

The Interactions Between Regulation, Lobbying and Innovation as Elements of Business Strategy in The Energy Sector

Xinyu Li

Bartlett School of Environment, Energy and Resources, University College London, Gower Street, London, WC1E 6BT, The United Kingdom

Abstract: The transition of society to a sustainable society is imperative. Sustainable innovation by energy sector is fundamental to driving the transition. At the same time, a good socio-economic and social legal system is also needed to promote innovation of enterprises. Regulatory intervention is critical to driving companies to sustainable innovation. When corporates are under pressure from environmental regulations, they will be forced to innovate to comply. However, they may also attempt to actively prevent or influence regulations through corporate political activity (CPA), including information strategies, such as lobbying. However, much of the literature focuses only on the impact of regulations on business, and the ability of businesses to influence regulations has been ignored. Due to the lack of this research perspective, we focus on the interaction of each element in this thesis. In this study, I will use an extended literature review to study and analyse the interactions between regulation, lobbying and innovation as elements of business strategy in the energy sector. This study shows that the interplay of policy and innovation is uncertain. Different combinations of regulations have different effects on innovation. All elements develop together over time. This co-development interaction has important implications for sustainable innovation. The business strategy of the energy sector will also change with various conditions. At the same time, business strategy also plays an important role in shaping its market and related policies.

Keywords: Innovation, Corporate strategies, Policy intervention, Regulations, Lobbying, Sustainable development, Firm-level strategies, Political influence strategies, Innovation strategies, Defensive strategies, Proactive strategies, Corporate political activities (CPA).

1. Introduction

Our society faces many sustainability issues. The transition to a more sustainable society is imperative. Policy intervention is an important means to promote the transition to a sustainable society by opening new technological systems. However, public policies and regulations that affect enterprises have always resulted from the balance of interests of various interest groups in society. The aim of this study is to investigate the interaction of regulations, lobbying and innovation in the business strategy in the energy sector. This article will be divided into four parts. First, it will first introduce the interaction between regulation and innovation as elements of business strategy. Second, I will identify innovation and political influence strategies. Third, I will analyse the different changes in business strategies affected by the interaction of regulation, lobbying and innovation. And by referring to other documents, show how they change over time. Fourth, I will summarise how the interaction of various factors has changed the business strategy in the energy sector.

2. The Interaction of Public Innovation Policy and Innovation

The traditional economic development model will bring about resource waste and air pollution. These shortcomings will bring many sustainability problems to society. For the coordination of society, economy and environment, sustainable development is essential. "Sustainable energy systems in the future will require a change in the way energy is both produced and used. On the consumption side, the load on the energy system must be lowered either through energy

conservation or through increased energy efficiency" (IEA, 2012). So, improving energy efficiency and develop cleaner goods is an effective way to transform into a sustainable society.

Improving energy efficiency needs to rely on technological development and innovation. The popularisation of more sustainable technologies will make an important contribution to the sustainable development of our society. The development and innovation of new technologies depend on changing the social environment and corporate consciousness. Policy intervention is essential to support the transition of sustainable technologies.

However, the realisation of low-carbon technological innovation faces the obstacles of insufficient investment in innovation and a lack of motivation for enterprises. The government hopes to use policies to influence corporate strategies and behaviors. First, policy intervention is essential to support the transition of sustainable technologies. "Policy intervention is an important means to promote the transition by supporting technological walls or opening up new technological systems (Schot and Geels, 2008; Raven, 2004; Loorbach, 2010; Rotmans et al., 2001)". Second, technological innovation firms need to face significant market risks. Regulations can provide financial support and incentive measures for firms. At the same time, regulations can also provide firms with a favorable environment for innovation and reduce market uncertainty. Therefore, regulations play an important role in promoting enterprise innovation.

