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**ELECTRICITY MARKET REFORMS IN NEW
ZEALAND AND GERMANY – A COMPARATIVE
STUDY OF THE HISTORY, DEVELOPMENT AND
FUTURE OF THESE BOTH COUNTRIES’
MARKETS WITH A SPECIAL FOCUS ON THE
APPROACH TO RENEWABLE ENERGY**

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Abstract

This dissertation will show why Germany is overall on a better way to deliver secure and sustainable electricity to its population at the moment. Though, New Zealand had the better starting point, it missed important steps in the development. However, “of the industrial countries, Germany is leading with regard to new renewable energy sources, occupying one of the first ranks in terms of wind energy capacity and photovoltaics”.¹ Its legislation on this area with the core the Renewable Sources Act is a role model for many countries. And Germany’s Integrated Energy and Climate Programme seems promising that Germany will continue to have innovative and exemplary measures on the renewable energy sector.

However, the history and development of New Zealand’s electricity market has shown that its government can correct wrong decisions and react fast and forcefully. The New Zealand Energy Strategy and the New Zealand Efficiency and Conservation Strategy have been first steps in the right direction. An important sign for New Zealand’s electricity industry would be the National Policy Statement for Renewable Electricity Generation.

I INTRODUCTION

The significance of renewable energy is growing all over the world. Unlike fossil fuels (e.g. coal, gas, oil), renewable energy is derived from natural processes that are replenished constantly. In its various forms, “it derives either from the sun, like wind, hydro, biomass and solar, or from heat, generated deep within the earth, like geothermal resources”.² The second big advantage is that the electricity generation from renewable sources hardly produces any greenhouse gas emissions (GHG) which are responsible for the climate change. Therefore the Ministry for Environment stated that:³

The contribution of renewable electricity generation, regardless of scale, towards addressing the effects of climate change plays a vital role in the wellbeing of New Zealand, its people and the environment. In considering the risks and opportunities associated with various electricity futures, New Zealand’s government has determined that 90 per cent of electricity generated in should come from renewable energy sources by 2025.

¹ Volkmar Lauber and Lutz Merz “Three decades of renewable electricity policies in Germany” Energy and Environment, (2004) 15 no 4, 610.

² < www.wikipedia.org> (last accessed: 31.10.2008)

³ MfE *Proposed National Policy Statement For Renewable Electricity Generation* (Wellington, August 2008), preamble.

Germany's newest objective, as in the RES Act 2009, is to increase the share of renewable energy sources in electricity supply to at least 30 per cent by 2020.

This dissertation will show the different steps both countries have taken in order to tackle the challenges of the 21st century with regard to electricity market, delivering secure and sustainable electricity. Chapter II and III will illustrate the different starting points of these both countries and which reforms have been taken in order to liberalise the market at first and in a further step to prepare it for a future. Therefore, in order to get a sufficient overview, it is necessary to describe the history and the development of New Zealand's and Germany's electricity markets. Consequently, this dissertation will illustrate and discuss the most important reform steps concerning the electricity markets in New Zealand (part II) and in Germany (part III). Additionally, this work will give a quite detailed overview over the attitude of the both countries towards renewable energy sources (but only in connection with electricity generation). In this connection, different incentive programme and renewable energy technology as well as the regulation of renewables will be scrutinised.

In the concluding part IV, current statistics and the most important results, compiled in part II and III of this dissertation, will be presented and compared. This will happen in two steps. First, the general electricity market reforms will be compared and evaluated. Finally, reforms concerning renewable electricity and future measures will be discussed, resulting in the answer which of these both countries to provide its population with reliable and low emission electricity in the future.

II NEW ZEALAND

A New Zealand's Early History

1 The beginning of New Zealand's electrification

New Zealand's history of "electrification began in the late 19th century, when local authorities and private entrepreneurs constructed small generation facilities to serve

local markets.”⁴ In the 1920s, the Government started with the “construction of a set of large state-owned hydroelectric plants on major rivers.”⁵ These plants were linked by a “transmission grid from which power was taken off by local government distribution and retail companies, the so called ESAs (Electrical Supply Authorities).”⁶ Each of these Authorities had a “territorial monopoly franchise in running low-voltage distribution networks, retailing electricity to final customers, and supplying and servicing household electrical appliances.”⁷

The state-owned generation and transmission system, built up from this time, displaced most locally owned generating plants and remained a state-owned monopoly for the next half century, while distribution and retail remained franchised and publicly owned local monopolies. Regulation in this setting was unnecessary, since both central and local government were democratically accountable, and operated the electricity supply system with social, rather than commercial, goals. Prices were set to achieve break even over the long run.⁸

The business policy resembled a social service policy and focused on public welfare rather than being a profit orientated organisation. Investment behaviour was motivated by political reasons and not by economic or technical needs, and also by conflict between social and commercial objectives, political interference.⁹

But this “state-funded welfare system with provisions for universal social security including education, housing and health services together with a wide range of government-run and often subsidised, utility services”, all funded out of general taxation, could only work as long as NZ economy was prospering.¹⁰

⁴ Geoff Bertram “Restructuring the New Zealand Electricity Sector 1984-2005” in Fereidoon P. Siohansi and Wolfgang Pfaffenberger (ed) *Electricity Market Reform: An International Perspective* (Elsevier, Oxford, 2006) 203.

⁵ Ibid, 204

⁶ Ibid.

⁷ Ibid

⁸ Ibid.

⁹ Alexander Ehlert *Development and Regulation in the New Zealand and German Electricity Industries* (LLM research Paper, Victoria University of Wellington, 2005) 20.

¹⁰ Alan Bollard and Michael Pickford “Utility Regulation in New Zealand” in Michael E. Beesley (ed) *Regulating Utilities: Broadening the Debate* (IEA, London, 1997) 75, 77.

