

# ENERGYEYE

## DOUNREAY CONTROL ROOM FOR MUSEUMS

THE CONTROL room of a nuclear power plant in Scotland has been dismantled and is to be rebuilt in two national museums.

The historic nerve centre of the nuclear “golf ball” dome at Dounreay will first go on display next year at the Science Museum in London and then later at the National Museums of Scotland.

Dounreay’s experimental fast breeder reactor once led British nuclear research. Housed inside a steel sphere, it was built to test the fast breeder concept, and started operating in 1959. In 1962 it became the first fast reactor in the world to provide electricity to a national grid and operated until its shutdown in March 1977.

Operators controlled the reactor systems from a room next to the sphere (*inset*).



DSRL & NDA

# Prospect launches check-off challenge in the nuclear estate

THE GOVERNMENT’S Trade Union bill aims to tie up unions in red tape and make it harder to look after members.

One way is by abolishing check-off in the public sector and other bodies that receive public funding.

Prospect is in the process of getting members in the nuclear estate to change the way they pay union subscriptions – moving from check-off, where the employer makes deductions from the pay roll, to direct debit.

This is in response to the proposals in the Trade Union bill to end such arrangements in the public sector that Prospect deputy general secretary Garry Graham says, to the surprise of many, includes the nuclear estate.

“Persuading members to change to direct debit is crucial to us being able to represent their interests effectively,” says Graham.

“The proposals in the bill to introduce challenging thresholds on industrial action ballots in nuclear decommissioning look and feel like a concerted attack when taken against other bombshells we know are in the pipeline.

“For example, the end of check-off coincides with proposals to cap severance payments (see page six) and the fact that the government is considering legislating to end

the 2004 Energy Act pension protections.

“Against this backdrop it is vital that we organise and persuade members to make the switch. It’s simple and easy to do and only takes a few minutes.

“What we cannot allow is professional



workers in the industry to be denied a voice by the government deciding to cancel their union subscriptions.

“That way your relationship with Prospect will remain independent of employer or government interference. Don’t wait until it’s too late!”

Prospect prefers dialogue to confrontation minister seeking a meeting on pen-

has yet to receive a substantive response.

The union is urging all members who pay subs by check-off to switch now to direct debit – see our animated video pictured left – <https://vimeo.com/140823215>

Members can switch at [www.prospect.org.uk/dd](http://www.prospect.org.uk/dd) or by ringing the dedicated membership number (see box below).

A new leaflet, “Your subs made easy by direct debit”, has been uploaded to the library at [bit.ly/CheckOff](http://bit.ly/CheckOff)

This contains two forms – one to tell your employer to remove you from check-off and the other is a direct debit mandate. Email it to [membership@prospect.org.uk](mailto:membership@prospect.org.uk) or post it to **FREEPOST PROSPECT MEMBERSHIP**

## NEW LINE FOR YOUR MEMBERSHIP QUERIES

A dedicated number has been allocated to deal with membership queries.

Any member with a query about their union membership should dial **01932 577007** to reach the Prospect membership team in Chertsey directly. You can also check whether the details of your branch officials held by Prospect are up to date via the members’ section of the union website.



## No silver bullet for energy, Graham tells Conservative party delegates

A PACKED audience at a Conservative party conference fringe event heard deputy general secretary Garry Graham call for political consensus on a balanced energy policy for the UK, or risk losing the confidence required to deliver future generating capacity.

Speaking at a meeting organised by Trade Unionists for Safe Nuclear Energy, Graham explained that Prospect's political neutrality meant that it could take an active part in all the main party conferences.

But he voiced concern that the political consensus, built up as a result of painstaking years of work, could not be taken for granted in the current climate.

"There are those at the polar extremes of politics who would like to tell you that they have discovered the silver bullet – whether wind or fracking.

"These energy sources may have a contribution to make, but those who tell you they are the solution to our energy needs are not selling you a solution, they are selling you snake oil."

He called for wider public debate and engagement on energy policy than in the run-up to the general election, and reminded delegates and MPs that there are no energy generation decisions without controversy.



NEHELO JENNY

"Those who are keen to point out what they are opposed to have a responsibility to indicate what they believe the solutions and options are," he said.

While supporting nuclear new build as part of the low-carbon energy mix, he also made a plea in advance of the government spending review.

