

# **SAFE ENERGY E-JOURNAL No.46**

## **June 2009**

The content of this e-journal was for the most part originally prepared for Nuclear Free Local Authorities and is reproduced, as adapted, with their permission but without liability for its contents.

### **1.0 Facilitative actions for new nuclear reactors**

The Government says it wants new reactors to go-ahead, so it is carrying out a series of 'facilitative actions' to speed up construction. [New Nuclear Monitor No.14](#) summarises these facilitative actions.

### **1.1 Strategic Siting Assessment (SSA)**

The SSA is the process for identifying and assessing potentially suitable sites. A consultation on this closed in November 2008. The [NFLA submission](#) to this consultation described the process as appearing to be simply a way of legitimising nuclear siting decisions which have already been taken.

The Government [responded](#) to the consultation in January 2009, and called for nominations for potential sites from the industry by the end of March 2009. Further information available [here](#).

**June Update:** A draft [list of 11 nominated sites](#) was published on 15<sup>th</sup> April and the public was given just one month to comment. [New Nuclear Monitor No.16](#) suggested how to respond. The list included all seven sites with operating reactors in England and Wales, plus Bradwell which has a closed reactor, Sellafield, and two green-field sites in Cumbria. The Guardian published an [interactive map](#).

The final list of nominated sites will be issued late in 2009 as part of a consultation on the National Policy Statement on nuclear power (Nuclear NPS). Then the finalised Nuclear NPS will be published at the beginning of 2010, before a presumed Easter 2010 General Election. Under the new Planning Act the Nuclear NPS will establish the 'need' for new reactors, so the subsequent planning process will only deal with site specific issues. For a longer article by Ian Jackson, consultant on nuclear siting to the Government, see [here](#).

A correspondent to the [Bristol Evening Post](#) neatly summed up many people's views on the consultation when 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?"*

#### **1.1.1 Sites Changing Hands**

The [auction of three](#) NDA sites made £387m for the Government.

- A consortium of E.On and RWE [bought Oldbury and Wylfa](#) from the Nuclear Decommissioning Authority (NDA).
- EDF Energy bought land at Bradwell, but [may sell it on](#), with land it already owns.
- EDF Energy will sell land at either Dungeness or Heysham, and is [seeking prospective buyers](#).
- The NDA is also [planning to auction off](#) prime farmland, adjacent to Sellafield soon. [Iberdrola has intimated](#) that the NDA has offered to sell it the Sellafield site to build a reactor with GDF Suez, Scottish and Southern Energy and possibly the Swedish utility [Vattenfall](#).

EDF Energy plans to build 6.4 gigawatts, at Hinkley and Sizewell, and the Eon and RWE consortium plans 6GW at Oldbury and Wylfa. This will be enough to meet a quarter of UK electricity demand, and would exceed the UK's existing nuclear capacity of around 11GW.

## 1.2 Planning & National Policy Statement

The [Planning Act](#) creates a new Infrastructure Planning Commission (IPC) which will decide on projects of national significance for England and Wales. The IPC will act according to the National Policy Statements, such as the Nuclear NPS. But public inquiries run by the IPC will mostly be conducted in writing, and there will be no public right for objectors to cross examine developers. There are concerns this is a "developer's charter" which is deeply undemocratic.

**June Update:** The Department for Communities and Local Government (CLG) is [consulting](#) on a suite of draft regulations and guidance documents which set out the procedures for pre-application consultation on nationally significant infrastructure projects, and information an application submitted to the Infrastructure Planning Commission (IPC) should contain. The consultation closes on 19<sup>th</sup> June 2009.

It has already [consulted](#) on who should be statutory consultees before designating a document as a National Policy Statement (NPS) under the *Planning Act 2008*.

CLG also [announced](#) that Sir Michael Pitt is its preferred candidate to Chair the new Infrastructure Planning Commission which will be located in Bristol. Sir Michael's appointment was subject to endorsement by the Communities and Local Government Select Committee. The Committee held a pre-appointment hearing on 16<sup>th</sup> March and published its [report](#) on 23<sup>rd</sup> March in which the Committee declared itself satisfied with the appointment.

The IPC will formally be established from October 2009 with an interim body being set up ahead of that. The CLG [Route Map](#) for establishing the IPC points out that "...over the next two decades we will need to replace around a third of our electricity generating capacity. Unless we do this in a timely and efficient manner, we risk not having sufficient capacity to meet projected energy demands".

## 1.3 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. Further information on the GDA process is available [here](#).

UK Nuclear Regulators Nuclear Reactor Assessment [web-pages](#).

**June Update:** Progress on the GDA has been slow and insiders are concerned about the regulator's resources, according to [The Independent](#). *"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."* According to [The Times](#), the NII still has fewer than three quarters of the staff needed to do the job. The GDA [first quarterly progress report](#) admitted that resource shortages remain a key threat to satisfactory progress. [The NII also says](#) it has encountered some "significant delays" in obtaining responses to technical queries from the so-called Requesting Parties (RPs), and warns that to meet its targets the full proactive engagement of the RPs is required. The regulator also points out the assessment is being made more difficult by the fact that neither design is complete.

### 1.3.1 Shortage of Nuclear Inspectors – The Stone Review

The HSE is attempting to recruit 50 new nuclear inspectors, but too few people have been applying. Staff shortages at the Nuclear Installations Inspectorate (NII) could lead to delays in the licensing of new reactors. 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](#) and its [response to the review](#).

**June Update:** Tim Stone recommended that the NII be given financial and organisational flexibility. As a result the Government has decided to restructure the HSE's Nuclear Directorate through legislation, creating an autonomous body under the auspices of the HSE. Chief Inspector of Nuclear Installations, Mike Weightman, has written to a number of NGOs seeking a meeting to discuss this. Regulation of nuclear transport may also be moved to the new organization from the Department of Transport.

