

08-02 **Holt, Lynne, Paul Sotkiewicz, and Sanford V. Berg.** 2008. “(When) to Build or Not to Build?: The Role of Uncertainty in Nuclear Power Expansion.” *Texas Journal of Oil, Gas, and Energy Law*, 3(2): 174-214.

<http://www.tjogel.org/archive/Vol3No2/Holt.pdf>

## **Abstract**

With concerns over global climate change, U.S. policymakers are exploring ways to reduce domestic dependence on coal and natural gas. No new nuclear plants have been ordered since 1978. However, federal and state policies and legislation have attempted to reduce risks to nuclear plant developers or re-allocate them to customers and to improve expected returns from investments in nuclear energy capacity. Past regulatory decisions and court decisions also have implications for cost recovery. Investments in nuclear power plants are irreversible and involve uncertainties during both construction and commercial operation. Uncertainties confronted by developers of merchant plants and price-regulated plants differ due to the regulatory and market paradigm in which these plants operate. Texas and Florida provide useful case studies in their respective policies toward new generation, including nuclear generation. Texas has a largely restructured electricity market, and Florida's power generation is subject to traditional rate-of-return regulation. In particular, the regulatory/market framework affects both the expected returns on investment and the likelihood and timing of the recovery of investments made in nuclear plants. The effectiveness of current federal and state policies will depend on the developers' perceptions of how risks associated with uncertainties during construction (including those uncertainties surrounding changing governmental regulations) affect construction costs, how risks linked to revenue and operating uncertainties during a plant's commercial operation affect the timing and potential for cost recovery, and ultimately how these risks affect the decision to build nuclear plants. These risks undoubtedly matter to developers whose reputations may be affected by the long-term financial viability of such projects. We use an option value model developed by Robert Pindyck (1993) and extend that model to explain the uncertainties facing prospective developers of nuclear plants. We conclude with several observations about strategies states may consider undertaking to mitigate investment risk.

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