



**NuClear News
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1. A Collapse in Trust

Writing in the May issue of ENDS, former Friends of the Earth Director, Tom Burke, asks if the so-called nuclear renaissance will be killed off by a lack of trust in government and politicians. (1) In the next 12 months the government will be faced with crucial decisions on economic security, energy security and climate security - difficult decisions at the best of times. Success will require more co-operation between government, business and consumers than we have ever managed before in peace time. At precisely the time we need it most trust has been squandered making a rapid transition to a low-carbon economy much more difficult.

The future of nuclear power is right at the heart of this effort. Despite the success of the massive PR campaign designed to build the impression that new reactors are essential for tackling climate change, all the old doubts remain: on costs, safety, waste etc. Under the new, and as yet untried, planning law, the primary task of resolving these doubts will fall to Parliament. It will approve the national policy statement which will essentially determine whether or not they will be built since the Infrastructure Planning Commission (IPC) can do little more than decide whether or not a project is consistent with the policy.

Burke says this was always a tall order, even before the recent expenses scandals there was little confidence that MPs had either the expertise or the will to subject government policy to adequate scrutiny. It will be difficult for a government lacking authority and a parliament lacking legitimacy to put the concerns of those who doubt the value of nuclear power in securing our future to rest. Both the nuclear industry and the government believe public opposition to nuclear power has been assuaged by growing anxiety over climate change. But as reported in NuClear News No.1, support, even near existing sites is quite fragile with people only reluctantly accepting new reactors because they have been told they are essential for tackling climate change. (2)

Opposition to new reactors is beginning to re-emerge. In the current climate of profound distrust, the nuclear industry's closeness to the government – the prime minister's brother is a senior EDF executive – may become more of a liability than an asset. (3) What would happen, for instance, if the public discovered that Parliament is expected to approve new reactors next year before the Nuclear Installations Inspectorate's examination of the reactors designs is complete? The Generic Design Assessment is due for completion in 2011, but the NII has a serious staff shortage. With the government and EDF insisting on a spectacularly tight timetable will the public trust the regulators not to cut corners?

(1) ENDS Report 412, May 2009, p39

<http://www.endsreport.com/index.cfm?action=report.article&articleID=20776>

(2) Support around nuclear sites fragile, NuClear News No.1 Dec 2008.

<http://www.no2nuclearpower.org.uk/nuclearnews/NuClearNewsNo1.pdf>

(3) See Nuclear Spin Background http://www.spinprofiles.org/index.php/Nuclear_spin

2. Nuclear Sites

The month-long consultation on the eleven sites nominated for new nuclear reactors ended on 14th May. (1) Many people's views on the consultation were neatly encapsulated by a correspondent to the Bristol Evening Post, who lives near Oldbury. She said:-

"Most people I have spoken to perceive this as a foregone conclusion and therefore a waste of time making their views known. Those that have tried to comment on the DECC website have found it almost impossible. The nomination documentation is lengthy and complex and comments are invited on very specific issues which most 'lay' people like myself will be unable to do. This makes a sham of the so-called public consultation. If they want expert comments why bother consulting the public?" (2)

A consortium of Germany's E.On and RWE was successful in its bid for two sites at Oldbury and Wylfa, auctioned off by the Nuclear Decommissioning Authority (NDA), while EDF acquired land at Bradwell. A third bidder – a consortium of Iberdrola, GDF Suez and Scottish and Southern Energy (SSE) – dropped out of the bidding process as prices rose. (3)

E.On and RWE say they will now push ahead with plans to develop at least 6GW of new reactors. EDF Energy plans to build 6.4 gigawatts, at Hinkley and Sizewell, taking the total declared plans to 12.4 gigawatts. This would be enough to meet a quarter of UK electricity demand, and would exceed existing nuclear capacity. (4)

As part of its deal with competition authorities to buy British Energy, EDF Energy agreed to sell land at either Dungeness or Heysham. It announced a process for choosing a prospective buyer in early May 2009. (5)