It should be noted that Dr Stone has made clear his willingness to push through anything that facilitates new reactors keep the UK at the forefront of the global nuclear renaissance. The Department for Energy and Climate Change has refused to publish the full Stone Review. So, the whole aim of this is to give the NII whatever structure and powers it needs to get through the GDA process and keep new build on track. [Tim Stone has warned](#) that the NII may continue to experience serious staffing issues jeopardising plans for new reactors, if it does not increase new starters' pay by a quarter and give existing staff a pay rise.

### 1.4 The Justification Process

A [Justification exercise](#) is required under EU law to ensure that nuclear power developments have an overall benefit which outweighs any health detriment caused by the use of ionising radiation. The Government held a [consultation](#) on the Nuclear Industry Associations application to justify new nuclear power stations which closed on 25<sup>th</sup> March 2009. A draft Government response is expected in the autumn, with another consultation period before a final decision is made early next year. [New Nuclear Monitor No.15](#) was produced to encourage responses to the Government's Justification Consultation.

NFLA is unequivocal – the opportunity costs of new reactors are too high. Nuclear investment will damage the nascent local energy revolution which local authorities should be at the centre of, and thus damage efforts to tackle climate change. Nuclear power's capital costs are out of control and recent studies have cast "significant doubt" over the official risk attached to radiation doses received by people living near nuclear reactors.

**June Update:** The government is [under growing pressure](#) to hold a public inquiry into building new nuclear stations amid claims that the current system of “justification” is fatally flawed and that public confidence in ministers is at an all-time low. A group of leading academics - the [Nuclear Consultation Group](#) (NGC) - [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.

According to the [Whitehaven News](#) the Department of Energy and Climate Change is giving the thumbs down to calls for a public inquiry. DECC the Department of Energy told the newspaper: “*There’s an open consultation under way and thus far we do not believe there is also a need for an inquiry but we will keep that under review.*”

## 1.5 Paying for waste and decommissioning

The Government says utilities will be expected to meet “*the full costs of decommissioning and their full share of waste management costs*”. But the system proposed is one in which utilities pay a fixed-price into a fund in return for the Government taking the waste, and absorbing all the risks. There is huge scepticism about this method of funding of waste and decommissioning costs. It offers opportunities for the Government to hide any subsidies with the risk the public will end up footing the bill. So this issue is crucial to the economics of new reactors. If utilities are forced to pay a fully commercial price it will be far too expensive, and kill the prospect of any new reactors.

Government website on [Funding Waste and Decommissioning Costs](#).

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 [here](#).

**June Update:** In November 2008 Lady Balfour of Burleigh was appointed as Chairman of the independent [Nuclear Liabilities Financing Assurance Board](#) (NLFAB), and in March 2009 six board members were appointed, including former Greenpeace International lobbyist Simon Carroll. NLFAB has been established to provide independent scrutiny and advice on the suitability of the funded decommissioning programme (FDP) submitted by operators of new nuclear power stations. It will advise the Secretary of State on the financial arrangements that operators submit for approval which will form part of the FDP. The NLFAB will also provide advice to the Secretary of State on the regular review and ongoing scrutiny of funding arrangements.

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. This sets out a worked example to illustrate issues around a methodology to establish an indicative fixed unit price. This paper does not look at the cost model as was expected in the earlier papers because feedback suggested there was a need for more quantitative information. The three papers are not a formal consultation – this will take place later in 2009.

**Recommendation: NFLA should respond to the formal consultation on paying for nuclear waste.**

## 2.0 Nuclear Costs and Finance

The Blair Government’s first Energy White Paper in February 2003 concluded that “...*the current economics of nuclear power make it an unattractive option for new generating capacity*”. By January 2008, the White Paper on nuclear power said “...*on the basis of our*

*cost-benefit analysis, we believe that nuclear power is likely to be an attractive economic proposition... ” What has changed?*

An [October 2008 briefing](#) on nuclear costs and finances discusses this.

In the US, nuclear costs are out of control as reported in this [February 2009 update](#) on costs and finances.

**June Update:** Centrica has [negotiated down](#) the price it will pay EDF for a stake in British Energy. Instead of paying £3.05 billion for a 25% stake, as agreed last September, Centrica is now paying the equivalent of £2.3 billion for a 20% stake. This consists of £1.1 billion in cash and Centrica’s 51% stake in Societe de Production d’Electricite (SPE), the Belgian power generator, which has been valued at £1.2billion.

Nuclear power plants can only be built in the UK with government support, according to the head of EDF Energy, Vincent de Rivaz. 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.

## 2.1 France and Finland

The French designed EPR is the flagship of the so-called "nuclear renaissance". But construction of the EPR has only started in Finland and France, and both experiences have been disastrous. Widespread doubts about the ability of nuclear power companies to build new reactors on time and budget have been raised by problems with reactors being built in France and Finland. Further information available [here](#)

**June Update:** The Finnish Nuclear and Radiation Safety Authority, STUK, has accused Areva, the French company building an EPR reactor at Olkiluoto, 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 which warns the building site could be shut down if the automation is not fixed and approved. Areva has admitted the reactor, already three years late, [still has no definite new opening date](#). STUK says that “[evident errors](#)” have not been corrected more than a year after it raised its concerns. More information and the leaked letter available [here](#).

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.

The [Flamanville project](#), the only reactor being built in France, is already over \$1 billion more expensive than projected after a single year under construction.