Public policy instruments can help companies overcome obstacles encountered in innovation. "Most of the literature on barriers towards energy efficiency has its focus on market failures owing to the products' inability to compete with

conventional products on the market, owing to higher capital cost and inability to value lower lifecycle cost" (DeCanio, 1998; Sorrell, 2004). "The consensus is that public policies are needed to overcome these barriers to achieve market transformation" (Birner and Martinot, 2005, Foxon and Pearson, 2008; Montalvo, 2008). Wesseling, Farla and Hekkert (2015) stated that public innovation policy is often used to trigger or even force companies to innovate, thereby contributing to the sustainable development of society. The government will economically stimulate corporate innovation through tax incentives and research and development (R&D) subsidies. Technology enforcement regulations will also be used to force companies to develop and use new sustainable technologies. If there is no public innovation policy, the investment of enterprises lacking technological innovation will be reduced. This is because the benefits of sustainable technologies cannot be fully attributed to the companies that develop these technologies. The innovation motivation of enterprises is insufficient without the promotion of public innovation policies. Therefore, policies have a great influence on the innovation strategy of enterprises.

Heubel (2021) claimed that a business strategy is a set of clear plans, actions, and goals that outline the action plan to achieve the organisation's vision and goals and guide the decision-making process to improve the company's financial stability in a competitive market. A fundamental feature of enterprise strategy should be innovation strategy, whose purpose is to accumulate this kind of enterprise-specific knowledge deliberately. Innovation strategy must deal with the complex and changeable external environment because technological innovation has great uncertainty in market demand and development prospects.

In business strategy, innovation and regulation are closely related. As important elements in the business strategy, they interact to promote the development of strategies for enterprises. The process of innovation is complex. Over time, technology, markets, and policies are changing and developing. The joint development of all elements affects the process of innovation. In the following section, how the co-evolution of policy and innovation occurred will be described.

3. Innovation and Political Influence Strategies, Innovation Strategies

Ruby (2015) emphasised that the importance of regulation that reduces innovation and energy efficiency barriers and shows that it is not always up to policymakers to formulate policies to change the dynamics of innovation. Innovation is the result of a complex system composed of participants, institutions, networks and technologies. "Understanding the complex dynamics of innovation requires a systematic view of innovation" (Nelson and Winter, 1982). Therefore, we need to understand the nonlinearity of innovation from innovation system perspectives. Political and cultural factors and technological factors develop together. Moreover, business strategy responds differently to different regulation stimulations. Therefore, under the condition that the firm, technology, and regulation are developing together. It is beneficial to adopt evolution and system innovation.

Different regulations can play different roles in each stage of the innovation process. It is very important to have an overview and insight into the specific regulation efforts and how they influence different strategies involved in complex innovation processes.

Environmental regulations have a stimulating effect on enterprise innovation. Different types of instruments are used to regulate firms' environmental emissions. Therefore, the firms need to bear various costs for emissions. Therefore, environmental regulations will increase the adaptation and compliance costs of firms. This has a negative impact on the company's competitive advantage. Companies can choose to reduce emissions through technological innovation. Therefore, companies need to develop business strategies to reduce the cost of abatement.

Blind (2012) examined the evidence for the impact of various regulations on innovation. A large number of empirical studies on the impact of different types of supervision on innovation have shown a reasonably diverse picture in terms of supervision types, companies, and time frames of impact. Blind (2012) stated that the process of responding to regulations within a company deserves more attention to understand the different effects on innovation. Furthermore, there is often close interaction between regulators and regulated companies in the process of formulating regulations. This interaction affects the impact of regulation on innovation and may explain the different impacts on different innovations and companies.

At the same time, environmental regulations have a potentially positive impact on company operations, such as reducing operating costs, creating intellectual capital, and improving economic performance. Companies can choose to reduce emissions through technological innovation. "The European Union has released several regulation policies intending to improve the environmental performance of firms and the integration of environmental criteria into the technologies they use" (Hilliard 2004).

