EVALUATING THE REFORMS IN DANISH ELECTRICITY SECTOR

THE EFFECTS OF THE REFORMS ON RETAIL PRICES FOR HOUSEHOLD CONSUMERS

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INTRODUCTION TO THE ELECTRICITY SECTOR IN DENMARK

1.1 Denmark: some useful data.

Despite being the smallest Nordic country, Denmark’s population is comparable to the Norwegian and Finnish ones. Its population density is 131/km2, by far the highest among the Nordic countries. According to the IMF, Denmark’s annual nominal GDP per capita stands at 59,129 USD, ranking sixth in the World and third in Europe. Moreover, the Economist Intelligence Unit’s where-to-be-born index (2013) classifies Denmark as the fifth best country in the World. For the purpose of this essay, it should be underlined that Denmark ranks first (in the scale from “Very clean” to “Highly corrupted”) in the Perception Corruption Index provided by the Transparency International Organisation. This is a relevant aspect to consider when we evaluate the role of the State in the economy.

From this point of view, Shakespeare’s quote “something is rotten in the State of Denmark” seems rather out-of-date.

1.2 Denmark electricity sector: energy mix and the energy policy.

Thanks to the oil and natural gas reserves in the Northern Sea and the continuing development of renewable energy, Denmark achieved a substantial energy independence in 1997. As far as concerns electricity consumption, it globally amounted at 34,239 GW3. According to the latest data, the production of electricity sums at 32,926 GWh4 and it is generated as it follows:

Table 1: Electricity Power Generation in Denmark (2013).

<table>
<thead>
<tr>
<th>Specification of Power Generation</th>
<th>GWh</th>
<th>% of total Generation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity from Wind Turbines</td>
<td>11,123</td>
<td>33,75</td>
</tr>
<tr>
<td>Electricity from Photovoltaic cells</td>
<td>518</td>
<td>1,5</td>
</tr>
<tr>
<td>Electricity from Hydropower</td>
<td>15</td>
<td>0,04</td>
</tr>
<tr>
<td>Electricity from Thermal Generation from RE fuels (mainly waste and biomass).</td>
<td>3,996</td>
<td>12,1</td>
</tr>
<tr>
<td>Electricity from Thermal Generation from NON-RE fuels (mainly coal).</td>
<td>17,304</td>
<td>54</td>
</tr>
</tbody>
</table>

Source: Author’s elaboration on Energinet’s “Environmental report for Danish electricity and CHP. Summary of the status year 2013”.

1 www.economist.com/blogs/graphicdetail/2013/01/daily-chart
2 www.transparency.org/cpi2014/results
4 Please note: net imports consists in 1,081 GWh per year.
As Table 1 clearly shows, wind power covers a fundamental role in Denmark’s electricity production. Denmark has been one of the first country in the world which undertakes this energy policy achieving remarkable results. Thanks to the combination of onshore and offshore wind turbines, wind power share in the electricity supply grew from 12% in 2000 to 38.6% in 2014\(^5\).

In 2012, the Danish Parliament largely approved the Energy Agreement whose ambitious objective is to cover the entire energy supply by renewable energy by 2050\(^6\). The first step of this innovative energy policy is to accomplish the “Acceleration towards green 2020” programme which aims for these headline results\(^7\):

- More than 35% renewable energy in final energy consumption
- Approximately 50% of electricity consumption to be supplied by wind power
- 7.6% reduction in gross energy consumption in relation to 2010
- 34% reduction in greenhouse gas emissions in relation to 1990

The transition from fossil fuels to renewable energy requires considerable investments as the former are currently cheaper than the latter. Even though the Danish Government predicted that the cost to Danish consumer in 2050 would stay the same as today, the electricity cost per household is likely to increase in the short-term\(^8\). This fact cannot be disregarded, as the purpose of this essay is a trend analysis of the electricity retail prices.

1.3 Denmark electricity sector: industry and market

1.3.1 Generation

The generation sector remains highly concentrated as two companies, DONG and Vattenfall, share 70% of market’s capacity. As the “Danish Electricity Supply ’08” reports, these companies own a number of local co-generation plants and wind turbines. The rest of the plants are owned by other energy companies, local authorities, and larger industries or by co-operatives\(^9\).

