



# SAFE ENERGY E-JOURNAL No.73

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This briefing does not necessarily 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/NuClearNewsNo94.pdf>

## 1 Scottish Energy Strategy

The NFLA has published a policy briefing on the Scottish Energy Strategy Consultation. It is available here: [http://www.nuclearpolicy.info/wp/wp-content/uploads/2017/03/A268\\_NB155\\_Scottish\\_energy\\_strategy.pdf](http://www.nuclearpolicy.info/wp/wp-content/uploads/2017/03/A268_NB155_Scottish_energy_strategy.pdf)

The Scottish Government is presently consulting on its draft Energy Strategy. The consultation closes on 30th May.

NFLA welcomes much of the ambition of the Scottish Government to continue to drive a renewable energy revolution forward, but calls for even greater ambition in a number of important areas, including renewable heat and transport. The draft Strategy is proposing to set a new target to provide 50% of all energy (including heat and transport) from renewables by 2030.

In its response to the Scottish Government's consultation of its strategy, NFLA:

- warmly welcomes the new focus on developing local energy economies;
- is disappointed by a lack of practical concrete support for the Scottish solar industry;
- is concerned about the impact of shifting large numbers of households onto electric heating, and believes that, along with establishing more district heat networks, more of a focus on 'green gas' could avoid the grid problems associated with the huge peaks in demand likely on a cold winters day;
- believes that the concept of base-load generation is obsolete. What is required is flexible power (and flexible demand too) so that supply and demand can be matched instant by instant.
- would like to see more investigation into the role of CHP-district heating and geothermal heating in balancing green energy;
- would like to see more concrete steps to support low carbon heat;
- fully supports the aspirations of the Scottish Energy Efficiency Programme, it is our view that the timetable though is far too slow and the plans still short of detail;
- feels that the focus for the oil and gas industry should be on assisting a just transition for those working in the industry rather than on maximizing recovery of oil

and gas from the North Sea, which could well end up being a dead end in policy terms. (1)

The Future Energy Taskforce, brought together by WWF Scotland, said targets, incentives and regulation should all be used to help decarbonise the sector and hit climate change targets. Professor Jan Webb, of Edinburgh University, said: *“Scotland’s relatively old and often draughty buildings account for nearly half of our energy spending, and we have a great opportunity to improve their warmth without turning up the heating. All homes should be renovated to a minimum ‘C’ energy performance rating by 2025, through incentives and standards which build on successful existing schemes. We also need to start planning now for a future sustainable and renewable heat supply. “Local governments will need to examine the best options for their areas and be empowered and resourced to develop detailed strategies.”* (2)

The Scottish Government is also considering the possibility of setting up a government-owned energy company to compete with the “big six” utilities. This could also potentially act as an issuer of “renewable energy bonds”, similar to green bonds used to finance low carbon schemes. (3)

## Climate Change Plan

Four of the Scottish Parliament’s committees responded to the Scottish Government’s climate change plans raising concerns ranging from weak emissions targets in the transport sector to a lack of detail in how reductions can be made in agriculture.

The Environment Committee report calls on the Scottish Government to create a “Plan B” in case its assumptions on how carbon capture and storage could help emission reduction prove unrealistic, while recommending ministers provide more detail on emissions reductions across all sectors.

The Economy, Jobs and Fair Work Committee reported concerns that targets for a 6% reduction in heat demand from Scotland’s homes by 2032 could be viewed as “business as usual”, with MSPs recommending that the Scottish Government considers more ambitious targets.

The draft plans have come under fire from environmental groups who questioned the ambition of proposals to reduce emissions in agriculture, while transport group Transform Scotland said the draft proposals for promoting walking, cycling and bus use were “weak”. (4)

Meanwhile the Scottish Government has launched a £10 million fund to help get rural local energy projects off the ground. Projects that increase energy efficiency, reduce carbon emissions and boost local economies will be able to apply for up to £100,000 from the Low Carbon Infrastructure Transition Programme. This will support the costs of developing investment-ready business cases. This funding round targets rural and remote areas in order to help bridge gaps in capacity, skills and resources, underlining the Scottish Government’s support for smart, local energy systems as detailed in the draft Energy Strategy. (5)

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1. The Scottish Energy News report on the NFLA submission is available here: <http://www.scottishenergynews.com/scottish-energy-strategy-good-but-could-do-much-better-scotland-forum-of-nuclear-free-local-authorities-tell-wheelhouse/>