## 3.0 Nuclear Safety

If there is a burst of new reactor building around the world, the reactors built are likely to be so-called “Advanced Reactors,” or Generation III. What is most worrying about these reactors is that many of the new designs use so-called ‘passive’ safety systems which rely on a completely different safety philosophy. Some experts question whether this makes the reactors safer. Reliance on passive safety systems could result in an uncontrollable situation during an accident with the plant workers left with no means to do anything about it.

New reactors start with a higher risk as they are broken in, and then the risk reduces, but increases again towards the end of a reactor's life as age-related failures begin to occur. Most of the world's reactors are more than 20 years old and therefore more prone to accidents. A briefing on nuclear reactor safety is available [here](#).

The Nuclear Safety Advisory Committee (NuSAC) has been [quietly scrapped](#) after it warned the future safety of Britain's ageing nuclear plants was being put at risk by poor performance, delays and budget cuts. Former members of NuSAC are now worried about the lack of independent safety advice at a time when the government is embarking on a major expansion and clean-up of nuclear power.

**June Update:** People died - and are still dying - after the Three Mile Island accident in Pennsylvania thirty years ago. Investigations by epidemiologist Dr. Stephen Wing have led him to challenge official pronouncements on both radiation releases and health impacts. He says there is "... *very good evidence that releases were thousands of times greater than the story we've been told. When we hear -- which we hear often -- that no one was harmed at Three Mile Island, we really should question that.*" Peter Bradford, former Nuclear Regulatory Commission notes: "*The abiding lesson that Three Mile Island taught Wall Street was that a group of N.R.C.-licensed reactor operators, as good as any others, could turn a \$2 billion asset into a \$1 billion cleanup job in about 90 minutes.*" [See nuClear News No.6 May 2009](#)

#### **4.0 Reactor Construction**

Hundreds of UK companies [have been invited](#) to a summit in London in June to test the appetite for participating in a £16bn nuclear building programme. The conference, organised by French energy giant EDF, is designed to open up its proposed development project to UK companies that want to help to build four nuclear plants. It is understood that 300 firms will be told next month how they can join the programme.

#### **5.0 Nuclear Diverting Attention from a Local Energy Revolution**

A wide range of energy and carbon emissions scenarios for the UK and Scotland suggest that with the right combination of energy efficiency measures, renewable energy, transport measures, and possibly carbon capture from fossil-fuelled power stations, emissions reductions of over 80% by 2050 are feasible. Nuclear power is not a prerequisite of the UK meeting its climate change objectives. [Briefing on Alternatives to New Reactors in Scotland](#).

- Former member of the US Nuclear Regulatory Commission, Peter Bradford, argues that nuclear power could actually kill jobs. The capital markets are not swimming in credit. If you use billions for nuclear construction you may well suck up money that might be otherwise be available for, say, wind projects that could create far more jobs per pound spent. See [nuClear News No.4 March 2009](#)
- EDF has called on the Government to lower its proposed renewable electricity target from 35% of supply in 2020 to just 20%. It says the development of new nuclear plant could be prevented if the government allows too much windpower to be built. Dave Elliot, Professor of Technology Policy at the Open University has warned we are heading for a "*crazy competition between sensible sustainable energy options and the dead end option of nuclear power*". See [nuClear News No.5 April 2009](#). [Jeremy Leggett, executive Chairman of Solarcentury says](#) new technologies are growing so fast they are beginning to threaten the old.

- Britain has visionary goals, says [Catherine Mitchell, Prof of Energy Policy Exeter University](#): an 80% cut in 1990 levels of carbon dioxide emissions by 2050; providing 15% of total energy from renewable sources and a cut in projected energy demand by 20% by 2020. If the UK meets these legally binding targets, there is no need for new nuclear or coal plants.
- Germany's Reichstag in Berlin is set to become the first parliamentary building in the world to be 100% powered by renewable energy, and soon the entire country could follow suit. Germany is accelerating its efforts to become the world's first industrial power to use 100% renewable energy, and, given current momentum, it could reach that green goal by 2050. A new roadmap published by the German Federal Ministry for the Environment sketches out the route it plans to take to switch over completely to renewable energy, and add 800,000 to 900,000 new cleantech jobs by 2030 as it does so. See [nuClear News No.6 May 2009](#)
- Nuclear power cannot be built quickly enough and in a safe and secure manner to be a major global solution for climate change, according to a report released by the [Carnegie Endowment for International Peace](#).
- Over fifty thousand British jobs could be created if the government invested in an energy efficiency programme that would also help tackle climate change, according to a [report released by Greenpeace](#).
- [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.

Recommendation: Members are urged to sign up [here](#) to receive notification about the new free monthly newsletter – nuClear News - which focusses on how nuclear power is diverting attention from the real solutions to climate change.

## **6.0 Proliferation**

A new generation of atomic power stations planned for Britain, China and many other parts of the world risks proliferation that could lead to “nuclear anarchy” according to a new [IPPR report](#).

## **7.0 Managing Radioactive Waste Safely Process**

The Government began the ‘Managing Radioactive Waste Safely’ process in September 2001 to decide how to develop radioactive waste policy following the 1997 decision to reject plans for a so-called Rock Characterisation Facility at Sellafield. This culminated in the publication of a [White Paper](#): Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal, in June 2008. A briefing on the “Managing Radioactive Waste Safely” process is available [here](#).

[History of Radioactive Waste Dumping Proposals](#).

**June Update:** [Copeland](#) and [Allerdale](#) councils, who have both “expressed an interest” in hosting a deep geological repository, [have both joined a group](#) known as the West Cumbria Partnership for Managing Radioactive Waste Safely. The partnership also includes the West Cumbria Sites (nuclear) Stakeholders Group, the Cumbria Association of Local Councils and

local trades unions. All other Cumbrian local authorities have been invited to join while the Isle of Man government and other concerned bodies can attend meetings as observers.

