

# SAFE ENERGY E-JOURNAL No.64

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This briefing does not deal with the UK Government's proposed new reactor programme. For an update on developments to do with new reactors see here:

<http://www.no2nuclearpower.org.uk/nuclearnews/NuClearNewsNo70.pdf>

If you would like to receive Daily Nuclear News updates by e-mail you can sign up here:

<http://www.no2nuclearpower.org.uk/mailling-lists/>

## 1 Scotland could become almost entirely renewable by 2030

Scotland's electricity system could be powered almost entirely by renewables by 2030 and without the need for any gas, coal or nuclear power stations, according to a new report published in January by WWF Scotland. (1)

Based on an independent technical analysis by leading engineering and energy consultancy DNV GL, (2) '*Pathways to Power: Scotland's route to clean, renewable, secure electricity by 2030*' tested the Scottish Government's current policy to decarbonise the country's electricity generation by 2030.

This is separate from the target to provide the equivalent of 100% of electricity demand from renewables by 2020, which still allows for coal, gas and nuclear to remain on the grid. (3) The DNV GL study found that an electricity system based on proven renewables and increased energy efficiency is a credible way of meeting Scotland's decarbonisation target.<sup>1</sup>

Despite the slow pace of carbon capture and storage (CCS) development globally, the Scottish Government's Electricity Generation Policy Statement 2013 (EGPS) (4) assumes that CCS will be operating at scale in the next decade, and fitted progressively across 2.5GW of gas plant. The

Government has already risked high-carbon lock-in by granting consent to a major gas plant at Cockerzie as 'CCS-ready.' But with no guarantee that the technology will be commercialised in time, there is a high risk that the 2030 decarbonisation target will be missed.

DNV GL found that Scotland doesn't have to generate electricity from coal, gas or nuclear to ensure security of supply. In fact Scotland could maintain and build on its position as a net power exporter if

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<sup>1</sup> To reduce emissions from electricity grid activity in Scotland from 347 grams of carbon dioxide per Kilowatt hour (kWh) of electricity generated in 2010 to 50gCO<sub>2</sub>/kWh by 2030 – in line with independent advice from the UK Committee on Climate Change.



it makes moderate progress to reduce demand for electricity and increase the roll out of hydro pumped storage. A renewable, efficient and flexible system has many advantages over the current Scottish Government scenarios: it is less dependent on imports from the rest of Great Britain at peak demand, is cheaper (the cost of new wind power is lower than the cost of CCS) and has lower emissions than the scenarios in the Scottish Government's Electricity Generation Policy Statement. And critically, it would make more of Scotland's abundant renewable resources and flourishing green energy industry, triggering economic, social and environmental benefits.

Meanwhile Scotland reached 140 Megawatts (MW) of installed solar capacity in 2014 - a rise of 32% over the year. Over 35,000 homes and 600 business premises in Scotland now have solar PV arrays fitted. In 2014 the total installed solar PV capacity on homes alone broke through the 100MW barrier – to now stand at 126MW. WWF Scotland, Lightsource Renewable Energy, and the Solar Trade Association are now all calling on the Scottish government to do all it can to help ensure Scotland switches on to the full potential of solar power. Lightsource has already identified around 70 potential sites for ground-mounted solar PV farms in Scotland, as well as opportunity for commercial and domestic rooftop solar PV systems.

Leonie Greene of the Solar Trade Association said:

*"The Scottish Government has provided world class leadership on renewable energy so we urge them to throw their weight behind solar too. No other energy technology has delivered the scale of cost reductions seen in solar and no other technology has empowered such vast numbers of everyday people to take control of their power supply. It is vital to retain this momentum."*

Richard Dixon, director of Friends of the Earth Scotland told PV magazine: *"We will soon experience the growth of the Scottish solar PV sector and most possibly this will be initiated by city councils and some Scottish Universities that will develop solar arrays on the rooftops of buildings and empty sites, setting an example that will then be followed wider."* (6)

Renewable energy has now become Scotland's main source of power, with figures for the first half of 2014 showing that renewables 10.3TWh (terawatt-hours), compared to 7.8TWh from nuclear generation – previously Scotland's main source of electricity. The figures also show that coal and gas-fired electricity generation produced 5.6TWh and 1.4TWh respectively over the same six-month period. (7)

The grid operator also announced that wind power generation across the UK rose 15% during 2014 from 24.5 terawatt hours to 28.1TWh - enough to supply the needs of more than 6.7 million UK households. Overall, grid-connected wind farms and standalone turbines met 9.3 per cent of UK electricity demand during 2014, up from 7.8 per cent in 2013. (8)

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1. WWF Scotland report Pathways to Power: Scotland's route to clean, renewable, secure electricity by 2030. <http://assets.wwf.org.uk/downloads/pathwaystopower.pdf>
  2. The technical analysis underpinning the report was conducted by respected international energy and engineering consultancy DNV GL (incorporating Garrad Hassan) – the world's largest renewables advisory - and was reviewed independently by energy academics based at Edinburgh University. DNV GL Technical Report: Implications of a Decarbonised Power Sector in Scotland by 2030.