2. The National 23<sup>rd</sup> Jan 2017 [http://www.thenational.scot/business/15040293.Ministers\\_urged\\_on\\_bold\\_vision\\_to\\_decarbonise\\_Scotland\\_s\\_energy\\_system/](http://www.thenational.scot/business/15040293.Ministers_urged_on_bold_vision_to_decarbonise_Scotland_s_energy_system/)
3. FT 24<sup>th</sup> Jan 2017 <https://www.ft.com/content/8e29bee1-2eb7-3fb4-9d8d-cb9a1132cf39>
4. Holyrood 10<sup>th</sup> March 2017 <https://www.holyrood.com/articles/news/scottish-parliament-committees-question-ambition-draft-climate-change-plans>
5. Edie 22<sup>nd</sup> March 2017 <https://www.edie.net/news/11/Scotland-grants--10m-for-innovative-low-carbon-rural-projects/>

## 2 Magnox Decommissioning

The UK Government has been forced to pay nearly £100m in a settlement with two US companies for mishandling the way it awarded a £6.1bn nuclear decommissioning contract. Ministers have ordered an inquiry headed by the former boss of National Grid to find out why the procurement process was so flawed. Labour said the payout showed “*dramatic levels of incompetence*”. The Nuclear Decommissioning Authority (NDA) will also terminate the contract it awarded for cleaning up the UK’s old Magnox reactor sites nine years early. The sites include Chapelcross and Hunterston A. (1)

The High Court ruled last summer that the NDA had “manipulated” and “fudged” the tender process. It meant that the wrong company won the work to decommission 12 UK nuclear sites (10 Magnox plus Harwell and Winfrith). The move opens the door for other bidders to attempt to reclaim their bid costs, which could run to an additional £50m. (2)

Former National Grid chief executive Steve Holliday has been appointed to lead an independent inquiry into what went wrong. The inquiry will look at how the mistakes were made and by who, how the litigation was handled, and the relationship between the NDA and the government departments. Holliday will publish an interim report in October. The government now has the daunting task of starting a new tendering process for the 12 sites, as the deal with Cavendish Fluor Partnership (CFP) will end early, in September 2019 instead of 2028. (3)

Babcock said in a statement the CFP, in which it has a 65% stake, has come to a mutual agreement with the NDA to bring to an end the contract at the end of August 2019, having operated the contract for a full five years. Babcock said it had become apparent that the work that needs to be done at is now materially different in volume from that specified in the NDA’s tender, and this puts the contract at risk of a legal challenge. What those material differences are remains a mystery.

The Business Secretary, Greg Clark, said: “*It has become clear to the NDA through this consolidation process that there is a significant mismatch between the work that was specified in the contract as tendered in 2012 and awarded in 2014, and the work that actually needs to be done. The scale of the additional work is such that the NDA board considers that it would amount to a material change to the specification on which bidders were invited in 2012 to tender.*” (4)

The failure of the contract award process was “inevitable” according to nuclear power expert Dr Paul Dorfman, from University College London’s Energy Institute. “*They were set up to fail and have failed*”

*because the understanding of costs and complexity to nuclear decommissioning is changing all the time,” he said. “Magnox reactors were thrown up in a rush to give electricity too cheap to meter and create plutonium and there was no thought of how they would be decommissioned. Each Magnox reactor is bespoke so decommissioning each one is different with its own complexities and challenges. The more we learn about dealing with the ‘back end’ of nuclear power, the more we see how complex and costly it is.” (5)*

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1. Guardian 27th March 2017 <https://www.theguardian.com/business/2017/mar/27/uk-nuclear-decommissioning-debacle-costs-government-100m>
  2. Times 28th March 2017 <http://www.thetimes.co.uk/article/bungled-nuclear-clean-up-deal-costs-taxpayer-100m-qkwtr2mt8>
  3. Guardian 27th March 2017 <https://www.theguardian.com/business/2017/mar/27/uk-nuclear-decommissioning-debacle-costs-government-100m>
  4. FT 27th March 2017 <https://www.ft.com/content/1401a470-c68d-3635-9f01-88960918cfb1>
  5. Telegraph 27th March 2017 <http://www.telegraph.co.uk/business/2017/03/27/governments-bungled-handling-nuclear-decommissioning-deal-hits/>

### 3 Hunterston A

Hunterston A is a Magnox reactor which ceased operation in 1989. It is now part way through its preparation to enter a care and maintenance phase in the decommissioning process. These preparations should be complete by 2024 according to the latest report given to the Scottish Sites Meeting. (2022 was the date given previously.)

Work currently focuses on Intermediate Level Waste (ILW) Recovery from various facilities on the site. Perhaps there are some clues here about the increasing scale of the work to decommission old reactors.

Solid ILW is being retrieved from the sites five ILW bunkers using Remotely Operated Vehicles (ROVs) and packed into standard 3m<sup>3</sup> stainless steel containers. Two of the bunkers have now been emptied and work started on the third last summer. 532 boxes of solid ILW - just over half the number expected - have now gone into the solid waste store. However they will need to come out of the store again to be grouted to get them into a “disposable” state but this needs to wait until the Solid Intermediate Level Waste Encapsulation (SILWE) facility is built. This was originally planned to be complete by the end of 2017, but has now been delayed until spring 2018.