"We have to show that we have a long-term strategy for dealing with waste and our nuclear legacy, as well as champion a long-term storage solution – based on the most up-to-date science.

"If we cut investment now, we pile on costs for future generations, lose the opportunity to be a world leader and play into the hands of our detractors."

Summing up, Graham raised a laugh by saying that it would not be a trade union presentation if it did not end with a list of demands.

In all seriousness, he

added, these were to:

- continue to support the case for nuclear new build
- invest in decommissioning and waste management
- end the proposals in the Trade Union bill to withdraw union check-off arrangements in the Nuclear Decommissioning Authority nuclear estate.

## IN DEFENCE OF UNION RIGHTS

AS *Energy Eye* was going to press union members from all over the UK were preparing to gather at Westminster on 2 November for a rally and mass lobby organised by the TUC against the Trade Union bill.

Prospect has raised many concerns about the bill in its response to the government consultation on three aspects – strike ballot thresholds for people in "important" public services; hiring agency staff during industrial action; and intimidation of non-striking workers. The union also opposes the bill's aims to:

- limit the check-off system for collecting union subs direct from salary
- make members opt into rather than out of contributing to union political funds, and reballot every five years
- limit facility time for union reps in the public sector
- increase the seven-day notice period for industrial action to 14 days
- increase reporting requirements to the certification officer and give the Certification Office new investigatory powers and the ability to fine unions.

The extreme proposals in the bill have even come under fire from Conservative MP David Davis. He told Sky News that while he agreed with most of it, some bits "look OTT, like requiring pickets to give their names to the police force. What is this? This isn't Franco's Britain, this is Queen Elizabeth II's Britain".

Prospect parliamentary and campaigns officer Graham Stewart stressed the importance of keeping up the pressure on politicians and urged individual members to write to their MPs to express their concern.

- **Download a PDF of Prospect's Employment Law Update on the proposal to end the right to check off in the public sector at <https://library.prospect.org.uk//download/2015/01310>**
- **TUC analysis of the bill and advice on writing to your MP is available at [www.tuc.org.uk/protect-right-strike](http://www.tuc.org.uk/protect-right-strike)**
- **Follow the bill via the Parliament website <http://services.parliament.uk/bills/2015-16/tradeunion.html>**

# Ofgem to spark more competition in onshore electricity infrastructure

OFGEM IS consulting on putting new onshore electricity transmission infrastructure projects, worth £100m or more, out to tender, with 2017 earmarked as the first date for bids.

Links to offshore wind farms have been competitively tendered since 2009, with Ofgem claiming consumers have been saved between £200m - £400m. Now the regulator wants to apply this formula to new onshore projects.

It means the three monopoly transmission companies in Britain – (National Grid Electricity Transmission, Scottish Hydro Electricity Transmission and ScottishPower Transmission – will have to compete against other firms.

The current price control regime for the companies runs from 2013-2021. The regulator is currently consulting on how onshore tendering

would work, including how eligible projects would be identified and what revenue the winning bidders could expect.

Projects will only be tendered if it is possible to clearly delineate ownership boundaries so that it is clear who is responsible for each asset.

As the British transmission system operator, National Grid will recommend to Ofgem which projects meet the criteria and the technical or economic need for it, leaving Ofgem to make the final decision.

The regulator proposes that successful bidders should receive an annual revenue stream fixed over a 25-year period.

Ofgem is also working with the government to explore potential legislative change to support onshore competitive tendering.



## REFORMS HASTEN END OF COMPANY DEFINED BENEFIT PENSION SCHEMES

STATE pension reforms due in April 2016 are being blamed for an increasing number of energy sector companies closing their defined benefit (DB) pension schemes.

The reforms will end “contracting out” of the State Second Pension (which used to be called the State Earnings Related Pension, or Serps) and the National Insurance rebate enjoyed by members of DB pension schemes and their employers as a result.

The new legislation allows employers to pass the higher National Insurance costs on to members (except in the case of members covered by statutory protections such as those provided for under various electricity acts or the Energy Act 2004).

However, a growing number are starting to

cite this as a reason to close their DB pension schemes entirely.

