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Pan-European management of electricity portfolios: Risks and opportunities of contract bundling

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ABSTRACT

Due to the liberalization of energy markets in the European Union, today's European utilities not only focus on electricity supply, but also offer exchange-traded "structured products" or portfolio management for unbundling financial and physical risk positions. Many utilities are only able to provide these services in their domestic markets. In a globalized economy, the need for a centrally organized pan-European portfolio management has arisen, as it allows a simplified commodity sourcing in combination with an optimized risk management. In this paper, we examine the challenges to be overcome for establishing a European-wide bundling of electricity contracts. For this purpose, a case study based on the business perspective of RWE Supply & Trading in Central and Eastern Europe is carried out. In a first step, we analyze general requirements for a pan-European bundling of electricity contracts. Then, RWE's situation in Europe is examined, based on which we finally propose a concept to meet customer demands in Central and Eastern Europe.

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1. Introduction

In the past, the electricity supply industry was organized in the form of vertically integrated and often state-owned monopolies. The growing ideological, political and economic disapproval of vertically integrated monopolies, and especially the liberalization successes in other network industries, have led to liberalization processes in the European electricity industry. Vertically integrated utilities have been separated or unbundled, and barriers to entry in generation and supply were removed to create competition, which is seen as a means to increase the competitiveness of the electricity industry and economic welfare (e.g. Newbery, 2001; Littlechild, 2001; Meeus et al., 2005).

The liberalization of the electricity markets in the European Union (EU) has been a top-down process driven by the directives of the European Parliament and of the Council. More specifically, Directive 96/92/EC (CEC, 1996) and Directive 2003/54/EC (CEC, 2003) outline the general conditions that should be in place to assure the creation of a single internal electricity market in Europe, but refrain from designing a concrete market. Given this freedom, most European countries have chosen to keep centralized components to a minimum and to leave market organization to the dynamics of private initiative (see e.g. Meeus et al., 2005, for a discussion of the market architecture and Finon and

Romano, 2009, for a description of the price determination mechanisms).

The European Commission regularly monitors the progress of market liberalization (CEC, 2010). In many parts of the European Union, the liberalization process has still not been properly implemented. To accelerate and better coordinate the process along the 2009 progress report (CEC, 2009a), the European Parliament passed another treaty in April 2009 – the so-called 3rd legislative energy package – which updates and/or replaces former directives (see CEC, 2009b, 2009c, 2009d, 2009e, 2009f). As the processes are fairly similar, these documents combine the development of the internal markets for electricity and gas. In the present study, however, the focus is on the electricity sector only, i.e. we leave the gas sector for future research. More specifically, we analyze the problems and obstacles in the internal market for electricity that have to be overcome for establishing a European-wide bundling of electricity contracts. In addition, we investigate the market opportunities arising from such an approach both from the utility's and the customer's point of view, and discuss the impact on the company's risk management in a liberalized European market.

One of the key aspects of the 3rd legislative energy package is the extension of cross-country cooperation through increased market coupling capacities, which will eventually lead to a more intensive cross-border exchange of electricity. This market merger offers huge opportunities for the previously nationally orientated utility companies to expand their businesses. In contrast, it also poses the threat of increased competition

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in the domestic market. In order to profit from this development, a company has to be present throughout Europe and be able to offer innovative services and products to its customers, who might also operate in globalized markets. As a consequence, the existing product range has to be adjusted and updated regularly. Because the impact of competition induced by the liberalization process both on the electricity generation portfolio and the energy mix has already been discussed to some extent (see e.g. Szabó and Jäger-Waldau, 2008), the focus of the present work is on the adaptation of a utility's product range to the new legislative environment and market opportunities.

Nowadays, this product range not only consists of electricity supply, but also includes structured procurement, portfolio management or financial hedging services to allow the electricity customer to distinguish between physical and financial risk positions. The importance of this shift of perspective from pure energy supply to a combination of physical delivery and financial risk management has just recently become dramatically evident in the context of the global economic crisis, as the utilities had to face shortfalls in payments due to customer insolvencies.