The NDA says it is planning to auction off prime farmland, adjacent to Sellafield, which has been earmarked for a new reactor. The auction will begin at some point during May and June 2009. (6) However, a consortium of Iberdrola, GDF Suez, and Scottish & Southern Energy says it has received a reactor site offer from the NDA. – probably the Sellafield site. (7)

EDF may also sell off land it owns at Bradwell, even though it has only just bought some of it from the NDA. The company owned land adjacent to the land it has purchased from the NDA. Any potential nuclear developer would need both parcels of land. (8) Meanwhile the Blackwater Against New Nuclear Group (BANNG) has expressed alarm that the site could be large enough for three new reactors. (9)

(1) For more information see <http://www.no2nuclearpower.org.uk/ground/ssa.php>.

(2) Bristol Evening Post 15th May 2009

<http://www.thisisbristol.co.uk/news/Oldbury-power-plant-needs-debated/article-993343-detail/article.html>

(3) Modern Power Systems 5th May 2009

<http://www.modernpowersystems.com/story.asp?sectioncode=131&storyCode=2052860>

(4) DECC Press Release 29th Apr 2009

<http://nds.coi.gov.uk/Content/Detail.asp?ReleaseID=400139&NewsAreaID=2>

(5) New Energy Focus 11th May 2009 http://www.newenergyfocus.com/do/ecco.py/view_item?listid=1&listcatid=32&listitemid=2616

(6) Whitehaven News 6th May 2009 http://www.whitehaven-news.co.uk/news/nda_selling_400_acres_of_farmland_1_550962?referrerPath=home

(7) Reuters 26th May 2009. <http://uk.reuters.com/article/businessNews/idUKTRE54O3Z720090526?rpc=401>

(8) Business Weekly 12th May 2009 <http://www.businessweekly.co.uk/2009051234897/energy/edf-to-sell-nuclear-site.html>

(9) Essex County Standard 29th May 2009 http://www.essexcountystandard.co.uk/news/4402597.Bradwell_Concerns_over_new_nuclear_plans/

3. Generic Design Assessment

The nuclear regulators – the Health and Safety Executive (HSE) and Environment Agency – have been carrying out a new process called 'Generic Design Assessment' (GDA), which looks at the safety, security and environmental implications of new reactor designs before an application is made to build that design at a particular site. The GDA should be completed around spring 2011, when the regulators would issue statements about the acceptability of the designs. But progress has been slow. The GDA has been identified as a significant potential bottleneck in the new build process, because until it comes to fruition, no building can take place. Any delays would affect confidence throughout the supply chain. (1)

Insiders are concerned about the regulator's resources. *"We are close to halfway through the time, but nowhere near halfway through the work," said one source. "The Health and Safety Executive is boosting pay and recruiting hard, but two years into a four-year process it still either hasn't got enough people or doesn't have them trained up."* (2)

The Nuclear Installations Inspectorate (NII) (part of the HSE) still has fewer than three quarters of the staff needed to do the job. (3) The NII also says it has encountered some “significant delays” in obtaining responses to technical queries from the reactor designers and the assessment is being made more difficult by the fact that neither design is complete. (4)

Partly to help get round the NII’s staff shortages, in January 2008 the Government asked Dr Tim Stone to conduct a review of nuclear regulation. His findings have been reported, but the Government has only published the Summary Recommendations (5) and its response. (6)

As a result of the recommendations the Government has decided to restructure the HSE’s Nuclear Directorate to create an autonomous body under the auspices of the HSE. Naturally there are suspicions the new structure and powers are designed solely to make sure the GDA process is completed, despite serious staff shortages.