[http://assets.wwf.org.uk/downloads/implications\\_of\\_a\\_decarbonised\\_power\\_sector\\_in\\_scotland\\_by\\_2030\\_dnv\\_gl\\_wwfscotland\\_fi\\_1.pdf](http://assets.wwf.org.uk/downloads/implications_of_a_decarbonised_power_sector_in_scotland_by_2030_dnv_gl_wwfscotland_fi_1.pdf)

3. Scottish Government 2020 Routemap for Renewable Energy in Scotland  
<http://www.scotland.gov.uk/Publications/2011/08/04110353/3>
4. Scottish Government Electricity Generation Policy statement  
<http://www.scotland.gov.uk/Topics/Business-Industry/Energy/EGPSMain>
5. Solar Novus 29th Dec 2014 [http://www.solarnovus.com/scottish-solar-groups-call-for-more-government-support\\_N8425.html](http://www.solarnovus.com/scottish-solar-groups-call-for-more-government-support_N8425.html)
6. PV Magazine 31st Dec 2014 [http://www.pv-magazine.com/news/details/beitrag/scottish--english-pv-landscapes-end-2014-on-high\\_100017637/](http://www.pv-magazine.com/news/details/beitrag/scottish--english-pv-landscapes-end-2014-on-high_100017637/)
7. Scottish Energy News 27th Nov 2014 <http://www.scottishenergynews.com/historic-milestone-in-renewables-new-figures-show-scotlands-largest-source-of-power/>
8. Business Green 5th Jan 2015 <http://www.businessgreen.com/bg/news/2388553/uk-wind-power-smashes-annual-output-record>

## 2 Wave Power Crisis

Scotland's wave power industry is in crisis. But hopefully it's only temporary.

In November, Edinburgh-based wave power technology firm Pelamis called in administrators after failing to secure development funding. The firm has been testing its wave energy converters at the European Marine Energy Centre (EMEC) in Orkney for a number of years. (1) Then in December Aquamarine Power – also based in Edinburgh - announced it was downsizing and laying off all but its core staff – cutting the workforce from more than 50 to less than 20. (2)

Both companies have advanced the sector's technology but found it increasingly difficult to persuade backers that the technology can be made financially viable in the near future. According to the *Financial Times* the main problem has been the difficulty of coming up with a device that can efficiently and reliably operate at sea. Pelamis, with its snakelike offshore floating structure, and Aquamarine's inshore seabed-mounted paddle have both suffered repeated technical setbacks. ScottishPower Renewables, which invested millions of pounds in Pelamis, said the Companies massively over promised and have also suffered from being managed by inventors and being reliant on venture capital finance, which demands relatively rapid returns. (3)

The day after Pelamis collapsed, the Scottish government announced it was setting up a new agency, Wave Energy Scotland (WES) which would employ some of those who were losing their jobs “to retain the best brains in Scotland”. (4) It said the EU state aid framework and rules for prudent public investment would prevent it from investing more money in the two Companies. But Scotland has extraordinary ocean energy resources so “our belief in the future success of wave energy is undiminished.”

WES will encourage innovation in the industry, foster industry collaboration that will drive research and development, share learning and knowledge and bring in expertise from other industry sectors such as oil and gas – similar in some ways to the former National Engineering Laboratory. It will be

administered by Highlands and Islands Enterprise. WES's first task will be to identify the optimal areas for research and development. These areas will be agreed in consultation with a range of stakeholders, including device developers, project developers, supply chain companies, academia and utilities. (5)

WES will take on the assets of Pelamis and seek to retain the intellectual property, after no private bidders came forward to buy the firm, in order to ensure the technology is not lost to foreign competitors. (6)

Meanwhile the world's largest tidal energy project, capable of powering nearly 175,000 homes in the U.K. with 400 megawatts of power, will break ground in January. Atlantis, majority owner of the MeyGen project, announced that its flagship project had met all the conditions required to start drawing down finance through the U.K.'s Renewable Energy Investment Fund. (7) Atlantis is also working on tidal energy projects off the coast of Canada. The firm was recently awarded a Feed-in Tariff for up to 4.5 megawatts of tidal generation to be deployed at the Fundy Ocean Research Center for Energy (FORCE) in Nova Scotia, Canada. (8)

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1. BBC 21<sup>st</sup> Nov 2014 <http://www.bbc.co.uk/news/uk-scotland-scotland-business-30151276>
  2. Herald 3rd Dec 2014 <http://www.heraldscotland.com/news/home-news/fresh-crisis-for-renewables-as-wave-energy-firm-downsized.113959624>
  3. FT 17<sup>th</sup> Dec 2015 <http://www.ft.com/cms/s/0/a38743f4-8153-11e4-a493-00144feabdc0.html>
  4. Guardian 9th Dec 2014 <http://www.theguardian.com/environment/2014/dec/09/scottish-government-accused-abandoning-wave-power>
  5. Scottish Energy News 26th Nov 2014 <http://www.scottishenergynews.com/new-wave-energy-scotland-quango-calls-for-collaboration-to-achieve-economies-of-scale/>
  6. Business Green 22nd Dec 2014 <http://www.businessgreen.com/bg/news/2387911/pelamis-sold-to-scottish-government-as-administrators-fail-to-secure-buyer>
  7. Climate Progress 22nd Dec 2014 <http://thinkprogress.org/climate/2014/12/22/3606131/269-sunken-turbines-tidal-power-scotland/>
  8. Scottish Energy News 23rd Dec 2014 <http://www.scottishenergynews.com/scotlands-atlantis-tidal-power-colossus-now-spans-the-atlantic-with-feed-in-tariff-for-4-5mw-of-canadian-generation/>

### 3 Submarine Waste Storage Consultation

The MoD has been consulting on its plans for the interim storage of Intermediate Level Waste. A stakeholder consultation meeting was held in Glasgow on 8<sup>th</sup> January 2015.

