Introduction

The Japanese earthquake and ensuing tsunami are of unprecedented scale and proportions and the people of Japan are experiencing some extraordinary challenges. EDF Energy, along with our colleagues in EDF in France, are unified in solidarity with our colleagues in Japan and the global nuclear community in facing the challenges posed by this situation in relation to the Fukushima accident. We are united by the need to react, and act, in a highly responsible way, understanding and learning from the facts and acting on them with humility and leadership.

EDF Energy has reviewed the Chief Inspector’s Interim Report (published 18 May 2011) and considers it to be objective and balanced in scope and evidence based. Whilst these are interim findings, they provide a clear endorsement of the safety culture and performance of the UK nuclear industry. We also welcome the interim conclusions that no significant weaknesses have been revealed in the UK nuclear licensing regime, operation of existing plants does not need to be curtailed and the sites for new nuclear power stations remain valid. Clearly there are important lessons from this event and the 26 recommendations within the Interim Report identify the relevant areas. We consider assessment and resolution of these recommendations is vital to the continued development of the Nuclear Industry within the UK and we are already starting to implement the recommendations.

In addition to supporting the Interim Report, we have already taken immediate actions to check our back up systems, organise refresher training for employees and we are reviewing our Emergency Plans. We have also begun our longer term planning and have put in place arrangements to ensure that any learning from Japan is fed into our safety processes. The Nuclear New Build management team has also taken pro-active steps to understand the learning from Fukushima and incorporate it into the UK EPR.

We will continue to support the Chief Inspector’s assessment and EDF Energy are looking to take a leading role in engagement with ONR, DECC, and other members of the UK Nuclear Industry in assessing all of the Recommendations to ensure the most effective improvement for the industry.

The EDF Energy response covers both the existing and the planned new nuclear plants and is provided in the attached tables and work programmes using the general
layout agreed between UK nuclear companies. Separate updated tables and programmes for this update have been provided for the existing and new build plants as the challenges are different for operating plants and new build businesses where the design is only just being developed.

In addition, EDF Energy is supporting the Stress Tests that have been requested by the Council of the European Union. It is intended to build upon the synergies between the Stress Tests and the Interim Report Recommendations in planning the work. The responses provided below have recognised this interaction.

**Background to EDF Energy**

EDF Energy is one of the UK's largest energy companies and it is the largest producer of low-carbon electricity. A subsidiary of the EDF Group, one of Europe's largest energy groups, we generate around one fifth of the UK's electricity and employ around 15,000 people. We supply electricity and gas to around 5.5 million residential and business customers, making us the biggest supplier of electricity by volume.

Our Existing Nuclear business operates eight nuclear power stations (15 reactors) in the UK with a combined capacity of almost 9,000 megawatts – electricity that is vital to the UK economy. Our Nuclear New Build programme is tasked with the delivery of a new generation of nuclear plants at Hinkley Point in Somerset and Sizewell in Suffolk, to provide a vital contribution to the UK's future need for clean, affordable, secure energy.

In its nuclear activities EDF Energy has partnered with Centrica, which has a 20% stake in the company’s eight existing plants and in the project carrying out pre-development work for nuclear new build. Centrica also has the option to take up to 20% stakes in each of the four planned plants. EDF Energy has prepared this response on behalf of the joint venture between our two companies.

As a UK nuclear operator and energy company, EDF Energy and Centrica consider it essential to respond to the Chief Inspector’s Report by providing robust, high quality responses to the Recommendations.

**Existing Generation**

As an operator of existing nuclear facilities at our 8 locations in the UK EDF Energy has a unique position within the UK Electricity generating sector. As such it is vital for us to respond fully to the recommendations set out in the interim ONR report.

Following industry events the company has responded proactively to the learning gained and implemented changes to enhance the robustness of our facilities. We will apply the same degree of rigour in gaining all learning from the current events in Japan and applying this to our operating plants as part of our process of continuous improvement.
EDF Energy Existing Nuclear operates 15 reactors on 8 sites in the UK. 1 Pressurised Water Reactor at Sizewell in Suffolk and 14 Advanced Gas cooled Reactors at sites at Hinkley Point, Somerset, Heysham in Lancashire, Torness and Hunterston in Scotland, Hartlepool on Teeside and Dungeness in Kent.

The PWR station was commissioned in 1995
The AGR stations were commissioned over the period 1976 to 1988

The stations were designed and licensed to operate against standards appropriate at that time.

Throughout their respective lives the stations have been subject to regular, formal review of their basis of design in the form of safety case reviews. These reviews form an essential and mandatory part of the UK legislative framework for nuclear facilities.

This periodic safety review (PSR) process maintains the safe design of the current stations and has resulted in several upgrades across the fleet in the period between commissioning and the present day.

All the stations apart from Heysham 2, Torness and Sizewell B have already had their operating lives extended beyond their original accounting lives. This has been carried out by the application of a thorough Plant Lifetime Extension (PLEX) review process to ensure both continued safety and commercial viability prior to the formal life extension decision.

We have established close working arrangements with our colleagues in the wider EDF Group to ensure we maximise the learning possible from the events in Japan. We will continue to share approaches across our Group and through this we will seek to maximise the learning we get from the events, whenever information becomes available.