2 *The turning point*

After Second World War between 60 and 70 per cent of all New Zealand exports went to Britain. This “assured preferential access to the British market allowed New Zealand considerable prosperity and by 1953 the country enjoyed what was probably the third highest standard of living in the world.”¹¹

But the year 1973 marked a turning point in New Zealand’s economic fortunes. In this year Britain joined the European Community, resulting in access for New Zealand exports becoming increasingly restricted. At the same time the economy was also badly affected by the large international oil price raises in 1973/74 and 1979.¹² Despite this bad economic situation the demand of New Zealanders in social services increased and due to an additional “lax monetary policy the public debt of New Zealand grew sevenfold” in the decade from 1975 on.¹³

At that time electricity utilities were large and inefficient statutory monopolies. The State Owned Enterprises (SOE) produced an overall outcome of 10 per cent of the country against 20 per cent of total investment.¹⁴ A department of the Ministry of Energy, the New Zealand Electricity Division (NZED), previously known as the State Hydro-Electric Department¹⁵, operated most of the generation and transmission capacities and supplied wholesale power at an average-cost price (the so-called bulk supply tariff). Retail was administered by the ESAs, which were organised in Municipal Electricity Departments or Electric Power Boards with guaranteed retail areas.¹⁶

By the early eighties there was a consensus about the need for change in the direction of economic policy in the business community amongst political pressure groups and in the Treasury.¹⁷

¹¹ See supra n 10, 76.

¹² Ibid, 77.

¹³ Ibid, 78.

¹⁴ Brian Easton *The Commercialisation of New Zealand* (Auckland University Press, Auckland 1997) 7.

¹⁵ But this department only existed from 1948 to 1956.

¹⁶ See supra n 9, 20.

¹⁷ See supra n 10, 78.

B The Reform Process from 1984 - 1993

With the election win of the Labour Party in the year 1984, neoliberal economic doctrines (largely copied from the UK) were adopted, resulting in radical changes to all state-owned operations, including electricity. The basic thrust of the reform programme was to free the market mechanism from distorting government controls and subsidies. The emphasis was on allowing the “forces of enterprise, self-interest, and competition to generate efficiency and economic growth.”¹⁸ The key features of the reform were “the removal of nearly all statutory rights in order to expose utilities to competition, corporatisation and the unbundling of competitive and monopoly parts as well as the abolishment of funding relating to social service obligation.”¹⁹ The aims were to ensure that state-owned monopolies would increase their profitability by raising their prices to contribute to reducing the government’s budget and the raise of economic efficiency of state-owned operations by converting them into profit-oriented commercial corporate organisations.²⁰

1 The State-Owned Enterprise Act 1986 and its consequences

“In 1986, the government announced its decision to reform its trading activities, including the generation and transmission sectors of the electricity industry, and the State-Owned Enterprises (SOE) Act was passed to govern the process of corporatisation.”²¹ The Ministry of Economic Development explained that:²²

The SOE Act was a component of the government’s moves to improve the performance and accountability of the public sector. SOEs are companies in which nominated Ministers hold all the shares, and the enterprises negotiate annual Statements of Corporate Intent with shareholding Ministers. They operate with commercial structures and incentives and with the principal objective of being successful businesses.

¹⁸ See supra n 10, 79.

¹⁹ Alan Bollard „Utility Regulation In New Zealand“ (ACCC Training Program on Utility Regulation, November 1997) 2.

²⁰ See supra n 4, 208.

²¹ Ibid.

²² MED *Chronology of New Zealand Electricity Reform* <www.med.govt.nz> (last accessed: 31.10.2008).

In April 1987 then, the NZED was converted into the Electricity Corporation of New Zealand Ltd (ECNZ). “The ECNZ was set up as a company under the SOE Act, to own and operate the generation and transmission assets. Policy and regulatory activities were separated out and largely retained in the Ministry of Energy.”²³ The following year the operation of the transmission grid was transferred to a new ECNZ subsidiary, Transpower Ltd, and the first step towards the separation of generation from transmission was taken.

2 The recommendations of the Electricity Task Force and its consequences

In December 1987, the government set up an Electricity Task Force, comprised from members from the government departments, the ECNZ and the ESAs, to advise on the new industry structure and regulatory requirements. The Task Force recommended three major reform steps in September 1989: Firstly, the establishment of a competitive generation market by minimising generation entry barriers and by exploring a regulatory rule against price discrimination by ECNZ. “Further study of a limited generation break-up and the creation of a wholesale market (subject to this, ECNZ should be privatised)”²⁴ were also discussed. Secondly, the Transpower grid should be separated from the ECNZ. The idea was that distributors and generators should form a club to own the transmission grid. And thirdly, the introduction of competition at the retail market in deregulating the ESAs by corporatisation and removal of statutory protective rights.²⁵

“The last of these recommendations, namely no price regulation, and adoption of a light-handed approach to regulation in general, was wholeheartedly adopted by the government” which believed that the danger of market power abuse and its problems could be solved without an “industry regulator solely on general competition law: the Commerce Act 1986.”²⁶

First effects of these recommendations could be noticed in 1990. In May, the government announced that the ESAs would be corporatised and in August the Electric Power Boards Amendment Act 1990 passed, allowing the government to appoint new

²³ See supra n 22.

²⁴ Ibid.

²⁵ Ibid.

²⁶ See supra n 4, 210.

ESA commercial board members, who would later direct the new retail companies, whereas the old elected board members became trustees of the firms.²⁷

In 1991, the Energy Sector Reform Bill was introduced to the parliament. This bill contained provisions facilitating the corporatisation of ESAs and a wide range of regulatory measures. The bill was later split to become five separate Acts, including the Energy Companies Act 1992 and the Electricity Act 1992.²⁸

“The Energy Companies Act 1992 finally forced all ESAs to corporatise their operations, moving to a commercial company structure with shareholders and profit objectives.”²⁹ The Electricity Act 1992, which came into effect in April 1993, provided for deregulation, “more precisely the removal of distributors’ statutory monopolies and of the obligation to supply”.³⁰ Furthermore, it had provisions for information disclosure (focused particularly on natural monopolies), “safety matters and land access as well as temporary provision for price control for domestic consumers”.³¹

But the effects of the reforms were minor as the incumbents continued to behave as they had it done before the reform process.³²

3 First steps to a Wholesale Electricity Market

Following electricity shortages in 1992, the government set up a task force, the Wholesale Electricity Market Development Group (WEDMG) to “examine how a wholesale electricity market could be established as a means of producing efficient pricing signals for investment in new generating capacity and to facilitate the entry of new generators”.³³ This WEDMG’s “terms of reference included the development of specific, cost effective proposals for developing a wholesale electricity market” which should ensure that wholesale electricity is “consistent with sustainable development and

²⁷ See supra n 9, 22.

²⁸ See supra n 22.

²⁹ See supra n 4, 216.

³⁰ See supra n 22

³¹ Ibid.