Decisions about where and how the 27 submarines covered by this exercise should be dismantled have already been made. Initial dismantling will take place at Devonport (where 12 submarines are already stored afloat) and Rosyth (where 7 are stored afloat). The Reactor Pressure Vessels (RPVs) will be removed whole from the submarines and dispatched to an interim store.



The first submarine to be dismantled to demonstrate the process will be HMS Swiftsure at Rosyth. Removal of the Low-level waste is expected to begin in 2016 – but nothing will happen to the RPV until planning permission and regulatory authorisations have been received for the store. So Swiftsure will probably be returned to storage afloat for a time after up to 2 years has been spent removing LLW.

This process is about choosing a site for the interim storage of the RPVs. Five sites have been shortlisted – Aldermaston, Burghfield, Capenhurst, Sellafield and one site in Scotland – Chapelcross.

The interim storage building (see photo) would be a simple steel-framed construction to provide a weatherproof, secure store, designed to last 100 years. There is no need to provide extra shielding. The MoD hopes to be able to place the first RPV in the store around 2022.

According to the Strategic Environmental Assessment no significant impacts have been identified around the 5 sites. The finding of this consultation will be published later in 2015 in a post-consultation report. The MoD wants a recommended site by the end of 2015 and then it will produce a business case in early 2016. The aim is to build only one store.

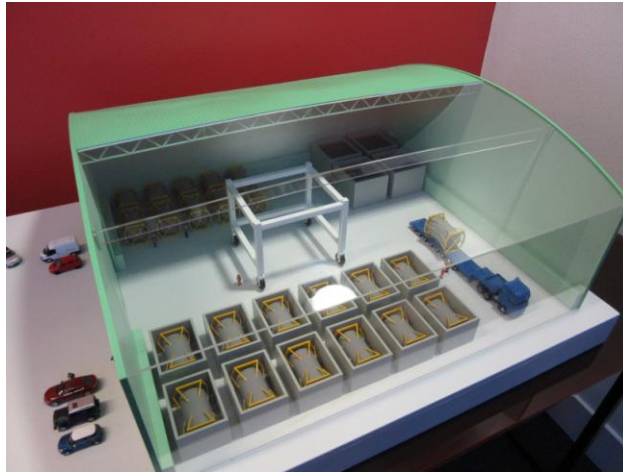
It was noted at the Glasgow meeting that an NDA ILW store planned for Chapelcross is on hold, but this is not because of waiting for the MoD. The MoD is not looking to share a store at Chapelcross because the NDA's store already has planning permission.

The Hunterston store has encountered difficulties placing waste in the store because of surface contamination problems – it has proved difficult to keep the surface of waste containers clean. This shouldn't be a problem for RPVs – the problem at Hunterston is caused by the fact that the waste in question is mainly graphite.

Any submarines which are decommissioned after the initial 27 (i.e. the Astute Class plus any replacement Trident submarines) are expected to be decommissioned after the Geological Disposal Facility (GDF) is available, so the RPVs would be transported directly to the GDF without requiring interim storage.

The interim store is expected to be in operation for up to around 32 years (i.e. until around 2054), but could operate for 100 years if necessary. The assumption is that the store will be emptied to a size reduction facility at another site, but there will be no size reduction until the GDF is certain. The MoD would start planning the size reduction facility about ten years before the slot for disposal in the GDF.

Although no discharges (airborne or liquid) are expected from the store, it would still require a discharge authorisation. The application for such an authorisation would have to make reference to plans being made for final 'disposal'. If the application means there is no big change to the radioactive discharges from the site in question then the relevant Environment Agency wouldn't have to run a public consultation. There should be no need to monitor for radiation outside the store.



Model showing of a typical RPV store. Note the blue flat-back trailer and truck to get a sense of scale.

The fact that Scotland's Environment Minister, Richard Lochhead, has written to the UK's Under Secretary for Defence, Philip Dunne, saying that waste from dismantling submarines "*should not be stored in Scotland*" was raised. (1). The MoD view was that this shouldn't prevent Chapelcross being proposed as the site for a store because the Scottish Government can only refuse planning permission on the basis of clear planning grounds. The same would apply if a large number of members of the public objected. Not wanting nuclear waste stored near your house is not grounds under planning law to object. For a large number of objectors to influence the process they would all need different planning grounds for the objection. If they all used the same planning ground they would carry no more weight than a single objection. (Ref 2 was recommended reading in this context)

There are 23 submarines with RPVs which will weigh around 50 tonnes and 4 (Vanguard Class) which will weigh around 80 tonnes. One MoD speaker said "*we need to get rid of them*". It is hoped that at least the 23 smaller RPVs will be able to be emplaced in the GDF without any further size reduction.

The submarines will be laid up for at least 20 years. An RPV is basically a lump of activated metal – so not nearly as dangerous as something like spent fuel. And most of the radioactivity is on the inner walls. The dose rate on the outside is driven by Cobalt-60 which has a half-life of only 5.27 years. So after a period of storage this will have reduced considerably.

The plan is to package the RPVs in an Industrial Package Type 2 (IP2) or possibly a Type B container (the standard used for spent fuel transport). Once in an IP2 the weight would increase to 90 tonnes (for 23 subs) and 135 tonnes (for 4 subs). These packages would be too wide for rail, and although most of the proposed storage sites are on the coast - none is near to a port, so sea transport would be difficult. Transport, therefore, would be by road – similar to the 150,000 large loads transported on UK roads every year. RPVs would be transported at about the rate of one per year.