## 7.1 Deep Geological ‘Disposal’

The Committee on Radioactive Waste Management (CoRWM) describes ‘disposal’ as emplacing waste in a facility without the intention of retrieving it. The dictionary definition of disposal is “*the act or means of getting rid of something*”. So-called radioactive waste ‘disposal’ involves the eventual dilution and dispersion of radionuclides throughout the environment, so this is a misnomer. It does not ‘get rid’ of waste. This goes to the heart of the fundamental difference between an environmental and nuclear industry approach. Supporters of deep ‘disposal’ argue it is this generation’s responsibility to ‘get rid’ of waste we have created. An environmental approach argues we have a responsibility to give future generations a choice about how to deal with it, rather than leaving a radioactive waste dump which will contaminate the environment at a poorly predictable rate.

**June Update:** CoRWM issued a [draft report](#) for consultation on Deep Geological Disposal of Higher Activity Wastes (HAW). The NFLA response says the Government has pre-empted the process by seeking volunteer communities before it has been demonstrated that it might be possible to show the safety and public acceptability of deep geological disposal. The NFLA agreed CoRWM was right to encourage the Government to acknowledge the uncertainties involved. On retrievability, NFLA said the host community’s confidence in the facility’s ability to contain the waste is important, so if the community wants the facility to be retrievable, it should be. The NFLA response will be available [here](#).

## 7.2 Research and Development

The Environment Agency reviewed the research programme of the former UK Nirex Ltd, and identified more than 20 scientific, technical and engineering issues that need to be better understood in order to have confidence in containment of radioactive wastes over very long timescales. The NDA held a consultation on its [Proposed R&D Strategy](#), which closed in November 2008. This was designed to take a first step to address these issues. The NDA published its [Research and Development Strategy](#) to underpin Geological Disposal in March 2009. Clearly there is still a lot more work to do to understand the uncertainties involved.

**June Update:** Many of the issues you might expect would be dealt with in CoRWM’s report on Deep Geological Disposal will in fact be dealt with in a later report on Research and Development (R&D). For example the conflict between needing to let hydrogen gas escape from the repository to avoid explosions and the need to keep radioactive methane gas contained - an important issue which affects every aspect of the multi-barrier approach used in the deep geological disposal. CoRWM’s report on R&D will go out to consultation in September with a stakeholder event is planned for 9<sup>th</sup> September 2009.

**Recommendation: NFLA respond to the R&D consultation and engage in stakeholder events.**

## 8.0 Low level waste

The UK’s main low-level waste dump, operated by [The Low Level Waste Repository \(LLWR\) Ltd](#), is located 7km south east of Sellafield. The site is owned by the NDA. UK Nuclear Waste Management Ltd - a consortium led by Washington Group International with Studsvik UK, Serco and Areva - was awarded the Parent Body Organisation contract for the LLW Repository in March 2008. Vault 9 is currently being constructed at Drigg.

Copeland Borough Council will receive millions of pounds in community benefit as a result. [The first £5 million has been paid](#) by the NDA into the Copeland Community Benefit Fund and another £5million will follow later in 2009. Thereafter [Copeland will receive £1.5 million for every year](#) the repository continues to receive the waste, probably up to 2070.

LLW Repository Ltd set up, in partnership with the NDA, the [National Low Level Waste Strategy Group](#) in April 2008. The Strategy Group and provides information on the development and implementation of a National Low Level Waste (LLW) Strategy. SCCORS and NuLeaf are both [listed](#) as members of the Strategy Group. A presentation from April 2009 on the emerging strategy is available [here](#).

**June Update:** The application for a low level waste dump at Dounreay was approved by Highland Council in January 2009 and forwarded to the Scottish government for consideration. Ministers decided not to call in the application but asked the local planning authority to include an extra condition about the establishment of a community benefit fund. The council endorsed this in April and [Dounreay Site Restoration Ltd \(DSRL\)](#) has now received [consent](#). Construction is due to begin in 2011, with the first of the vaults ready to receive waste in 2014. In 2025 the vaults will be sealed and the surface restored. The facility will be used for the disposal of solid LLW generated during the decommissioning of the site as well as waste retrieved from historical LLW pits.

## **9.0 Intermediate Level Waste**

**June Update:** DSRL has been [granted planning permission](#) for a new solid and liquid ILW waste treatment plant. Waste will be mixed with cement and set inside 500-litre drums and 3-cubic metre steel boxes. Once set, the containers will be moved to an adjoining storage area with a design life of 100 years. Construction is scheduled for 2010-13.

## **10.0 Radioactive Discharges**

The UK Government published a [Strategy for Radioactive Discharges 2001-2020](#) in July 2002, as a response to its commitments, agreed at the 1998 Ministerial meeting of the Oslo and Paris (OSPAR) Commission - the treaty for the protection of the marine environment of the North-east Atlantic - to achieve “*substantial reductions or elimination of discharges*” by the year 2020, “*to levels ...close to zero*”.

In June 2008 DEFRA (and the devolved administrations) launched a [consultation on a revised strategy for 2006 – 2030](#). The 2002 strategy was written in the context of a declining UK nuclear industry, but this new draft allows for expansion, and accepts the UK’s failure to close some of the most polluting facilities in the world. The revised strategy will not deliver the UK’s commitments to OSPAR. The NFLA (Scotland) response to this consultation (September 2008) is available [here](#).

**June Update:** [In 1998 hundreds of pigeons](#) being fed in a garden at Seascale were found to be carrying radioactivity from Sellafield and had to be trapped and culled with the carcasses buried at the low level waste repository. Now the Environment Agency and NII say Sellafield needs to [improve its measures to control wildlife](#) and prevent access to radioactive areas. Extensive measures have been taken over the last few years to stop up areas where birds and small animals could come into contact with radioactive contamination. Sellafield Ltd is currently assessing whether to cull more seagulls on site.