³² To be seen in the course of this chapter

³³ See supra n 10, 111.

delivered at the lowest cost to the economy.”³⁴ In 1993, the Electricity Market Company, subsequently renamed Market Place Company, (M-co) was set up by key players in the electricity industry at the behest of the government.³⁵ According to the MED:³⁶

Its role was to support the electricity market framework for wholesale trading. Key steps to this aim were the commencement of an online secondary market in trading of ECNZ’s hedge contracts, the establishment of a market surveillance committee in order to admit new entrants and supervise conduct, as well as the administration of the Metering and Reconciliation Information Agreement (MARIA)³⁷ to record and reconcile flows to meet the needs of parties contracting in the wholesale and retail markets.

1993 was also the year of the so-called First Franchise Removal, which was “the first stage of the removal of statutory distribution and retail monopolies (and the obligation to supply), allowing competition for sales to retail consumers.”³⁸ In May, “the government announced its decision to separate Transpower from ECNZ. The planned club ownership³⁹ was found to be difficult to implement, so the government decided to set up Transpower as a stand-alone Crown-owned company”.⁴⁰ But the next year, which turned out to be a very important one for New Zealand’s electricity market, changed this plan again.

C The Reform Process from 1994 - 2001

1 1994: Year of change

In 1994, major steps were taken to liberalise New Zealand’s electricity market. Firstly, in April the Second Franchise Removal took place. The First Franchise Removal “allowed the supply companies already to sell customers anywhere, up to a limit of 0.5

³⁴ See supra n 22.

³⁵ For further details; see supra n 10, 112.

³⁶ See supra n 22

³⁷ MARIA governed the industry from 1 October 1996 to 1 March 2004.

³⁸ MED

³⁹ Compare n 25.

⁴⁰ See supra n 22.

gigawatt-hours per customer per year.”⁴¹ In this second stage “the restriction on customer size was lifted, giving free scope for all customers to purchase electricity from any supply company.”⁴²

“In July 1994, generation was fully separated from transmission, leaving ECNZ with generation while the transmission grid company Transpower became an independent SOE⁴³, charged with operating the grid and scheduling the dispatch of generators.”⁴⁴ There was then the possibility to split ECNZ into smaller companies which could compete on the generation market and also could be sold more easily.⁴⁵ This development was also supported by the introduction of the Electricity (Information Disclosure) Regulations 1994⁴⁶ which required public disclosure of information and focussed particularly on the natural monopolies in the industry (distribution and transmission). The regulations featured “financial separation” of natural monopoly (distribution lines) and competitive activities (retailing and generation) with common ownership. Information relating to line charges became available to all consumers, plus further information on prices and other key conditions of contract. Separate audited financial statements and separate pricing were also required for local distribution activities to ensure that distribution was operating transparently.⁴⁷

In August 1994, the WEDMG recommended in its final report the earliest establishment of a competitive wholesale market as well as of a voluntary pool and spot market, operated by a neutral entity. The Group further recommended a separate grid, long-term tradable wholesale contracts, a levy to promote energy efficiency and conservation, and restrictions on ECNZ market power.⁴⁸

⁴¹ See supra n 10, 113.

⁴² Ibid.

⁴³ The government amended its previous announcement. Compare with n 39.

⁴⁴ See supra n 4, 211.

⁴⁵ See supra n 9, 22.

⁴⁶ Came into force in July 1994, were revised 1999 and subsequently revoked on 6 April 2004.

⁴⁷ Paula Rebstock “The New Zealand Experience in Utility Regulation” (Australian Competition and Consumer Commission Regulatory Conference, 30 July 2004) 4.

⁴⁸ Ibid.

2 *The Wholesale Electricity Market*

The following year, the government answered these recommendations with “its provisional announcements on the steps it would take in the lead up to the opening of the wholesale electricity market.”⁴⁹ Besides “a five year fund of NZ\$18 million to support energy efficiency in the domestic sector”, the main focus of the government was to end the monopoly of the ECNZ. Their plans included to split ECNZ into two competing SOEs, namely ECNZ and Contact Energy⁵⁰. Furthermore, ECNZ’s proposals for the new Taranaki plant and “six small hydro plants owned by ECNZ were to be sold”.⁵¹

In the beginning of 1996, “Contact Energy commenced operations as an SOE generator, in competition with ECNZ. Contact Energy took on seven⁵² former ECNZ power stations”⁵³, which represented 22 per cent of New Zealand’s total electricity production at this time. Contact Energy also took over ECNZ’s contracts for Maui gas. A set of special restraints (cap on building new capacity, ring-fencing new capacity, and high level of firm capacity to be offered by tender for long term contracts) was applied to ECNZ until such time as its market share fell below 45 per cent.⁵⁴ In April 1996 ECNZ had still about two-thirds of the country’s generating capacity left.⁵⁵

In October, the “wholesale electricity market started under a multilateral contract, the New Zealand Electricity Market (NZEM). M-co was contracted to act as Market Administrator, Clearing Manager and Pricing Manager. Transpower took the roles of the Scheduler and Dispatcher.”⁵⁶ Supply companies and large industrial users were now able to choose between competing, and possible new entrant, power generators – or building their own generating capacity – in order to get better deals. The electricity prices were calculated every 30 minutes “based on bids and offers from market participants (i.e. generators, purchasers and traders).”⁵⁷

⁴⁹ See supra n 22.

⁵⁰ Which was known as “EC-2” at this time.

⁵¹ See supra n 22.

⁵² The power stations at Roxburgh, Clyde, New Plymouth, Wairakei, Ohaaki, Otahuhu, Stratford and Whirinaki.

⁵³ See supra n 22.

⁵⁴ Ibid.

⁵⁵ See supra n 10, 111.

⁵⁶ See supra n 22.

⁵⁷ For further details on the calculation of the final price see supra n 4, 214.

However, it soon became clear that the establishment of the wholesale electricity market and greater transparency in pricing did not meet the expectation to check sufficiently on monopoly power. The local electricity companies still focused on their natural monopolies and had both the ability and incentive to use their market power in distribution to exclude competition at the retail level. They also controlled the hedge market products to the detriment of independent retailers and traders, which could not get transparent prices under fair conditions to secure their potential business risks. In cross-subsiding retail prices with the profit from the distribution network businesses, the big players also dumped the prices for pure energy so new retailers could not break into this market.⁵⁸ And the main problem in the wholesale market was that ECNZ was still dominant in the spot and contract markets. In addition, the set of special restraints on ECNZ expanding or exercising its dominance were likely to be ineffective over time.⁵⁹

3 The Electricity Industry Reform Act 1998

The consequence of the –in the last chapter described- development was that the government decided that its earlier warning, issued in 1995 in its Policy Statement⁶⁰, had not been heeded. In this GPS, it was held that the government would seriously consider requiring the ownership of line business to be separated from ownership of competition activities (such as generation and energy retailing) if there is a clear and consistent pattern of abuse of naturally monopoly line businesses. The government’s response was to introduce and pass in a matter of weeks – “the bill was introduced to parliament on 19 May and received the Royal Assent on 8 July 1998”⁶¹ -the Electricity Industry Reform Act 1998. Patterson stated that:⁶²

⁵⁸ See supra 47, 5/6.