DONG Energy, which is also the largest oil & gas company in Denmark, began to operate in the electricity sector since 2000. After acquiring and merging two electricity producers Elsam and Energi E2, DONG became the main firm in this sector having the 49% of market’s share. The EU Commission authorised this merger only after DONG accepted to implement some remedies aimed to preserve competition\(^10\). Dong’s shares are divided as the Graphic 1 shows. A political agreement set forth that the Danish Government shall own at least 50% of its shares until 2025.

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\(^5\) Expected figures. 
According to Danish law, shareholders with less than 5% holdings may remain anonymous. Source: DONG Official Website. (www.dongenergy.com/en/investors/shareholders)

1.3.2 Transmission

Due to its geographical position, Denmark has two separated electricity transmission systems:

- The Eastern Danish (Zealand) power system which is synchronised with the Nordic power system
- The Western Danish (Jutland) power system which is synchronised with the Continental Europe system.

They are connected by the Great Belt High Voltage Grid built in 2010\(^\text{11}\). Map 1 shows how these systems are interconnected with the bordering countries.

Both grids are managed by Energinet.dk, an independent public enterprise owned by the Danish State under the Ministry of Climate and Energy.

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\(^{11}\) For further information and details check Energinet.dk website (http://www.energinet.dk/EN/ANLAEG-OG-PROJEKTER/Generelt-om-elanlaeg/Sider/Elforbindelser-til-udlandet.aspx)
1.3.3 Wholesale Market & Distribution

Like its Scandinavian neighbourhoods, Denmark is integrated in the Nord Pool Spot\textsuperscript{12}, which is largest electricity market in Europe. Even though an end-user can choice between several suppliers, every geographical area has only one distributor responsible for network transmission. However, Nord Pool Spot’s regulation clearly lays down that “a distributor might also have the role of a supplier, but is obliged to distribute electrical energy from any other supplier under the same terms"\textsuperscript{13}. As far as concerns Denmark, Energinet.dk is appointed for this task. Its role in the wholesale market consists also in supervising and facilitating the market activities in the individual markets\textsuperscript{14}. Energinet.dk holds 18,8% of Nord Pool’s shares.

1.3.4 Retail Market

The Danish electricity market was liberalised in 2003. Hence, there are currently 33 electricity suppliers the retail market. DONG Energy covers a leading position holding a 21% of market shares\textsuperscript{15}, followed by Energiden ( 10% circa\textsuperscript{16}), Energi Fyn, SEAS-NVE and Natur-Energi. SEAS-NVE is an electricity supplier company which is consumer-owned. Like Natur-Energi, it relies only on renewable energy.

Danish electricity consumers are free to choose whether to join the regulated market with regulated prices or the liberalised market where prices are not regulated. In 2012, 6,7% of end-users switched supplier. However, there is a remarkable differences between household users and industrial users. Quoting the DERA’s 2013 report to the European Commission:

“Consumers above 100,000 kWh, covering about 50% of the retail market (in terms of consumption), are active in the market, whilst at least until the end of 2012, between 90 and 95% of electricity consumers had not exercised their right to change supplier and remained on default contracts with regulated prices\textsuperscript{17}.”

Despite a 3.8% increase in the switching rates, the DERA recognises that the level of competition shall be improved. Hence, a new government measure set forth that regulated prices are to cease by October 2015. Moreover, consumers will be able to contact directly electricity suppliers. This simplification should encourage the switching\textsuperscript{18}. Table 2 shows switching procedures and the switching rate in Denmark and the other Nordic countries.

Table 2: Switching procedures and switching rate in the Nordic countries.

<table>
<thead>
<tr>
<th>Country</th>
<th>Switching Rate</th>
<th>Time to Switch</th>
<th>Fully Electronic</th>
<th>Offers on website</th>
<th>Regulated prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>6,7%</td>
<td>6 Weeks</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Finland</td>
<td>7,7%</td>
<td>2-4 Weeks</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Norway</td>
<td>10%</td>
<td>6 Days</td>
<td>YES</td>
<td>No obligations</td>
<td>NO</td>
</tr>
<tr>
<td>Sweden</td>
<td>9,9%</td>
<td>1-6 Months</td>
<td>YES</td>
<td>No obligations</td>
<td>NO</td>
</tr>
</tbody>
</table>


