



Office for  
Nuclear Regulation

# **Chief Nuclear Inspector's Inspection of NNB GenCo Ltd.'s Supply Chain Management Arrangements for the Hinkley Point C Project**

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# Chief Nuclear Inspector's Inspection of NNB GenCo Ltd.'s Supply Chain Management Arrangements for the Hinkley Point C Project

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# 1. Foreword

The Office for Nuclear Regulation's (ONR) overriding purpose is to hold the nuclear industry to account in order to keep the public safe. To operate a nuclear plant in Great Britain, a range of regulatory permissions are needed from ONR to allow construction, commissioning, and subsequent plant operations to commence. This helps ensure that facilities meet our regulatory expectations, maintaining the high standards of safety required under UK law.



**Mark Foy**  
Chief Nuclear Inspector

This was our first Chief Nuclear Inspector's themed inspection, referred to in this summary report as a 'CNI Inspection'. These new inspections are designed to examine regulatory matters that are strategic or broader in nature than our more routine regulatory inspection activities and this report is intended to provide our stakeholders with an easily readable summary of the inspection, its findings and overall conclusions.

CNI Inspections are intended to raise awareness of important issues and highlight our regulatory activities and expectations to a wider audience, in addition to the nuclear industry. They will be delivered on a regular basis – over and above our normal regulatory activities, which include approximately 1,000 inspections each year across licensed nuclear sites and transport dutyholders.

The first themed inspection has examined whether NNB GenCo (HPC) Ltd.'s supply chain management arrangements for ensuring the quality of structures, systems and components supplied to Hinkley Point C<sup>1</sup> are fit for purpose. The inspection was instigated as a consequence of the records falsification issues that emerged during 2016 at Areva's Creusot Forge facility<sup>2</sup> in France - a key supplier to the Hinkley Point C Project.

In doing so, my inspection team did not form a view on the broader Hinkley Point C project, but was instead seeking assurance on the adequacy of arrangements in a focussed area where potential shortfalls had previously been identified.

The team noted improvements have been made since 2016 but it also identified that further work is required to ensure adequate quality management system arrangements are consistently embedded across the wider project, raising regulatory issues where shortfalls were identified.

It is important to note however, that there are no current risks to public safety arising from our inspection findings. Importantly, the inspection was timed to allow NNB GenCo to respond to any identified shortfalls in a timely manner, prior to acceleration in both construction and manufacturing activity at the Hinkley Point C project.

This ability to shape future safety is a key role for a modern, responsive safety regulator and the CNI Inspection is an effective means for us to demonstrate that we are delivering against our strategic themes of 'Influencing improvements in nuclear safety and security' and 'Inspiring a climate of stakeholder respect, trust and confidence.'

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<sup>1</sup> NNB GenCo, or Nuclear New Build Generation Company (HPC) Ltd, is the nuclear site licensee for the Hinkley Point C project. The company is a wholly owned subsidiary of EDF Energy.

<sup>2</sup> The Le Creusot Forge facility was operated by Areva at the time of inspection. It is now operated by Framatome.

Inspection activities involved a total of 11 ONR inspectors in both England and France. I am extremely grateful to our French regulatory colleagues at the Autorité de Sûreté Nucléaire (ASN) for their support in achieving our inspection objectives. This is another example of the close working relationships that we have with fellow national regulators and the benefits that it brings to nuclear safety. It is also worth recognising the co-operation and commitment to the process that was demonstrated by the Hinkley Point C site licensee, EDF NNB GenCo (HPC) Ltd (referred to as NNB GenCo) and its key supplier Areva.

Finally, we always welcome feedback from all our stakeholders on how we might improve and how we might communicate better in the future. Please let us know your thoughts at [contact@onr.gov.uk](mailto:contact@onr.gov.uk)

## 2. The CNI inspection of supply chain for Hinkley Point C

ONR's new CNI inspections differ from more routine inspections in that they are specifically identified and commissioned by the Chief Nuclear Inspector. The purpose of the inspection is to inform the CNI's position on a specific regulatory matter that is of a strategic nature.