The Wet ILW Retrieval and Encapsulation Plant (WILWREP) is in the process of being commissioned to retrieve and condition ILW sludges from underground storage tanks. By mid March 2017 four drums of waste had been processed. Once work on the sludge has finished it will start work on ILW acid.



## Ponds Programme

The spent fuel ponds are being drained and then the walls and floor will be stabilised. Sludge and gunk is obviously concentrated at the bottom of the ponds. Unexpected items have been found at the bottom which is slowing down retrieval.

## Low Level Waste

Low Level Waste is still being dispatched to the LLW Repository near Drigg south of Sellafield. The site is also sending metallic waste for decontamination and combustible waste is sent for incineration.

## Five Box Model

Some concern has been expressed by the Hunterston Site Stakeholder Group (SSG) that the site end state may be changed from what is called the 3 box model to a 5 box model. This would mean that instead of three metal boxes covering the two reactors and the ILW store remaining on site between 2024 and around 2070 there would be two extra boxes covering the ponds and silos.

The 5 box model is under consideration as a cost saving measure. The ponds and silos would benefit from further radioactive decay before demolition is undertaken. Radioactive rubble wouldn't have to be transported off site for disposal in the early 2020s and rather than bringing material onto the site in the 2020s to fill the ponds demolition waste could be used to do the job in the 2070s.

The NDA says when and if a decision is made to change the strategy there will be consultations.

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For more information see Hunterston A Site Closure Director's Report to the Site Stakeholder Group 2<sup>nd</sup> March 2017 <https://magnoxsites.com/wp-content/uploads/2017/01/Hunterston-A-Site-Closure-Director-Report-SSG-March-2017.pdf>

## 4 Hunterston B

The UK's Office for Nuclear Regulation (ONR) has published its assessment of the Periodic Safety Review (PSR) for Hunterston B (HNB) (along with its sister station Hinkley Point B (HPB) in Somerset). ONR has also accepted EDF's revised graphite core safety case for both sites, but has included a number of recommendations as part of this acceptance. Acceptance of the safety case is reliant on a revised inspection and monitoring strategy.

To comply with a nuclear site licence, a periodic review - a comprehensive study of plant safety - is carried out every ten years to justify continued safe operations. This requirement means that the site licence company regularly reviews and reassesses safety at nuclear sites, making improvements where necessary. The four Hunterston B and Hinkley Point B advanced gas-cooled reactors (AGRs) started up in 1976 are scheduled to close in 2023.



## Graphite

The graphite core of each of the reactors is made up of around 6000 graphite bricks - 3000 of these are the graphite bricks containing fuel channels - which are all connected together. Graphite ageing is one area used to determine the lifespan of an AGR nuclear power station. EDF says greater understanding of the ageing process by sampling and modelling can lead to them operating safely for longer.

In November 2015, EDF Energy said it had found cracks in three of the graphite bricks in one of the Hunterston B reactors. Similar cracks were found in October 2014 in two of the graphite bricks of the other reactor. A recent BBC Radio Programme revealed that the ONR was considering doubling the limit it had set on the percentage of cracked bricks it is willing to accept from 10% to 20%. This has been a particularly controversial part of this process with people living near these reactors finding it difficult to understand why the definition of "safe" seems to be changing.

ONR has now agreed to this increased limit. It says: "*Continued operation of HPB/HNB reactors is now supported by NGL's [EDF's] safety case NP/SC 7716 which sets an operational limit of 20% cracking in the core. The justified period of operation of each reactor at HPB/HNB is therefore dependent upon the findings from the inspections at each outage.*"

The ONR is also concerned about a very specific form of cracking. The keyway is a slot that holds each brick to the adjacent brick, the bricks underneath and the bricks on top. These keyways, which are acknowledged to be the limiting factor in the life of these reactors, are beginning to fracture. John Large points out that this will make the graphite blocks a very loose set of bricks. Seven of the keyways have been discovered to have cracks at Hunterston B. John Large believes the presence of keyway cracks casts doubt on the safety of the reactor in the event of an emergency like an earthquake. If the core becomes misaligned, and the fuel modules get stuck in the core, the fuel temperature will get raised and could undergo a melt. If the radioactivity gets into the gas stream and the reactor is venting because it's over pressurised then you have a release to the atmosphere and you have dispersion and a contamination problem.

ONR said that EDF had attempted to predict the rate of KWRC. Originally the first cracks were not expected to occur until 2019, but the first KWRC was observed at Hunterston B in 2015.

Inspection will "*play a crucial role in supporting the period of safe operation of the reactor in later life,*" the regulator said, adding that certain improvements are necessary, such as the development of a capability to measure the condition of control rod channels. EDF Energy should develop improved inspection and monitoring technology; in particular equipment capable of performing visual inspection and dimensional measurements of control rod channels, it said.

