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The Cost of Capital for Power Generation in Atypical Capital Market Conditions

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Abstract: Determining the cost of capital in the energy sector requires considerable care. Whether being derived by firms, stock analysts, policymakers or regulators, the consequence of error is amplified because the energy sector is the world's most capital-intensive. No other cost variable has a greater impact on electricity price/costestimates. Historically, the Capital Asset Pricing Model could be applied mechanistically and produce reliable estimates for equity costs. But the Global Financial Crisis produced atypical capital market conditions and a mechanistic application will produce results that are intuitively erroneous. The model is not broken, but inputs require professional judgement and adjustment...

I. INTRODUCTION

Investing in power generating equipment involves vast financial commitments by firms due to the highly capital-intensive nature of the industry. Whether the market for electricity is vertically integrated and regulated, or disaggregated and intensely competitive, achieving an efficient allocation of capital to maximise total welfare can be greatly hindered by selecting an inappropriate cost of capital in investment decision making or policymaking.

In policymaking, if benchmarks used over-state the cost of capital, electricity prices will rise above the optimal level, consumer welfare will be adversely affected and resource allocation to other industries may be scaled-back to inefficient levels. Conversely, underestimation can lead to policy settings that benefit consumers in the short run but the associated wealth transfers adversely affect future industry investment, competition and innovation, and in the long run will

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