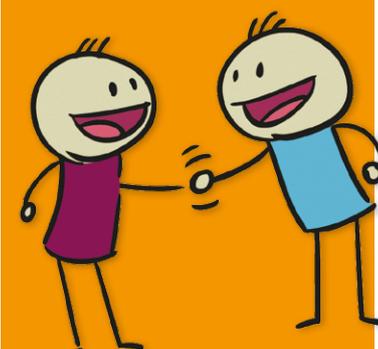
In the space of one week Tony Hammond, Prospect negotiator in Liverpool, was told two companies – United Utilities and Amec Foster Wheeler – had started formal consultation on ending DB pension provision for everyone not covered by statutory protections. Other companies in the sector have made similar noises.

Pensions officer Neil Walsh said: “Prospect warned that the reforms would hasten the end of defined benefit pension provision in the private sector. Now members have to deal with the consequences. The union will represent all members affected during the consultation periods and will fight to retain the best provision possible for all.”

## Member recruit member extended

DO you have any colleagues who are worried about their pension but are not a member of the union? Now would be a good time to tell them about the work the union is doing to try and protect their pensions and potentially reward yourself or a charity at the same time.

Figures for Prospect’s member recruit member scheme shows it has been a success prompting the union to agree to extend it for another 12 months.



By the end of June 2015, 1,380 new members had been recruited using the scheme over the previous 12 months. Many branches came up with inventive ways to use MRM by donating their reward vouchers, or a cash equivalent, to local charities.

Head of the national organising and recruitment department, Mike Graham, said: “Our reps are champions. Not only have they embraced the recruitment message, that more members means greater influence, but their compassion means greater engagement with the local community while local charities benefit.

“All this sends out a positive message about the value of union membership today and the wish to see fairness for all.”

Under the terms of the MRM scheme each member who recruits a colleague will be able to choose from a £10 shopping voucher or a donation to charity.

● To find out more, visit [www.prospect.org.uk/mrm](http://www.prospect.org.uk/mrm)

# New plant to create thousands of jobs and provide 7% of UK's energy

It may have been a long time coming, but Wednesday 21 October marked a pivotal moment in the drive to start a nuclear renaissance in the UK

TEN YEARS after then prime minister Tony Blair announced a review of the UK's energy supplies, which opened the door to the possibility of a new nuclear fleet, representatives of French and Chinese energy heavyweights signed a deal in the UK paving the way for the first reactor in a generation.

The deal between EDF Energy and the China General Nuclear Power Corporation (CGN) paves the way for a final investment decision on new nuclear plant at Hinkley Point C, Somerset, and other UK infrastructure projects.

Confirmation that the Chinese energy giant had agreed to take a 33.5% stake in the project was announced during Chinese President Xi Jinping's recent four-day visit of Britain.

It is understood that the deal

between EDF and CGN is five-fold, setting out the terms of their cooperation on Hinkley; on a second EDF-led plant at Sizewell; on a Chinese-led plant at Bradwell, Essex; on cooperating to get Chinese reactor technology approved for use in the UK; and on projects elsewhere in the world.

Responding to the news Prospect deputy general secretary Garry Graham said: "The building of the new Hinkley nuclear plant will create 25,000 jobs in construction and provide 1,000 jobs in operation.

**Graham – Investors will bear all the construction risk from the day the final investment decision is made**

"These will be high-quality skilled jobs that will create a positive legacy for major infrastructure projects for the future. The plant will also provide 7% of our electricity needs when completed."

Tackling critics of the project who cite concerns over safety and security,

he said: "The nuclear sector in the UK is the most highly regulated in the world and, quite rightly, sets the most exacting safety standards.

"In terms of Hinkley and Sizewell the Chinese will be investment partners – though they have longer-term aspirations to prove Chinese technology in that regulatory environment.

"They won't be able to achieve that without the practical knowledge and expertise of UK specialists, scientists and engineers, overseen by our members in the Office for Nuclear Regulation. It will also require the use of the UK supply chain to the most exacting standards."

Graham also responded to criticism that the "strike price" agreed for power produced by Hinkley Point C is too high. "Customers will only start paying when HPC is up and running in several years time, with guarantees to ensure EDF refunds customers the difference if the price of electricity is above £92.50 per MWh from Hinkley.