According to the Irish Radiological Protection Institute people earning a living around the Irish Sea are at no risk from Sellafield’s radiation discharges. Its [report says](#) “*even those who*

*eat the most seafood and spend the most time on and around the Irish Sea are exposed to only low levels of radioactivity every year from Sellafield.”*

### **11.0 Waste Storage Review**

Radioactive waste from existing nuclear facilities is going to have to be stored above ground for at least 100 years, according to CoRWM. In July 2006 the committee recommended a major research and development programme on robust radioactive waste storage, including on security and resistance to terrorist attack. Both [CoRWM](#) and the [NDA](#) reported in March 2009 on their respective reviews of waste storage. NFLA [Radioactive Waste Management Policy Briefing No.19](#) summaries these two reviews.

**June Update:** The Scottish Government is holding a workshop on the development of Higher Activity Radioactive Waste policy on Wednesday 24<sup>th</sup> June 2009.

### **12.0 Plutonium Options**

The future of the UK's stockpile of over 100 tonnes of plutonium will be decided by the Government during 2009. The NDA began consultations on this in August 2008, with the publication of a plutonium options study. The Nuclear Free Local Authorities has produced a new briefing on options for dealing with plutonium stockpiles available [here](#).

**June Update:** The Office for Nuclear Development held a Workshop on 21<sup>st</sup> May in Manchester on the long-term management of the UK's civil separated plutonium.

#### **12.1 Sellafield MoX Plant**

**June Update:** The only nuclear facility given the go-ahead since 1997 – the Sellafield MoX Plant (SMP) - has been an economic and technical failure - another reminder of why the nuclear industry has become [notorious for making wildly exaggerated claims](#) about its benefits and precisely why it should be treated with scepticism and mistrust. Designed to manufacture 120 tonnes of mixed plutonium and uranium oxide fuel every year, for overseas customers, the plant [has produced just 6.3 tonnes](#) over its seven year life at a [cost to the taxpayer of more than £1bn](#).

Bizarrely, the fact the plant may close due to poor performance has caused some to speculate that a [new MoX plant](#) may need to be built. The fact French nuclear company Areva, which plays an active role at Sellafield, operates two MOX plants to a different design [has led to fears Areva](#) may try to build a second MOX plant.

### **13.0 Waste from new reactors**

The Government says a repository dealing with legacy wastes could readily accommodate the smaller volumes of waste from new reactors. But the reactors most likely to be built in the UK will be more powerful, use about 15% less uranium and produce 30% less waste. However, this waste will be more radioactive by a factor of seven because more uranium is burned up. Neither government nor its regulators have assessed the "disposability" of spent nuclear fuel from new reactors, and there are some serious doubts about its suitability for placing, along with existing waste, in a deep geological dump. The NDA is keeping its assessments of this new waste secret. Waste from new reactors briefing available [here](#).

**June Update:** If governments want to justify proposals for new reactors, they will be under pressure to prove they are capable of dealing with the waste they already have. Even if governments do get deep disposal to work, this doesn't justify plans to build more reactors,

says former CoRWM chair [Professor MacKerron](#). “*With legacy waste we have no choice to manage it as best we can. But for future waste we have the possible choice not to create it at all.*”

The [public is being consulted](#) on the way Sizewell B stores its spent fuel. For the last 14 years it has been stored in containers in a pond filled with water, but by 2015 this will have reached its full capacity. It is therefore looking at four alternatives: a second wet store like the one used at the moment; a dry vault store; a dry cask store and reprocessing.

#### **14.0 High Level Waste (HLW)**

The HLW facility at Sellafield has the potential to wipe out much of northern England and southern Scotland. Extremely dangerous liquid high level waste is stored in 21 stainless steel tanks, which contained around 2,100 kilograms (kg) of Caesium-137 in 1998, according to an [NFLA briefing](#) by the Institute for Resource and Security Studies, compared with the 30 kg released during the Chernobyl accident. The waste must be constantly cooled and ventilated, because it is so radioactive it generates its own heat, otherwise the liquid could boil and start escaping, contaminating the surroundings. The NII says the [consequences of prolonged cooling failure](#) could be ‘very severe’. The timings involved are very short. Cooling failure could lead to boiling after 12 hours, and to the tank drying out after three days.

The volume of highly radioactive liquor which can be stored is controlled by a legally binding specification issued by the NII, but [problems with the three evaporators](#) used to concentrate highly active liquors prior to storage and vitrification (turning into glass blocks) have made it difficult to reduce the volume.

The Institute for Resource and Security Studies submitted [evidence](#) to the House of Commons Defence Select Committee in January 2002, following 9/11, about the terrorist threat represented by the tanks. Estimates vary – but [some commentators have reported](#) that such an attack may require the evacuation of an area between Glasgow and Liverpool, and cause [around 2 million fatalities](#).

**June Update:** A cooling failure in the HLW tanks at Sellafield on 1st April 2009, which was so serious that the Site Emergency Control Centre arrangements had to be called upon, has highlighted the problems at this facility. Although the time it would take for radioactivity to start escaping is short, the industry [argues](#) the probability of a failure in the cooling system is extremely low. Efforts to re-instate the cooling water supply were directed first at the three tanks with the highest heat loading. Cooling was restored to the first of these after 75 minutes and to all three tanks after 3 hours. Reporting on the incident, [Sellafield’s in-house Newsletter](#) states that cooling was restored to all tanks within 8 hours. [Cumbrians Opposed to a Radioactive Environment](#) commented that this was perilously close to the timescale of 10.5 hours catered for in the Sellafield emergency plan.