(1) For further information on the GDA process see http://www.no2nuclearpower.org.uk/news/id_gda.php

(2) Independent 31st March 2009 <http://www.independent.co.uk/news/business/analysis-and-features/the-nuclear-option-uks-multibillionpound-renaissance-moves-up-a-gear-1658059.html>

(3) Times 9th April 2009 http://business.timesonline.co.uk/tol/business/industry_sectors/utilities/article6062639.ece

(4) World Nuclear News 8th May 2009 http://www.world-nuclear-news.org/RS-UK_reactor_design_assessment_on_schedule-0805098.html

(5) Nuclear Regulatory Review: Summary Recommendations. <http://www.berr.gov.uk/files/file49848.pdf>

(6) Government Response to the Recommendations of the Stone Review of the Nuclear Regulatory Regime, January 2009. <http://www.berr.gov.uk/files/file49849.pdf>

4. Justification Pressure

The government is under growing pressure to hold a public inquiry into building new nuclear stations amid claims the current system of “justification” is fatally flawed and public confidence in ministers is at an all-time low. A group of leading academics - the Nuclear Consultation Group (NCG) - has written to the Department for Energy and Climate Change (DECC) calling for an inquiry, not least because the energy secretary, Ed Milliband, has made himself the final authority in the justification of new power stations, even though he has voiced support for building more atomic reactors. (2)

Justification is a very important legal and regulatory process and decision. (3) It is vital it is opened up to public scrutiny. At present the Government is saying it is keeping an open mind on this. To encourage the Government to hold an inquiry, please email the senior official in charge of all of this at DECC - Adam Dawson. adam.dawson@decc.gsi.gov.uk

(1) Guardian 17th May 2009. <http://www.guardian.co.uk/environment/2009/may/17/government-inquiry-nuclear-stations>

(2) Letter to DECC from the Nuclear Consultation Group on the Justification of New Nuclear Power Reactors in the UK.

<http://www.no2nuclearpower.org.uk/ground/NCG-LettertoDECConnuclear.pdf>

(3) For more information see New Nuclear Monitor No.15 <http://www.nuclearpolicy.info/docs/nuclearmonitor/NNM15.pdf>

5. Paying for Waste and Decommissioning

The Government has pledged not to subsidise new reactors, and to ‘make sure the full costs of new nuclear waste are paid by the market’. (1) However, the pledge has now mutated into the more nuanced “fixed unit price” for waste ‘disposal’ which the Government will set when approval for a reactor is given. This effectively caps the cost to the operator of nuclear waste disposal and transfers the risk of cost overruns to the taxpayer. (2)

A draft framework on how decommissioning and waste costs would be paid for was published for consultation in February 2008. (3) Companies must produce a detailed funded decommissioning programme (FDP) before new reactors are approved, which includes a commitment to pay into a secure and independently managed fund to cover decommissioning, clean up and waste costs. The Energy Act 2008 established the Nuclear Liabilities Financing Assurance Board (NLFAB) to monitor the funds and provide advice to the Government on all aspects of the financial arrangements operators plan to put in place. The NLFAB is chaired Lady Balfour of Burleigh. The Members of the Board were announced on March 31 2009. (4)

The Government has indicated the ‘fair share’ for waste ‘disposal’ will be calculated as the proportion of space nuclear operators’ radioactive waste takes up in any repository. Nuclear Economist Ian Jackson says foreign utility companies with Sellafield reprocessing contracts appear to be paying about £201,000/m³ for the ‘disposal’ of intermediate-level waste. It would be hard to justify charging British utilities a lower price

and would risk accusations of illegal state aid. The problem is that if UK utilities are forced to pay this fully commercial price it would cost around £820 million per reactor - 41% of each reactor's expected £2 billion capital cost - far too expensive, killing the prospects of any new reactors. (5) In other words, new reactors will not be built unless the government fixes the market. (6)

The Office for Nuclear Development has published three pre-consultation discussion papers on the development of estimates of the costs of decommissioning and waste management. A longer briefing, including a summary of the first two discussion papers, is available:-
http://www.no2nuclearpower.org.uk/news/id_funding.php

The third pre-consultation discussion paper on establishing a fixed unit price for the disposal of intermediate level waste and spent fuel from new nuclear power stations was published in May. (7) There will be a formal consultation on funding waste and decommissioning later in 2009.