A CNI Inspection will usually involve engagement at a senior level and may involve multiple sites and dutyholders, as well as other stakeholders with an interest in the matter being inspected. It may, as in this inspection, include visits and engagements internationally.

This inaugural CNI Inspection of the supply chain for Hinkley Point C, was instigated in the context of the records falsification issues that emerged in 2016 at Areva's Creusot Forge facility - a supplier of key components to the Hinkley Point C project. These became apparent after the French nuclear safety regulator, ASN, confirmed that major technical and organisational shortcomings had occurred at the Creusot Forge plant.

## 3. ONR's intervention

In light of these issues, ONR proactively sought to scrutinise the supply chain management arrangements for the Hinkley Point C project, working closely with ASN with whom we have bilateral working arrangements.

In late 2016, ONR participated in a multinational inspection of Areva's Creusot Forge led by ASN as part of the international Multinational Design Evaluation Programme (MDEP). The MDEP had targeted the ACF facility due to regulatory concerns regarding historic product record irregularities. The international MDEP inspection identified shortfalls in Areva's quality management arrangements and the adequacy of their corrective action plan.

As a result of these shortfalls, a focussed executive level meeting was held between ONR and NNB GenCo in February 2017 and was considered an initial step in rebuilding confidence in NNB GenCo's arrangements. NNB GenCo subsequently wrote to the ONR Chief Nuclear Inspector detailing its improvement action plan and associated governance arrangements.

This CNI Inspection was instigated to examine the robustness of NNB GenCo's supply chain management arrangements in light of these commitments, focussing on oversight and assurance arrangements as well as progress against the improvement action plan.

NNB GenCo is currently undertaking work associated with design, construction and early manufacturing activities for Hinkley Point C. Although arrangements for control of quality are judged, through ONR's wider regulatory activities, to be appropriate at present, this inspection has identified a number of areas where improvements are required to ensure this position is robustly maintained as the project progresses and the volume of work and resources required increases.

The targeted inspection was undertaken during the early stages of construction and manufacturing to allow ONR to reinforce its regulatory expectations and allow NNB Genco to address any identified shortfalls prior to acceleration of both construction and manufacturing activity in support of the Hinkley Point C project.

## 4. Inspection activities

The inspection consisted of four interconnected elements beginning at Areva's Creusot Forge and progressing to the Hinkley Point C construction site to assess the effective deployment of lessons for other key project contractors.

ONRs activities were carried out in October and November 2017 over four sites:

- Areva's Creusot Forge,
- NNB GenCo's Delivery and Command Centre in Bristol,
- Hinkley Point C construction site, and
- NNB GenCo's Engineering Command Centre in Paris.

In total, 11 ONR inspectors undertook the inspection activities over seven inspection days.

The outcome of all four elements informed the judgements and conclusions of the overall CNI Inspection which has been recorded in an [ONR Intervention Record](#) in line with our normal regulatory practices.



Image courtesy of EDF Energy 2018



## 5. Summary of key findings

ONR believes that good progress has been made by NNB GenCo and its key supplier Areva Creusot Forge in deploying their improvement programme - including enhanced manufacturing processes, management system arrangements and safety and quality culture.

ONR concluded that further work is required to ensure that adequate quality management system arrangements are consistently embedded across the wider Hinkley Point C project, but also recognised the commitment by NNB GenCo to continue to deliver its improvement action plan to achieve this.

For this reason, ONR has rated the overall inspection finding as 'amber'. This means that some arrangements are below standard and ONR is seeking improvements against a number of Regulatory Issues that have been raised under Licence Condition 17 (Management Systems).

Timely resolution of the issues identified in this inspection will ensure adequate arrangements are properly implemented across the project and contribute to NNB GenCo's aim of quality 'right first time' delivery.

## 6. Specific themes identified

The key findings and judgements of the CNI Inspection can be most appropriately defined against six key themes listed below.

