



Case & Project Experience

Contract Revisions Due to Electricity Market Reform

Overview

When the UK Government introduced the New Electricity Trading Arrangements (NETA) in 2001, it abolished the rules and institutions on which existing power purchase agreements (PPAs) relied. In particular, the “Pool Purchase Price” had previously acted as a reference price for settlement of financial “contracts for differences”. Under NETA, it ceased to be published. Most generators and customers adopted an alternative method of settling their PPAs but a few, especially those with contracts that were out-of-the-money, chose to dispute (a) whether the contract could be carried over into NETA and (b) who should bear some of the new charges arising under NETA.

Background

By 2003, some of these disputes had reached the stage of arbitration or “Expert Determination” (an alternative method of dispute resolution). In one of these “determinations”, NERA was hired to provide expert reports on behalf of a generator (here called “GPL”) in dispute with its customer, an industrial plant (“LIC Ltd”). The generator was located on the site of the customer, enabling it to claim certain benefits for being “on-site” or “embedded”. LIC Ltd paid all of GPL’s costs, met its own consumption needs from the plant’s output, and received any sales revenue from output above its consumption. From the introduction of NETA, this excess output sold to the market attracted a number of variable (£/MWh) charges for using the transmission grid. A key dispute arose over which contract party would be liable under the PPA for the additional variable charges imposed by NETA.

Case Details

The original contract allowed GPL to sell all its output to the Pool, at the Pool price, but required GPL to hand over to LIC Ltd all revenues from the Pool in return for payments defined in the contract. Under NETA, such financial settlement mechanisms became difficult to apply, because of the lack of a similarly defined Pool price. It might be possible to construct a substitute index from electricity market reports. However, such an index would inject some ‘basis risk’ – the risk that either contract party’s revenues or costs of electricity trading would fail to match the ‘basis’ of the index. Faced with this risk, most parties to a PPA preferred to adopt the conventional “NETA-style” method of settlement, which assigns the physical output of a generator to the “balancing account” of the buyer. The buyer can then offset this output against its own consumption, or sell it on to other traders, in order to minimise its “imbalance charges” at the end of each half-hour.

In this case, the buyer, LIC Ltd, was asking for further concessions, on the grounds that adopting “NETA-style” settlement would expose it to new and additional costs. In particular, LIC Ltd argued that GPL should bear the charges for transmission losses and ‘Balancing and Settlement Use of System’ (BSUoS), for which generators only became liable under NETA. The case went to “Expert Determination”, in which an “Expert” is charged with deciding how to resolve the dispute. To help this “Expert”, GPL asked NERA Director Graham Shuttleworth to provide an expert report on the proposals.

NERA's Role

NERA's role in this case was two-fold: first, to explain how NETA had affected electricity prices; and second, to advise whether, and if so how, the contract should be amended in the light of NETA's effects, to fulfil its original commercial intent.

Both sides underpinned their arguments with descriptions of how NETA affected electricity prices. LIC Ltd maintained that NETA had (permanently and significantly) lowered electricity prices and hence the value of the contract. LIC Ltd therefore argued that its contractual payments to GPL should be reduced, to maintain parity with the value of the original contract. GPL maintained that LIC Ltd's reasoning was false, since NETA produced market prices, just as the Pool did. Each side had assembled a range of quotations and statistical analyses to support their case. NERA was required to make sense of this conflicting evidence, for the benefit of the Expert charged with making the determination.

In his report, Mr Shuttleworth explained how NETA had replaced one method of remunerating generators with another. In particular, NETA abolished the explicit payments for 'capacity', which had been a feature of the old Pool Rules. However, Mr Shuttleworth explained that generators would still need to recover the costs of capacity (i.e. the investment costs of building generator plant). Prices under NETA would therefore rise in the future to cover these costs and Mr Shuttleworth described the market mechanisms that would cause such an increase to occur.

Mr Shuttleworth also discussed the effect of reallocating transmission losses and 'BSUoS' charges to generators. Calling upon the conventional economic theory of tax incidence, he explained how these charges would lead to an increase in electricity prices. Thus, LIC Ltd would be compensated for bearing these costs by receiving a higher price for selling GPL's output to the market. Thus, no further amendment of the contract terms was required.