Meanwhile, head of EDF Energy, Vincent de Rivaz, says nuclear power plants can only be built in the UK with government support. A "level playing field" has to be created to enable the nuclear industry to compete with other low-emission electricity sources such as wind power. According to the Financial Times, he complains about the Government providing additional subsidies for offshore wind power and support for "clean coal" power plants without providing similar funding for nuclear power. (8) Paul Flynn MP explains in his blog that this means he wants the market rigged in favour of nuclear so that companies will be confident enough to invest tens of billions of pounds in new reactors. (9)

In December 2007 the same de Rivaz told the Government EDF was prepared to shoulder the cost of building a £10bn fleet of four nuclear power stations without a penny of taxpayers' money. (10)

(1) From end to beginning, Nuclear Engineering International, August 2007.

<http://www.neimagazine.com/story.asp?sectionCode=76&storyCode=2046213>

(2) The Future will not be Nuclear, by Tom Burke, Prospect Magazine, September 2008.

http://www.prospect-magazine.co.uk/article_details.php?id=10336

(3) Consultation on Funded Decommissioning Programme Guidance for New Nuclear Power Station, BERR, February 2008

<http://www.berr.gov.uk/files/file44486.pdf>

(4) Nuclear Liabilities Financing Board. BERR Website. <http://www.berr.gov.uk/whatwedo/energy/sources/nuclear/whitepaper/actions/waste-decommissioning/nlfab/page49007.html>

(5) Jackson, I. Buried Costs, Nuclear Engineering International, March 27, 2008.

<http://www.neimagazine.com/story.asp?storyCode=2049209>

(6) Taxpayers facing nuclear missile, Greenpeace website, March 27, 2008

<http://www.greenpeace.org.uk/media/press-releases/taxpayers-facing-nuclear-missile>

(7) Pre-consultation discussion paper No.3 Establishing a fixed unit price for the disposal of intermediate level waste and spent fuel from new nuclear power stations – a worked example.

<http://www.berr.gov.uk/files/file50601.pdf>

(8) Bloomberg 26th May 2009. <http://www.bloomberg.com/apps/news?pid=20601090&sid=a25mJronn7E&refer=france>

(9) Paul Flynn MP 28th May 2009 http://paulflynnmp.typepad.com/my_weblog/2009/05/no-subsidy-no-nuclear.html

(10) London Evening Standard, 7th December 2007. http://www.thisismoney.co.uk/markets/article.html?in_article_id=427349&in_page_id=3

6. The Emperor has no Pressure Vessel

In a devastating pair of financial reports that Greenpeace USA Advisor, Harvey Wasserman has dubbed "The Emperor Has No Pressure Vessel," *the New York Times* has shed new light on the catastrophic economics of atomic power. (1)

Finland's Olkiluoto 3 reactor was supposed to be the showpiece of a nuclear renaissance. The most powerful reactor ever built, its modular design was supposed to make it faster and cheaper to build. And it was supposed to be safer, too. But things have not gone as planned.

After four years of construction and thousands of defects and deficiencies, the reactor's 3 billion euro price tag has climbed at least 50 percent. And while the reactor was originally meant to be completed this summer, Areva, the French company building it, and TVO, the utility that ordered it, are no longer willing to predict when it will go online. (2)

The Finnish Nuclear and Radiation Safety Authority, STUK, has accused Areva, the French company building the reactor, of a "lack of professionalism". A leaked letter from STUK to Areva expresses "great concern" over "the design of the control and protection systems". A current affairs programme on YLE TV 2 acquired the letter in May which warns the building site could be shut down if the automation is not fixed

and approved. (3) STUK says that “evident errors” have not been corrected more than a year after it raised its concerns. (4) Later in May faults were revealed in the primary coolant pipes which are being welded in France. STUK has ordered the manufacturer to stop work until the issue is resolved. (5)

In Flamanville, France, a clone of the Finnish reactor now under construction is also behind schedule and over-budget. Cracks have turned up in critical steel and concrete components, along with revelations that critical work has been done by unqualified welders. In the US, Florida and Georgia have changed state laws to raise electricity rates so that consumers will foot some of the bill for new nuclear plants in advance, before construction even begins.