The first theme reflects the positive progress made by NNB GenCo and its key supplier Areva against their improvement programmes.

The remaining five themes represent deficiencies in arrangements and a Regulatory Issue has been raised by ONR against each, defining the required improvement activity. It is ONR's view that they highlight deficiencies in NNB GenCo's management system arrangements.

ONR will track these issues to completion and engage with the licensee to ensure they are addressed in line with our regulatory expectations, ensuring that the high standards expected to ensure nuclear safety are maintained.

### Theme 1: Areva's improvement programme

Overall, ONR is broadly satisfied with the enhanced management system arrangements at Areva Creusot Forge. The inspection team concluded that Areva and NNB GenCo had made good progress in deploying their improvement programme and had enhanced their manufacturing processes, management system arrangements and the facility's nuclear safety and quality culture. However, as the improvement programme is not yet fully deployed, the enhanced arrangements have yet to be fully embedded and will therefore require continued drive and appropriate oversight and assurance from NNB GenCo as the 'Intelligent Customer'.

### Theme 2: Learning associated with shortfalls at ACF

The effective deployment of lessons learnt to other key contractors was a key element of the CNI Inspection. Evidence was not provided during the inspection to demonstrate how NNB GenCo had captured all key learning from the issues associated with the failings at Areva Creusot Forge and ensured effective dissemination to key contractors interviewed as part of this inspection.



### Theme 3: Supply chain self-assessment improvement programme

NNB GenCo's own Supply Chain Improvement Programme examined during the inspection requires further development to ensure it is effectively prioritised, time-bound, resourced and better aligned to the project schedule and associated regulatory permissioning points. We also concluded that the plan requires enhanced project-wide governance and leadership to ensure effective delivery.

### Theme 4: Quality Management System shortfalls

The CNI Inspection found shortfalls in NNB GenCo's quality management system arrangements related to supply chain management activity. Some shortfalls had been identified during NNB GenCo's supply chain self-assessment activity performed in advance of the inspection. However, we identified further shortfalls related specifically to: inspection and test plans; internal assurance; and supply chain assurance activity. Addressing these issues should ensure that effective quality management system arrangements are maintained across the project as it accelerates and the work and number of contractors on site increases.

### Theme 5: Roles and responsibilities for quality

We found that there was a lack of clarity over the project-wide leadership of NNB GenCo's quality organisation, this included responsibility for establishing an effective management system and communicating the quality standards, roles and responsibilities across the project to ensure 'right first time' delivery on the construction site.

### Theme 6: Internal assurance activities

Given the findings of the CNI Inspection, and the shortfalls identified through NNB GenCo's own supply chain self-assessment, it is evident that NNB GenCo needs to consider the effectiveness of its current project assurance arrangements and identify areas for improvement.

## 7. Conclusion

This inspection was performed in the early stages of NNB GenCo's construction and manufacturing programmes. The timing will allow NNB GenCo to address the identified shortfalls prior to the build-up of increased levels of construction and manufacturing activity at Hinkley Point C.

Alongside the good progress in deploying the improvement programmes at Areva Creusot Forge and NNB GenCo, the inspection has identified five thematic shortfalls which will each be tracked to closure through an associated ONR Regulatory Issue. The resolution of these issues will help mitigate the risk of substandard manufacture and construction quality, and potential impacts to the construction schedule and ONR's project permissioning decisions.

For each of the five Regulatory Issues raised, detailed corrective actions will be agreed with NNB GenCo that will identify specific action and delivery dates. ONR will continue to monitor NNB GenCo's progress against its commitments during future regulatory assessment work associated with key project permissioning points.

ONR considers that, with the correct application, NNB GenCo will be able to implement the required improvements and close the five Regulatory Issues in advance of our regulatory assessments associated with the Nuclear Island Concrete permissioning point planned for later this year. Timely resolution of the identified issues will reduce project risk, contribute to ensuring product quality and 'right first time' delivery, thereby ensuring that the high standards expected to ensure nuclear safety are maintained.