

# Call for Evidence 13 May 2013

## Managing Radioactive Waste Safely: Review of the Siting Process for a Geological Disposal Facility

URN 13D/105

### Response form

Please use this form to respond to this call for evidence on Managing Radioactive Waste Safely: Review of the Siting Process for a Geological Disposal Facility.

The closing date for the submission of responses is **10 June 2013**.

Responses can be returned by email (preferable) or post.

Email address:      [radioactivewaste@decc.gsi.gov.uk](mailto:radioactivewaste@decc.gsi.gov.uk)

Or by post to:      The Managing Radioactive Waste Safely team  
Department of Energy and Climate Change  
Room M07  
55 Whitehall  
London  
SW1A 2EY

Name

REDACTED

Organisation / Company

not applicable

Would you like to be kept informed of developments with the MRWS programme?	Yes
Would you like your response to be kept confidential? If yes please give a reason	No

- What aspects of the site selection process in the MRWS White Paper do you think could be improved and how?
- What do you think could be done to attract communities into the MRWS site selection process?
- What information do you think would help communities engage with the MRWS site selection process?

- page 2 of 9

- 1.1 The issue does not turn narrowly on the MRWS site selection process. Disengagement from the process by Cumbria County Council<sup>1</sup> and the Shepway District Council<sup>2</sup> ought to give the ruling classes pause for thought on the approach adopted to date by Governments, on permanent disposal of higher level radioactive nuclear waste. Such waste has been allowed to accumulate in Britain, since the 1950s. The approach has been none other than an afterthought, bolted on to a penchant for operating and promoting scores of reactors busily creating new nuclear waste, by the nanosecond, continuously enlarging waste stockpiles. How bizarre can Government policy get?
- 1.2 Evident derailment of the Government's vaunted site selection process for GDF warrants rethink of the Government's current nuclear new build ambitions and trajectory. Derailment can be seen rooted in systematic political obfuscation, as well as obstinate refusal to accept salient independent advice on nuclear new build.
- 1.3 Take, for example, resounding political silence on a plain fact of physical certainty. The physics of atomic fission could not be clearer. The primary product of nuclear fission is the creation of radionuclides. These radionuclides make up the nuclear waste. Surplus neutrons and energy (including heat and radiation emissions) comprise a secondary product. Utilising the heat to raise steam comprises a third stage. Finally, using the steam to drive a mechanical turbo generator comprises the fourth stage, resulting in the generation of electricity.
- 1.4 Plainly, the starting point of any policy on nuclear power has to be the creation of additional radioactive wastes. It is an irrevocable certainty that each watt of electricity generated by nuclear power stations begins inexorably with the creation of fresh high level radioactive waste. Ultimate disposal needs to ensure isolation of these radioactive wastes from the biosphere for periods of up to 240,000 years. No known containment material is capable of maintaining robust integrity over these timescales, under conditions of constant radiation bombardment from decaying radio isotopes and consequential self heating, as well as geotectonic processes.
- 1.5 Successive Government policy has recklessly revelled in creating ever increasing quantities of intermediate and high level radioactive wastes, under serial nuclear new build, without having to hand a proven environmentally safe and permanent waste disposal facility. In any other walk of life, this would rightly be branded an insane policy, cooked up in a madhouse of elected Members of Parliament, Downing Street tenants, retinues of Government Ministers, cabals of departmental officials, and coterie of vested lobby, science, technology and industry interests. Only such a madhouse could deliver the spectacle of Governments repeatedly hawking to the public separate policies on nuclear new build and nuclear waste disposal, respectively, cast in independent silos inconceivably insanely out of sync.
- 1.6 The incumbent Government arguably scaled peak insanity by enshrining a three-fold gift (under legal fiat) for producers of intermediate and high level radioactive wastes in the UK.

<sup>1</sup> Webb T (2013) Lakeland says 'no' to nuclear dump. The Times, 31.01.2013.

<sup>2</sup> Lennon S (2012) Locals say no to nuclear waste dump at Romney Marsh. Kent Online, 20.09.2012. Available at: [http://www.kentononline.co.uk/kentononline/news/2012/september/20/no\\_nuclear\\_waste\\_dump.aspx](http://www.kentononline.co.uk/kentononline/news/2012/september/20/no_nuclear_waste_dump.aspx)

- a. Under the Government's proposed Contracts for Difference scheme<sup>3,4</sup>, electricity consumers will forcibly be locked into compensating all nuclear power station operators for the extortionate costs of creating new nuclear waste, over the 60-year operating life of each new reactor. Nuclear waste producers will simply collect compensation direct from consumers in higher electricity bills. Under this measure, prospects for creating masses of additional new nuclear wastes over the next 60 years couldn't be better!
- b. Future taxpayers are now forcibly locked as well into accepting a fee from each nuclear power station company, in return for taking full ownership of all nuclear waste that each company had previously been paid (via higher electricity bills) to create<sup>5</sup>. This rather neat trick ensures each nuclear waste producer enjoys the munificent benefit of legally walking away from all the problematic radioactive wastes, with clean hands.
- c. As final gift, future taxpayers are now forcibly locked into assuming full responsibility for managing and permanently disposing all nuclear wastes in environmentally safe manner, as well as for perpetual post disposal monitoring.

