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Electricity market opening impact on investments in electricity sector

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ABSTRACT

The paper focuses on the impact of the electricity market regulation on generating technologies, including renewable in Lithuanian and Poland. The paper aims to identify how the regulatory and non-regulatory factors have influenced investors' choices. A country case studies approach were applied to analyse and address define the main factors that have influenced investors' choice of technology mix in electricity market in transition. The major findings of the analysis entail: the main driving forces behind the rationale for reform; electricity reform characteristics; the impact of electricity market reform on electricity prices and electricity market reform and non-reform related factors that have influenced investor's choice for a specific generation technology or a technology mix.

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1. Introduction

The opening of national markets in gas and electricity to competition visibly gives consumers the freedom to choose their

energy supplier and, therefore, the opportunity to make savings. It also improves the security of supply by encouraging, on the one hand, investment in facilities, so that interruptions to supply can be prevented, and, on the other hand, diversification of transport routes and energy sources. The existence of a truly competitive energy market also contributes to sustainable development, notably by enabling suppliers of electricity from renewable energy sources to enter the market. The internal energy market has been put in place gradually, starting with Directive 96/92/EC laying

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down rules for the internal market in electricity and Directive 98/30/EC laying down rules for the internal market in natural gas, which were replaced respectively by Directives 2003/54/EC and 2003/55/EC. In 2007 the Commission announced that a third legislative package will be added to the available legislation. In the third package of legislative proposals for Europe's electricity and gas markets, the Commission proposed measures which aim to benefit every single EU citizen by given consumers greater choice, fairer prices, cleaner energy and security of supply. Member States have to implement Third package until 3 March 2011. The new EU member states have achieved similar stages of electricity market opening.

The Lithuanian electricity sector since 1997 has undergone a reform process away from the regulated system towards a market based system. There are 3 periods of electricity sector reform in Lithuania: 1997–2002; 2003–2009 and since 2010. The main reasons for electricity reform during these two periods were corporatization and commercialization. In third period since 2010 the main objectives of electricity sector reform are based on EU Third energy package requirements, that aims to create competitive electricity market and to ensure fair competition; to ensure and promote the effective electric energy generation; to ensure the constancy and reliability of electric energy generation, transmission and distribution; to promote the development of internal electricity market and electricity export, modernization of infrastructure of market implementation, energy pricing clarity and transparency; to impose public service obligations which may relate to security of society, environmental protection and generating installations using local, renewable and secondary energy; to create favourable conditions for investments in the electricity sector; to promote environment friendly technology [1–4].

The reform in the Polish energy sector has been performed within the overall market oriented economy transformation. There are three periods of electricity sector reform in Poland: 1990–1997; 1997–2004 and since 2004. The main goal was the adjustment of electricity prices to the costs of service through introducing regulation by an independent regulatory body and competition wherever possible and feasible as well as by commercialization and privatization of state owned enterprises. Under the centrally planned economy electricity prices were being set politically by the government at the uniform level throughout the country. In the beginning of the reform in 1990 the introduction of market mechanisms caused substantial changes of the structure of the sector, including: unbundling of vertically integrated power companies; establishing the energy regulator; licencing procedure; and tariffs based on justified costs and consumers' protection against socially unacceptable price growth [5,6].

However it important to assess if the aims of electricity market reform have been achieved and how electricity market liberalization impacts investments in new technologies. The main target of the paper is to identify how the regulatory and non-regulatory factors have influenced investors' choices. The main aims of the paper to achieve target are: to review stages of electricity market reform in Lithuania and Poland; to review regulator arrangements, risk allocation and electricity prices in Lithuania and Poland; to assess impact of electricity market opening on investments in electricity sector.

2. Electricity market reform

In the past, the electricity industry has been organized as vertically integrated monopolies that were sometimes also state owned. The growing ideological and political disaffection about vertically integrated monopolies and the liberalization successes

in other network industries have led to liberalization initiatives worldwide in the electricity industry. In EU Vertically integrated utilities have been vertically separated or unbundled and barriers to entry in generation and supply are being removed to create competition, seen as a vehicle to increase the competitiveness of the electricity industry.

Electricity market—means the entirety of relations between market participants encompassing wholesale and retail sale of electricity, based on justice and equality principles, in accordance with the principle of third party participation in the regulation of electricity distribution. The essence of electricity market lies in the possibility for consumers to choose the electricity supplier and electricity price. Electricity market creates competition, therefore electricity suppliers are able to purchase electricity from electricity producers at a lower price, whereas the users—from the suppliers offering an acceptable price. It is composed of two segments: retail and wholesale market. Wholesale electricity market is where electricity producers and suppliers take place. Competing between each other producers establish conditions for electricity suppliers to purchase electricity at as favourable conditions as possible. Retail electricity market is the market for suppliers and consumers. Competition takes place between electricity suppliers; consumers are able to choose a supplier according to electricity price, payment terms, etc.

2.1. Lithuania

Lithuanian electricity sector undergone during 20 years since restoration of independence dramatic changes from vertically integrated monopoly to power exchange. The stages of electricity market development in Lithuania:

- 1997—restructuring of vertically integrated monopoly “Lithuanian power” by separating centralized heat supply form electricity sector. Independent regulator was established.
- 2002—Law on Electricity and “Lithuanian power” was split into several independent companies: Lithuanian power (exporting electricity) with TSO and MO functions (Kruonis HPP, Kaunas HPP), two distribution system operators and several generation companies. One distribution company was privatized. Competition in generation and supply. Licenses were granted for several independent suppliers and two public suppliers.
- 2004—Law on electricity was amended according EU Second energy package. Full market opening was envisaged for the commercial consumers since 2004 and for all consumers since 2007 [7]. However because of Ignalina NPP dominating on the market and significant share of supported generation (CHP, renewables) the eligible consumers did not change their supplier.
- 2008—Holding company LEO.LT (61.7% shares of LR and the rest JSC NDX Energija) was created for new NPP construction. The subsidiaries of this company Lithuanian power company (TSO, MO, Kaunas HPP, Kruonis HPP) and two DSO companies [8].
- 2009—LEO LT was restructured again. The private DSO was bought by the Government back. The structure of electricity sector remain like before 2008.
- 2010—The Electricity law was amended to address EU Third energy package and Lithuanian power company was restructured by separating TSO (LITGRID) and Market Operator (BALTPOOL) activities into separate companies and also establishing JSC Energy Supply as independent energy supplier. Kruonis HPPs and Kaunas HPP are also separated. PEX.
- 2011—Visaginas NPP holding will be created the subsidiary of four units: Transmission: TSO LITGRID, Distribution: LESTO (two DSO were merged), Generation: Lithuanian PP, Kruonis HPP, Kaunas HPP, JSC Energy Supply, Energy Services: Technologies and Innovation center etc [9].

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