Both the NII and the Environment Agency [have expressed concern](#) that “funding shortfalls” for the operation of Sellafield could undermine regulatory standards. [In July 2008 the NII](#) reported there were some corrosion problems in the tanks. It said replacement tanks should be pursued with the “*utmost urgency*”. In September 2008, the NII wrote to the NDA to express “*surprise and concern*” about recent funding decisions which delayed the construction of new evaporators and new tanks.

Recent research by the [Norwegian Radiation Protection Authority](#) (NRPA) considers the effects of a hypothetical critical accident at the Sellafield HLW tanks. If prevailing northeasterly winds occurred, Norway could have radioactive materials hitting its coastline

just 9 hours after an accident The NRPA looked at scenarios involving an atmospheric release of between 0.1 – 10 % of the total Caesium-137 inventory contained in the tanks. It found that Norway could receive up to 50 times the contamination experienced after Chernobyl. Coastal countries around the North Atlantic have been campaigning for years for the closure of Sellafield due to its highly radioactive storage tanks. [The NFLA agrees with](#) their concerns.

## **15.0 Reprocessing**

Sellafield has two reprocessing plants which chemically separate plutonium and unused uranium from spent nuclear fuel. It is a completely unnecessary process only used for around 5 – 10% of spent fuel worldwide. The bulk of radioactive discharges going into the North-East Atlantic originate from Sellafield. The older of the two - the Magnox reprocessing plant - reprocesses spent fuel from Britain's first generation Magnox reactors, only two of which remain operational. The plant had been scheduled to close at the end of 2012 as part of the UK's strategy to meet its OSPAR commitments (See Radioactive Discharges) but now isn't expected to close until 2016 due to poor plant performance.

The newer of the two is the Thermal Oxide Reprocessing Plant (THORP), which opened in 1994 to reprocess spent fuel from Britain's newer Advanced Gas-cooled Reactors (AGRs), and overseas Light Water Reactors (LWRs). Like the Magnox plant, throughput at THORP has neither been reliable nor to specification – with just over 5000 tons completed during the first ten years of operation, rather than the 7000 tons expected. Given the total order book was only 9,600 tons it should have closed around 2010/11. But various accidents have delayed closure until 2015/6. In fact the Norwegian environment group, [Bellona](#), was told recently it could still be operational in 2020.

**June Update:** THORP may have to close for a number of years due a series of technical problems, according to [The Guardian](#). 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. 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. Whilst two new Evaporators are planned, the first is unlikely to come into service [until 2013/14 at the earliest](#). THORP – now in its sixteenth year of operation - has now reprocessed 6,000 tons compared with the 7,000 it was supposed to reprocess in the first ten years. Chair of NFLA, George Regan, said it is “[high time this completely pointless plant was closed down for good](#)”. Workers [were told](#) at the end of May that the danger of closure had passed, for now, after the broken evaporator was fixed.

An investigation [has revealed](#) that radioactivity leaked from a pipe for 14 months before it was discovered on the day the Prime Minister visited Sellafield on 23<sup>rd</sup> January 2009. The leak had gone undetected for so long “*because managerial controls over the line were insufficient and there was inadequate inspection*”. The nuclear site's regulators [have decided](#) to hold their own investigations which could lead to a prosecution. Meanwhile the [Health and Safety Executive](#) (HSE) is to prosecute Sellafield Ltd after the exposure of two contractor employees to airborne radioactive contamination on 11 July 2007 at Sellafield. The initial court date has been fixed for the morning of 24 July at Whitehaven Magistrates' Court.

## **16.0 Dounreay**

Dounreay in Caithness was the UK's centre of Fast Reactor research between 1955 and 1994 but is now [described](#) as Scotland's largest nuclear clean-up project. Fast reactors, generally fuelled by plutonium, can, at the same time as generating electricity, convert a

useless form of uranium into more plutonium. In 1988 the programme was cancelled, officially because of costs, but Fast Reactors have been a disaster world-wide with serious technical problems.

An underground, 65-metre deep, shaft was used to dump intermediate level waste (ILW) between 1959 until 1977, when a chemical explosion brought the practice to an end. A second facility, the ILW silo - a concrete-lined box built just beneath the surface - was used to dispose of waste between 1971 and 1998. Both of these need to be emptied and the contents made safe. [Contractors started to prepare the ground](#) for a major new plant to be built to retrieve waste from the shaft and silo in March 2009.

Another major problem is the appearance of [radioactive particles](#) in the environment. These small fragments of irradiated nuclear fuel have been found on the seabed off Dounreay, on the Dounreay foreshore and on Sandside Beach west of Dounreay, which is open to the public. One particle was found in 2005 on Dunnet beach east of Dounreay. It will be around 200 years, before the activities of the larger particles have decayed sufficiently for them to no longer be considered a potential hazard. [Radioactive particles will keep polluting public beaches for decades to come](#). Improved monitoring of the beaches and the seabed and recovery of particles are really the only viable options.

**June Update:** Restrictions on seafood from near Dounreay will remain in place, following a review by the [Food Standards Agency](#) which looked at current work to remove radioactive particles from the seabed. It concluded that the restricted area should remain in place while the work on the seabed is going on and be reviewed once it is complete.

Some 33 tonnes of spent fuel currently trapped in the old Dounreay Fast Reactor have been [earmarked for transport to Sellafield](#) for reprocessing.

A second particle [has been found](#) at Murkle Beach east of Dounreay. All but four of the particles found off site have been on the Sandside beach west of Dounreay. Two have now been found at Murkle Beach and another two at Dunnet Beach - both east of Dounreay. 124 particles have been found on Sandside Beach in the last three years.