For nuclear power to have a high impact on reducing greenhouse gases, an average of 12 reactors would have to be built worldwide each year until 2030, according to the Nuclear Energy Agency at the Organization for Economic Cooperation and Development. Right now, there are not even enough reactors under construction to replace those that are reaching the end of their lives. And of the 45 reactors being built around the world, 22 have encountered construction delays - nine of which do not have official start-up dates. Most of the new construction is underway in countries like China and Russia, where strong central governments have made nuclear energy a national priority.

The US Nuclear Regulatory Commission’s schedule to certify the Westinghouse AP1000 reactor has slipped during an ongoing review of its ability to withstand the impact of an airliner, and the EPR design has still not been certified for the American market.

The fiascos in Finland and Flamanville have thrown Areva into economic chaos now being mirrored at the Atomic Energy of Canada, Limited (AECL). Once touted as a global flagship, AECL sucked up 1.74 billion Canadian dollars in subsidies last year and has been a long-term money loser which the government has now announced it wants to sell. (6)

Wasserman concludes: “...*the appearance of such brutally bad news from Finland and Canada in the Business Section of the New York Times bodes ill for an industry that, after fifty years, cannot get private funding or liability insurance, cannot deal with its wastes, and now cannot demonstrate the ability to produce new product anywhere near on time or budget.*”

(1) New York Times 28th May 2009

http://www.nytimes.com/2009/05/29/business/energy-environment/29nuke.html?_r=1

(2) Observer 10th May 2009

<http://www.guardian.co.uk/business/2009/may/10/nuclear-reactor-safety-concerns-areva>

(3) YLE TV 7th May 2009 http://yle.fi/uutiset/news/2009/05/radiation_authority_sees_serious_safety_problems_at_nuclear_building_site_722518.html

See also Olkiluoto Info 6th May 2009 <http://www.olkiluoto.info/en/30/3/160/>

(4) Independent on Sunday 10th May 2009 <http://www.independent.co.uk/environment/green-living/safety-threat-to-planned-nuclear-power-stations-1682293.html>

(5) Olkiluoto Info 12th May 2009. <http://www.olkiluoto.info/en/30/3/161/>

(6) Huffington Post 29th May 2009 http://www.huffingtonpost.com/harvey-wasserman/the-em-new-york-timesem-fi_b_208924.html

7. Waste problems go on and on

The Thermal Oxide Reprocessing Plant (THORP) at Sellafield, which opened in 1994 to reprocess spent fuel from Britain’s newer Advanced Gas-cooled Reactors (AGRs), and overseas Light Water Reactors (LWRs), continues to limp along with a throughput which is neither reliable nor to specification. During its first ten years it managed to reprocess just over 5000 tons of spent fuel, rather than the 7000 tons expected. Given the total order book was only 9,600 tons it should have closed around 2010/11. But accidents and technical problems have delayed closure until at least 2015/6, and the Norwegian environment group, Bellona, was told recently it might even need to keep operating until 2020. (1)

In mid-May one of three evaporators - used to condense highly radioactive liquid - was shut down after a rise in radioactivity was detected. In fact two of the site’s three evaporators are becoming increasingly unreliable. (2) Whilst two new Evaporators are planned, the first is unlikely to come into service until 2013/14 at the earliest. (3) This has led to speculation that THORP may have to close for a number of years. (4) A Sellafield Ltd spokesman said that a technical inquiry had been launched into options because one of the downstream plants that supplies Thorp has problems. Workers were told at the end of May that the danger of closure had passed, for now, after the broken evaporator was fixed. (5) Now it has emerged the plant will indeed close down soon for at least seven months. (6)

Meanwhile an investigation revealed that radioactivity had been leaking from a pipe for 14 months before it was discovered on the day the Prime Minister visited Sellafield on 23rd January 2009. (7) The leak had gone undetected for so long “*because managerial controls over the line were insufficient and there was inadequate*

inspection". And the Health and Safety Executive (HSE) has decided to prosecute Sellafield Ltd after the exposure of two contractor employees to airborne radioactive contamination on 11 July 2007. (8)