\textsuperscript{12} For further information about the Nord Pool Spot check its official website: http://www.nordpoolspot.com/About-us/
\textsuperscript{13} http://www.nordpoolspot.com/How-does-it-work/The-market-members/Distributors/
\textsuperscript{14} Energinet.dk’s role on the wholesale market : http://www.energinet.dk/EN/El/Engrosmarkedt/Energinet.dks-rolle-aaa-engrosmarkedet/Sider/Energinetdks-rolle-aaa-engrosmarkedet.aspx
\textsuperscript{15} http://www.dongenergy.co.uk/uk-business-activities/sales
\textsuperscript{18} Ivi, page 59.
THE REFORMS IN DANISH ELECTRICITY SECTOR

2.1 Historical Background

The effects of the 1973 Oil Crisis in Denmark were particularly harsh as there were no regulation in the energy sector. Hence, the Government developed a strategy aimed to reduce Denmark’s dependency on imported oil. In pursuant of the 1976 Electricity Supply Act, oil was quickly subsisted by coal and natural gas. The results were remarkable as the percentage of electricity generated from oil declined from 90% to 5% in the decade between 1973 and 1983. The side effect of this policy was an escalation in Co2 and greenhouse gas emissions which boosted the investments in renewable energy resource (Energy Plan 1981). Both the European Directive 92/12 and the liberalisation of Swedish and Norwegian led the Danish Government to approve the Electricity Supply Act in 1996. This act came into force in 1999 integrated in the Energy Supply Act and laid down an economic regulation of the electricity sector “with a particular aim to promote the environmentally benign utilisation of energy”\(^{19}\).

2.2 The 1999 Reform

2.2.1 Main Elements of Electricity Reform

The Danish Parliament approved the Energy Supply Act in 1999 aiming to carry out a new framework for “consumer protection, environmental considerations and security of supply in electricity”\(^{20}\). In pursuant with the European Directive, it introduces competition into the production and the trade of electricity. The OECD’s report underlines the following main features\(^{21}\):

- **The liberalisation of the retail market**: since January 2003, every Danish consumer has the right to choose the electricity supplier company.
- **The liberalisation of electricity production**: as price regulation is no longer in effect, companies are allowed to compete for their clients.
- **The introduction of Third Party Access to the transmission and distribution grid**.
- **The introduction of regulation for the monopolistic activities**: grid and transmission companies are subject to a new regulation based on benchmarking of costs and with profit incentives to maximise cost efficiency. Regulated profits based on efficiency are granted to companies with obligation to supply.
- **Public ownership remains important**: as described in section 1.3.1 and 1.3.4 the Danish State still holds Dong’s majority of shares.
- **The introduction of corporate unbundling**.
- **The introduction of tradable quotas of Co2**.
- **The establishment of a new regulatory agency (once the Energy Supervisory Board, now the Danish Energy Regulator Authority DERA)**
- **The protection of renewable energy**.

\(^{20}\) The whole text can be found checking the following website http://ec.europa.eu/ourcoast/download.cfm?fileID=981
2.2.2 OECD’s critiques to the Reform

The OECD notes some similarities between the Danish reform and the ones carried out in the other Nordic countries, i.e. vertically integrated generation and distribution companies, regulated third party access, and the full costumer’s choice. However, the OECD also underlined the lack of a fully independent entity monitoring the transmission and operator system as the DERA’s members are formally appointed by the Minister of Climate & Energy which owns Energinet.dk (see section 1.3.2). Even though discrimination is not allowed by the Electricity Supply Act, the OECD regards this feature as “constitute a serious obstacle for the development of competition in Denmark”\textsuperscript{22}. This issue was solved with the adoption of Act no. 466 of 18 May 2011 implementing the EU’s Third Energy Liberalisation Package into Danish legislation and establishing the DERA Secretariat as an independent institution.

Moreover, the OECD points out that “the ultimate ownership structure of the sector will not change immediately even though the corporate structure will be reformed to separate into different companies the different functions”\textsuperscript{23}. Ownership links between the retail and distribution companies may damage the competitiveness of the sector; hence, the OECD calls for a clear ownership separation.

As far as concerns entry in generation, the main barriers consists in the heavy constraint on the choice in the fuel by generation. Since the energy policy is focused on renewable energy, it may favour companies which already use this energy sources.