⁵⁹ MED *New Zealand’s Electricity Reform Package - A Better Deal for Electricity Consumers* (Wellington, April 1998)

⁶⁰ MED *Government Policy Statement - Wholesale Electricity Reform, Regulation of Electricity Line Businesses* (Wellington, June 1995).

⁶¹ Ross Patterson “Utility Regulation in New Zealand: From Light-Handed to Many-Handed (Australian Competition and Consumer Commission Regulatory Conference, 30 July 2004) 12.

⁶² Ibid.

The key feature of the Act was the mandatory separation of the monopoly business from the contestable retail/power generation businesses. Companies were required to divest their distribution or supply business within five years and operate as separate corporations in the interim.

Further aspired distribution and retail reforms were the strengthening of information disclosure requirements in order to provide for a greater level of information which was more readily understandable to ordinary customers⁶³, the need for a low cost system to enable consumers to switch electricity suppliers and the increased threat of price control on the monopoly line businesses. In addition, the government announced its decision to split ECNZ into three SOEs.⁶⁴

In April 1999, the ECNZ split was carried through. New Zealand's largest electricity generator was split into three competing state-owned generators. The new companies were Genesis Power Ltd, Meridian Energy Ltd and Mighty River Power Ltd.

In a series of steps from 1996 to 1999, the larger ECNZ generation assets were split up among four successor companies: Contact Energy and the three above mentioned: while the smaller ECNZ stations (plus a number of other generation plants formerly owned by supply authorities) were privatised by sale to Trustpower, Todd Energy and two smaller operations owned by Natural Gas Corporation and Tuaropaki Power. Contact Energy was privatised by a share float between March and May 1999; the other three large successor companies remained state owned.⁶⁵

Also, in April 1999 the electricity industry complied with the requirement of the government's 1998 electricity reforms to establish a "system for switching electricity retailers. They launched a profiling system that enabled consumers to switch electricity retailers easily. The system was part of MARIA⁶⁶ and administered by the wholesale market administrator M-co".⁶⁷

Overall, the Electricity Industry Reform Act stimulated a frantic round of commercial activity as companies determined whether to divest their line businesses or

⁶³ The Information Disclosure Regulations were revised in April 1999 (see also n 46).

⁶⁴ See supra n 58.

⁶⁵ See supra n 4, 211.

⁶⁶ Compare n 37.

⁶⁷ See supra n 22.

their generation retail assets. In the space of 12 months, 1.1 million customers changed suppliers whilst five network companies changed ownership. As a consequence the wholesale electricity prices fell. But whilst the reforms resulted in savings to industrial and commercial customers, domestic customers experienced further price raises within the first four days after the reforms came into effect.⁶⁸

4 The Ministerial Inquiry into the Electricity Industry and its outcome

In order to ensure that also the consumers benefited from the reforms, the incoming government (Labour-led centre-left elected in 1999) announced a ministerial inquiry into the electricity industry on 3 February 2000. It should consider what changes were needed to ensure New Zealanders have the best possible electricity system. “The inquiry panel supported continuation of the self-regulation approach, but recommended further evolution of the existing arrangements in the electricity industry as well as introduction of targeted price control for electricity line businesses.”⁶⁹

The government decided to follow the ministerial inquiry’s recommendations and accepted them, “either directly or in a modified form”. On 3 October 2000, it “announced a comprehensive policy package designed to deliver fairness and transparency for electricity consumers. And finally, on 7 December 2000 the government released the final version of its policy statement.”⁷⁰ “The government’s overall objective was to ensure that electricity is delivered in an efficient, fair, reliable and environmentally sustainable manner to all classes of consumers.”⁷¹

The government accepted almost in their entirety a set of recommendations concerning new self-regulatory arrangements made by the inquiry panel. It recommended that the three existing industry governance structures (NZEM, MARIA and the relatively new MACQS⁷²) be merged into one Electricity Governance Board (EGB), with wider membership and wider responsibilities. Membership should include the local distribution

⁶⁸ See supra n 61, 13.

⁶⁹ See supra 47, 6/7.

⁷⁰ MED *Government Policy Statement: Further Development of New Zealand’s Electricity Industry* (Wellington, December 2000).

⁷¹ Ibid.

⁷² The Multilateral Agreement on Common Quality Standards, an industry self-governing arrangement (just like NZEM and MARIA), concerning the operation of the national transmission grid, evolving from 1998.

companies and Transpower, and the rules should be binding on them.⁷³ The EGB should have a majority of independent directors, which should be appointed after consultation with the Minister of Energy. Furthermore, the EGB should have a number of responsibilities beyond running the wholesale market. It should ensure that rules are developed in the areas of transmission (organisation of a transmission pricing methodology in negotiation with Transpower), distribution (terms and conditions for connection of distributed generation to distribution lines), retail (establishment of a consumer complaints system and retailer insolvency measures) and governance (enforcement including alternative dispute resolution and an effective independent surveillance body).⁷⁴

As long as the government's objectives were met, it was happy for the industry to find ways to do so through self-regulation and internal governance, as it had been happy in the past. But this time legislation was introduced in order to ensure statutory backup power for the government.⁷⁵

5 The Electricity Industry Bill 2000

The new government's policy was to have industry solutions where "possible and regulatory solutions where necessary".⁷⁶ Therefore, the Electricity Industry Bill was tabled in Parliament on 28 November 2000. "The bill was enacted on 7 August 2001 and amended four statutes: the Ministry of Energy Abolition Act 1989, the Commerce Act 1986, the Electricity Act 1992, and the Electricity Industry Reform Act 1998."⁷⁷

One key feature of the bill was the introduction of part IVA of the Commerce Act, empowering the Commerce Commission to impose direct price control on transmission and distribution line businesses in case of breached thresholds, established by the Commission, and to carry out a review of valuation methodologies for line business assets as well as to administer information disclosure requirements for line businesses. Furthermore, the Electricity Amendment Act 2001 allowed the Minister of

⁷³ Barry Barton "Self-Regulation, State regulation, and Co-Regulation in Energy in New Zealand" in Barry Barton et al (ed) *Regulating Energy and Natural Resources* (Oxford University Press, Oxford, 2006) 139.