- (1) Bellona website 22nd August 2008. http://www.bellona.org/articles/articles_2008/thorp_extended
- (2) BBC 19th May 2009. <http://news.bbc.co.uk/1/hi/england/cumbria/8058009.stm>
- (3) CORE Press Release 18th May 2009 <http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=260>
- (4) Guardian 19th May 2009 <http://www.guardian.co.uk/environment/2009/may/19/thorp-nuclear-plant-white-elephant>
- (5) Whitehaven News 27th May 2009 http://www.whitehaven-news.co.uk/news/thorp_gets_all_clear_to_stay_open_1_560246?referrerPath=news
- (6) CORE Press Release 2nd June 2009 <http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=261>
- (7) Carlisle News and Star 14th May 2009 http://www.newsandstar.co.uk/news/nuclear_leak_at_sellafield_went_unnoticed_for_14_months_1_554473?referrerPath=/1.50001
- (8) HSE Press Release 22nd May 2009 <http://www.hse.gov.uk/press/2009/on00409.htm>

8. CSP could meet a quarter of world demand

Concentrating solar power (CSP) could provide seven percent of the world's energy by 2030 and up to one-quarter by 2050, according to a study by Greenpeace International, the European Solar Thermal Electricity Association and IEA SolarPaces. (1)

CSP uses mirrors to focus the sun's rays to temperatures between 400°C and 1,000°C. This heat is used to boil water and produce steam, which subsequently drives electricity-generating turbines. The study estimated the global electricity capacity of CSP installations was 436MW at the end of 2008. Projects currently under construction and planned developments could see this figure rise to over 830GW by 2050.

CSP has now "taken off" and has the potential to "establish itself as the third biggest player in the sustainable power generation industry". Spain is currently the world leader with more than 50 solar projects in the pipeline for completion between now and 2015. (2)

The idea of a European "supergrid" stretching from the sun-baked deserts of North Africa to the windswept North Sea, from the volcanoes of Iceland to the lakes of Finland seems to be gaining ground among European policymakers, including President Sarkozy and Gordon Brown. Adam Bruce, chairman of the British Wind Energy Association (BWEA), is convinced that a European supergrid is only a matter of time. (3)

- (1) Concentrating Solar Power: Global Outlook 09. Greenpeace International, European Solar Thermal Electricity Association and IEA SolarPaces, May 2009 <http://www.greenpeace.org/raw/content/international/press/reports/concentrating-solar-power-2009.pdf>
- (2) Low Carbon Economy 27th May 2009 http://www.lowcarboneyconomy.com/community_content/_low_carbon_news/5940
- (3) Times 30th Apr 2009 http://business.timesonline.co.uk/tol/business/industry_sectors/natural_resources/article6194801.ece
See Desertec-UK http://www.trec-uk.org.uk/csp/in_brief.htm

9. Riding the Waves

Wave energy could catch up with commercially more advanced offshore wind power within five years, according to the head of Edinburgh-based Aquamarine Power Ltd - Martin McAdam. "What it took 25 years to do in the wind industry, we want to do in five years."

"What we feel is we can offer a device in future that will be competitive with offshore wind energy. By 2014 we will have a commercially available device," he said. "Our smallest offering will be 10 megawatt. We hope we can install up to 100 MW in size from 2014."

The Carbon Trust has calculated marine energy could supply up to 20% of Britain's power but the technology is still at the prototype stage.