The existence of regulated supply prices is still an obstacle to complete competition. Even though they are established to protect end users against abusive prices, new entry will be discouraged if the regulated tariffs are too low. As described in section 1.3.4, electricity supplier switching among Danish household consumers is particularly low. However, regulated prices will be abolished by October 2015. Perhaps, it would result in an increase in the switching rate. Graphic 2 shows the trend of ECTR/OECD scores concerning Danish electricity sector.

\textbf{Graphic 2: ECTR/OECD scores in electricity sector in Denmark (selected years).}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{ectr_scores}
\caption{ECTR/OECD scores in Danish Electricity Sector (selected years).}
\end{figure}

\begin{footnotesize}
\textsuperscript{22} Ibidem page 31.
\textsuperscript{23} Ibidem page 35.
\end{footnotesize}
2.2.3 Considerations on Danish Regulation.

As the Graphic 2 clearly shows, the electricity ECTR (blue line) is constantly higher than the aggregate one (red line). In fact, Danish electricity sector remains highly regulated being the second most regulated in EU-15 behind the French one (ECTR score 3.19). Even though the entry barriers were removed and the market was liberalised, public ownership and vertical integration still have high ECTR score. Public ownership did not tailed off significantly after the reforms, on the contrary it slightly increased during the latest years. Under this aspect, Danish regulation confirms the Nordic model, which consist in a combination of liberalization and continuing public ownership of the industry\textsuperscript{24}. Graphic 3 shows an interesting comparison between the Nordic regulations.

Graphic 3: Electricity ECTR scores for the Nordic countries (2013)

![Electricity ECTR* for the Nordic Countries (2013)](image)

Source: OECD Database.
* Please note: Entry ECTR is zero in every cases.

There is a substantial conformity between electricity sector regulations in the Nordic countries. As we can infer, public ownership and vertical integration characterise the sector as the ECTR scores are amongst the highest in EU-15. The existence of regulated prices in the supply market explains why Denmark has a higher ECTR score in the market structure (see Table 2). Overall, it seems that public ownership does not affect the degree of competitiveness of the market structure. This is a typical feature of the so-called “Nordic Model”. As The Economist explains, the Nordic countries proves that is possible to combine competitive capitalism with a considerable state-intervention\textsuperscript{25}. Therefore, the electricity sector in the Nordic countries is just another example of this remarkable economic policy.

\textsuperscript{24} Massimo Florio, Network Industries and Social Welfare, Oxford University Press, page 151
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THE EFFECTS OF THE REFORM ON ELECTRICITY RETAIL PRICES FOR HOUSEHOLD CONSUMERS.

3.1 Electricity price composition and comparison with EU-15.

The DERA declares that retail prices mostly depend on the wholesale prices in the Nord Pool, which are influenced by precipitation in the Nordic countries, fuels price for the thermal plants, costumer demand, and outages in the transmission grid. Graphic 4 shows the composition of electricity retail price in 2014.

As the Graphic clearly shows, electricity retail price are subject to high taxation, actually the highest in EU-15. As result, Denmark has the highest nominal electricity retail price in Europe (0.29 € / kWh).

Table 3: Electricity Prices per Household 2013 EU-15 (Selected Country)

<table>
<thead>
<tr>
<th>Country</th>
<th>Electricity Price €/kWh</th>
<th>Taxes and Levies €</th>
<th>Taxes percentage of overall price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>0.29</td>
<td>0.17</td>
<td>58</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.21</td>
<td>0.10</td>
<td>47</td>
</tr>
<tr>
<td>UK</td>
<td>0.17</td>
<td>0.01</td>
<td>5</td>
</tr>
<tr>
<td>France</td>
<td>0.15</td>
<td>0.05</td>
<td>30</td>
</tr>
<tr>
<td>Germany</td>
<td>0.29</td>
<td>0.16</td>
<td>55</td>
</tr>
<tr>
<td>Italy</td>
<td>0.23</td>
<td>0.07</td>
<td>27</td>
</tr>
<tr>
<td>Greece</td>
<td>0.16</td>
<td>0.05</td>
<td>26</td>
</tr>
</tbody>
</table>

Source: Eurostat

However, such high taxation is not exceptional if contextualized in Danish economic policy: like the other Nordic country, Denmark’s overall tax burdens (46% of GDP) are among the highest in the world as it is used to support an extraordinary effective welfare state. Moreover, if we convert the prices in Table 3 in PPS (Purchase Power Standard), some interesting aspects emerge.
Despite having the highest nominal price, once converted in PPS they appear close to the EURO-ZONE average and lower than German and Italian ones.

