that it is believed are very difficult for the average homeowner or small to medium sized business to act upon and borrow or spend upwards of £10,000 on a renewable energy system. It takes a considerable commitment on behalf of an individual to put such money into microgenerators. Also what needs to be taken into consideration is the enormous amount of private and publicly owned rented property, where the owners do not pay the energy bills and have no incentive to invest their money at all. Therefore what hope is there for the future? The answer is that the Government must lead by example, as will be explained below.

Ss.16 page 10. Although Hydrogen is not officially classified as renewable as a fuel it can be used in many different instances to reduce a persons carbon footprint. This includes safely combining it with conventional transportation fuels and burning it in a conventional ICE engine to reduce the amount of Hydrocarbons used. (Modifications will need to be made to the vehicles and this is where legislation and the government via the DVLA will have to work. See "The Philosopher Mechanic" by Professor Roy McAlister ISBN 978-1-60322-044-6). Also Mixing Hydrogen with natural gas to reduce the UKs' dependence on imported natural gas, (See The Solar Hydrogen Civilisation" ISBN:0-9728375-0-7), will reduce the national need to import natural gas.

Question 20 page 33. Hydrogen must be added to the route maps and support should be given to the development of UK based Hydrogen technology. This will help with Issue 4 page 36.

Question 23 page 36. The best way to do this is to start by legislating that the 2 million plus new homes that are to be built by 2020 and the additional 25 million plus that are to be built by 2050 all be built with ground source heat pumps, (HOME TRUTHS: A low carbon strategy to reduce UK housing emissions by 80% by 2050, ECI Oxford), as well as some PV systems. ( See my attached thesis Section 6.7.3 page 121)

Ss 3.34 page 39. Hydrogen is a very portable energy storage system which itself can also be used as a direct source of energy. The argument that using hydrogen to store electricity is inefficient should be irrelevant. The goal is the need for green

energy that can be stored and safely transported for use when (as at night) wind and solar are not available, energy security should outweigh any inefficiencies debate.

Q27 page 41. Invest in and develop hydrogen storage. Battery storage uses rare earths that have a high lifecycle ecological and Co<sub>2</sub> footprint.

### **And the Future**

How does a government move to fulfil its carbon reduction commitments without having to spend money and resources and many instances pulling or even dragging the populace along with it? The answer is by leading by example.

In the United Kingdom there are millions of building in public ownership, see Table 1 below. Some of these like schools and government offices are not used 24/7 while others like hospitals and prisons are used 24/7. The writer proposes that the government initialise the implementing of micro generation installations in publicly owned properties.

Unfortunately at the time of writing this paper there is no centralised UK body that holds the national statistical information about public property ownership. Also due to Devolved Government when information is available it is only for one region of the UK. Therefore below is reproduced, (due to the 16/03/2011 deadline) a rather empty Table 1. However it is envisaged that the UK government has the capabilities to gather this information easier than that of this writer.

Table 1: The amount of publicly owned buildings in the UK

Type of Building	England	Scotland	Wales	Northern Ireland	Total
Educational establishment					
Fire stations	775		151		
Police stations					
Correctional establishments					137
Other Ministry of Justice properties					2090
NHS hospitals					358
Council houses/ property <sup>1</sup> (2009)					2,355,000
Ministry buildings					
MOD The Housing Estate <sup>2</sup>					50,000
MOD The Defence Training Estate & others					930

<sup>1</sup> Table 101

<http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/stockincludingvacants/livetables/>

<sup>2</sup> <http://www.mod.uk/DefenceInternet/MicroSite/DE/>

The EDUBASE, data base was used to find educational institutions, however at this time the exact apportionment between public and private ownership is not exactly known. See table 2 below.

Table 2: Educational establishments from the EDUBASE data

type of educational establishment	No	public	private
Service Children's Education	459	?	?
Sixth Form Centres	26	?	?
Welsh Establishment	1839	?	
Academy Sponsor Led	275	Y	
City Technology College	3	Y	
Community School	11671	Y	
Community Special School	932	Y	
EY Setting	23542	Y	Y
Foundation School	1319	Y	Y
Foundation Special School	44	Y	
Further Education	356	Y	Y
LA Nursery School	422	Y	
Pupil Referral Unit	427	Y	
Secure Units	20	Y	
Academy Converters	144	?	
Higher Education Institutions	135	?	
Institution funded by other Government Department	1		
Miscellaneous	80		
Non-Maintained Special School	74		Y
Offshore Schools	119		
Other Independent School	1901		Y
Other Independent Special School	522		Y
Playing for Success Centres	162		Y
Special College	58	?	
Voluntary Aided School	4233		Y
Voluntary Controlled School	2606		Y

Total 51370

Possibly in public ownership 39011

#### Hurdles to overcome:

1. How will they be paid for?
2. How will microgenerators affect the national grid

In the USA there has been for many years energy companies that can be called “distributed utilities” or “energy service companies”, who not only provide electrical energy but also provide the partnership needed to finance, install, and maintain distributed microgeneration systems for public buildings. An example of this is Chevron Energy Solutions and the San Jose Public Schools. (See Earth: the sequel page29.(ISBN:978-0-393-06690-6).Energy service companies can work in a three

way partnership, the building owner, the energy supplier and the financier. The financier, could be either the energy company or a third party, with the building owner paying for electricity used under the usual feed in tariff mechanism.

Central and local government are themselves high users of electrical energy. {in my future work (if I have time) I will see if I can use FOI requests to find out what the electrical energy costs are to the public purse from publicly owned properties} By taking head of their own marketing information about payback periods and carbon footprint reductions they should realise that they are in a very good position to spearhead microgeneration proliferation and save millions of pounds of public money.

It is envisions that some of the £4.7 Billion budget for the upgrade to the national grid, (see URN09D/717 section 1.4) and some of the latest estimate of about £75 Billion (at 2010 prices) for the cost of the 34GW of new centralised wind generators can be diverted by the energy producers form centralised wind to decentralised systems. This money much of which is private finance, must therefore be available to switch to microgeneration. Who would not put the finances up for a project for the government? In the future there will be savings of millions of pounds to the public finances. Why should the public money to pay for feed in tariffs not be clawed back by the government to pay itself for consuming green energy and reducing its own carbon footprint?

The need for the major upgrade to the national grid as per URN09D/717, seems to be mainly due to the policy of centralised (wind) generation and is needed, for the safe operation of the grid with this increase of capacity. However if the increase in capacity is on a microgeneration level, building by building, each generator, when in operation, will actually reduce the present pressure on the national grade infrastructure, while at the same time increasing the overall national generating capacity. If decentralised energy policy is implemented in a way to provide the critical or the main systems in the building with enough energy to operate with a high level of independence from the grid there will be the added benefit of increasing both national and individual Energy Security. This is most important for critical public administrative & public service buildings like those run by the NHS, Justice, MOD and Communities & Local Government Ministries.

As i write this the nuclear “disaster” in Japan, consequences are not yet known. It has however brought to the forefront of the publics’ mind that a government energy strategy which relies heavily on nuclear generation may be questionable. Also with continual unrest across the whole Middle East and petrol prices increasing, a decentralised energy generation strategy coupled with hydrogen generation for transport must be taken seriously as a way forward.

For a detailed discussion on the use of decentralised electrical energy generation and to see what further work is needed please read and disseminate my MPhil thesis as attached. If your Department is interested in funding me to take the work further perhaps as a contractor or for a PhD please contact me. [moshe@dcisthefuture.org](mailto:moshe@dcisthefuture.org)

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