"Not only does the strike price



■ Work on the Hinkley Point C construction site with existing power stations in the background

## HINKLEY POINT C: THE STORY SO FAR

### 2005

**NOVEMBER** – Then Prime Minister Tony Blair announces an energy review.



JOHN HARRIS/REUTERS/DIGITAL.COM

### 2006

**MAY** – Not replacing Britain's nuclear plants would be a "dereliction of duty" – Blair  
**JULY** – The review concludes that nuclear can make a "significant contribution" but then industry secretary Alistair Darling says the private sector must "initiate, fund, construct and operate" the plants.

### 2007

**FEBRUARY** – EDF Energy says it hopes to build Britain's first new nuclear plant in time for the UK to roast its 2017 Xmas turkeys with nuclear power.  
**AUGUST** – EDF and Areva submit their European Pressurised Reactor designs to the regulators.



### 2008

**JANUARY** – Then business secretary, John Hutton, formally backs new nuclear with completion "before 2020".  
**SEPTEMBER** – EDF buys British Energy for £12.5bn and unveils plans for four new reactors.  
**OCTOBER** – EDF consults with local residents over plans to build at Hinkley Point C (HPC).  
**DECEMBER** – EDF tells investors the average cost of four reactors – two at Hinkley and two at Sizewell – should be £45 per MWh with the first generating by 2017, the second 2018, and Sizewell's two reactors by 2021 and 2022.



### 2009

**MAY** – Centrica takes a 20% stake in EDF's UK nuclear fleet as well as an option of a 20% stake in any new nuclear build.



### 2010

**NOVEMBER** – EDF defends its environmental record and relocates badgers from HPC land.

### 2011

**FEBRUARY** – EDF chief Vincent de Rivaz says HPC could be ready in 2018 with market reform.  
**MARCH** – Japan's Fukushima disaster leads then energy secretary Chris Huhne to commission an urgent safety review, delaying the Health and Safety Executive's and Environment Agency's assessments of the new reactor designs.  
**MAY** – The safety review gives the green light, subject to adaptations in light of Fukushima.  
**JULY** – The government unveils its "electricity market reform" plan including "contracts for difference" – new long-term contracts that will support new nuclear plants.



compare favourably with other forms of low-carbon generation, we would need a crystal ball to know what the market price will be when Hinkley is actually operational. Yet the investors will bear

all the construction risk from the day the final investment decision is made. Nuclear is the only form of reliable low-carbon baseload generation, so it must be an essential part of our energy mix.”

## THE DEAL IN NUMBERS

**£18 BN** – EDF’s estimate of construction cost

**3.2 GW** – Capacity of plant

**5.8 MN** – Number of homes it could power

**5,600** – People to be employed on site at peak construction

**25,000** – Total number of jobs that could be created

**£92.50** – Price to be paid (in 2012 money) for each MWh unit of electricity – more than double the current market price of power

**35 YEARS** – Duration of subsidy contract agreed by ministers

**2024** – Earliest expected date for first power to be generated

## Joint research bid

ANOTHER OF the investment deals agreed with the Chinese will see the National Nuclear Laboratory and the CGN establish and run a new Joint Research and Innovation Centre (JRIC).

Both countries have committed £50m to the project over a five-year period. The new JRIC will focus on work across the whole nuclear fuel cycle.

**OCTOBER** – EDF submits a 55,000-page planning application and sets a 2012 target for the final investment decision (FID).

**DECEMBER** – The government admits the first new reactor will not start generating until 2019.

## 2012

**FEBRUARY** – Preparatory site works begins.



**MAY** – Then energy secretary Ed Davey opens talks with EDF over HPC subsidies, with EDF receiving a fixed “strike price” guaranteeing the cost of each unit of power, irrespective of the market price. Any difference between the market and guaranteed price to be met by consumer paid subsidies.

**AUGUST** – EDF seeks investors.

**DECEMBER** – EDF’s reactor design gains safety

approval, but de Rivaz says the FID will not be agreed until the end of the year.

## 2013

**FEBRUARY** – Centrica pulls out, citing spiralling costs and delays.

**MARCH** – Talks over subsidies stall after the Treasury offers EDF less than it wanted. EDF starts laying off staff. De Rivaz says talks are challenging. HPC’s planning permission granted.

**OCTOBER** – The government announces the provisional subsidies agreement with EDF has increased the project cost to £16bn and agrees a strike price of £92.50 per MWh over a 35-year period.

EDF to retain a 50% stake, Areva will take 10%, two Chinese groups a combined 40% stake and 15% to other parties. EDF confirms HPC will not be operational until 2023, and only if the FID is made by July 2014.

