UNIVERSITY OF CAMBRIDGE
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Financing the Nuclear Renaissance

EPRG Working Paper 0814

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This paper considers the key economic risks associated with nuclear power. The cost structure of nuclear power differs significantly from that of fossil-fuelled electricity. In the case of nuclear the majority of costs are associated with the construiction phase whereas for gas-fired power the bulk of the costs relate to the purchase of fuel. Nuclear energy planning forces long-term considerations of at least 90 years. From the idea to build a plant there could be five years of administrative approvals followed by five years of construction. Once completed the plant can be expected to run for 60 years before being shutdown and then decommissioned over a 20 year period. Within this 90 year envelope it is the five year period of construction where the economic risks are concentrated. Operational nuclear power plants have already cleared that risk and hence are more attractive targets for initial investment than new build projects. The authors suggest that the first glimmers of a US nuclear renaissance were visible in 2000 when dramatically higher prices were achieved for second-hand nuclear power plants following a period of depressed prices in the 1990s. The paper closes with a consideration of the prospects for nuclear new build in both Europe and the United States and notes that the US approach of a subsidy for early projects may, in a sscenario of sustained high fossil fuel prices, be sufficient to launch a nuclear renaissance without the need for greenhouse gas emissions charging. Emissions prices are the dominant driver of the nuclear renaissance in Europe where the is strong opposition to subsidy for new nuclear power plants.

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