In contrast, customers who signed a full supply contract just before the financial and economic crisis, for example, were not able to exploit the dropped prices for electricity and gas, thereby missing the opportunity to reduce their energy costs significantly. One way for the customer to reduce exposure to price volatilities is the energy supply through so-called “structured products” that are traded at the energy exchange. An even more sophisticated way to optimize a customer's energy supply is the service of portfolio management, where a wide range of advanced financial and physical products, as well as time flexibility, is used to ensure an optimal trade-off between energy supply, cost and risk.

RWE AG is Europe's fifth largest power generation company after EdF, E.ON, GdF/Suez and Enel, with a share of 6% in 2009 European electricity generation (see RWE, 2010). Today, the RWE Key Account department as the sales interface to major customers is able to provide these services inside Germany and, in a slightly reduced form, also in Austria. As the representative major customer originates from energy-intensive industries and actively participates in the globalized economy, the need for a centrally organized pan-European portfolio management has arisen, for which a concept is presented further below.

The organization of this paper is as follows. In Section 2, the risks that have to be managed in the new economic environment, as well as the risk management implemented at RWE, are analyzed. The customer's needs and expectations are detailed and tied to specific criteria in Section 3, in order to state the requirements for a pan-European energy portfolio management. Based on these prerequisites, RWE's situation in Europe is analyzed, so that in a last step a concept that allows meeting a customer's demands can be developed. In order to illustrate the implications, a case study, which is based on two specific customers, is carried out. The case study contains a breakdown of the steps necessary to realize a pan-European portfolio management, while at the same time taking into account the different market situations and restrictions. Finally, a conclusion is drawn in Section 4.

2. Risk management in the key account business

Like other power companies, RWE AG is exposed to risks and therefore subject to certain risk management requirements. As described in the literature (see e.g. Vattenfall, 2006; Burger et al.,

2007; Lang and Madlener, 2010), major risks arise from the volatility of the price of commodities and of credit risks in trading, sales and procurement activities.

Fig. 1 displays the concept implemented at RWE AG. According to this the Executive Board of RWE AG defines the risk objectives and establishes a risk committee. The latter is responsible for the management of risks, the rules of which are laid down in a group-wide risk management guideline, and also for the overall assessment phase of the risk management process.

The overall assessment phase of the risk management process includes the identification, analysis and valuation of risk. The committee also defines the methods that have to be applied in the individual departments of all RWE divisions, which are responsible for selected tasks of the risk assessment phase. Furthermore, the committee is responsible for the overall monitoring phase of the risk management process.

Risk management boards are installed on both the group and the divisional level. These boards are responsible for the continuous development and implementation of the risk management process. The board of RWE Supply & Trading AG is responsible for the commodity risk controlling of the company and its subsidiaries and has established a commodity risk controlling department as well as defined a general framework. The latter is divided into credit risk controlling and market risk controlling, which is mandatory for the commodity risk management department within the key account business. The commodity risk management department reports on a daily basis to the risk department of RWE Supply & Trading AG, and quarterly to the risk department of RWE AG. In the key account department, a separation of responsibilities and competences in the risk management process was realized between the departments in which risks arise, i.e. the key account managing department and those departments which assess and control risks.

In the following, the requirements and options for the realization of a pan-European bundling of electricity contracts is discussed. In the course of the development of a model, the risks involved are identified, based on the definitions and findings provided in this section. In a next step, each risk has to be clearly assigned to a specific contractual partner, so that it can be accounted for when the new product is priced by means of a premium.

3. Development of a pan-European portfolio management

In the previous section, we discussed the importance of risk management, with a focus on utility companies. However, risk management is also an essential part of a customer's procurement strategy. Therefore, first an introduction to RWE's key account business is given and the existing range of electricity products reviewed (Section 3.1). Second (Section 3.2), the specific requests of two representative customers are defined and the customer's situations – e.g. location of production sites – as well as RWE's products and presence in Europe (Section 3.3) are presented. Finally (Section 3.4), a concept to meet the customer's demands is developed and detailed for a pragmatic implementation.

3.1. Electricity procurement strategies of industrial customers

For utilities, large industrial customers are key accounts with special requirements and tailor-made solutions. RWE Key Account GmbH – founded in April 2005 – has recently been integrated into RWE Supply & Trading, which itself is a subsidiary of RWE AG. Formerly, the Key Account business was part of RWE Energy, the Group's sales and grid company for Continental Europe, offering electricity and electricity-related products, renewable energy

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