Aquamarine Power is one of the handful of British companies already testing marine energy devices in the ocean. In April, it won the first electricity from its 0.5 MW hydroelectric wave energy converter, tested at the New and Renewable Energy Center (NaREC) in Newcastle. It plans to install the device, called Oyster, in July at the European Marine Energy Center (EMEC) in Orkney. (1)

Checkmate Sea Energy has finished an exhaustive proof-of-concept trial of its Anaconda device, seen by

many experts as at the forefront of the next generation of robust, cheap wave-power machines that could slash costs. Made from a composite of fabric and natural rubber, the Anaconda rides oncoming waves and uses the motion to drive a turbine in its tail. The test device is nine metres long but its developers say that a full-scale device could be up to 200m in length and capable of producing 1MW of power, and cost £2m to build. Farms of 50 or more could be placed underwater a few miles from the coast. (2)

The device has already been given a significant vote of confidence by the Carbon Trust. The Anaconda was chosen in 2007 as one of only two technologies to take part in the Trust's marine accelerator programme, which aims to push new low-carbon technology ideas closer to commercial reality. (3) Their analysis of the technology concluded that, because of its simplicity, Anaconda could create a "step-change" in how soon wave devices became commercial. Their research showed that, while wave energy in general costs around 25p per kWh, the Anaconda had the potential to bring prices down to around 9p per kWh. Mains electricity today from fossil fuels costs around 6p per kWh.

Marine energy devices nearing commercial reality include the SeaGen and Pelamis, a tidal and wave generator respectively. Both went into trials in the sea last year, SeaGen in Strangford Lough and Pelamis off the coast of Portugal. Like Anaconda, Pelamis also uses a snake-like motion to capture wave energy by flexing its articulated metal sections on the sea surface. Both devices have had technical problems however, mainly due to the harsh conditions at sea.

(1) Reuters 5th May 2009 <http://uk.reuters.com/article/behindTheScenes/idUKTRE54441P20090505?pageNumber=1&virtualBrandChannel=0>

(2) Guardian 6th May 2009

<http://www.guardian.co.uk/environment/2009/may/06/anaconda-wave-power>

BBC 5th May 2009 <http://news.bbc.co.uk/1/hi/sci/tech/8034884.stm>

(3) Carbon Trust Press Release 25th September 2007. http://www.carbontrust.co.uk/News/presscentre/2007/250907_MarineAccelerator.htm

10. Renewable Progress

- The American wind energy industry installed over 2,800 megawatts (MW) of new generating capacity in the first quarter of 2009 – double what was installed in the same quarter last year. Total US wind capacity is now 28,206 MW, enough to serve over 8 million homes. (1)
- President Obama has announced over \$476 million in funding to develop, deploy and use geothermal and solar energy across the US. The money will be used to help the renewable energy sectors overcome technical hurdles, demonstrate new technologies and create new green jobs. (2)
- Four out of every 10GW of new energy capacity built last year came from the renewables sector, according to a study for the UN Environment Programme which confirms that renewables now represent a mainstream energy investment. The study, from analyst New Energy Finance, found that despite the global recession, rapid growth in developing countries meant that overall renewables investment, excluding large hydro projects, rose five per cent last year to \$155bn (£94bn). (3)
- A £5 billion domestic sector energy efficiency investment could create around 55,000 jobs directly and hundreds of thousands of jobs indirectly, according to a report commissioned by Greenpeace. This is the scale of investment that would be required to tackle the energy inefficiency of the UK housing stock in the space of several decades. (4)
- Solar energy will fall in price to match the cost of conventional fossil fuel electricity seven years sooner than previously expected, according to the UK's largest solar company. Solarcentury said British homeowners will see solar electricity rival or become cheaper than conventional non-renewable electricity by 2013. (5)
- Jeremy Leggett, executive Chairman of Solar Century, says the new technologies are growing so fast they are beginning to threaten the old. In 2008, for the first time, both the European Union and the US added more capacity from renewables than from fossil-fuel and nuclear sources. So much so that some defenders of conventional energy have started to argue against renewables. (6)
- Jeremy Rifkin, author of *The Hydrogen Economy*, has proposed a pan-European strategy of small-scale energy generation and smart energy grids. The plan would create millions of jobs and foster investment that would see the end of the current economic crisis. Rifkin says the old economic models will not see humanity through, and the combination of the climatic, energy and economic woes of the planet have created a "perfect storm" that will see in a new era. We need to overhaul the technology of infrastructure and architecture such that buildings have integral power generation: solar panels and small vertical wind turbines on roofs, heat pumps harvesting geothermal energy in basements. In rural settings, agricultural waste could be used to generate methane and in coastal regions, tidal power could be harvested. "Your building becomes your power plant". (7)
- When residents of the village of Fintry in Stirlingshire first heard about plans for a wind farm in the hills above them, their reaction took the developer by surprise. Instead of opposing the scheme, the villagers asked the company to build an extra turbine and sell it to them. (8)

