

# PREDICTING THE PRICE OF CARBON

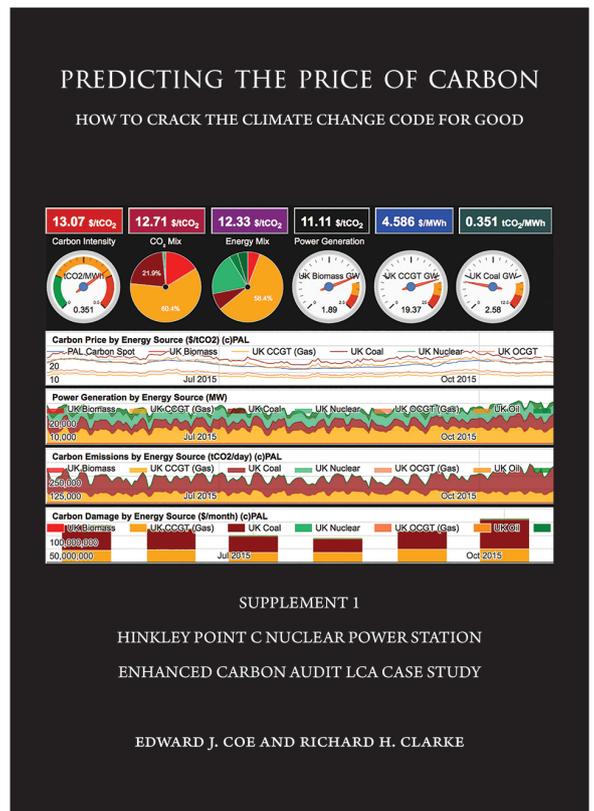
## Supplement 1: Hinkley Point C Nuclear Power Station Enhanced Carbon Audit LCA Case Study

Uniquely, in today's emerging arena of carbon auditing, Predict Ability Ltd (PAL) offers future-proofed carbon-pricing relevant to every industry as well as all existing and future energy sources. PAL's new development is called 'Enhanced Carbon Auditing' (ECA) and far exceeds the reach of conventional carbon-auditing remits, by quantifying the associated financial impact throughout the Life Cycle Assessment (LCA) – currently and, most notably, to 2050 and beyond.

The credibility of low-carbon energy and renewables technologies rests, to a significant extent, on their life-cycle carbon intensity (kg-CO<sub>2</sub>/MWh). A cradle-to-grave or life-cycle analysis of the emissions that arise from both the manufacture and operation of plant is compared to its energy output. It is important to conduct an LCA for a near-zero-emissions technology, as most of the emissions are embedded in the machinery and supply chain.

In this comprehensive Supplement we apply ECA specifically to the proposed Hinkley Point C installation, to determine its individual and time-dynamic carbon rating, directly proportionate to the loss and damage caused throughout each phase of its lifetime: construction, commissioning, operation, refits and decommissioning. We quantify and compare this with

an energy-equivalent series of gas-fired power plants, and also with an alternate plan for wind turbine installations equal to the dispatchable output of Hinkley Point C. Furthermore, in graphical format, we pitch PAL's carbon pricing methodology directly against various existing schemes including EU ETS, McDermott MCPA 2014, the US Social Cost of CO<sub>2</sub> (US\$ccCO<sub>2</sub>), and UK CP Floor.



In summary, PAL's Enhanced Carbon Audit demonstrates that:

- ▶ Hinkley Point C's reduced CO<sub>2</sub> emissions – i.e. their consequent loss and damage across the planet – save UK one-third of its estimated lifetime costs, when compared to those of its energy-equivalent gas base load alternatives
- ▶ The environmental benefits from Hinkley Point C compared to the gas powered alternative have huge fiscal savings, specifically monetised in this Enhanced Carbon Audit
- ▶ Existing carbon-pricing systems fail to account fully for the 'invisible' carbon footprint associated with the manufacture of clean technologies
- ▶ PAL's 'carbon intensity weighting' system is the only fair and credible methodology for a full and accurate LCA of Hinkley Point C and its alternatives

The Hinkley Point C Nuclear Power Station: Enhanced Carbon Audit LCA Case Study is Supplement 1 to *Predicting the Price of Carbon: How to Crack the Climate Change Code for Good*. If you would like to receive a copy of Supplement 1, please apply by email to [edward.coe@predictability.ltd.uk](mailto:edward.coe@predictability.ltd.uk).

### **About Predict Ability Limited (PAL)**

PAL specialises in Enhanced Carbon Auditing. Chapter 7 of *Predicting the Price of Carbon* by Richard H. Clarke, Director (Research) at Predict Ability Limited, sets out the full methodology by which PAL determines its primary price called *PALcarbon*. This is derived from the *PALgamma* algorithm that predicts the number, type and cost of disasters world wide. These losses are scaled, as explained in *Predicting the Price of Carbon* to determine the global, overall losses from weather-related incidents (roughly \$5trillion per year).

PAL has developed a method to determine the extent to which events can be attributed to anthropogenic (manmade) emissions of CO<sub>2</sub>. This is called REACT – reinsurance event attributed carbon tax – and it combines the various categories of losses with the appropriate 'global attribution factors'. REACT uses the global temperature anomaly (global warming) to determine the global attribution factor.

PAL has encoded these methodologies into its real-time, online product suite *PALgamma* and *PALcarbon*.



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