The MoD's material mentions in several places that a GDF is expected to be available in 2040. The issue of (a) the uncertainty around this date and (b) when RPVs could expect to be emplaced in the GDF when it is available was raised.

The Government says all legacy wastes may not be emplaced until 2130 – 90 years after the GDF is expected to be available. (3) If emplacement of the RPVs is left until the tail end of this 90-year

period, or emplacement of waste turns out to take longer than expected, we could find that this is after the interim store has reached the end of its notional life in 2122.

It was also noted that the Environment Agency (EA) has set a limit on the risk that may be caused by the burial of radioactive wastes which means that a GDF with spent fuel from more than 12 new reactors, as well as legacy waste, would exceed the risk targets set by the EA. This could mean that by the time the RPVs from newer submarines (beyond the initial 27) are looking for a space the first GDF has run out of allocated space. (4) The MoD response was that it hoped to be allocated a chamber in the GDF just for RPVs.

The consultation runs until 20<sup>th</sup> February. The consultation documents are available here: <https://www.gov.uk/government/consultations/submarine-dismantling-project-site-for-the-interim-storage-of-intermediate-level-radioactive-waste>

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  2. Not in my backyard: Local people and the planning process, Local Government Ombudsman, December 2014. <http://www.lgo.org.uk/downloads/special%20reports/2093-Planning-Focus-report-final.pdf>
  3. DECC (March 2010) Consultation on a Methodology to Determine a Fixed Unit Price for Waste Disposal and Updated Cost Estimates for Nuclear Decommissioning, Waste Management and Waste Disposal. Paras 3.2.23 – 3.2.24 [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/42533/1\\_20100324145948\\_e\\_\\_\\_ConsultationonFixedUnitPricemethodologyandupdatedcostestimates.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42533/1_20100324145948_e___ConsultationonFixedUnitPricemethodologyandupdatedcostestimates.pdf)
  4. See the Bonkers Scenario, NuClear News No. 58, January 2014 <http://www.no2nuclearpower.org.uk/nuclearnews/NuClearNewsNo58.pdf>

## 4 Scotland and New Nuclear Reactors

The UK government's support for new nuclear power is a "folly" according to the Scottish National Party (SNP). The financial uncertainties surrounding Areva - a shareholder in the Hinkley Point C development and the designer of the proposed reactors - demonstrate the foolishness of the government's support for the technology. The French company's shares plummeted after it warned it must suspend future profit predictions because of problems centred on a nuclear project in Finland.

The SNP's energy spokesperson Mike Weir said: "Despite the mounting evidence that it is hugely expensive with other stations going vastly over budget and being years behind schedule the UK government are determined to continue to throw billions of pounds into promoting new nuclear. By diverting money away from renewables to new nuclear the UK Government's plans are also damaging the renewables sector." He added that the Hinkley deal is "a bad deal that will push up bills and cost the taxpayers a fortune for many, many years to come". (1)

The Stop Hinkley Campaign's Review of the Year (2) and its most recent Press Releases (3) make clear that the financing for the project is still not settled and there is growing uncertainty within the nuclear industry about the viability of the EPR reactor – the type proposed for Hinkley.

Stop Hinkley spokesperson, Allan Jeffery said:

*“The Government would be crazy to invest taxpayers’ money in a vain attempt to revive this moribund project. With the rest of the world giving up on EPR reactors, just on the basis of finance, the risk would be unsustainable and reckless. Far better, in this age of austerity, to invest in energy efficiency schemes which have much higher rates of return. For instance something simple like replacing street lights across the country with LED bulbs could see a rate of return up to 10% on investment.” (4)*

Another alternative to Hinkley was recently suggested in a new report from Forum for the Future, Nottingham Trent University and Farmers’ Weekly which estimated that UK farms could have a generating capacity of 20GW by 2020 compared with Hinkley’s 3.2GW which won’t be available until at least 2023. (5)

EDF Energy says it expects to sign an investment agreement with the two Chinese nuclear companies at the end of March. The company will still have to sign the final details of the contract for difference, or price at which the power will be sold, and an infrastructure investment loan guarantee with the Government. EDF wants to reach an agreement on the plant’s ownership in the first quarter of 2015. If talks slip into April, final agreement could be delayed by government business winding down ahead of May’s general election. (6)

The Austrian Government has confirmed that it will launch a legal challenge against the European Union’s (EU) decision to allow billions of pounds of subsidies for Hinkley Point C. This could delay a final investment decision by the UK government by over two years. Luxembourg is also thought to be very likely to support the case in the European court of justice. (7) Dr Dörte Fouquet, a lawyer for the Brussels-based lawfirm Becker Büttner Held, which specialises in energy and competition law, said Austria’s chances of success were “pretty high,” because there were no grounds for giving such state aid under EU treaty law. (8)

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  2. Stop Hinkley 18th Dec 2014 [http://www.stophinkley.org/PressReleases/HinkleyC2014Review\\_of\\_the\\_Year.pdf](http://www.stophinkley.org/PressReleases/HinkleyC2014Review_of_the_Year.pdf)
  3. Stop Hinkley 13<sup>th</sup> January 2015 <http://www.stophinkley.org/PressReleases/pr150113.pdf>
  4. See Hartlepool Mail 10<sup>th</sup> October 2013 <http://www.hartlepoolmail.co.uk/news/local/5m-plan-to-upgrade-hartlepool-s-street-lights-to-save-on-energy-bill-1-6131977>
  5. Click Green 21<sup>st</sup> Nov 2014 <http://www.clickgreen.org.uk/news/national-news/125252-farms-could-supply-enough-renewable-energy-to-match-3-nuclear-power-plants.html>
  6. FT 15<sup>th</sup> Jan 2015 <http://www.ft.com/cms/s/48b7eb6c-9c98-11e4-a730-00144feabdc0.html>