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ONR Press Release 24<sup>th</sup> February 2017 <http://news.onr.org.uk/2017/02/hinkley-point-b-and-hunterston-b/>

World Nuclear News 1<sup>st</sup> March 2017 <http://www.world-nuclear-news.org/RS-EDF-Energy-graphite-review-gets-regulatory-guidance-01031701.html>

Nuclear Engineering International 6<sup>th</sup> March 2017 <http://www.neimagazine.com/news/newsonr-publishes-safety-review-of-uk-hunterston-and-hinkley-5756308>



## 5 Chapelcross

Like Hunterston A, Chapelcross is undergoing preparation to enter care and maintenance. This stage is now expected to be completed two years earlier than planned in 2026.

The proposed ILW store has been redesigned to accommodate 4 different types of ILW package. The building will be larger than originally planned, but there won't be an increase in waste volume. Construction has now started.

Chapelcross has a 6km liquid waste discharge pipeline which needs to be decommissioned. The company which operates the site will be making a case for the in-situ disposal of the underground section of the pipe.

It is hoped that a plan to develop a future vision for the site could “relaunch the economy” of Dumfries and Galloway. The council, Scottish Enterprise and Nuclear Decommissioning Authority have signed up to the Chapelcross project. For the past five years, efforts have focused on boosting employment – particularly for former plant workers. Now attention is turning to attracting businesses to the site, such as low-carbon energy providers. Bill Hamilton of the site owners, the NDA, said it was a massive opportunity. *“In total we have got something like 95 hectares of land – that is an enormous site, that is a site of strategic importance for Scotland,”* he said. *“A major proportion of that land actually is available right now.”* (1)

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1. BBC 8<sup>th</sup> March 2017 <http://www.bbc.co.uk/news/uk-scotland-south-scotland-39204473>

## 6 Dounreay

The priorities for the site this year are the so-called “exotics programme”, breeder removal and improved resource utilisation.

Work is progressing on decommissioning the Dounreay Fast Reactor (DFR). Workers have just completed the removal of one of hundreds of concrete blocks from one of two spent fuel ponds. There are about 180 concrete blocks in each pond to be removed. Because of risk from radioactive contamination, workers have to wear protective clothing while cutting out the blocks and then packaging them for storage as waste. Each block is only around one metre square, it is extremely heavy and the process of cutting it is complex. (1)

Radioactive particles continue to be discovered during routine monitoring. Between November and January particles were discovered on Sandside Beach, and Murkle Beach with 5 discovered on the West Foreshore. One particle found in December on the West Foreshore was atypical. It has no caesium-137, but americium-241 was detected. The particle was sent to Stirling University for further analysis.



## Vulcan

There are 300 staff working on de-fuelling and decommissioning the Vulcan submarine reactor next to Dounreay. The Site Stakeholder Group (SSG) has been frustrated by the lack of consultation about this from the MoD. It would like to see full decommissioning carried out to make the most of the skills available at the moment.

The Environmental Impact Assessment Decommissioning Report (EIADR) is the formal consultation stage, but the SSG is worried that it doesn't know yet what the five options for decommissioning that are being considered by the MoD entail.

The MoD still needs to decide how involved the NDA will be in the decommissioning process.

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1. BBC 17<sup>th</sup> February 2017 <http://www.bbc.co.uk/news/uk-scotland-highlands-islands-39003107> and DSRL 16<sup>th</sup> Feb 2017 <http://dounreay.com/news/2017-02-16/first-cut-out-of-reactor-pond-wall>

## 7 Torness

A EURATOM Verification visit took place at Torness from 24<sup>th</sup> to 27<sup>th</sup> October. The inspection focussed on monitoring and assessment of radioactive releases. The inspectors also visited the PHE Laboratory in Glasgow where SEPA's analytical work is carried out.

The inspectors seemed to be impressed with SEPA's work and they were impressed by the Radioactivity in Food and the Environment (RIFE) publication. This kind of verification of the regulators will be difficult to replace after the UK leaves EURATOM.

Incidentally the RIFE publication has never reported on solid waste movement before, but from next year this will be covered for the Scottish sites.

## 8 Submarines

Swiftsure started initial decommissioning in December at Rosyth. This involves removal of the low level waste (LLW). The submarine will be in dock until August 2018. (1) Afterwards Resolution will go through the same process. After Resolution, Swiftsure will go back into dock for the Reactor Pressure Vessel (RPV) removal. A transport container for the RPV will need to go out to tender soon.

Contaminated metal will go for decontamination. This work will have to go out to tender, but the part of the Swedish company – Studsvik – which carries out waste treatment work at Lillyhall in Cumbria and in Sweden – and has done work for Rosyth in the past - has been bought by EDF and is now called EDF Cyclife.