### 3.2. Electricity prices for householder consumers’ trend and the reforms

Electricity prices may be influenced by several factors: some are unpredictable (i.e.: precipitations, bad weather, and natural disaster), others depend on the economic conjectures (i.e.: oil shock, energetic crisis, and global instability). However, the State policy concerning the electricity sector and the reform carried out may (or may not) play an important role in electricity prices’ determination. Even though external factors cannot be disregarded, we will particularly focus on the connection between the reform of the sector and prices’ trend. We will consider a large period (1985-2014) in order to reduce the bias of particular economic conjectures.
As Graphic 6 shows, tax-included electricity prices per domestic users regularly increase during the examined period. In the years following the reforms (1996-1999-2003), no sign of drastic trend change is recorded. Considering the four-year period previous to the reforms (1992-1996) and following one (2003-2007), we observe a nearly identical percentage increase (13.60% and 14.28%). However, considering tax-excluded prices we notice that they basically stay stable in 1992-1996 while they increase significantly after the reforms. Included-tax prices nearly coincide with the trend-line (segmented blue line), expect being below it during the period right after the reforms (2003-2007). On the contrary, excluded-tax prices are above the trend-line which means that they rise faster the reforms.

It may be helpful for the purpose of this essay trying to combine the yearly tax-excluded prices with the yearly OECD ECTR described in section 2.2.2. Using a scatter pot graphic, we will be able to highlight whether there are interrelations. Table 4 provides us with the data contained in Graphic 7.

<table>
<thead>
<tr>
<th>Year</th>
<th>Net-of-tax electricity price</th>
<th>OECD ECTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>0.0617</td>
<td>6</td>
</tr>
<tr>
<td>1989</td>
<td>0.0667</td>
<td>6</td>
</tr>
<tr>
<td>1993</td>
<td>0.0639</td>
<td>6</td>
</tr>
<tr>
<td>1996</td>
<td>0.0646</td>
<td>4.75</td>
</tr>
<tr>
<td>1999</td>
<td>0.0678</td>
<td>3.46</td>
</tr>
<tr>
<td>2002</td>
<td>0.0865</td>
<td>3.28</td>
</tr>
<tr>
<td>2003</td>
<td>0.0869</td>
<td>2.91</td>
</tr>
<tr>
<td>2007</td>
<td>0.1045</td>
<td>2.42</td>
</tr>
<tr>
<td>2010</td>
<td>0.1199</td>
<td>2.45</td>
</tr>
<tr>
<td>2013</td>
<td>0.1245</td>
<td>2.49</td>
</tr>
</tbody>
</table>

Source: Eurostat and OECD Database

Graphic 7: Net-of-tax electricity prices and OECD ECTR in Denmark
The control parameter is the yearly ECTR while the dependent variable is the yearly net-of-tax price. Graphic 7 shows that there is a correlation between these two elements: Pearson correlation-coefficient is -0.7 which means “strong inverse correlation”. Hence, statistically, when the ECTR decreases the net-of-tax prices increase. In other terms, the more the sector is liberalised the faster the net-of-tax prices are likely to increase. In fact, Graphic 6 shows that the most pronounced prices’ rise happened immediately after the reforms (1999-2003).

Using the same model, we can evaluate how public ownership affected the electricity prices through the examined period (Table 4). As described in section 2.2.3, public ownership ECTR is rather high in Denmark and it seems not to affect directly the competitiveness of the sector.

Graphic 8: Public Ownership and net-of-tax prices in Denmark.

In this case, the strong inverse correlation is even more pronounced (-0.85) than Graphic 7. Hence, it seems that as long as public ownership is high, net-of-tax prices stay nearly stable. Privatisation likely led to a price increase. Table 5 shows the percentage variation of prices in the decades before (1989-1999) and after the reforms (1999-2009).