7. Guardian 21<sup>st</sup> Jan 2015 <http://www.theguardian.com/environment/2015/jan/21/austria-to-launch-lawsuit-hinkley-point-c-nuclear-subsidies>
8. Guardian 22nd January 2015 <http://www.theguardian.com/environment/2015/jan/22/uk-nuclear-ambitions-dealt-fatal-blow-by-austrian-legal-challenge-say-greens>

## 5 Dounreay Updates

A scathing improvement notice has been issued to Dounreay by the Office for Nuclear Regulation (ONR) warning of the unacceptable risks being taken and the need for a change in behaviour at the site.

An investigation into a fire in October at the prototype fast reactor (PFR) uncovered “*a poor compliance culture and unacceptable behaviours of personnel on site.*” It was previously reported that radioactivity was released as part of the fire, with trace amounts of tritium escaping from the site.

The improvement notice should be seen as a wakeup call to management at Dounreay - safety at the site needs to be drastically improved. “*The safety of staff at Dounreay, people living in the area and the local environment must always be the top priority and any lapses that have taken place are extremely concerning. Safety procedures are there for a reason and it is completely unacceptable if they are not being followed – particularly when radioactive material is involved,*” according to local MSP, Rob Gibson. (1)

### Waste transport

A final load of nuclear waste from Dounreay arrived in Belgium on Boxing Day. A shipping container holding three barrels of nuclear waste encased in cement was put into storage in Dessel, at the site of Belgian nuclear energy firm Belgoprocess. The waste, which was originally sent to Scotland from Belgium for reprocessing, will be held in this special bunker temporarily until a final destination is found. It was carried from Scotland by sea and across Belgium to Dessel by train. (2)

The 21st shipment in December completed the repatriation of 123 drums of waste that began in August 2012. (3) This waste was a by-product of 240 spent fuel elements from Belgium's BR2 research reactor, a plant which produces isotopes for the medicine and industry sectors, which were sent to Dounreay for reprocessing in the 1990s. During the reprocessing phase a huge 22,680 litres of liquid waste was produced.

A Danish shipping company was contracted to transport the waste back to Belgium over 21 transits. After 19 successful shipments the Turkish-built ship MV Parida caught fire and began drifting in the Moray Firth, resulting in the evacuation of a nearby oil rig. Dounreay Site Restoration Limited (DSRL) said no radioactivity was released. (4)

In response to a letter about the emergency arrangements for sea transport of nuclear waste, in view of the possibility that some waste may be transported from Dounreay to Sellafield in the near future, the Scottish Government claimed the MV Parida was carrying low-level waste:



*“If shipments of the nuclear materials that are destined to move from Dounreay to Sellafield go ahead by sea, this would have a higher designation under the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF code). In terms of concerns raised by the Parida incident, the Scottish Government understands that the most significant difference would be that the standard of vessel would include the requirement for twin engines, to ensure that the vessel is not disabled by a single engine failure. In addition, there would be continuous monitoring of any shipment by an on-shore team, which would ensure rapid and focused reaction to any problems.”*

The reply also said that Scottish Ministers continue to press the UK Government to ensure appropriate provision for Emergency Towing Vessels (ETVs) is put in place beyond the current period when funding ends in March 2016.

### **Dounreay Decommissioning**

As a result of the decision to transport breeder fuel and exotic fuel from Dounreay to Sellafield, the finishing date for work to decommission and close the Dounreay nuclear power site in Caithness has been pushed back from 2025 to 2029. A requirement for additional security on the site has also created more work at Dounreay. (5)

### **Radioactive Particles**

New vehicles are being used to monitor for radioactive particles at three beaches near a Scottish nuclear power plant. Sandside, Strathy and Murkle are regularly checked for pollution from Dounreay. Tiny particles linked to the reprocessing of nuclear fuel rods were flushed into the sea through the site's liquid discharge pipe in the 1970s. Thousands of the fragments have been found and removed from beaches. The Metrac H5 all-terrain vehicles, already used for monitoring beaches near Sellafield in Cumbria, are now patrolling Sandside, Strathy and Murkle. They have replaced Hill Cat ATVs, which have been used for a number of years but will be retained for use in peak periods of particle detection work. (6)

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  2. Energy Live News 4th Jan 2015 <http://www.energylivenews.com/2015/01/04/last-load-of-scottish-nuclear-waste-arrives-in-belgium/>
  3. DSRL 5<sup>th</sup> Jan 2015 <http://www.dounreay.com/news/2015-01-05/final-shipment-completes-historic-fuel-contract>
  4. Lab Mate 26th Nov 2014 [http://www.labmate-online.com/news/news-and-views/5/breaking\\_news/the\\_dounreay\\_dilemma\\_disposing\\_of\\_scotlands\\_toxic\\_leftovers/32475/](http://www.labmate-online.com/news/news-and-views/5/breaking_news/the_dounreay_dilemma_disposing_of_scotlands_toxic_leftovers/32475/)
  5. BBC 15th Dec 2014 <http://www.bbc.co.uk/news/uk-scotland-highlands-islands-30477381>
  6. BBC 7th Dec 2014 <http://www.bbc.co.uk/news/uk-scotland-highlands-islands-30359199>



## 6 Scotland's Climate Targets

Scottish ministers are coming under pressure from an SNP-led committee of MSPs to end their repeated failure to meet climate targets by making major cuts in pollution from farming, housing and transport.