**DECEMBER** – The European Commission launches a state aid investigation.

## 2014

**MARCH** – EDF admits July FID deadline will not be met.



**MAY** – EDF begins a second stage of preparatory works building roundabouts and roads.

**OCTOBER** – The European Commission gives HPC state aid approval. Estimated cost now £24.5bn.

**DECEMBER** – EDF says FID will be agreed by March 2015.

## 2015

**FEBRUARY** – The March deadline is abandoned.

**JULY** – Energy secretary Amber Rudd says a decision likely later in the year.

**SEPTEMBER** – EDF abandons the 2023 operational date. A new date will be set when the FID agreed, based on solely on EDF and Chinese investment.

**SEPTEMBER** – The chancellor announces a £2bn loan guarantee for HPC.



■ **Members in ScottishPower celebrate the union's successful defence of the protected pension rights gained on privatisation at their annual delegate meeting in 2014. Prospect is seeking a meeting with the energy secretary amid fears those protections could be under fire again**

## When the cap doesn't fit

The union remains committed to fighting plans to extend a proposed cap on exit payments to nuclear workers, explains Prospect's pensions officer **Neil Walsh**

THE GOVERNMENT has rejected arguments made by Prospect, and hundreds of individual members employed on the NDA estate, that they should be excluded from the scope of a proposed cap on exit payments for public sector workers.

With the legislative process already under way only strong lobbying of Parliament is likely to result in improvements to the proposals.

The government's aim is to cap exit payments at a maximum of £95,000. This will include redundancy payments, payments in lieu of notice and also the cost of ensuring members still receive a full pension even if they are made redundant at the minimum age they are eligible for retirement.

In August's curtailed consultation period, Prospect argued that the scope of the proposal was far wider than envisaged in the Conservative Party's manifesto commitment to cap payments for "public sector workers".

Applying the cap to the employees of companies operated by private sector owners extended the scope beyond what voters would have reasonably expected.

The union also argued that the proposed cap interfered with statutory protections and

negotiated agreements covering workers across the nuclear sector, and that any cap would significantly impact on companies' ability to retain essential skills and successfully decommission sites.

The government issued its response on 17 September, just three weeks after the closure of the consultation, despite having received over 4,000 responses. It made no reference to Prospect's arguments.

Part eight of the Enterprise bill 2015-16 is intended to give the statutory basis for the cap, bringing it into effect by secondary legislation after the bill receives Royal Assent.

The bill was introduced to the House of Lords on 16 September and had its second reading on 12 October, where many opposition peers spoke against the cap.

Prospect is concentrating resources on seeking amendments to the bill, and consequent secondary legislation, that will remove nuclear workers from the scope of the proposed cap as well as measures that lessen the impact on those it eventually does affect.

■ It is important that members support this lobbying work by writing to their MPs. Guidance is available via [bit.ly/lobbying\\_resources](http://bit.ly/lobbying_resources).

■ The union's submission on the proposed cap is available at <https://library.prospect.org.uk/download/2015/01060>

■ Details of the progression of the Enterprise Bill can be found at <http://services.parliament.uk/bills/2015-16/enterprise.html>

## IN DEFENCE OF NUCLEAR PENSIONS

PROSPECT has written to energy secretary Amber Rudd to request a meeting to discuss the future of pension protections in the nuclear industry.

If follows speculation that protections for workers in the nuclear estate, legislated for in the Energy Act 2004, could be offered up to the Treasury as part of the current spending review process.

The protections ensure that anyone covered by the act, who has been transferred from a relevant public sector pension scheme, is provided with access to a pension scheme no less favourable than the terms they enjoyed in the public sector at the time they transferred.

Thousands of nuclear sector workers transferred from the United Kingdom Atomic Energy Authority's Combined Pension Scheme (CPS) to the Combined Nuclear Pension Plan (CNPP) and are covered by the protections of the act.

Reforms have already been made to the CPS and other public service pension schemes, and the speculation is that legislation could be introduced to allow similar reforms, affecting workers covered by the protections.

This could involve higher member contribution rates, aligning pension age to state pension age and moving to a career-average structure.

Garry Graham, Prospect deputy general secretary, said: "The speculation, and resulting uncertainty, is deeply unhelpful and extremely concerning.