The goal pursued by enterprises and governments is different. The essence of enterprises is to pursue profit. Government regulation aims to maximise social benefits, rationalise resource allocation, and promote competition's fairness. Although there are specific differences between the enterprise and the government, there is still a significant interdependence. The government wants to achieve economic and employment growth through enterprises and realise the country's economic, strategic goals. For enterprises to obtain greater profits from government regulation, they need to work hard to influence the government to formulate beneficial policies. From a market perspective, companies also face market competition. However, government regulations dominate the market. This makes companies deliberately adopt Corporate political action to influence the government and regard political behaviors as an important part of their core competitiveness.

The formulation of policies and regulations is not the exclusive power of government decision-makers. Enterprises will not passively accept the constraints of laws and policies. Instead, it will exert influence on forming government policies and regulations through various means to create a favorable market environment for enterprises. In other words, the success of the enterprise's behaviors and strategies that influence government policymaking is directly related to the enterprise's benefits and competitiveness.

"When firms are confronted with regulatory pressure to innovate, they will not simply comply by engaging in the mandated innovation; they may also try to actively prevent or influence the regulation through corporate political activities (CPAs)" (Wesseling, Farla and Hekkert, 2015). CPAs are defined as "corporate attempts to shape government policy in

ways favorable to the firm” (Hillman et al., 2004). “The Corporate Political Activities (CPA) literature studies the political strategies of firms, and the various tactics they employ, to influence policy intervention” (Oliver and Holzinger, 2008). The strategy of enterprises in influencing government policies and regulations to benefit their market environment is called corporate political strategy for corporate political behaviors.

The political strategy of the enterprise has become the basis for the success of the enterprise. The more a company has a long-term development concept, the more it will attach importance to formulating and implementing political strategies. In many companies, this has become an essential part of corporate strategic management. Corporate Political Activities (CPA) that support political influence strategies include, for example, lobbying, litigation, constituency building, and political action committee donations.

Wesseling, Farla and Hekker (2015) stated that established companies unwilling to innovate might use their solid resource base to oppose policy interventions that require fundamental innovation. In this way, they try to maintain their current position, which is more profitable than fundamental innovation. Because they are unwilling to innovate and may impact policy interventions, strong incumbents may pose a significant obstacle to the transformation of sustainable technologies.

Wesseling et al. (2014) focused on the automakers’ political strategy against the ZEV regulations adopted by the California Air Resources Board (CARB). In a sense, authorisation is a radical policy action. It will force new low-emission and zero-emission vehicle technologies to the market (Collantes and Sperling, 2008). In the 1990s, automakers used various strategies to block and modify the ZEV directive, including information strategies, such as lobbying CARB (Collantes and Sperling, 2008), to jointly construct the meaning of ZEV technology (Fogelberg, 2000).

Oliver and Holzinger (Oliver and Holzinger, 2008) distinguished between political influence strategies’ value maintenance and value creation nature. Value maintenance refers to maintaining the status quo, while value creation refers to using the first mover’s advantages.

The ability of companies to influence environmental regulations has been largely ignored. Wesseling, Farla and Hekkert (2015) showed how automakers could combine and change their innovation and political influence strategies to respond to technical regulations. Wesseling, Farla and Hekkert (2015) use a conceptual framework that combines corporate innovation and political influence strategies. They use patents and sales data to implement the R&D and commercialisation aspects of innovation strategies. At the same time, the company’s political activity data is used to implement political influence strategies. They found that automakers used a specific combination of innovation and political influence strategies based on the nature of their value maintenance or value creation.

Furthermore, manufacturers have changed their strategies and created more value over time, supporting social and technological changes. Then, they refine the types of strategies available by identifying subcategories in defensive strategy and proactive strategies. In the literature, the type of public innovation policy they focus on is mandatory technology regulations because it forces innovation and triggers the political influence of existing companies.