1. Scotsman 17<sup>th</sup> Feb 2017 <http://www.scotsman.com/news/politics/when-will-rosyth-s-nuclear-submarines-finally-be-scrapped-1-4369308>

## 9 New Nuclear

A Hunterston 'C' nuclear power station features in the new North Ayrshire Council development plan consultation. Hunterston is currently not recognised as a 'national development' within National Planning Framework despite being previously designated. NAC believe securing national development status is essential to standing this deep-water port location out as one of Scotland's key infrastructural investment priorities. The report states: "Over the next two decades, the UK, as a whole, faces major challenges to replace its electricity baseload capacity especially following future closure of several power stations, including Hunterston B in 2023." Hunterston Port Energy Hub is described as 'a key strategic opportunity' that offers significant new economic development opportunities, and providing highly skilled jobs for hundreds of people, many living locally. (1)

Ruth Davidson has committed the Scottish Conservative party to building two new nuclear power stations in Scotland but she hasn't said what they would cost or how they would be paid for. The Tories promised to support "new nuclear power plants at Hunterston and Torness". (2) Richard Dixon of Friends of the Earth Scotland said Davidson was flogging a dead horse. (3)

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1. Largs and Millport Weekly News 17th Feb 2017  
[http://www.largsandmillportnews.com/news/15099654.Hunterston\\_s\\_vital\\_role\\_in\\_future\\_plans/](http://www.largsandmillportnews.com/news/15099654.Hunterston_s_vital_role_in_future_plans/)
  2. Herald 23<sup>rd</sup> Feb 2017  
[http://www.heraldscotland.com/news/15110843.Davidson\\_criticised\\_over\\_uncosted\\_nuclear\\_plan/](http://www.heraldscotland.com/news/15110843.Davidson_criticised_over_uncosted_nuclear_plan/)
  3. Holyrood 22<sup>nd</sup> Feb 2017 <http://www.holyrood.com/articles/news/scottish-conservatives-call-new-nuclear-stations-hunterston-and-torness>

## 10 Balancing Green Energy

- Illustrating the potential role of combined heat and power in balancing variable renewables an arms-length council-owned district heating company in Gateshead is set to boost its projected life-time income by nearly £1m after signing up to a power demand-response scheme run by Flextricity based in Edinburgh. The Gateshead District Energy Scheme which will be fully operational by mid-2017, has become part of Flextricity's demand response network netting the company more than £60,000 per year over the next 15 years for smoothing out peaks and troughs in national electricity demand. (1)
- An international summit on hydrogen has been held in Aberdeen which brought together bus operators and re-fuelling companies to present study findings of large scale hydrogen re-fuelling. The event showed the economic benefits of hydrogen to the area. Aberdeen has the first hydrogen buses in Europe, two dedicated hydrogen



refuelling stations, and hydrogen-fuelled vehicles as part of a car club scheme. The city is also looking wider than transport, with plans for hydrogen training, business diversification, and trials of H2 vehicles for the private sector. (2) A second hydrogen refuelling station has been officially opened along with the launch of a fleet of 10 hydrogen-fuelled Toyota Mirai cars. The £2.6m station will serve the city's expanding fleet of cars and vans. (3)

- Fife-based Living Solutions (LS) has taken delivery of a new hybrid Renault Kangoo van, supplied by local company – Bright Green Hydrogen (BGH). The Levenmouth Community Energy Project – led by BGH in Methil, Fife – is a collaborative initiative supported by Fife Council and Toshiba. This is the world's foremost facility demonstrating hydrogen derived from a renewable turbine and solar resources. It is the first project of its kind in Scotland to use green hydrogen to fuel a fleet of hybrid/electric vans to the road. This new vehicle will add to Living Solutions' green credentials, as they are already working to create an eco-friendly zero emissions tree-surgery service. (4)
- East Lothian-based firm Sunamp has led a successful funding bid jointly with Glasgow University and partners in China to boost the performance of Organic Rankine Cycle (ORC) power plants that use clean, intermittent, renewable heat sources for distributed heat and power supply in China. By integrating Sunamp's heat storage technologies with the ORC, according to the company it is possible to produce a more dependable distributed heat and power supply using a wide range of renewable heat sources, such as solar energy. ORC has the same working principle as a steam power cycle, except it uses organic compounds with low boiling points as working fluids. It is believed to be among the most promising technologies to use sources of renewable heat and cut pollution generated by fossil fuels, and it perfectly fits the needs of a country like China, still mainly relying on coal for its heat and power needs, but with big plans to increase penetration of renewables. (5)
- Plans for a 400-mile subsea power cable linking Scotland and Norway have been given a boost after the EU agreed to part-fund its development phase. Scandinavian consortium NorthConnect said it was eligible for more than 10m euros of EU cash to support its electricity interconnector plans. The project was given the green light by regulator Ofgem last year. NorthConnect plans to build a £1.3bn power cable between Boddam in Aberdeenshire and Eidfjord in Norway. The project aims to link hydro power from Norway with wind energy from Scotland. It is scheduled to start operating from 2022. (6)
- The old energy order is drawing to a close amid battery storage revolution, according to the *Daily Telegraph*. Over the last two years, battery costs have fallen 40%, with further falls to come as economies of scale take hold. Rapid growth in the market for battery storage, forecast by Goldman Sachs to increase by a thousand-fold from £210m last year to £210bn in 2025, should in turn remove a number of the key economic constraints on renewable forms of energy. The great promise of storage is that it should lend renewables the same "always on" characteristics of more conventional forms of power. Paul Massara – a former chief executive of Npower who now runs his own battery storage business, North Star -says at least half of all UK households will have battery storage in 10 years. (7)