1.7 Moreover, it is inherent to site selection that an operating disposal site will eventually store all historical and all new nuclear waste outputs in future. The disposal site will inevitably be enlarged on continuous basis as and when it begins to fill up, given alternative additional disposal sites are unlikely to be available.

1.8 In their Sixth Report published in 1976, the then Royal Commission on Environmental Pollution appear to have anticipated uncertainty of public acceptance of grafting a site selection process on to nuclear new build programmes. Remarkably, the incumbent Government disbanded the long standing independent Royal Commission in 2011, following the 2010 UK General Election<sup>6</sup>. According to the Commission's Recommendation 27<sup>7</sup>:

'There should be no commitment to a large programme of nuclear fission power until it has been demonstrated beyond reasonable doubt that a method exists to ensure the safe containment of long-lived highly radioactive waste for the indefinite future.'

<sup>3</sup> DECC (2011) Planning our electric future: a White Paper for secure, affordable and low-carbon electricity. Presented to Parliament by the Secretary of State for Energy and Climate Change by Command of Her Majesty. July 2011. CM 8099. Department for Energy and Climate Change. URN11D/823. Available at [http://www.decc.gov.uk/en/content/cms/legislation/white\\_papers/emr\\_wp\\_2011/emr\\_wp\\_2011.aspx](http://www.decc.gov.uk/en/content/cms/legislation/white_papers/emr_wp_2011/emr_wp_2011.aspx)

<sup>4</sup> ECC (2011) Electricity Market Reform. House of Commons Energy and Climate Change Committee. Fourth Report of Session 2010-12. Volume 1. HC 742. The House of Commons, 16 May 2011. Available at [www.parliament.uk/ecc](http://www.parliament.uk/ecc)

<sup>5</sup> DECC (2011) Waste Transfer Pricing Methodology for the disposal of higher activity waste from new nuclear power stations. Department of Energy & Climate Change. URN 11D/923, December 2011. Available at [http://www.decc.gov.uk/en/content/cms/meeting\\_energy/nuclear/new/waste\\_costs/waste\\_costs.aspx](http://www.decc.gov.uk/en/content/cms/meeting_energy/nuclear/new/waste_costs/waste_costs.aspx)

<sup>6</sup> On 22<sup>nd</sup> July 2010, DEFRA announced the abolition of the Royal Commission as of end of March 2011. According to the archived RCEP webpage (<http://webarchive.nationalarchives.gov.uk/20110112040753/http://www.rcep.org.uk>), the Royal Commission on Environmental Pollution (RCEP) was established in 1970 as an independent standing body to advise the Queen, Government, Parliament, the devolved administrations and the public on environmental issues.

<sup>7</sup> RCEP (1976) *Nuclear Power and the Environment*. Royal Commission on Environmental Pollution, Chairman Sir Brian Flowers. Sixth Report. Cmnd 6618. HMSO.

- 1.9 The incumbent Government has also ignored advice in the 2006 independent review report from the Committee on Radioactive Waste Management<sup>8</sup>. According to the Committee's para.26 (Overview):

'It must be emphasised that CoRWM's recommendations are directed to existing and committed waste arisings. CoRWM believes that its recommendations should not be seen as either a red or green light for nuclear new build. The main concern in the present context is that the proposals might be seized upon as providing a green light for new build. That is far from the case. New build wastes would extend the time-scales for implementation, possibly for very long but essentially unknowable future periods. Further, the political and ethical issues raised by the creation of more wastes are quite different from those relating to committed - and therefore, unavoidable - wastes. Should a new build programme be introduced, in CoRWM's view it would require a quite separate process to test and validate proposals for the management of the wastes arising ...'

- 1.10 The MRWS site selection process appears further flawed in exempting communities in Wales<sup>9</sup> from consideration under the Government's proactive invitation for Expression of Interest in volunteering to host a GDF. According to the White Paper at para.1.11:

'... For Wales, the Assembly Government does not accept that any decision on legacy waste should necessarily set a precedent for the disposal of waste from any new nuclear power stations, and considers that it would be unproductive at this stage to ask Welsh communities to consider accepting waste from new nuclear power stations at this time ...'