⁷⁴ See supra n 70, no 7.

⁷⁵ See supra n 73, 139.

⁷⁶ See supra n 70, no 2.

⁷⁷ See supra n 22.

Energy to recommend regulations to be made by Order in Council which would require retailers to offer certain tariff options, and to regulate the terms and conditions on which lines businesses services are supplied to low end consumers.⁷⁸ It also allowed the government to establish an Electricity Governance Board, if the industry would fail to establish an EGB; or in the case of negative reports would be received on the EGB established by the electricity sector.⁷⁹

Finally, the Electricity Industry Reform Amendment Act 2001 “slightly relaxed the rules on ownership of electricity generation by lines companies and permitted to own and sell (in unlimited quantities) the output of generation from new renewable energy sources.”⁸⁰

D 2002-2004: End of the light handed regulation

1 The failed referendum of the industry

The industry responded positively to the challenge of further self regulation and established the Electricity Governance Establishment Project (EGEP) in October 2000 which set up a committee chaired by David Caygill, a former cabinet minister who had also chaired the Ministerial Inquiry⁸¹. The Committee realised some of the ideas proposed by the Government Policy Statement⁸² between April and July 2002. It developed inter alia “a regime for the disclosure of hydro spill by major generators” and “an index for fixed price electricity contracts”.⁸³ In the course of 2001, it also negotiated a new rulebook with industry players, and by September 2002, it had secured Commerce Commission approval. The Establishment Committee had resolved to conduct a formal referendum of the industry on the rulebook to establish the new EGB. One third of the voting right were allocated to the traders (generating companies and retailers), one third to the transporters (distributors and Transpower), and one third to consumers. There was no legal obligation or even any government direction to conduct a referendum, but the

⁷⁸ See supra n 61, 15.

⁷⁹ See supra n 22.

⁸⁰ Ibid.

⁸¹ Compare chapter II C 4.

⁸² Compare n 70 .

⁸³ See supra n 22.

measure would have increased the legitimacy.⁸⁴ On 16 May 2003 the results of the referendum were announced. Only the traders voted with a majority for the referendum (66, 2 per cent). Amongst the other groups the referendum was clearly rejected (e.g. only 4, 4 per cent of the consumers voted for the proposal). As there was not a substantial majority of all classes in favour of the proposal the referendum was not implemented.

2 The take over by the government

This disappointment came right in the middle of an energy security problem: a dry winter for New Zealand's hydro electric system. The government announced immediately that it would set up a statutory agency to take care of both problems.⁸⁵ According to a cabinet paper from 20 May 2003:⁸⁶

A new Electricity Commission should be established to take over governance of the electricity industry. The Commission should secure reserve generation to ensure New Zealand's electricity needs can be met even in very dry years without power savings campaigns.

To reach this public policy objective the ministers suggested the Electricity Commission should have the power to contract for dry year reserves with generation companies, to "set minimum requirements on generators" with regard to "dry year reserves" and offering "long term contracts" to retailers and major electricity users.⁸⁷

Furthermore, the government announced in July 2003 "that a new 155 megawatt oil-fired power plant should be built to help provide increased certainty of electricity supply."⁸⁸ The Whirinaki Reserve Generation Plant was finally commissioned on 1 June 2004. It should "only run when the limits of the electricity system were tested by problems such as low inflows to the hydro lakes or a major generation or transmission breakdown."⁸⁹

⁸⁴ See supra n 73, 140.

⁸⁵ Ibid.

⁸⁶ Cabinet Paper "Electricity Security of Supply: Policy Settings" (01 May 2003) CAB (03) 29.

⁸⁷ Ibid.

⁸⁸ See supra n 22.

⁸⁹ Ibid.

In September 2003, “the government announced further details of their reserve generation policy. The Electricity Commission was expected to contract for low fixed cost options for reserve energy”.⁹⁰ “New generation plants and plants that would otherwise be mothballed or retired would both be eligible to be considered for reserve energy”.⁹¹ In addition it was suggested, that “the Commission should contract with large electricity users for demand reductions as part of the reserve energy portfolio”.⁹² Simultaneously, the Electricity Commission (at the time of its establishment still formally known as the Electricity Governance Board) was established and began operating on 15 September 2003.

3 The Electricity Commission

The government had decided to exercise the powers available under part 15 of the Electricity Amendment Act 2001.⁹³ In doing so, the government had to give up its preferred position of a self-governing solution of the industry. But apart from failing to design an adequate self regulation, the industry had also failed to ensure future electricity supply and modernisation which was a significant risk for New Zealand’s sustainable economic growth.⁹⁴

Therefore, the principal objective of the Electricity Commission was and still is “to ensure that electricity is produced and delivered to all classes of consumers in an efficient, fair, reliable and environmentally sustainable manner”.⁹⁵ Under the Electricity Governance Regulations and Rules 2003 the Commission finally took over the running of the wholesale electricity market from the industry’s NZEM and MARIA on 1 March 2004 and became the specialised industry regulator which it is till now.

⁹⁰ See supra n 22.

⁹¹ Ibid

⁹² Ibid.

⁹³ See supra n 73, 142 and Palairt 35: Part 15 subpart1 of the Electricity Act 1992, inserted by the Electricity Amendment Act 2001, was brought into force by the Electricity (Commencement of Electricity Governance Board) Order 2003 (SR 2003/200). The Electricity Governance Regulations 2003 were made by Order in Council on 15 December 2003. They came into force on 16 December 2004. The Electricity Governance Rules were gazetted by the Minister of Energy on 18 December 2003, and they came into force on 1 March 2004

⁹⁴ See supra n 9, 30.

⁹⁵ According to section 172 N of the Electricity Act which was substituted by section 15 Electricity Amendment Act 2004 (2004 No 80) on 18 October 2004. The Commission is also now required to promote and facilitate the efficient use of electricity (section 172 N (1) (b)).