1. Scottish Energy News 24<sup>th</sup> Jan 2017 <http://www.scottishenergynews.com/english-council-to-save-nearly-1m-in-district-heating-scheme-with-scottish-energy-demand-experts/>
2. Scottish Energy News 6<sup>th</sup> February 2017 <http://www.scottishenergynews.com/aberdeen-city-to-hold-first-international-summit-on-hydrogen-fuel-supply-chain/> and Aberdeen City Council 5<sup>th</sup> Feb 2017 <http://news.aberdeencity.gov.uk/first-international-summit-on-hydrogen-supply-chain-to-be-held-in-aberdeen>
3. Scottish Energy News 28<sup>th</sup> Feb 2017 <http://www.scottishenergynews.com/aberdeen-opens-second-hydrogen-re-fuelling-station/>
4. Allmedia Scotland 6th Feb 2017 <http://www.allmediascotland.com/media-releases/121452/media-release-fife-based-living-solutions-takes-delivery-of-cutting-edge-hydrogen-electric-green-energy-vehicle/>
5. Renewable Energy Focus 22<sup>nd</sup> Feb 2017 <http://www.renewableenergyfocus.com/view/45454/sunamp-and-glasgow-university-win-2m-collaborative-project-with-china-to-tackle-sustainable-energy-challenge/>
6. BBC 24<sup>th</sup> Feb 2017 <http://www.bbc.co.uk/news/uk-scotland-scotland-business-39080305>
7. Telegraph 4<sup>th</sup> March 2017 <http://www.telegraph.co.uk/business/2017/03/04/old-energy-order-draws-close-amid-battery-storage-revolution/>

## 11 Island Energy

- Almost 6,000 new full-time equivalent jobs could be created in the Western Isles if the construction of two planned Lewis Wind Power turbine parks – already approved by the local council – go ahead. This is the key conclusion of a cost-benefits analysis compiled by BVG Associates, an independent energy consultancy, for the EDF – Lewis Wind Power project partners if the Stornoway and Uisenis wind parks go ahead. In addition to the renewable energy generation assets, the project also provides for construction of a high-voltage DC connection to the UK Grid and further onshore wind developments, which would generate 5,970 full time equivalent job years and £164m in local value added for the Western Isles economy. (1)
- Strong winds and stormy seas have helped turn the Shetland Islands into a European renewable energy giant, producing more power than it knows what to do with. The tidal-power underwater turbines that were completed last month are only the latest green energy project for an archipelago that has been reliant for decades on the North Sea offshore industry. Even homeowners are getting in on the act with small wind turbines in their gardens and solar panels on their roofs – somewhat optimistically in an area where winter daylight lasts just six hours. “We are not 100 percent self-sufficient but we are quite a long way toward it,” Jim Dickson, 69, told AFP at his home in the village of Brae, referring to electricity generation for his own house. Dickson, who lives near the Sullom Voe oil terminal, can power the building and an electric-powered Nissan Leaf car from a turbine in his garden with enough left over to feed into the island’s grid when conditions are favourable. The turbines’

success has had the odd effect of creating too much power. The Shetland grid is itself constrained now. It cannot take any more renewables. Around 10% of the islands' electricity is generated from renewables and wind and tidal generators are only licensed to produce up to that limit. There is no connecting cable between Shetland and mainland Britain and as the renewable energy cannot easily be stored to ensure stable supply, so the turbines have to be switched off from time to time. (2)

- Meanwhile a multi-million pound EU funded project is set to provide the Isles of Scilly with a new smart energy system, using new software platforms to manage supply and demand through renewables, energy storage and electric vehicles. The project feeds into the Isle of Scilly council plans to rapidly change its energy system, currently served by one undersea cable from the mainland and an ageing power station. The local authority plans to double its renewables capacity to 449kW through the addition of rooftop solar and two 50kW solar farms, while at least 1MW of storage will also be added across households, V2G (Vehicle to Grid) charging a large storage solution. (3)