Farmers need to reduce their use of polluting chemical fertilisers, householders should be helped to better insulate old and leaky homes, and motorists should be persuaded to opt for cleaner electric and hybrid cars, MSPs say. The Scottish Parliament's environment committee is urging ministers to ensure their climate reforms "are not just words". Scotland must not abandon, or water down, its world-leading ambitions to combat climate change, the committee says.

The Scottish Government has so far missed every statutory annual target to reduce carbon emissions in 2010, 2011 and 2012. This is a "disappointment", the committee says, and leaves ministers facing "significant difficulties" in meeting future targets. The committee's convener, SNP MSP Rob Gibson, has written to the new Scottish Climate Change Minister, Aileen McLeod calling for "urgent action" in response to the missed targets. (1)

Finance Secretary John Swinney agreed with Green MSP Alison Johnstone, that energy efficient homes should be a national infrastructure priority. Swinney recognised the economic impact, not just in terms of cutting people's bills but also in terms of creating thousands of high quality jobs and apprenticeships. Johnstone said: *"If we're serious about making up lost ground after three years of missing our climate change targets, and if we're serious about creating jobs and cutting household costs, we need to see a big shift in funding in this budget"*. (2)

The Scottish Government has been accused of having a "dismal" and "appalling" record on tackling carbon emissions from its own buildings. Ministers admitted no effort had been made to improve the energy performance of any of the Scottish Government's 79 building in the past three years. Holyrood figures showed only two of the 79 sites have renewable energy sources, with solar heating panels installed at the government offices at Saughton House in Edinburgh and Tweedbank in Galashiels. (3)

Resource Efficient Scotland (RES) - a Scottish Government funded programme - has launched a free package of support to help Scottish organisations to reduce their lighting bills and save money this winter. East Kilbride-based manufacturer, Merson Group has already benefited from the support programme which identified opportunities to save £12,700 per year on warehouse lighting, and a further £1,080 on improved office lighting. (4)

Tower blocks should be at the front of the queue when it comes to energy efficiency retrofit projects, a new study by think tank Green Alliance suggests. Of the 400,000 UK households living in tower blocks many are disadvantaged and commonly suffer from high bills due to poor building fabric. Unfortunately tower block retrofit schemes often face high costs and a significant degree of management complexity, so they are often ignored. (5)

1. Sunday Herald 30th Nov 2014 <http://www.heraldscotland.com/news/environment/pressure-piles-on-government-to-meet-climate-change-targets.25999149>
2. Scottish Energy News 13th Nov 2014 <http://www.scottishenergynews.com/johnstone-secures-agreement-on-energy-efficient-homes/>
3. Scotsman 26th Dec 2014 <http://www.scotsman.com/news/environment/snp-makes-no-green-upgrades-at-official-buildings-1-3644606>
4. Scottish Energy News 9th Dec 2014 <http://www.scottishenergynews.com/smart-lighting-programme-set-to-save-scots-manufacturers-000s-in-annual-energy-bills/>
5. Business Green 26th Nov 2014 <http://www.businessgreen.com/bg/news/2383349/study-sky-high-bills-should-make-tower-blocks-a-priority-for-energy-efficiency>

## 7 Fuel Poverty

Almost 40% of Scottish Households were living in fuel poverty in 2013 – the highest level ever recorded. There are just two years to go until the Scottish Government has a duty under the Housing Act to eliminate fuel poverty. (1)

Welfare Minister Margaret Burgess reaffirmed the Scottish Government’s commitment to ending fuel poverty at the Energy Action Scotland conference in November. (2) The Minister called on Westminster to do more to cut fuel bills for vulnerable households. (3)

The freeze on the basic winter fuel allowance since 2001 has resulted in a 25% drop in the value of the payment to pensioners. The benefit, of between £200 and £300, is paid every year to those on state pensions. The Smith Commission has recommended control over the benefit is transferred to Holyrood. The SNP said Westminster should look at increasing the payment in the meantime. (4)

Nurses have called on the Scottish Government to invest more cash in energy efficiency to help prevent health problems linked with people living in damp, cold homes. The Royal College of Nursing (RCN) Scotland has joined forces with environmental campaigners at WWF Scotland and a coalition of housing, energy and consumer advice organisations to urge ministers to make improving energy efficiency a top priority. (5)

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1. Energy Action Scotland 9<sup>th</sup> Dec 2014 <http://www.eas.org.uk/news.php?show=detail&rss=http://www.blogger.com/feeds/2322692842275092534/posts/default/8992542637176877765>
  2. Scottish Energy News 6th Nov 2014 <http://www.scottishenergynews.com/energy-action-scotland-chief-highlights-scandal-of-1-in-4-fuel-poor-scots/>
  3. Scottish Government Press Release 9<sup>th</sup> Dec 2014 <http://news.scotland.gov.uk/News/Westminster-has-failed-fuel-poor-Burgess-1314.aspx>
  4. BBC 21<sup>st</sup> Dec 2014 <http://www.bbc.co.uk/news/uk-scotland-30564108>
  5. Scotsman 26th Dec 2014 <http://www.scotsman.com/news/health/improve-energy-efficiency-in-homes-nurses-urge-1-3644215>



## 8 Community Energy

The energy market is poised for a revolution as councils and social housing landlords across the UK prepare to take on the Big Six providers by supplying their own electricity, according to *The Independent*.

