

## **The Impact of Liberalization and Environmental Policy on the Financial Returns of European Energy Utilities**

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### **Executive Summary**

Over the last two decades, European energy utilities have been impacted by a myriad of European Union (EU) interventions which have materially affected financial returns. Most prominently, the EU has sought to liberalize the sector in an effort to create a single European energy market. Liberalization has transformed the energy sector from one largely dominated by state owned enterprises, with vertically integrated structure and regional monopolies, to an unbundled, competitive, privately-owned energy sector. Another major EU-led reform thrust that has built up particular momentum over the last decade is related to the environmental objectives of the sector and the ‘greening’ of energy supply. This has focused on reducing demand through energy efficiency legislation and through policies that promote renewable energies. In addition, EU utilities have also been subject to a range of legislation related to enhancing security of supply. This naturally leads to the question: how have these regulatory changes impacted EU energy utilities?

In a report entitled ‘How to lose half a trillion euros’, The Economist newspaper suggests that the renewable restructuring objectives are responsible for the decline in market capitalization of €500 billion since 2008. As is well known, policymakers are asking utilities to increase their use of green-energy technologies and make massive investments in a smart, decarbonised energy grid. Simultaneously, to ensure reliable and increasingly environmentally-friendly energy supply, the International Energy Agency (IEA) projects up to \$2.2 trillion of total power sector investment is needed in the EU between 2014 and 2035. If EU policies significantly impact the returns of European utilities this can, in turn, affect utilities’ cost of capital and capital-raising ability. Put differently, the shift towards liberalization conflicts the policy objectives of enhancing security of supply and encouraging investment in low-emission generating technology, as it does not provide a sound basis for investment in the sector. We posit that additional restructuring objectives, beyond renewables, are affecting financial returns. Accordingly, we examine four major restructuring streams: Internal Energy Market, Energy Efficiency, Renewable Energies, and Security of Supply.

Research for the US has shown that deregulating the power sector exposes utilities to the profit effects of cost and demand shocks, leading to greater earnings variability and greater systematic risk. Beyond the impact on operating performance, privatization also removes government-backed debt guarantees, exposing firms to the real threat of bankruptcy and affecting the perceived riskiness of financial investment. Compliance with environmental policies can introduce non-recoverable costs to operations and force utilities to adopt relatively immature technologies, inducing technological risk.

This paper implements an event study analysis using daily data over the period 1996 to 2013. We extend the augmented-CAPM models of two papers which examine returns on the European energy utility sector (Oberndorfer, 2009; Koch and Bassen, 2013), by integrating stock-market risk factors from the four-factor model of Fama and French (1993) and Carhart (1997). The augmented-four-factor asset pricing model includes stock-market risk factors (market factor, size premium, value premium, and momentum premium), term premium, and commodities (oil, coal and natural gas). We approach the analysis using a large sample of 88 European energy utilities, controlling for survivorship bias, and compile a comprehensive list of 54 regulatory changes extracted from European law archives. We delineate the four restructuring streams to examine their individual impacts surrounding key stages of the ordinary legislative procedure. We also examine the differential impacts of 12 energy portfolios grouped on similarity of characteristics. At the time of writing, no prior study has explored the magnitude of impact for the four restructuring streams, over such a broad sample of utilities, range of variables, and time period. This paper represents the most thorough investigation to date of the impact of EU policies on the return profiles of European energy utilities.

The main results are as follows. The Internal Energy Market stream produce cumulative average abnormal returns (CAARs) of -1.32% in the early stages of the legislative procedure. The stream fundamentally changes the regulatory and operating environment of utilities. Investors will be aware that a legislative proposal is in gestation and thus it will be anticipated. The Energy Efficiency stream also induces CAARs of -1.60% in the early stages of the legislative procedure. The stream focuses on reducing energy demand by limiting the energy consumption of appliances and buildings at the user-end of the supply chain. Contrary to press, we find no significant impact for Renewable Energies at sector-level, but a strong negative reaction for hydrocarbon-intensive utilities in the early stages of the legislative procedure. We find significant CAARs of -6.25% for natural gas utilities. While we find significant abnormal returns for the Security of Supply stream, the results indicate that the stream is difficult to process and the impact is not fully known by the market.

Our results contribute to the literature by demonstrating that the press is subject to focalism; our results show a variety of restructuring streams impact energy sector returns. The evidence presented shows that utilities' risk-return trade-off has fundamentally changed as a result of sector liberalization and environmental policies. The point is not to abandon liberalization or even environmental objectives, nor is it to recommend an overhaul of the legislative procedure, but it is important to acknowledge that tension exists between different pieces of legislation and within the legislative procedure. EU institutions should bear in mind that the policy mix utilities are being exposed to is making it harder to achieve decarbonisation and security investment goals. There are potentially many ways Brussels can help, ranging from providing a stable regulatory environment to ensuring governments are co-investors or underwriters of projects. This paper' aim is to highlight that Brussels needs to ensure its policies are consistent across different policy goals. Our evidence suggests this is not the case currently.