## **17.0 Scottish Government Policy**

Although energy is a 'reserved issue' i.e. still controlled by Westminster, the Scottish Government has planning powers, enshrined in the Electricity Act, which give Scottish ministers control over the construction of new energy projects. The SNP Government has declared it will use these powers to ensure no new nuclear power stations can be built north of the border.

The First Minister's Council of Economic Advisers (CEA) [First Annual Report](#) recommended the Scottish Government commission an independent assessment of energy options open to Scotland including an assessment of whether nuclear is necessary. The Scottish Government [accepted](#) this and said it would also provide a paper setting out the Government's current energy policy.

**June Update:** Scotland's energy sector is making a significant contribution to economic recovery, according to the Scottish Government's [key sector report on energy](#). The report showed that [renewables account for at least 3,000 jobs](#) in Scotland, with the potential to support at least 16,000 new jobs over the next decade, and the deployment of clean fossil fuels and carbon capture and storage could create around 10,000 jobs.

Government Economic Strategy identifies energy as a key sector with renewable energy contributing to commitments to reduce carbon and promote sustainable economic growth. The Scottish Government has a commitment that 50% of Scottish electricity gross consumption will come from renewable sources by 2020, with 31% by 2011. It has also proposed that 20% of all energy use (not just electricity) should come from renewable sources by 2020, in line with EU wide targets, and is very clear that Scotland neither needs nor wants new nuclear power generating capability. ([Jim Mather](#) told the All Energy Conference in Aberdeen in May that Scotland has already beaten the 31% target)

The Scottish Government has now established [The Scottish Energy Advisory Board](#) and the first meeting of the Board took place in May 2009. The Board will focus on the current and future energy challenges and opportunities for Scotland. The Board has support of three ministerial led theme groups, led by Jim Mather, on Renewables, Oil and Gas, and Thermal Generation and Carbon Capture and Storage. [Alex Salmond](#) said the Board would ensure that we continue to push Scotland's energy advantages on a European and global basis.

A [report](#) from the international think tank, The Centre for International Governance Innovation, backs the Scottish Government's position that sustainable energy alternatives are more cost-effective than new nuclear capacity. "The [UK] Government's obsession with nuclear power is undermining and marginalizing more efficient and safer technologies - the real energy solutions."

### **18.0 Scottish Policy on Radioactive Waste**

The Scottish Government refused to endorse the UK Government's [June 2007 consultation](#) on implementing geological disposal. Instead [it ruled out allowing deep disposal in Scotland](#). However, the Scottish Government remained fully committed to working closely with the UK Government in important aspects of radioactive waste policy and to supporting CoRWM's recommendations on interim storage and further joint research on other management options.

**June Update:** The Scottish Government is holding a workshop on the development of Higher Activity Radioactive Waste policy on Wednesday 24<sup>th</sup> June 2009.

### **19.0 Calman Commission**

John Robertson MP and others have been campaigning for a change in the devolution settlement to prevent the Scottish Government from blocking new reactors. Many Labour MSPs, however, believe this would be 'bad politics'. In the event, Scottish Labour's submission to the Calman Commission (the body examining Holyrood's powers) [did not recommend](#) any changes to Scottish Government powers.

**June Update:** [Scotland on Sunday](#) reported the March meeting of the Calman Commission had again discussed limiting the Scottish Government's powers to block new reactors. But a Commission spokesman said: "It is a ludicrous misrepresentation to suggest that the Commission discussed stripping the Scottish Parliament of its powers. All that the minutes say is that changes to reserved matters to Westminster are not ruled out."

Solicitor, Jim McLean, writing in [The Herald](#) asked if the notion the Scottish Government can rule out the construction of nuclear reactors was sound. He said it is based on section 36 of the Electricity Act 1989 which requires Ministers to carry out their duties with an open mind.

In a [debate in the House of Commons on 28<sup>th</sup> April 2009](#) initiated by Gordon Banks MP, the Parliamentary Under Secretary of State for Scotland, Ann McKechnie left open the possibility that planning powers could be returned to Westminster when she said the issue was being looked at by the Calman Commission. In the debate [John Robertson](#) MP said it is “outrageous that any Government can use an obscure planning rule to stop ... billions of pounds of investment”

## **20.0 Public Opinion**

Lord O'Neill chairman of the Nuclear Industry Association [claimed](#) in February that a recent national Ipsos-MORI opinion poll on nuclear power showed that support among Scottish citizens for nuclear energy has increased from 33% in favour in 2007 (31% against) to 40% in favour in 2008 (24% against). However, this also has to be seen in the context of other [research](#) which shows as much as 38% of the population living near existing reactors are only willing to accept new ones reluctantly if essential for energy security and climate change.

**June Update:** [Scotland on Sunday](#) reported in March that a survey of 3,000 people, conducted by the Scottish Government, found a clear majority think nuclear energy will be needed in the future to help ensure a secure energy supply. The 53% of people who backed nuclear was more than double the 23% who opposed a new generation of stations in Scotland. However, most people said they preferred renewables to nuclear by a margin of two to one, but are unwilling to see their bills going up in order to pay for them.

A Scotland on Sunday leader, headlined “[Nuclear Power? Yes Please](#)” said renewables may be the long-term answer, but will not meet our needs for many decades and nuclear could play an important role in plugging that gap in the meantime. Most Scots have woken up to that fact. It is time their government did too.

The poll led to [Labour and the Conservative with the backing of some in the business sector](#) to call for the SNP anti-nuclear policy to be reversed. [Iain Gray](#) condemned the Government. Ignacio Sanchez Galan, the chairman of Scottish Power owner Iberdrola, [congratulated Westminster](#) for its “enlightened” nuclear energy policy, and highlighted “conflict” between the UK and Holyrood administrations on this key issue.