- (1) Climate Progress 29th Apr 2009
<http://climateprogress.org/2009/04/28/us-wind-power-industry-2800-mw-in-q/>
- (2) Low Carbon Economy 28th May 2009
http://www.lowcarboneyconomy.com/community_content/_low_carbon_news/5957
- (3) Business Green 3rd June 2009
<http://www.businessgreen.com/business-green/news/2243434/renewables-155bn-investment>
- (4) Impetus Consulting Ltd. The case for including energy efficiency investment in the fiscal stimulus package. Greenpeace, 30th March 2009. http://www.greenpeace.org.uk/files/EE_fiscal_stimulus_Impetus_Report.pdf
- (5) Guardian 12th May 2009 <http://www.guardian.co.uk/environment/2009/may/12/solar-energy-price-fall>
- (6) FT 26th May 2009 <http://www.ft.com/cms/s/2b0edfee-48c5-11de-8870-00144feabdc0.html>
- (7) BBC 11th May 2009 <http://news.bbc.co.uk/1/hi/sci/tech/8043397.stm>
- (8) Guardian 10th May 2009 <http://www.guardian.co.uk/environment/2009/may/10/windpower-energy>

11. Carbon Logic

Reminiscent of a 1997 report by Greenpeace on “*The Carbon Logic*”, (1) a report published in *Nature* says the world has already burned half the fossil fuels necessary to bring about a 2°C rise in average global temperature. About half a trillion tonnes of carbon have been consumed since the industrial revolution. Research suggests burning a trillion tonnes would be likely to produce warming of between 1.6°C and 2.6°C. So, to prevent a 2°C rise the total burned must be kept to below a trillion tonnes. At current rates we will have burnt a trillion tonnes in 40 years. (2) The trouble is that global emissions are currently increasing at 3% per year, so we could exceed the budget in two decades. (3)

This, in effect, reframes climate targets as a carbon budget, as Greenpeace did a decade ago. It means that less than a quarter of the world’s proven reserves of fossil fuels can be burnt if the world wants to avoid a high risk of dangerous levels of global warming. The authors of the *Nature* report argue this reinforces the case for early cuts in emissions. The longer the world lets emissions rise, the harder it will be to reduce them enough to stay within a trillion tonnes. Ultimately, rather than trying to stabilise emissions at a lower rate, we will need an “exit strategy” to move to a entirely zero carbon economy. (4)

In this context it can be seen that the idea of BP and Shell expanding production of oil from Canadian Tar Sands, for example, is completely barmy. (5)

- (1) Hare, B. Fossil Fuels and Climate Protection: *The Carbon Logic*, Greenpeace International 1997. <http://www.greenpeace.org/raw/content/international/press/reports/fossil-fuels-and-climate-prote.pdf>
- (2) Allen, M et al. The Exit Strategy, *Nature* 30th Apr 2009. <http://www.nature.com/climate/2009/0905/full/climate.2009.38.html>
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<http://www.guardian.co.uk/environment/2009/apr/30/temperature-rise-global-warming-fossil-fuels>
- (4) Independent 30th Apr 2009
<http://www.independent.co.uk/environment/climate-change/climate-chaos-predicted-by-co2-study-1676411.html>
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<http://www.timesonline.co.uk/tol/news/environment/article6196286.ece>
- (5) BP and Shell: Rising Risks in Tar Sands Investments. Greenpeace September 2008 <http://www.greenpeace.org.uk/files/pdfs/climate/RisingRisks.pdf>