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1. Scottish Energy News 15<sup>th</sup> Feb 2017 <http://www.scottishenergynews.com/energy-consultants-forecast-6000-jobs-boom-for-western-isles-if-lewis-wind-power-turbine-parcs-go-ahead/>
  2. Scottish Energy News 27<sup>th</sup> Feb 2017 <http://www.scottishenergynews.com/wind-and-marine-energy-generate-more-power-than-shetland-can-use/>
  3. Solar Power Portal 15<sup>th</sup> March 2017 [http://www.solarpowerportal.co.uk/news/smart\\_energy\\_project\\_to\\_run\\_isles\\_of\\_scilly\\_on\\_renewables\\_storage\\_and\\_evs](http://www.solarpowerportal.co.uk/news/smart_energy_project_to_run_isles_of_scilly_on_renewables_storage_and_evs)

## 12 Renewables

- One in six jobs in Scotland's renewable energy sector could be lost within the next 12 months, according to Scottish Renewables - thousands of jobs could go as a result of changes to UK government support schemes. But most firms feel positive about the future, with many having diversified overseas. The Scottish Renewables poll found that its members predict of 16.9% decrease in full-time equivalent posts in Scotland over the next year. (1)
- Wind turbines generated enough energy to cover two-thirds of Scotland's total electricity consumption in February. (2)
- Glasgow-based small wind turbine manufacturer Gaia-Wind has produced its 1000th turbine and has now confirmed new orders from Japan and Italy. Gaia-wind turbines are now installed in Tonga, Japan, Australia, the US, the Caribbean, Sweden, and Denmark as well as all over the UK. By 2020 the turbines are expected to deliver a good economic return in almost every market without any form of government subsidy. The 1000th turbine also marks the beginning of a relationship with Scottish



Water Horizons Ltd – a commercial subsidiary of Scottish Water – which is rapidly growing its renewable energy portfolio. (3)

- Scottish Water is enabling the generation of more renewable power than it consumes. The utility is one of the biggest users of electricity in the country and requires about 445 Gigawatt hours (GWh) per year across 4,500 sites such as water and waste water treatment works. Through a combination of Scottish Water's own investment in renewable energy and hosting private investment on its estate, the company now generates and hosts more renewable power than it consumes annually and is on course to double this by 2018. (4)
- A wind farm has been developed by a Berwickshire Housing Association to fund the building of new homes. The three-turbine project at Hoprigshiels near Cockburnspath is said to be the first of its kind in the UK. It is hoped it will generate revenue of £20m over the next 25 years – enough to build 500 new homes. (5)
- The Dundonald Wind Turbine in Cardenden supported by Ore Valley Housing Association has started to generate electricity. The turbine will benefit the local community, not only by providing clean, green energy but also through funds raised from profits. Ore Valley intends to use at least 50% of the profits to provide support for the community through grants and investments for local projects and enterprises. (6)
- The Ayrshire mining community of Cumnock is set to become Scotland's first carbon neutral town, creating a blueprint that can be rolled out across the rest of Scotland. The plans include proposals for the community to run its own hi-tech renewable energy system – based on sun, wind and water power – and make use of cutting edge digital and smart technologies. The regeneration proposals which have been put forward by the Scotland's Towns Partnership, received backing from the Scottish Government and the local council. (7)
- Around 100,000 local government employees in Glasgow, Ayrshire, Lanarkshire and Dumbartonshire have invested another slice of their wages into a £50m offshore wind farm in N. Ireland. This is a result of the Strathclyde Pension Fund – to which all council workers in the West Central Belt belong and which is managed by a handful of officials in Glasgow council – being a major investor with a 20% holding in the Dublin-based NTR investment fund. (8)
- Atlantis Resources has installed the final turbine in the first phase of its tidal energy project, bringing the number generating electricity at the MeyGen site in the Pentland Firth to four. Each turbine is capable of providing up to 1.5MW of power. The power is connected to the grid onshore via a control building at Ness of Quoys in Caithness. Construction work on the next phase of MeyGen, for a further 6MW, is expected to start this year. The project hopes to generate close to 400MW eventually. (9)
- The Scottish Government has now granted permission to three floating windfarms. The latest is a the two turbine Dounreay Tri Floating Wind Demonstration Project will be located approximately 6km off the Caithness coastline. The Kincardine Floating Offshore Wind farm was approved earlier this year and last year the Hywind Scotland Pilot 25km from Peterhead was approved. This means Scotland has now

agreed planning permission for up to 92MW of floating offshore wind, making the country a world centre for the innovative technology. (10)

