Original research article

Socially responsible or reprehensible? Investors, electricity utility companies, and transformative change in Europe

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A B S T R A C T

The overwhelming reliance of modern society based fossil-based non-renewable sources of energy production represent a major challenge to sustainability. Moving towards a new more sustainable generation mix affects investments on electricity utility companies. This presents a dual challenge for companies: 1) the electricity generation mix decision; and 2) their future access to and cost of capital. This research focuses on the role that investors have in developing new more sustainable generation mix models. Five semi-structured interviews were conducted with investors working at a major European asset manager company. The interviewees highlighted the integration of renewable technologies as a key challenge to the viability of the utilities in the future. Other key challenges included a rising carbon price, greater decoupling of energy use and GDP growth, policy constraints and uncertain regulatory frameworks, lack of relevant core competencies to innovate in their business models, the integration of renewable energy into their own generation mixes and the grid, the role of new technologies, and a lack of urgency from top management. The findings indicate that investors play a key role in shaping electricity generation mixes, where the principal, agents, and clients must be willing to develop and adopt more sustainable generation mix models.

1. Introduction

In 2012, 86.5% of the world’s total primary energy supply was based on non-renewable fossil fuels such as coal (29%), oil (31.4%), natural gas (21.3%) and nuclear (4.8%). European OECD countries were responsible for 32.7% of total primary energy supply [1]. Electricity production accounts for the largest share (31%) of anthropogenic greenhouse gas (GHG) emissions [2], whilst nuclear, although technically emissions free, comes with issues such as security, waste disposal, and the potential for catastrophic environmental damage, as in the case of the Fukushima disaster in Japan [3]. The overwhelming reliance on high carbon, high polluting, non-renewable sources of energy production represent a major challenge to sustainability [4]. More sustainable models of global energy production, based on renewable energy, have become necessary in combating climate change and resource depletion [5,2,6].

A number of plans to reduce greenhouse gas (GHG) emissions have focused on the energy sector, with national and international policy ambitions for reducing GHG emissions, coupled with low carbon technology deployment, to achieve the required energy transformation [7]. In 2007, the EU set up a new policy framework to become a highly energy-efficient, low carbon economy [8]. When it came into force in 2009, the new legislative framework presented a number of large challenges to the electricity utility industry [9], such as: (1) the development of targets for renewable energy; (2) the cost pressure and aging of conventional power plants; and (3) the change in customer interests and their bargaining position [10]. To address these challenges, and achieve a transformation to a more sustainable global energy sector, utility companies require new models of energy generation that incorporate greater levels of renewable capacity, whilst remaining competitive in the new energy landscape [11].

Many investors have been integrating sustainability in their investment decision-making process [12], which directly affects investments in the energy sector [13]. The success with which a utility company can make such transitions affects how investors perceive the viability of investing in it [14]. Despite this, there is still limited research on the role of investors on energy utility companies’ transition towards becoming more sustainable, how the investors respond to sustainability challenges, and how their views may affect a utility company’s access to capital for each of their generation models. This paper aims to explore the role sustainability investment has in transitioning to more sustainable generation models, particularly through the
perception of investors on the European electricity utility company sector’s access to capital.

This paper is structured as follows: Section 2 reviews the literature on environmental challenges for the European Electric utilities sector, sustainability oriented investment, and agency theory; Section 3 presents the research methods used; Section 4 provides the findings; Section 5 presents the discussion; and Section 6 focuses on the conclusions.

2. Literature review

Global challenges to produce sufficient clean and cheap energy for the world’s population has led to governments beginning to implement targets for renewable energy adoption and carbon emission reduction [15]. For example, the European Union’s 2020 Climate and energy package specifies a 20% reduction in EU greenhouse gas emissions from 1990 levels, raising the share of EU energy consumption produced from renewable resources to 20% (up from 8% in 2013), and a 20% improvement in the EU’s energy efficiency by 2020 [8]. Compliance with new forms of environmental regulation tend to increase a firm’s costs [16]. Fig. 1 shows the expected trends up to 2030, where the use of renewables doubles.

Certain phenomena are expected that the increase of renewables in the energy mix will radically change the structure of the energy sector, including the way power is produced, transmitted, sold [17,18], and the transformation needed for traditional utilities companies to survive [11]. Critical to the adoption of greater levels of renewable energy technology has been the cost-competitiveness of conventional generation technologies, as well as efforts to keep energy prices low for the consumer [19]. Nonetheless, due to the increasing commercialisation of renewable technologies, some alternative energy generation technologies, such as wind and utility scale solar Photovoltaic (PV), have become cost competitive against traditional generation technologies such as coal, nuclear, and Gas Combined Cycle [20].

2.1. Challenges to the electricity utility companies

Despite increasing levels of adoption of renewable energy mixes, the volatility of renewable energy production faces two main challenges: 1) balancing supply and demand; and 2) traditional utilities plants being operated at less than their full capacity [10]. Forecasting renewable generation amounts is becoming more important, whilst new capabilities are needed for grid and power plant generation and electricity trading to balance supply and demand under increasing rates of more volatile renewable energy [21]. The rise of renewable energy has also had the consequence of causing the larger, traditional fossil fuel power plants to be operated under partial load for long periods, due to the priority given to renewable energy on the grid, meaning they are unable to reach their fully efficiency and earning potential [10].

The European Union Emissions Trading System (EU ETS) has also increased pressure to the energy sector. This system was designed to ‘promote greenhouse gas reductions in a cost-effective and economically efficient manner’ [22]. It is aimed at reducing carbon emissions by allocating a financial cost to those who emit them [23] in the form of European Union Allowances (EUAs). The system is the biggest international system for trading greenhouse gas emission allowances and covers more than 11,000 power stations and industrial plants in 31 countries [24]. The EU ETS is built on the principle of ‘cap and trade’, where companies receive or buy emission allowances that they can then trade with one another as needed within the total number of permits made available by the government. If a company emits more than it has permits to cover, heavy fines are then imposed [25]. The direct financial impact of carbon pricing schemes on utility companies is still unclear [23], and may not provide strong incentives for low-carbon investment. Nonetheless, increases in carbon dioxide prices are likely to negatively affect companies with large amounts of thermal generation in their portfolios, as it becomes more expensive to emit carbon [26].

Utility companies’ access to capital is another key challenge in ensuring a successful sustainability transition [27]. Although large investments have been made in recent years to transition the sector towards a more sustainability orientated state, the International Energy Agency (IEA) estimates that an additional investment of $7.6 trillion through to 2040 will be required from countries in the Organization for Economic Cooperation and Development (OECD) to meet the rising challenges apparent in the sector [27]. Europe’s electricity utility companies must adapt to changing market conditions, and the success with which each company can transition to a more sustainability orientated state markedly affects how investors view the viability of investing in each company [14].

Although most major asset and fund managers have introduced specific sustainability funds for specific clients, the explicit incorporation of environmental, social, and governance (ESG) criteria into a mainstream portfolio selection method is a relatively new trend [28]. For example, €7 trillion of professionally managed assets were excluded by investors on sustainability grounds, whilst ESG criteria were integrated into decision making on around €5 trillion of professionally managed assets, and engagement and voting on sustainability issues

Fig. 1. EU-28 Fuel shares in primary energy consumption, carbon intensity.
Source: European Commission [64].
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