EDF Energy Existing Nuclear has established systems and processes designed to manage the review of learning through to the development and implementation of opportunities for improvement across our fleet of stations. This forms part of our processes for continual improvement and we remain committed to using these robust systems and processes as part of this current learning and review process. Throughout this activity we will remain in close contact with ONR through our normal channels of communication in order to maintain a good level of understanding of both intention and progress with regard to any improvements identified.

We would, of course, expect to be subject to routine regulatory oversight and scrutiny as part of these arrangements.

We are currently in the phase of self questioning based on our understanding of the events in Fukushima- within this phase we are incorporating the recommendations from this interim report and the wider EU stress test process. Once this period of questioning and challenging is concluded we will be able to bring forward robust plans
to implement the learning from these processes. We indicate within our responses the times/dates when we will be in a position to share these forward plans and we remain committed to ensuring that we meet these dates.

**New Build**

The EDF Energy new build programme is currently developing its design and safety justification for the new EPR plants at Hinkley Point in Somerset and Sizewell in Suffolk. However, construction has not yet started and this provides an opportunity to learn from the event in Fukushima with the key aspects being fed into the design as it develops, providing a safer design.

The main buildings and processes of the EPR power plant are being assessed by the ONR through the Generic Design Assessment (GDA) process. The EPR design has been developed by EDF Group and AREVA with the intent of making it available for use in the UK by any licensed power plant operator. It is intended that EDF Group and AREVA, acting as Requesting Parties will make a separate response to the Interim Report on the EPR design to ensure the GDA process can be completed correctly within its arrangements and the design remains available to all UK licensed operators.

In developing the EPR for building at its sites in the UK, EDF Energy, as the intended Licensee, will review the work under the GDA process to ensure it understands the content and to re-confirm it is safe and appropriate for use within the UK. This includes ensuring the assumptions within the GDA remain valid for the selected sites. EDF Energy is also directly responsible for those site specific areas that fall outside the GDA scope and will secure the design and safety case assessments in these areas. In performing all these activities EDF Energy will ensure safety is maintained as a key objective and that the work recognises the lessons learnt from Fukushima, including those areas covered by the Interim Report. It is intended to use both deterministic and probabilistic approaches in assessing the design to ensure it is robust under extreme conditions. This ensures a complete assessment and consistency with the approach adopted in the Stress Tests.

The design for the UK EPR is still being developed. It is intended that the impact from the recommendations in HM Chief Inspector’s Interim Report and from the Stress Test assessments will be fed into our normal design process and the outcomes will be reflected in the Pre-Construction Safety Reports (PCSRs) that will support the progressive construction process. These PCSR submissions are produced by EDF Energy and reviewed by ONR, with satisfactory completion of that review necessary for the defined construction processes to proceed. Hence this process ensures that the requirements of Interim Report and Stress Tests are fully incorporated in the design, producing an improved and safer design. It also means that construction can not occur without EDF Energy and the ONR being content that the impact of the Interim Report and the Stress Tests has been reflected in the design and safety case.
All of the work performed by EDF Energy’s Nuclear New Build will be discussed with ONR through normal communication channels and will be subjected to full regulatory oversight and scrutiny from the ONR.

Concluding Statement

The events at Fukushima will have a profound impact on the way the nuclear industry operates in years to come. As a UK nuclear operator, EDF Energy welcomes HM Chief Inspector’s Interim Report and provided responses to the Recommendations on 17th June, followed up by this update on 31st July, to ensure this event provides a positive input to future operation of our plants in the UK.

The response covers both our Existing Nuclear and New Build businesses along with an associated programme for developing the work further.

At this early stage, we recognise that the UK Nuclear industry will need to carefully assess and make appropriate changes in several key areas including:

- Continuing to improve open, transparent & trusted communications and relationships with key stakeholders
  - Demonstrating through our actions that we can be trusted to act to the highest professional standards and responding to events such as Fukushima with humility and leadership
- Enhancements to on site resilience to the effects of major events
  - Reviewing and improving local protection systems for key plant areas.
  - Recognising the cultural and organisational aspects for workers having to take actions on the site
- Provision of off site emergency back up equipment that can be readily connected to the plant
  - Provision of robust and diverse means of providing emergency cooling and/or electrical supply which can be easily connected to the plant following an emergency
- The potential impact of abnormal natural events on local & national infrastructure
  - Particular consideration to be given to the level of self sufficiency of the sites following extreme events
- Emergency planning arrangements to respond in extreme situations
  - As the UK’s leading Nuclear Power Plant operator we want to support the work of the Nuclear Emergency Planning Liaison Group (NEPLG) in implementing a review which ensure all relevant learning from Fukushima is applied to UK arrangements

More generally, we need to set out how we will deal with the personal aspects for the workers and public in terms of the physical, emotional, cultural and societal impact of a massive disruption to infrastructure. In addition, how will we take into account the cultural revolution in information technology and digital communications our society relies on more and more.
We see responding to these issues and the broader Recommendations in the Interim Report as a key step in continuing to support the maintenance of high safety standards and this is an approach we wish to support, including the stated intent to conduct this process in an open and transparent manner.

EDF Energy is determined to be supportive throughout the process and is committed to playing an active and leading role in the lessons learnt exercise to ensure our plants will continue to be operated safely and contribute to making the UK a low carbon economy.