Further statutory amendments were thought necessary, and were introduced into parliament in October 2003 as the Electricity and Gas Industries Bill, becoming in due course the Electricity Amendment Act 2004 and the Gas Amendment Act 2004. The amendments gave the focus on energy security in determining the Electricity Commission to ensure the security of supply and the consumer protection. The electricity amendments also did away with the provisions that left the Commission as a mere backup in case self-regulation did not work.⁹⁶ “The bill also amended the Electricity Industry Reform Act to ease restrictions on lines companies owning electricity generation.”⁹⁷

The bill was criticised for stating unclear multiple objectives and multiple roles for the Commission; as policy advisor, regulator, enforcer, adjudicator, decider of Transpower’s commercial transactions, provider of market operations, and provider of reserve power. Also criticised were the breadth of the Commission’s regulatory powers, its likely cost, and its lack of independence from the Minister of Energy. Furthermore, it was argued that price control of local distribution and transmission under part 4A of the Commerce Act should not be transferred to it from the Commerce Commission.⁹⁸

4 The Government Policy Statement (GPS) on Electricity Governance

To end the uncertainty of the role of the Electricity Commission and set its direction, the government published a new GPS on Electricity Governance in October 2004. It confirmed the key role of the Commission which should contribute to sustainable economic growth by organising a reliable, resilient and environmentally responsible electricity system. The GPS set out the priority of the Electricity Commission as to “work with all stakeholder groups to ensure that” New Zealand will “achieve an appropriate level of security of supply” for a modern security (e.g. by building a “sufficient generation capacity or making energy efficiency improvements to meet ongoing demand growth”, implementing a sufficient reserve energy mechanism “to cope with extreme dry sequences or other unexpected supply disruptions”).⁹⁹ Further priorities of the Commission, stipulated by the GPS, were the improvement of the hedge market

⁹⁶ See supra n 73, 142.

⁹⁷ See supra n 22.

⁹⁸ See supra n 73, 142.

⁹⁹ MED *Government Policy Statement on Electricity Governance* (Wellington, October 2004) s 35/36.

transparency and liquidity in order to create a more efficient wholesale market, and the determination of common standards for the national grid.¹⁰⁰ Primarily, the “Electricity Commission should ensure that the interests of end consumers are properly taken into account and cooperate with Transpower and the grid users to facilitate investment in the grid.”¹⁰¹

The government set also out its “expectations and intentions regarding the disputed interrelationship between the Commerce Commission and the Electricity Commission.”¹⁰² It acknowledged that both Commissions would have responsibilities and powers “with regard to the regulation of Transpower and electricity lines businesses (the Commerce Commission under the Commerce Act 1986 and the Electricity Commission under the Electricity Act 1992).”¹⁰³ And it recognised that it was almost inevitable that the functions of both commissions would affect one another. So the government demanded that the both “commissions would work closely together to ensure a good coordination of their respective roles, and to minimise any scope for uncertainties.”¹⁰⁴ In respect of the optimisation of regulatory jurisdiction and transparency of communication and decision processes, the Commerce Act had been amended in order to transfer the responsibility for Transpower at any time and for other large electricity lines businesses not before 1 April 2009 by Order in Council from the Commerce Commission solely to the Electricity Commission.¹⁰⁵ The principle jurisdiction on network issues is still at the Commerce Commission. By doing so, the legislator met recommendations of the industry which had a solid history with the Commerce Commission. However, issues relating to security of supply and transmission investment decisions are now the responsibility of the Electricity Commission. Therefore, the transfer of the complete jurisdiction for all network related businesses from the Commerce Commission seemed reasonable.

¹⁰⁰ See supra n 99, s 76/77.

¹⁰¹ Ibid, s 81 ff.

¹⁰² Ibid, s 101.

¹⁰³ Ibid, s 101.

¹⁰⁴ Ibid, s 102 – 107.

¹⁰⁵ Commerce Act 1986 Part 4A, s 57 DB and DC.

In the GPS, the government set a further policy objective for the Electricity Commission which will be scrutinised in the next chapter: the uptake of renewable electricity generation.¹⁰⁶

E The Uptake of Renewable Energy

1 The starting point: Energy Policy Framework and its consequences

In October 2000, a revised Energy Policy Framework was released, in which the government committed itself “to a sustainable and efficient energy future. Within this commitment, its overall objective was to ensure the delivery of energy services to all classes of consumer in an efficient, fair, reliable, and sustainable manner.”¹⁰⁷ Objectives relating energy efficiency and renewable energy as well as climate change were set and in the following, the outcome will be shown:

(a) Energy Efficiency and Conservation Act 2000 and its strategy

The Act passed and set as its purpose the promotion of energy efficiency, energy conservation, and the use of renewable sources of energy. Section 8 ensured the preparation and draft of a National Energy Efficiency and Conservation Strategy (NCEES) for New Zealand by the end of 2001. The NCEES, released by the Minister of Energy on 27 September 2001, focused on two targets: a 20 per cent improvement in energy efficiency and a significant increase¹⁰⁸ of New Zealand’s renewable energy supply by 2012. The NCEES was replaced, according to the Energy Efficiency and Conservation Act¹⁰⁹, in 2007 by the New Zealand Energy Efficiency and Conservation Strategy (NZECS).¹¹⁰

¹⁰⁶ See supra n 99, section 2g.

¹⁰⁷ MED *Energy Policy Framework* (Wellington, October 2000).

¹⁰⁸ The target was expressed as a range from a 19 – 42 per cent increase over the - at that time - current renewable energy supply. EECA *National Energy Efficiency and Conservation Strategy – Towards a sustainable energy future* (Wellington, September 2001) s 14.

¹⁰⁹ Section 12 (1) stipulates the term of five years for a strategy.

¹¹⁰ See chapter II G.

(b) Ratification of the Kyoto Protocol

On 10 December 2002, Prime Minister Helen Clark signed the document that affected New Zealand's ratification of the Kyoto Protocol to the United Nations Framework Convention on Climate Change. New Zealand officially recognised that climate change is a global issue, and that it addresses this problem. "Under the Protocol, New Zealand has the obligation to reduce its greenhouse gas emissions to 1990 levels on average over the 2008-2012 commitment period, or to take responsibility for any emissions over these levels."¹¹¹ Furthermore, it was "required to develop and maintain a registry to ensure the accurate accounting of emission units. The Climate Change Response Act, passed by parliament in 2002, established New Zealand's registry and associated procedures."¹¹²

(c) The Resource Management Amendment Act 2004

To give effect to the government's policies, including the continuing "improvement in energy efficiency and progressive transition to renewable sources of energy from the NCEES and New Zealand's obligations as a signatory to the Kyoto Protocol"¹¹³, the Resource Management Act (RMA) 1991 was amended. In March 2004, the Resource Management (Energy and Climate Change) Amendment Act passed and gave greater weight "to the efficiency of the end use of energy¹¹⁴, the effects of climate change¹¹⁵ and the benefits to be derived from the use and development of renewable energy"¹¹⁶. This Amendment Act tried to meet "the need for national direction in this area, expressed by a number of councils and local government to provide them with a stronger mandate and legally relevant guidance to take climate change effects" and the benefits of renewable energy into consideration.¹¹⁷

¹¹¹ http://www.med.govt.nz/templates/StandardSummary____10636.aspx

¹¹² See supra n 22.