4. Different Changes in Business Strategy Over Time

Breetz, Mildenerger and Stokes (2018) described its interaction with industry, technological development and market dynamics based on changes over time. Companies should use rules to achieve innovation and technological transformation based on the form/situation in different periods. Their analysis emphasises that in different stages of the experience curve, different political logic will affect costs and deployment. The political systems and conditions that make new technologies an economic winner do not always make existing technologies a condition for economic losers. Therefore, as the scale of technology adoption shifts from niche to the system, new political alliances are necessary to promote complementary system-wide technologies. Since the cost curve is globally integrated, different countries can contribute to different steps in the transition process based on their respective relative political advantages.

The case studied by Wesseling, Farla and Hekkert (2015) is how automakers responded to California’s zero-emission vehicle (ZEV) requirements during 1990-2013. The order brings clean vehicle technology to the market, including thorough and systematic innovation. “Their qualitative analysis suggests a distinction between four types of comments in our dataset: (1) defensive comments to oppose the mandate; (2) defensive comments about slowing down and relax the mandate; (3) proactive comments to shape the mandate to benefit the firm’s or disadvantage rivals’ technology-specific compliance and innovation strategies; (4) proactive comments in support of the mandate” (Wesseling, Farla and Hekkert, 2015).

By studying the interaction and changes between innovation strategy and political influence strategy, they explained the role of incumbents facing technological changes with the support of mandatory technological interventions. Wesseling, Farla and Hekkert (2015) illustrated that corporate strategy and regulatory development might develop together. Ultimately, innovative activities and increasing regulatory support have facilitated the technology, market, and regulatory development required to transition to a more sustainable mobility system.

They also found that policymakers might expect to oppose mandatory technical regulations initially. However, with the development of innovation and increased technological competition, existing companies may begin to formulate policy interventions rather than opposing measures. The reduction in opposition has, in turn, increased the legitimacy for policymakers in setting goals and regulations.

Wesseling et al. (2014) studied how CPA changes over time. They focused on the ZEV mandate passed by automakers for the California Air Resources Board (CARB). They found that in the entire time from 2000 to 2013, automakers have become less defensive and more proactive in their political strategies to achieve ZEV requirements. The results show that automakers have changed their political strategies to support their evolving compliance strategies. Trade associations and lobbying alliances are more defensive in political strategy than their member automakers by strongly opposing ZEV’s authorisation.

How has the company’s compliance strategy expanded over time? To support these diverse compliance strategies, manufacturers have transformed their political strategies from defensive to proactive. Their purpose in doing so is to try to

create favourable conditions for their investment fields. To gain a competitive advantage over competitors, they lobbied for regulations that benefit the self-interest of the vehicle technology they support. At the same time, it opposes terms that favor competitors. The competition of active political strategies based on different interests helped break the previously closed industry front that opposed authorisation.

In different periods, energy companies did use different strategies. Many companies initially combined backwards innovation and defensive political influence strategies and steadily adopted earlier innovation and active political influence strategies over time. In other words, business strategy can be combined with value-maintaining or value-creating innovation and political influence strategies. As time passed, their strategy changed from value maintenance to value creation. Conversely, some companies have become less defensive because of their political influence strategies over time. Nor has it become more innovative. Lobbying and regulating influence each other. Companies also lobbied to get support. Regulation will also change due to active lobbying by companies.

5. Conclusion

The impact of policy and innovation on each other is not certain. A change in one factor does not necessarily lead to a change in another factor. All elements have developed together over time. Ruby (2015) showed that “how policy does not necessarily come first and industry second. These relations and interactions are much more complex than what is generally depicted in the literature”. This interaction of joint development is significant in sustainable innovation. The relationship and interaction between sustainable innovation and policy are very complex in practice.

The innovation process is full of great uncertainty. In the process of transitioning to a sustainable society, there are obstacles to innovation. At the same time, all elements will develop together over time. The combination of different regulations has different effects on innovation. Over time, the impact of regulations on innovation will be different. Furthermore, the business strategy of the energy sector will also change as various conditions change. At the same time, a business strategy also plays an important role in shaping its market and related policies.

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