"The secretary of state has a duty to explain to Prospect members, and others, what her plans are. Prospect has defended the protections of the Energy Act against attack before and will do so again if necessary."



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# UK network needs some smart answers

A perfect storm that could bring the network to its knees is being created by crumbling infrastructure, due to a chronic lack of investment, vacillating political direction and the technological and financial challenges involved in building a low-carbon, flexible, fair and future-proof transmission and distribution system.

## A different past

PROSPECT HAS highlighted the failings of the current out-dated networks, designed to carry large quantities of high-voltage electricity across long distances.

Responding to the energy and climate change committee's inquiry into the future of the UK's electricity infrastructure, it listed members' concerns outlined in a motion to this year's Energy Supply Industry sector conference.

At up to 400kV, the electricity is too powerful to go directly to consumers and requires voltage control at substations before it enters local distribution networks supplying homes and businesses.

Coupled to this, asset sweating since privatisation means the current system has not been maintained as it should have been. Smart grids are seen as an answer to the problem of integrating renewable electricity supply and load balancing.

But Energy UK estimates that modernisation will cost £30bn for a smart grid able to:

- transmit electricity more efficiently
- restore electricity after disturbances more quickly
- enable a reduction in peak demand
- integrate renewable energy generation – on both a small and large scale.

This would include measures to mitigate against the greater risk of floods due to climate change.

This could include the use of insulated overhead line conductors; rebuilding lines to a heavier construction specification; increasing lightning surge withstand capability; and automated switching to isolate faults and restore supplies.

Prospect also stressed the need for major upgrades and new lines, including from north to south to

connect Scottish renewables with demand centres in the South East and reinforcements for any new, bigger nuclear plant.

## Intermittent generation

On the issue of the intermittent nature of renewables, and the need to counter large fluctuations over timescales ranging from seconds to years, Prospect said there is a lack of strategic thinking.

Connecting embedded generators to a network designed to connect a few large power stations presents unique problems, as demonstrated by 2012 research by the German Fraunhofer Institute into solar and wind energy fluctuations.

It found: "On a countrywide basis, the output varied over more than two orders of magnitude from a minimum of 0.115 GW to a maximum of 24 GW."

Added to this is a muddled and sometimes seemingly contradictory policy and regulation framework.

Since May 2015, the Conservatives have reversed at least 10 key green energy and energy efficiency policies, with no replacement in sight.

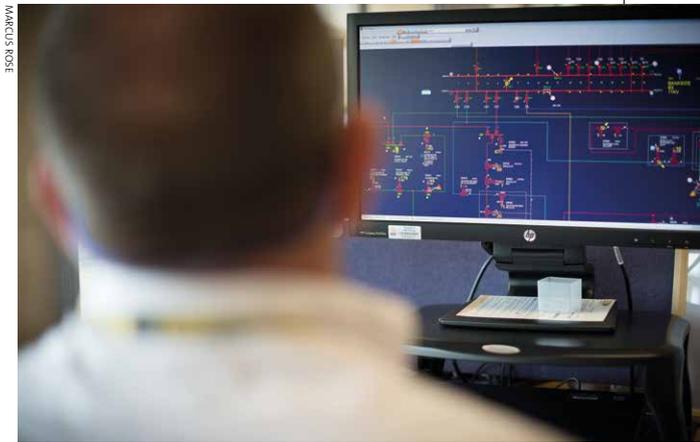
Examples include:

- ending enabling policy and funding schemes such as feed-in tariffs and the climate change levy, and replacing the renewables obligation with contract for differences.

This has sent a mixed signal about the political will to address issues of cost, security and decarbonisation

- Northern Ireland's separate regulation system
- the untested outcomes of Ofgem's RIIO price control framework.

Prospect noted that while the Offshore Transmission Regime and the Integrated Transmission Planning and Regulation (ITPR) may offer some solutions, they also raise concerns over sovereignty and ownership of the national asset.



MARKUS ROSE

## People and skills

Citing the government's own figures, the union said smart grids could employ 9,000 people and contribute £5bn to the economy.

Similarly the National Skills Academy (Transmission and Distribution) 2015 report predicted an increase of 62% on the current workforce of 12,600 plus, to ensure supplies are maintained. The Energy Networks Association put the figure at nearer to 74%.