A consortium of eight Scottish housing associations and a renewable energy charity is close to signing a financing deal which would allow it to supply power to tens of thousands of households. Last month, the independent supplier Ovo signed a deal with Plymouth council that will allow the city to become the first in the UK to provide its residents with energy. It believes that as many as one million customers could be served in the next few years by local authorities with the company's help in setting up as energy providers. By 2020, it hopes that as many as 500 partnerships could be formed across the country.

The Scottish consortium is well on the way to securing a licence to operate from regulator Ofgem and plans to launch in 2015. It already includes Berwickshire Housing Association and the West of Scotland Housing Association and is in discussions with a further 27 social housing landlords, representing more than 100,000 homes. The project, known as Our Power, will initially buy power in the wholesale market and sell it to tenants £100 cheaper than the typical Big Six provider, which presently charges the average household about £1,300 for their gas and electricity. (1)

Meanwhile Berwickshire Housing Association is set to save tenants hundreds of pounds a year on utility bills by launching Europe's largest crowd-funded solar power project. The project will install solar panels on nearly 750 houses, as well as earn 7% initial interest for investors. (2)

In Edinburgh a project jointly developed by two community organisations is trying something new for a community energy scheme, after its initial scheme to build a wind turbine at Seafield Sewage Works in Edinburgh fell through. The two groups have submitted a detailed planning application to Highland council to build two wind turbines 4km south west of Daviot in Invernesshire. The financial return will be shared between local community organisations near the project and the non-profit groups that developed the initiative, Greener Leith and PEDAL Portobello. (3)

A study to map the wind energy potential of Scottish commercial sites has identified 740 locations that could cut their power costs and reduce their carbon footprints by installing wind turbines. Research based on government figures carried out by Airborne Energy has found the Mayfield Industrial Estate in Dalkeith, Midlothian, to be the windiest commercial estate in Scotland. The company is developing a small vertical axis wind turbine suitable for harnessing winds in urban areas, which tend to be too variable and turbulent for standard horizontal access 'propeller' turbine designs. Airborne Energy's turbine consists of three vertical blades sitting on a rotating platform and supported on a frame, a design it says is ideal for industrial estates. (4)

1. Independent 7th Nov 2014 <http://www.independent.co.uk/news/business/news/power-to-the-people-a-revolution-in-britains-energy-market-9847890.html>
2. Scottish Energy News 6th Nov 2014 <http://www.scottishenergynews.com/europes-largest-crowd-funded-3-million-solar-power-project-set-to-take-off-in-berwickshire/>
3. Greener Leith 28<sup>th</sup> Nov 2014 <http://greenerleith.org.uk/blog/community-renewables-project-reaches-crucial-milestone-4587>
4. Business Green 16<sup>th</sup> Dec 2015 <http://www.businessgreen.com/bg/news/2386928/scottish-industrial-estates-primed-for-wind-energy-expansion>



A Kingspan Turbine (HQ in East Kilbride) in an Industrial Estate in Loanhead, Midlothian

## 9 Faslane

The Ministry of Defence (MoD) has submitted a planning application for construction of a new radioactive waste treatment plant at Faslane to Argyll and Bute Council. The plant will replace existing facilities at the Clyde naval base and will treat and dispose of solid and liquid radioactive wastes from submarine nuclear reactors. Some wastes from the plant will be discharged into the Gareloch and others will be held on-site for considerable periods of time before, during, and after processing.

The planning application requests permission to construct a Nuclear Support Hub building on a concrete podium, with an access ramp constructed over the Gareloch and associated on-shore

buildings at HM Naval Base Clyde, Faslane. The new plant will have a design life of 50 years. Construction is scheduled to begin in January 2016 and finish in April 2018.

The Scottish Environmental Protection Agency (SEPA) and Office for Nuclear Regulation (ONR) have insisted that the MoD must upgrade the ageing waste facilities at Faslane following a series of leaks of radioactive effluent into the Gareloch in 2004, 2007 and 2008. In November 2007, following an unauthorised radioactive discharge from HMS Superb, SEPA wrote to the MOD saying “*SEPA wishes to express its concern that such an accident occurs and considers it to demonstrate inadequate radioactive waste management at HMNB Clyde*”.

The amount of radioactive waste treated and emitted from the base will rise over future years because the number of nuclear-powered submarines based there is scheduled to increase. HMNB Clyde will become the Royal Navy's sole submarine operating base from 2020 and Trafalgar class submarines currently based at Devonport are scheduled to transfer to Faslane. (1)

The new Nuclear Support Hub was given the go-ahead by the Argyll and Bute Planning Committee on 21<sup>st</sup> January, despite the fact that the proposals received over 700 objections. Officials pointed out that only 22 of the 732 objections came from the local area. Many of the objections opposed nuclear weapons so were not material to the determination of the planning application.

Two existing buildings - the Active Processing Facility and the Radioactive Effluent Decontamination Facility will be decommissioned, with the latter scheduled for demolition, on the opening of the new hub. A spokesman for the MoD said: “*Even with the greater number of submarines at Clyde Naval Base, we do not expect there to be a significant increase in radioactive waste discharge compared with historical levels.*” (2)

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1. Nuclear Information Service 20<sup>th</sup> Dec 2014 <http://nuclearinfo.org/article/operational-berths/plans-submitted-new-radioactive-waste-treatment-plant-faslane-submarine>
  2. Helensburgh Advertiser 21<sup>st</sup> Jan 2015 <http://www.helensburghadvertiser.co.uk/news/roundup/articles/2015/01/21/522094-plans-approved-for-mod-nuclear-waste-treatment-hub/>

## 10 Old Reactors

A survey of unplanned shutdowns of nuclear reactors over the period 2012 – 2014 across the UK, has shown the extent of the unreliability of the UK's reactor fleet.