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1. Herald 3<sup>rd</sup> March 2017  
[http://www.heraldscotland.com/news/15133245.Renewables\\_companies\\_fear\\_job\\_losses\\_over\\_next\\_12\\_months/](http://www.heraldscotland.com/news/15133245.Renewables_companies_fear_job_losses_over_next_12_months/)
  2. Scotsman 6<sup>th</sup> March 2017 <http://www.scotsman.com/future-scotland/tech/wind-turbines-provided-two-thirds-of-scots-energy-needs-1-4383793>
  3. The National 26<sup>th</sup> Jan 2017  
[http://www.thenational.scot/business/15047640.Small\\_turbine\\_manufacturer\\_has\\_the\\_wind\\_in\\_their\\_sales\\_as\\_firm\\_produces\\_1000th\\_unit\\_in\\_Scotland/](http://www.thenational.scot/business/15047640.Small_turbine_manufacturer_has_the_wind_in_their_sales_as_firm_produces_1000th_unit_in_Scotland/)
  4. Scottish Energy News 16<sup>th</sup> Feb 2017 <http://www.scottishenergynews.com/scottish-water-now-generates-more-renewable-energy-than-it-consumes/>
  5. BBC 28<sup>th</sup> March 2017 <http://www.bbc.co.uk/news/uk-scotland-south-scotland-39410997>
  6. Scottish Housing News 17<sup>th</sup> March 2017 <http://www.scottishhousingnews.com/14468/ore-valley-wind-turbine-brings-green-energy-to-cardenden/>
  7. Sunday Herald 29<sup>th</sup> Jan 2017  
[http://www.heraldscotland.com/news/environment/15055613.Revealed\\_\\_Cumnock\\_to\\_become\\_Scotland\\_\\_39\\_s\\_first\\_fully\\_\\_39\\_Green\\_Town\\_\\_39\\_/](http://www.heraldscotland.com/news/environment/15055613.Revealed__Cumnock_to_become_Scotland__39_s_first_fully__39_Green_Town__39_/)
  8. Scottish Energy News 14<sup>th</sup> February 2017 <http://www.scottishenergynews.com/scots-council-workers-invest-50m-to-buy-irish-wind-farm/>
  9. Times 21<sup>st</sup> Feb 2017 <http://www.thetimes.co.uk/edition/business/atlantis-shows-turn-of-speed-installing-new-tidal-turbine-872qg75lf>
  10. Scottish Construction Now 17<sup>th</sup> March 2017 <http://www.scottishconstructionnow.com/18022/dounreay-floating-wind-farm-project-given-ministerial-approval/>

## 13 Local Authorities and Solar

71% of UK councils have no strategy or plan for future solar investment, and no target for future deployment; 70% have no plans to deploy solar in the next five years. Many councils blame changes to government subsidy schemes, with 47% citing cuts in financial support as the main barrier to investment in solar energy. Lack of capital to provide upfront investment was also cited as a barrier by 23% of respondents, while a lack of internal stakeholder buy-in was highlighted by 6%. But there are ways round these problems. Local Authorities can fund solar, improve their finances and enable service delivery.

PV Financing is a Horizon 2020 project across 6EU countries (UK, Germany, France, Austria, Spain, Italy) plus Turkey looking at the best ways to finance PV. See [www.pv-financing.eu](http://www.pv-financing.eu)

See, for instance “Making Solar Pay” here: [http://www.pv-financing.eu/wp-content/uploads/2016/11/D4.1\\_UK.pdf](http://www.pv-financing.eu/wp-content/uploads/2016/11/D4.1_UK.pdf)



And “EU-wide Solar PV Business Models” here <http://www.pv-financing.eu/wp-content/uploads/2017/01/EU-Implementation-Guidelines-PVF-D4.4-FINAL.pdf>

Stirling Council has installed its 1,500th solar PV array on its housing stock and paved the way for battery storage to follow its lead. The install was completed on a new build bungalow in Bannockburn as part of a wider renewable investment scheme launched to alleviate fuel poverty and reduce the council’s carbon footprint. To date more than £8m has been spent on delivering the solar rollout, and an additional £4.25m is committed over the next two years to install solar on an additional 1,200 homes. And battery storage could also feature in future installs should the results of an initial pilot scheme in 50 homes be deemed a success. (1)

A group of environmentalists, solar companies the Solar Trade Association and NFU Scotland have written to the Scottish Government to urge Ministers to use their powers to lay simple secondary legislation to exempt rooftop solar cells and panels from business rates. The abrupt loss of national support for solar means the economics is now fragile, but decisive action on business rates would go a very long way to enabling new solar jobs and solar rooftops to blossom across Scotland. (2)

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1. Solar Power Portal 3<sup>rd</sup> March 2017  
[http://www.solarpowerportal.co.uk/news/stirling\\_council\\_celebrates\\_1500th\\_solar\\_install\\_as\\_battery\\_storage\\_pilot\\_c](http://www.solarpowerportal.co.uk/news/stirling_council_celebrates_1500th_solar_install_as_battery_storage_pilot_c)
  2. Herald 27th March 2017  
[http://www.heraldscotland.com/opinion/15183086.Scottish\\_solar\\_power\\_sector\\_being\\_unfairly\\_punished/](http://www.heraldscotland.com/opinion/15183086.Scottish_solar_power_sector_being_unfairly_punished/)