Table 5: Net-of-tax prices and all taxes included prices variation in Denmark (selected years)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net-of-tax</td>
<td>0.067</td>
<td>0.0681</td>
<td>0.116</td>
<td>4%</td>
<td>70%</td>
</tr>
<tr>
<td>All Taxes Included</td>
<td>0.13</td>
<td>0.19</td>
<td>0.26</td>
<td>48%</td>
<td>36%</td>
</tr>
</tbody>
</table>

Source: Eurostat and OECD Database
As table 5 shows, the net-of-tax prices and the tax-included prices follow different trends. The formers escalate after the reforms while the latter increase more quickly in the previous decade. Hence, taxes were gradually reduced after the reforms contributing to “hide” the price increase subsequent to the reform. In fact, taxes consist in more than 65% of the overall price in 1999 while they sum up to 56% in 2009. Even though the variation of overall prices is more pronounced in the decade before the reforms, we cannot assert that the reforms brought about a slow-down in price increase. On the contrary, since the net-of-tax price escalate, overall prices would have escalated as well if a substantial tax-cut would not have been carried out. Hence, we can conclude that the reforms in Danish electricity sector led to a clear price increase.

3.3. The reforms, the efficiency, and the environment.

Besides a price increase, reform may have ameliorate sector’s quality. A better-managed electricity sector is likely to reduce electricity consumption by improving the efficiency. This operation requires considerable investments which may result in a price-increase in the short term.

Electricity consumption per capita raise constantly in Denmark until 2006 reaching the peak of 6.8 kWh per capita. However, a significant reduction occurred right after this date: in 2009, the electricity consumption per capita was lower than the one recorded in 1999. Despite an initial increase, electricity consumption tailed off after the reforms. Hence, we can assert that the reforms brought higher efficiency in the electricity sector. In other terms, Danish electricity sector appears better-managed after the reforms. Moreover, saving electricity means saving money so the more the electricity service is efficient, the less the electricity expenditures will weigh on families’ budget.
As described in section 2.2.2, the 1999 Energy Supply Act promotes the environmentally benign utilisation of energy. Danish energy policy is focus on reducing Co2 and greenhouse gas emissions, as the ambitious objective is to forsake non-renewable energy by 2050. Nowadays, non-renewable energy are far cheaper than renewables ones, hence investment in renewable energy may result in an increase in costs-of-production. Graphic 10 shows the Co2 and greenhouse gases emissions in Denmark, this data may be helpful to evaluate the success of the energy policy and to understand if the price increase is due to the investment aimed to preserve the environment.

Graphic 10: CO2 Emissions accounts by industry & household – electricity, gas, steam, and air conditioning supply in Denmark.

As graphic 10 shows, CO2 emissions fell drastically. In 2013, Co2 emissions were reduced by 70% comparing to the 1995 levels. This data evidences a remarkable success of Danish energy policy. The pledge to preserve the environment has been kept. Since eco-friendly policy led to an increase in cost-of-production, retail prices may have been influenced. We can assert that the prices’ increase may be somehow justified by an ameliorated and a more sustainable electricity sector. Furthermore, it should be reminded that every energy policy implemented in Denmark had been largely approved by the Parliament thus having a clear democratic legitimacy.

Source: Eurostat
4. **Conclusions.**

The main features of Danish electricity and the most remarkable reforms’ effects on retail prices per household can be resumed as it follows:

- Danish energy policy is remarkably focused on renewable energy. Investments on renewable resource (especially wind) are among the highest in the world.

- The generation market remains very oligopolistic as two companies shared 70% of the market share. DONG, the major Danish electricity production company, is controlled by the Danish State as it owns 51% of its shares.

- DONG is also the leading company in the retail market with 21% of market share. Switching rate is rather low for householder consumers (6.7 %). Perhaps, the elimination of regulated price by 2015 will increase the switching rate.

- Despite the reforms, the Danish electricity sector appears rather regulated (2.91 overall ECTR).

- Public ownership remains very important (5.1 ECTR) but it seems not to affect the competitiveness of the market.

- Electricity retail prices are among the highest in Europe as they are heavily taxed. However, once converted in PPS they appears close to the EU 15 average.

- The reforms produced a pronounced increase in net-of-tax prices for household consumers. However, a simultaneous tax-reduction mitigate this effect for the household consumers.

- The reforms likely improved the efficiency of the sector as the electricity consumption decreases.

- The CO2 emissions fell drastically after the reforms. Hence, the eco-friendly mission of the reforms was accomplished.

- Simply, the Danish consumers pay more for a better organized and a cleaner electricity sector.

- The reforming process is still underway. The ambitious objective to abandon non-renewable fuels is yet to be accomplished. The pledge to carry out it without increasing the prices is yet to be tested. Hence, Denmark electricity sector is yet to be fully studied.
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Eurostat
OECD
World Bank