Over the whole country there were at least 62 unplanned shutdowns in the three year period in question. The shutdowns in Scotland are detailed in the table below.

Towards the end of November 2014, last year less than half (43%) of UK nuclear electricity capacity was available due to shutdowns. The survey also discovered that UK nuclear reactors have such poor operating records that EDF declines to report their performances to nuclear industry publications,

unlike most other reactors world-wide. Unplanned shutdowns cause serious problems for electricity supply regulation and planning. (1)

Reactor	Major outage from	To	Comments and Link to News Report
Hunterston B-1			allegations of scores of fire safety lapses The Herald 12 May 2012 <a href="http://tinyurl.com/qcbhzh1">http://tinyurl.com/qcbhzh1</a>
	31 Mar 2014	?	<b>unplanned outage:</b> <a href="http://tinyurl.com/m36j389">http://tinyurl.com/m36j389</a>
Hunterston B-2	1 Aug 2014	4 Oct 2014	statutory outage <a href="http://tinyurl.com/kdkdl3x">http://tinyurl.com/kdkdl3x</a> <a href="http://tinyurl.com/k3q9nzn">http://tinyurl.com/k3q9nzn</a> <b>unplanned outage:</b> new cracks found <a href="http://tinyurl.com/owgpgbu">http://tinyurl.com/owgpgbu</a>
	5 Oct 2014	3 Nov 2014	<b>unplanned outage:</b> turbine vibrations <a href="http://tinyurl.com/mdrcf9o">http://tinyurl.com/mdrcf9o</a> <a href="http://tinyurl.com/punvuno">http://tinyurl.com/punvuno</a>
Torness - 1	24 May 2013	29 May 2013	<b>unplanned outage:</b> high seaweed levels <a href="http://tinyurl.com/n3wswu6">http://tinyurl.com/n3wswu6</a> <a href="http://tinyurl.com/ns6hh9m">http://tinyurl.com/ns6hh9m</a>
	7 Feb 2014	19 Apr 2014	statutory outage <a href="http://tinyurl.com/pmcwkfs">http://tinyurl.com/pmcwkfs</a>
	1 July 2014		<b>unplanned outage:</b> electrical fault <a href="http://tinyurl.com/l3xtsy8">http://tinyurl.com/l3xtsy8</a> <a href="http://tinyurl.com/p9fr3zh">http://tinyurl.com/p9fr3zh</a>
	14 July 2014	17 July 2014	<b>unplanned outage</b> <a href="http://tinyurl.com/lud55rl">http://tinyurl.com/lud55rl</a>



			<a href="http://tinyurl.com/mss7y5v">http://tinyurl.com/mss7y5v</a>
<b>Torness - 2</b>	13 May 2012	?	unplanned outage – electrical fault <a href="http://tinyurl.com/osxnc3">http://tinyurl.com/osxnc3</a> <a href="http://tinyurl.com/nzrp8wl">http://tinyurl.com/nzrp8wl</a>
	31 Dec 2012	?	<a href="http://tinyurl.com/mjv9xzn">http://tinyurl.com/mjv9xzn</a>
	26 Mar 2013	?	unplanned outage <a href="http://tinyurl.com/oovtyev">http://tinyurl.com/oovtyev</a>
	23 May 2013	28 May 2013	unplanned outage high seaweed levels <a href="http://tinyurl.com/n3wsuw6">http://tinyurl.com/n3wsuw6</a> <a href="http://tinyurl.com/k9sbbwb">http://tinyurl.com/k9sbbwb</a>
	21 Nov 2013	?	unplanned outage: high seaweed levels <a href="http://tinyurl.com/kn54yy4">http://tinyurl.com/kn54yy4</a>

Since the survey Torness-2 went offline in an unplanned outage on Friday 21<sup>st</sup> November 2014. The plant's reactor two automatically shut down due to a fault with protection equipment. It came back online on 24<sup>th</sup> November. (2&3)

1. Sunday Herald 14th Dec 2014 <http://www.heraldsotland.com/news/home-news/revealed-20-nuclear-shutdowns-per-year.26083388>
2. BBC 21st Nov 2014 <http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-30146953>
3. BBC 24th Nov 2014 <http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-30177673>

## 11 Radiation Monitoring

Scotland could lose the ability to respond quickly to nuclear emergencies if staffing is cut at a monitoring station, it has been claimed. The warning came from the former head of the Centre for Radiation, Chemical and Environmental Hazards in Glasgow. The laboratory was the first in the UK to detect trace amounts of radioactive fallout from Japan's Fukushima Daiichi nuclear plant in March 2011. It was established in the 1970s by the National Radiological Protection Board. Despite its work across the UK, the CRCE is funded by Public Health England. Scientists in Glasgow fear they will be hit hardest by proposed staff reductions. Staff have been told Public Health England proposes to

'disestablish' 11 posts in the Scottish laboratory to cut costs. With the loss of the laboratory's most senior staff, Scotland will lose a vital resource needed to monitor the country's exposure to radiation and to respond promptly to nuclear and radiological emergencies.

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1. BBC 18<sup>th</sup> Dec 2014 <http://www.bbc.co.uk/news/uk-scotland-glasgow-west-30516586>