¹¹³ MfE *Resource Management (Energy and Climate Change) Amendment Bill 2004 – Explanatory Note* (Wellington 2003).

¹¹⁴ Section 7 (ba) of the RMA. }In addition to having particular regard to natural and physical resources

¹¹⁵ Section 7 (i) of the RMA. }persons exercising functions and powers under the RMA must now also

¹¹⁶ Section 7 (j) of the RMA. }have particular regard to these three new matters.

¹¹⁷ See supra 113.

2 Further progress

On 27 October 2004, a comprehensive discussion document on the future of sustainable energy in New Zealand was released.¹¹⁸ It followed the Government's Sustainable Development Programme of Action from January 2003 which identified energy as one of the four areas for action. The document was produced by an officials' group led by the Ministry of Economic Development. "It was designed as the focal point for six months of consultation, the outcome of which should be the starting point for formal sustainable energy policy development."¹¹⁹ The document identified the energy challenges and opportunities facing New Zealand as well as the possible future directions for energy policy development.¹²⁰ In 2005 after several workshops and a sustainable energy cabinet paper, the government confirmed its objective to create a reliable, resilient, environmentally responsible, and efficient energy system with fair prices. In order to reach this target, the government announced to explore various energy scenarios to explore a National Energy Strategy.¹²¹

But before even the draft of a national strategy could be released, the government updated its Statement on Electricity Governance.¹²² "It followed record electricity demand on the grid, delays in decisions on Transpower's proposed North Island grid upgrade" and a huge electricity blackout in the CBD and the southern suburbs of Auckland, which "revealed shortcomings in maintenance procedures and the need to diversify supply into Auckland."¹²³ New objectives for the provision of transmission services were included. "The transmission grid should be adequate resilient against the effects of low probability but high impact events as well as provide adequate supply diversity to larger load centres."¹²⁴ Furthermore, the Statement on Electricity Governance ensured "that the grid would facilitate competition in generation and minimise transmission constraints and that transmission planning would support the government's

¹¹⁸ MED *Sustainable Energy: Creating a Sustainable Energy System for New Zealand* (Wellington, October 2004).

¹¹⁹ See supra n 22.

¹²⁰ <http://www.beehive.govt.nz> (last accessed: 1 November 2008).

¹²¹ In July 2006, the terms of reference for the development of such a strategy, namely the New Zealand Energy Strategy (NZES), were released

¹²² MED *Government Policy Statement on Electricity Governance* (Wellington, Oct 2006).

¹²³ See supra n 22.

¹²⁴ See supra n 122, section 80.

goal of facilitating renewable energies”¹²⁵ whose development, investment and efficient uptake got the first time an own section¹²⁶ in the GPS on electricity governance.

On the 11 December 2006 the Government’s Draft New Zealand Energy Strategy was released for consultation with the public. It followed its terms of reference set out in July 2006 which identified the “priorities to achieve the government’s energy objectives of reliability and resilience, environmental responsibility and fair efficient prices for energy for current and future generations”.¹²⁷ “The draft’s strategy objective was to ensure that New Zealand would develop a sustainable and affordable energy system which should minimise greenhouse gas emissions and give New Zealand an enduring competitive advantage over other countries”.¹²⁸ The Ministry of Economic Development received 331 submissions on the strategy from the energy industry, major energy users, community and non-governmental organisations, local and central government and interested members of the public. Following receipt and consideration of these submissions, on 11 October 2007 the final New Zealand Energy Strategy (NZES) was released.

F The New Zealand Energy Strategy (NZES)

This strategy was meant to be an important part of a package of initiatives the NZ Government introduced “to advance sustainability and economic transformation, and to help New Zealand respond to the climate change”.¹²⁹ Specifically, it tried to cope with the challenges of providing enough energy to meet the needs of “a growing economy, maintaining security of supply and reducing greenhouse gas (GHG) emissions”.¹³⁰

The Minister of Energy¹³¹ Hon David Parker stated in the foreword that:¹³²

The strategy along with the New Zealand Energy Efficiency and Conservation Strategy (NZECS) will take sustainability to new levels, by championing renewable energy,

¹²⁵ See supra n 22.

¹²⁶ See supra n 122, section 34A.

¹²⁷ See supra n 22.

¹²⁸ Ibid.

¹²⁹ MED *New Zealand Energy Strategy to 2050* (Wellington, October 2007) 5.

¹³⁰ Ibid.

¹³¹ The development of the NZES has been a whole-of-government process led by the MED.

¹³² See supra n 129, foreword.

energy efficiency at home and at work as well as the development and deployment of sustainable energy technologies.

The primary target of the NZES, set and repeated steadily by the Government, is to accomplish “that 90 per cent of electricity will be generated from renewable sources by 2025”.¹³³ The NZES contains about 120 pages and is divided into two sections. While section one of the NZES sets out the government’s challenges and visions for a sustainable energy system and gives an overview of the possible actions, section two goes more into detail and introduces initiatives the government will take.¹³⁴

The NZES identified two major challenges: Energy security and climate change. In terms of energy security the government promised to watch the development in oil markets closely in order to react, if necessary. Furthermore, the NZES again highlighted the importance for NZ to maintain a secure electricity supply. Because of the dominance of hydro electricity in NZ, and the limited ability to store water, there would be still a good probability of shortages in dry years. When water is short, the NZ Government plans in the future to “maintain a secure electricity supply through an increased use of new renewable sources of electricity” instead of fossil fuel-based generation on which they have relied historically.¹³⁵

The NZES defined four main climate change challenges for NZ:¹³⁶

- The need to control and reduce their own GHG emissions.
- The challenge to support international initiatives for multilateral action on GHG emissions.
- The need to prepare for, and adapt to, the impacts of changes in their physical environment.
- And finally, NZ should realise these objectives at the lowest achievable costs.