Prospect also pointed to the large number of jobs that an ambitious roll-out of carbon capture storage technology would create – a market worth £15-35bn by 2030 – which could also reduce household bills by £82 a year, according to the TUC and the Carbon Capture and Storage Association.



**Energy UK estimates that modernisation will cost £30bn**

## The engineering challenge

Finally, on the issue of delivery, the union's submission referred to the Royal Academy of Engineering's report, *A critical time for UK energy policy* – which calls for a four-pronged approach using:

- smart grid/networks – providing a continuous data loop
  - smart meters
  - distributed generation/connectors
  - interconnectors (UK/EU) – current capacity of up to 9GW.
- **To view the full submission visit [bit.ly/DifferentPast](http://bit.ly/DifferentPast)**
- **To see the Royal Academy of Engineering's report go to [www.raeng.org.uk/publications/reports/a-critical-time-for-uk-energy-policy](http://www.raeng.org.uk/publications/reports/a-critical-time-for-uk-energy-policy)**



■ *The Magnox Swarf Storage Silo at Sellafield*

# Sellafield director hails scientists' waste management breakthrough

A REVOLUTIONARY breakthrough in the management of nuclear waste looks set to accelerate progress at Sellafield and slice hundreds of millions of pounds off the bill for cleaning up the site.

Scientists studying intermediate level waste (ILW) in one of the site's historic waste stores have unearthed previously unknown information about the material's long-term behaviour.

The discovery has allowed the site to take a radically simplified approach to the packaging and disposal of ILW that could see significant reductions in the timescales and costs associated with decommissioning redundant nuclear facilities.

The research focused on the chemical behaviours of ILW stored in the Magnox Swarf Storage Silo (MSSS) which was built in the 1960s and has been prioritised for clean-up by the Nuclear Decommissioning Authority.

Previously, a 22-step mechanical treatment and encapsulation process was thought necessary to manage and ultimately dispose of ILW stored in the building. But the study's findings have swept away that theory and provided the underpinning for an alternative three step solution which stores the waste in a raw form, without the need for a downstream treatment and encapsulation process.

This approach produces a waste package suitable for interim storage at Sellafield for several decades. Only a simple cap will need to be added before final disposal in any future UK



■ *Sellafield managing director Paul Foster: Genuine breakthrough in the science behind nuclear decommissioning*

underground repository.

Switching to this new method could speed up the decommissioning of the silo by four years and provide huge savings to the taxpayer. The technique could also be applied to other redundant nuclear facilities in the UK and around the world.

Sellafield managing director Paul Foster said: "The adoption of this new approach marks a pivotal moment in the journey of Sellafield Ltd.

"I am extremely proud of the role Sellafield Ltd has played in the collaborative research project, which has delivered a genuine breakthrough in the science behind nuclear decommissioning."

The adoption of a new approach to MSSS decommissioning means the winding down of the previous baseline approach, being led by contractor a.m.a.

Foster said: "As we enter an exciting new phase in the decommissioning of MSSS, I would like to pay tribute to those who carried out the pioneering work that made this possible.

"a.m.a. has demonstrated excellent leadership throughout the project. They brought together three world-class companies and quickly formed an integrated leadership team that proved to be agile, flexible and focused.

"a.m.a. brought real innovation, skills and knowledge from the beginning of the project, sharing best practice from major infrastructure projects from around the world."

The four-year study was led by the NDA, Sellafield Ltd and the National

Nuclear Laboratory, with academics from UK universities. It focused on the corrosion behaviours of magnesium and uranium and shed new light on the long-term hazards these materials pose to people and the environment.

Its conclusions suggest that previous estimates about the level of treatment required to form protection against the dangers posed by these waste were overly conservative.

Scientists now believe a safe and secure waste package suitable for interim storage at Sellafield and final disposal in an underground repository can be produced using a far more straightforward approach.

Radioactive Waste Management Ltd, the organisation responsible for designing and operating an underground repository for higher-activity wastes, has confirmed these waste packages would meet the acceptability criteria for the facility.

An added benefit of the alternative approach is the reduction in "secondary wastes" created during the treatment phase, resulting in an estimated 10% fewer waste packages being produced during the decommissioning of MSSS.

The previous plan for the safe management of this waste involved the development of the Silos Direct Encapsulation Plant (SDP).

This project has already been ramped down to essential spending only, as the new strategy matured. Now that a final decision has been taken, the SDP project will be terminated.