In a hearing before the appointed Expert, LIC Ltd produced a witness willing to testify that the rise in electricity prices was not visible in the market and might not occur. However, calling upon his knowledge of the industry and of tax incidence theory, Mr Shuttleworth was able to explain why one could expect these costs to be "passed through" into electricity prices and why the effect might be masked by other changes in market conditions (which were not relevant to the case).

Giving clear and concise replies in cross-examination, Mr Shuttleworth was able to rebut the opposing witness's view and to explain why statistical evidence presented to the Expert might be inconclusive, despite the strength of the underlying economic effect. The Expert asked Mr Shuttleworth if one would expect to see the effect in statistical analysis that 'took all the factors into account.' To this (hypothetical) question, Mr Shuttleworth was able to answer 'yes' with the conviction that comes from reliance on sound economic theory.

Outcome of the Case

The outcome of the determination was a resounding victory for GPL. The Expert agreed with GPL's arguments on all substantive matters and decided that the contract could be converted to "NETA-style" settlement without amending the (net) contractual payments, thereby preserving the value of the contract for GPL. The client said: "NERA's role as an expert witness was fundamental to the Expert's appreciation of the strength of our case."

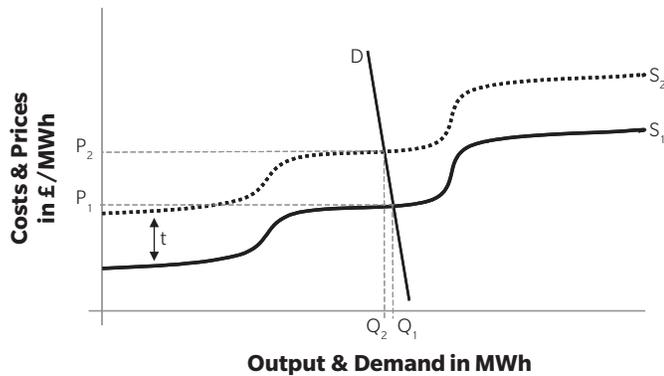
How Markets Work: The Incidence of New Charges

Figure 1 shows the relationship between output or demand (measured in Megawatt-hours on the horizontal axis) and costs or prices (in pounds per Megawatt-hour on the vertical axis). It illustrates how an additional charge per unit of generation fees through into electricity prices.

The line marked S_1 shows the variable costs of different generators, arranged in ascending order, so that at low levels of output it is possible to select only low cost generators. As demand rises, so it becomes necessary to select ever more expensive generators. The 'steps' in the line indicate a shift from one technology (e.g. gas-fired) to another (e.g. coal-fired).

The line marked D illustrates the level of demand in a particular period. It slopes downwards from left to right, because higher prices normally cause the volume of demand to fall. However, demand for electricity is notoriously unresponsive to market prices, so the line is very 'steep', indicating that demand falls very little when prices rise.

Figure 1: Incidence of a New Charge per Unit



Given a set of generators with costs of supply defined by S_1 and a demand defined by D , competition will drive the price to the market-clearing level at P_1 (at which willing suppliers provide just enough to match demand from willing customers).

However, if generators face a new cost or charge of $\text{£}t$ per MWh, the curve indicating their costs of supply rises to S_2 . The new market-clearing price is P_2 .

The extent to which the new charge fees through into prices depends on the relative slopes of S_1 and D . However, given that S_1 is near-horizontal and D is near-vertical (at least where these lines cross), the effect is virtually complete pass-through.

About NERA

NERA Economic Consulting (www.nera.com) is a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. For over half a century, NERA's economists have been creating strategies, studies, reports, expert testimony, and policy recommendations for government authorities and the world's leading law firms and corporations. We bring academic rigor, objectivity, and real world industry experience to bear on issues arising from competition, regulation, public policy, strategy, finance, and litigation.

NERA's clients value our ability to apply and communicate state-of-the-art approaches clearly and convincingly, our commitment to deliver unbiased findings, and our reputation for quality and independence. Our clients rely on the integrity and skills of our unparalleled team of economists and other experts backed by the resources and reliability of one of the world's largest economic consultancies. With its main office in New York City, NERA serves clients from more than 25 offices across North America, Europe, and Asia Pacific.

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