## **21.0 Pro-nuclear attacks**

A [pro-nuclear assault on the Scottish](#) Government's anti-nuclear policy, renewed by the UK Minister for Scotland, Jim Murphy, at a nuclear communicators' conference held in Edinburgh in February 2009, has led to questions about the UK Government's motives. There are now [declared plans for 12.4GW](#) of new nuclear capacity – enough to meet 25% of UK electricity demand, more than existing UK nuclear capacity – at just four of the eleven nominated nuclear sites in England and Wales. So there is certainly no need to build any in Scotland. The nuclear industry and the UK Government have been [accused](#) of being unable to tolerate a devolved administration prepared to hold out against nuclear expansion plans. Labour has [clearly decided](#) nuclear is a stick it can use to beat the SNP.

**June Update:** Another so-called fierce [attack was launched](#) in April when Ed Miliband, Energy and Climate Change Secretary visited Hunterston. He claimed Scotland would lose out on thousands of jobs and billions of pounds worth of investment, and the [majority](#) of Scots were supportive of nuclear power. Lewis MacDonald MSP, Scottish Labour's energy spokesman, and the Conservatives agreed. The Scottish Government was supported by the Liberal Democrats, along with [Friends of the Earth Scotland](#) and [WWF Scotland](#). Duncan McLaren of FoE Scotland said “*We have seen it in the past: when nuclear power is*

*prioritised, renewables and energy efficiency get downgraded, and these are the things we should be doing first.”* Richard Dixon, Director of WWF Scotland said the UK Government is undermining “...continued support for renewables and other sensible solutions to climate change here in Scotland.”

According to [Scotland on Sunday](#) there is a widely held view outside the Scottish Government that renewables cannot meet Scotland's energy needs.

## **22.0 Scottish Alternative Energy Sources**

A wide range of energy and carbon emissions scenarios for the UK and Scotland suggest that with the right combination of energy efficiency measures, renewable energy, transport measures, and carbon capture from fossil-fuelled power stations, emissions reductions of over 80% by 2050 are feasible. Nuclear power is not a prerequisite to climate change objectives. In most scenarios electricity provision is dominated by renewables, and there is a role for either fossil fuels with carbon capture, or nuclear power, but none require both. A brief survey of possible alternatives to nuclear power is available [here](#).

It is also clear that [building new reactors damages attempts to tackle climate](#) change by diverting funds to less cost effective measures.

The [Scottish Government](#) is planning to publish its Renewables Action Plan in summer 2009, and is planning to consult on an Energy Efficiency Action Plan in the summer and publish the finalised plan at the end of 2009.

**June Update:** First Minister, Alex Salmond, has been [highlighting](#) some of the progress made in the marine renewables sector including the granting of consent for the one of the world's largest commercial wave farms off the Western Isles; more than 40 companies have registered an interest with the Crown Estate to develop wave and tidal energy projects in the Pentland Firth and its surrounding waters; the Saltire Prize £10 million award for innovation in renewable marine energy has attracted 94 registrations of interest from 23 countries; developers are competing to build offshore wind farms at ten sites around Scotland, with the potential to generate a massive 6GW of power. Green energy has the potential to create 16,000 jobs over the next decade.

[Per Hornung Pedersen](#), chief executive of German wind turbine manufacturer Repower Systems says if the political will is there, Scotland could generate more than 10 times its domestic energy needs through renewables alone.

Plans to make Scotland [50% reliant on renewable](#) sources are ahead of schedule.

A [unique tidal power machine](#) being developed at Strathclyde University could produce enough electricity to replace both of Scotland's ageing nuclear power stations.

The [Scottish Government](#) is collaborating with technology developers, utilities, the grid owners, the Crown Estate and others - under the Marine Energy Group - on a road map for wave and tidal power. This will establish the costs and challenges in realising our ambitions but will focus on the size of the prize. For an update on wave power see [NuClear News No.7](#).

[Glasgow City Council](#) hopes to become the UK's first council to own and operate a wind farm, potentially allowing it to sell electricity. The scheme would see the Council initially set up one turbine on high ground on the city's southern boundaries, rising to five if it proves successful. A five-turbine wind farm could generate more than £40m.

## **23.0 Nuclear Submarines**

There are currently [seven scrapped](#) nuclear submarines at Rosyth. In answer to [recent PQs](#) the UK Government says no decisions on dismantling the submarines will be made until completion of a Strategic Environmental Assessment and public consultation. It is the intention to make an announcement regarding the programme in 2010. Further information on the MOD's Project on the Interim Storage of Laid-Up Submarines (ISOLUS) is available [here](#).

**June Update:** Parliamentary Answers to Angus Robertson MP in March made clear the MoD plans to carry out a Strategic Environmental Assessment of various submarine dismantling options.

Britain's nuclear submarine base at Faslane has had [so many safety breaches](#) - including leaks of radioactive material - that they have become a "recurring theme", according to a confidential government report. The [documents](#), which were released to Channel 4 News, showed the Scottish Environmental Protection Agency (Sepa) warned it would consider closing the base if it had the power to do so.

The documents also suggest that Faslane will become the UK's only nuclear submarine base by 2015.

Altogether radioactive waste [leaked from nuclear submarines nine times](#) in the past 12 years. Documents released to Channel Four News under freedom of information legislation in April disclosed three leaks of radioactivity from nuclear submarines into the Firth of Clyde in 2004, 2007 and 2008. A further four leaks have been previously reported: two at Devonport in 2005 and 2008 and two at sea in 1997 and 2000. Then, in May, the MoD disclosed another two inadvertent releases of radioactivity, both of which were hitherto unknown. Confirmation of the leaks raises new questions about the MoD's safety record.