If it is so good to dispose nuclear waste made in Wales outside Wales, why is it not equally good (or, even better) to import nuclear waste from elsewhere for permanent disposal in a geologically suitable site in Wales? In the wake of failure of the site selection process in England, is it not only proper to focus on Wales? After all, witness the spectacle of the Welsh Government, the Welsh Assembly, Members of Parliament from Wales, Wales Assembly Members, Welsh Ministers and Welsh Government officials avidly championing any proposal for installation new nuclear waste producing reactors on Anglesey, on the one hand, while refusing on the other hand to proactively invite Expressions of Interest from community councils in Wales on volunteering to host a GDF. As matters stand, the situation in Wales is simply not known! Peak insanity would appear no less rife in devolved Wales! Voluntary exclusion of Wales from the site selection process is tantamount to unjustifiable bias. Particularly, given that the Welsh Government evidently possesses full devolved planning powers under which to determine consents for a GDF anywhere within its jurisdiction in Wales.

<sup>8</sup> CoRWM (2006) Committee on Radioactive Waste Management. *Managing our Radioactive Waste Safely- CoRWM's Recommendations to Government*. CoRWM Document 700, July 2006. Available at [www.corwm.org.uk](http://www.corwm.org.uk)

<sup>9</sup> DEFRA (2008) *Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal*. A White Paper by Defra, BERR and the devolved administrations for Wales and Northern Ireland. Cm 7386. June 2008. Available at <http://mrws.decc.gov.uk/>

**2. What do you think could be done to attract communities into the MRWS site selection process?**

2.1 The present impasse leaves the Government with limited scope, perhaps along following lines.

- a. Halt all additions to stockpiles of legacy nuclear wastes. It is irresponsible to create additional nuclear waste in the absence of a proven safe fully functioning disposal site.
- b. Honestly spell out to the public the unbreakable link between each watt of nuclear electricity generation and additional nuclear waste creation.
- c. Admit candidly the Government has already legislated to lock citizenry firmly in a triple whammy. First, consumers will be required to pay significantly higher electricity bills in order to reward each new reactor operator for creating additional nuclear wastes over the next 60 years. Second, at some point in future, taxpayers will be required to accept a fee from nuclear operators in return for taking full ownership of all new nuclear waste (under nationalisation) that will have been created by all operating companies at all new nuclear reactors. And, third, future taxpayers will assume full and direct responsibility for the environmentally safe management and permanent disposal of all nationalised nuclear waste, thereby enabling nuclear waste creators to wash their hands off the problems of nuclear waste they created.
- d. Plead desperate need to locate, build, operate and monitor an underground disposal facility at geologically suitable site, for at least a century or two<sup>10</sup>, to determine properly if and how all safety aspects pan out (including ability to withstand future versions of earth penetrating bunker busting munitions).
- e. Ensure that Wales participates fully and promptly in the entire site selection process.
- f. Focus on non-nuclear means for environmentally safe generation of electricity, for the entire duration of a century or two it would take to demonstrate a GDF was operating successfully for environmentally safe disposal of nuclear waste.
- g. Put an end to this back-to-front policy. Only when a permanent nuclear waste disposal site has been proven to have effectively demonstrated environmentally safe operation, could the Government be justified in considering revisiting nuclear new build. Even then, wholly on self-funded cradle-to-grave full cost recovery basis (inclusive of successful permanent

<sup>10</sup> The suggested period of time might or might not be sufficient for sound appraisal of impacts on repository envelope of decay heat flux, ground water pathway and flow variation, response of dynamic extremophilic geologic biota to novel source of radiation energy, and influence of geotectonic processes. Perhaps a tangential analogy might aid illustrate features of time as well as quantitative parameters at play. Minamata disease is a crippling form of mercury poisoning. The use and disposal of mercury in the environment has gone on since ancient times. However, it was the industrial quantities of disposal of mercury wastes, by the Chisso factory in Minamata Bay (Japan), that first resulted in demonstrable detection in 1959 of the level of risk to human health (neurotoxic as well as teratogenic effects) and environmental harm (bioaccumulation along aquatic food chains). Sources:  
Park C (2005) *Oxford Dictionary of Environment and Conservation*. 3<sup>rd</sup> Edition. Oxford University Press, Oxford.  
Allaby M (1983), *Macmillan Dictionary of the Environment*. 2<sup>nd</sup> edition. The Macmillan Press, London.

nuclear waste disposal and post disposal monitoring).

- h. Communities content to host nuclear new build should be required to submit to the MRWS process as a pre-condition. Elimination from waste disposal site selection should ipso facto result in elimination from nuclear new build site selection. That should be a logical expectation, eliminating transshipment costs and risk. That would serve to arrest as well proliferation of extremely hazardous nuclear industry sites.

## 2.2

The prevailing mess plainly highlights cavernous democratic deficit in the exercise of power, whereby the ruling classes promulgate unprecedented legal obligations on distant future generations. Grave obligations are being foisted on citizenry for the privilege of the ruling classes' preference for creation of increasing quantities of nuclear wastes into the foreseeable future. There is a need to take cognisance of good practice governance, bearing on a compact of accountability between the governing classes and the governed. Unprecedented levels of uncertainty attending risk of harm to the environment or human health appear inherent to disposal of higher level radioactive wastes. As such, suitable measures may well be warranted, requiring each candidate at every Parliamentary and devolved parliament election to disclose, in her/his manifesto, the respective position on the following matters:

- the creation of additional nuclear waste at any proposed new nuclear power station in order to generate nuclear electricity;
- requiring either taxpayers or electricity consumers to pay higher electricity bills for funding the output of nuclear waste creating power stations;
- requiring future governments and taxpayers to take full ownership of all the nuclear wastes the operators of nuclear power stations have previously been paid to create over the lifetime of each reactor; and,
- requiring future taxpayers to assume full responsibility for environmentally safe management and permanent disposal of all the nationalised nuclear waste, and for post disposal monitoring of each dump site for perpetuity.

**3. What information do you think would help communities engage with the MRWS site selection process?**

- 3.1 The Government has effectively marshalled its vast machinery and influence to sell nuclear power to the public as a technology that generates electricity without emitting waste greenhouse gases. The Government has tirelessly and vociferously asserted that waste greenhouse gases are highly problematic to handle and contain, and to dispose permanently in environmentally safe manner. The best solution is to stop or drastically curtail additional greenhouse gas waste emissions from the energy sector. Unconstrained elevated anthropogenic emissions to the atmosphere are considered capable of inducing potentially dangerous climate change, over the course of the prevailing century. Furthermore, once started, anthropogenic climatic disturbance could last for up to a millennium.
- 3.2 Curiously, the Government has not been equally tireless and vociferous in public pronouncements that each watt of nuclear electricity inherently and irrevocably produces additional highly radioactive nuclear waste. On the contrary, Government Ministers and DECC officials consistently purvey weighty silence on nuclear waste production every time nuclear power is touted as essential to keeping the lights on. The Government's machinery never states in the same breath that nuclear wastes are highly problematic to handle and contain, and to dispose permanently in environmentally safe manner. That, the best solution is to stop or drastically curtail additional nuclear waste production. Proposals for burial of nuclear wastes deep beneath the ground are replete with rank uncertainty on the geological fate of long-lived radioactive elements. Geological disposal would have to ensure nuclear wastes remain safely isolated from the biosphere for periods of up to 240 millennia. By comparison, modern humans have existed on the planet for barely a quarter of that length of time. It is plainly irresponsible to present nuclear generated electricity to the public as if the anthropogenic nuclear wastes it creates were simply a side issue, when deciding choices in energy policy on how to keep the lights on. Moreover, the Government's silence laden public plug for nuclear power perpetuates failure of normative rules and sound principles of good governance. Silence on nuclear waste embodies a ruling class mocking accountability ethics in violation of intergenerational equity.
- 3.3 To engender a modicum of respect for the MRWS site selection process, the nuclear waste silence and sleight of hand policy on nuclear new build need to be purged.
- 3.4 A starting point of information requires the Government to state unambiguously that a nuclear new build policy means **swapping additional greenhouse gas emission for additional nuclear waste creation**. That, the incumbent Government is bequeathing a zero sum gift to future generations, burdening them with the legacy, risk and responsibility of dumping and managing for perpetuity nuclear wastes in underground vaults.
- 3.5 As second strand, the Government should emphasise emphatically the **triple lock-in requirements on citizenry on nuclear waste creation, nationalised ownership and final disposal**, as paraphrased in paras 1.6.a-c, above.
- 3.6 For a third strand, the Government should explain candidly a likely reality of the scenario sketched at para.1.7, above. Namely, **a disposal site will inevitably be**



**enlarged on continuous basis as and when it begins to fill up, given alternative additional disposal sites are unlikely to be available.**

- 3.7 **As a fourth point, the Government ought to adopt the logic of siting a GDF only where suitable geological conditions are proven and where local communities are wholly accepting of the first strand of information (para.3.4, above).**
- 3.8 **On a fifth point of information, the Government should ensure full transparency from the outset on findings of all geological research, the state of knowledge and assessments bearing on each potential candidate disposal site.**
- 3.9 **In a sixth strand of information, the Government should be obligated to subscribe to the logic of siting all nuclear new build only where there already exists a fully functioning GDF, having demonstrated inter-generational environmentally safe operation.**
- 3.10 **As for a seventh point of information, the ruling classes in Wales are manifestly obligated to admit communities in Wales fully and promptly into the GDF site selection process. Nuclear new build dreams for Anglesey fall to be properly aired only subsequent to a fully functioning GDF, successfully having demonstrated environmentally safe permanent disposal of existing stockpiles of nuclear waste made in Wales.**

end.

10.06.2013