With respect to reducing GHG emissions the government announced “its intention to introduce an Emissions Trading Scheme (ETS) to give businesses flexibility

¹³³ See supra n 129, pp 6, 17, 22, 24, 25, 59, 71, 78 etc.

¹³⁴ Ibid, 8.

¹³⁵ Ibid, 13.

¹³⁶ Ibid.

in deciding how to reduce their carbon footprint and to help set New Zealand on the path to a sustainable future”.¹³⁷

The NZES set out further actions in order to achieve “a reliable, resilient, sustainable and low emissions energy system”¹³⁸ which could be divided into seven topics which are presented in the following:

1 Providing clear direction on the future of the NZ energy system through strategic leadership

To improve investor confidence and reduce non-market uncertainties the government wanted clearly signal its strategic direction for the energy sector. This would contain, according to the NZES, a definite intention and priority for investment in “renewable generation, efficient transmission, energy efficiency and new technologies” and the already mentioned introduction of an ETS.¹³⁹ Furthermore, the government held the view that there should be no support for any new base load fossil fuel generation over the next ten years. Therefore, the government will consider “regulatory options under the Electricity Act 1992 to reinforce its objectives for limiting new fossil fuel generation”.¹⁴⁰

2 Utilising markets and focused regulation to securely deliver energy services at competitive prices

Especially concerning the electricity market, the NZES pointed out the importance of “a competitive market operating with a stable regulatory environment and with a reasonable certainty about fuel supplies”.¹⁴¹ According to the NZES, “this would keep prices at a competitive level and encourage timely investment in generation and infrastructure. Strong grid and lines arrangements would be particularly important for security and diversity of supply.”¹⁴² This was also recognised in the submissions on the

¹³⁷ See supra 129, 14.

¹³⁸ Ibid, 15.

¹³⁹ Ibid, 17.

¹⁴⁰ Ibid, 80.

¹⁴¹ Ibid, 18.

¹⁴² Ibid, 18.

draft NZES. Especially, four issues emerged: The need for a “major investment in the transmission grid in order to fulfil the NZES vision of a high renewable future”. Secondly, the concern that differences in lead-in time, “needed for transmission and renewable generation developments, may make it harder to coordinate generation and transmission planning”. Furthermore, a “high renewables mix would require a particular transmission grid formation”. And finally, “much of the existing transmission infrastructure was old and urgently needed upgrading” at this point.¹⁴³

Proposed actions in this area included developing a National Policy Statement on electricity transmission under the RMA¹⁴⁴, “relaxing restrictions on the lines companies’ ability to invest in generation and introducing distributed generation regulations to facilitate connections”.¹⁴⁵

3 Reducing GHG emissions, including through an ETS

The long term objective of NZ is to reduce GHG below 1990 levels. According to the NZES:¹⁴⁶

This objective will need not only greater efficiency and more use of renewable energy but also widespread uptake of zero and low carbon technologies such as electric cars and Carbon Capture and Storage (CCS). A commitment to support global efforts to reduce GHG emissions and the introduction of ETS should give the private sector an incentive to invest in clean technology, which is likely to be cheaper from current technologies with further emissions prices.

Besides the obvious measures to reduce GHG emissions (e.g. use energy more efficiently, use and development of renewable energy sources), the NZES wants to see NZ in “a position to deploy zero and low emissions technologies when they become economic and viable”.¹⁴⁷

¹⁴³ See supra n 129, 65.

¹⁴⁴ This has been done in March 2008. For further details compare chapter II H 1.

¹⁴⁵ See supra n 129, 19.

¹⁴⁶ Ibid, 20.

¹⁴⁷ Ibid, 20.

4 Using energy more efficiently

The NZES recognised that NZ uses energy less efficiently than other countries, which would give scope for significant improvement. “Using energy more efficiently would reduce GHG and cut energy costs, including the need to provide more costly electricity generation capacity.”¹⁴⁸ In this connection, the NZEECS provided energy efficiency measures in more detail.¹⁴⁹

5 Promoting renewable energy

The government again repeated its ambitious target of 90 per cent of electricity being generated from renewable sources by 2025. It highlighted that:¹⁵⁰

NZ would be in a fortunate position to produce already large amounts of zero or low emissions electricity from renewable sources such as geothermal, wind and hydro, and that these sources are plentiful and cheap by world standards. For the future, wave and tidal electricity generation would be expected to become economically viable.

The government considered that their goal, 90 per cent by 2025, would be “achievable without imposing significant additional costs on the electricity sector”.¹⁵¹ However, the government acknowledged the possible disadvantage of “renewable electricity generation having a larger visible effect on the local environment than fossil fuel electricity generation plants (e.g. wind farms have more impact on the environment than gas-fired thermal plants of equivalent output)”.¹⁵² In this connection it stated, that the balance between “climate change benefits of increasing renewable electricity and the potential impact on the local environment” has to be found.¹⁵³

¹⁴⁸ Ibid, 21.

¹⁴⁹ EECA *New Zealand Energy Efficiency and Conservation Strategy* (Wellington, October 2007).

¹⁵⁰ See supra n 129, 22.

¹⁵¹ Ibid, 22.

¹⁵² Ibid, 22.

¹⁵³ Ibid, 23.

6 Promoting early adoption of environmentally sustainable energy technologies

According to the NZES, energy generation, CCS and transport technology would all develop rapidly and would be expected to “play an important part in moving NZ towards a sustainable low emissions energy system”.¹⁵⁴ NZ should ensure its ability to “start using these new technologies as soon as they become proven and economically viable”.¹⁵⁵ In the electricity sector, the government especially expects CCS to be economic by 2025, and therefore to help to achieve their ambitious goal. The government plans to “continue to build New Zealand research expertise and to encourage collaboration between existing research organisations”.¹⁵⁶ Therefore, they are “supporting initiatives to build capacity and link participants from the research community, industry and central and local government”.¹⁵⁷

Further “key actions to facilitate environmentally sustainable energy technologies” included the “establishment of contestable funds to support the deployment of marine based electricity generation” as well as the improvement of “international linkages to enable NZ to be a fast adopter and adapter of new technologies”.¹⁵⁸

7 Supporting consumers through transition to a low emissions energy system

In the NZES it was held that:¹⁵⁹

The investment required to meet NZ’s future energy needs and reduce carbon emissions is likely to push energy prices. The government recognised that this cost impact would be hardest on low income households and on firms competing with businesses in countries that have not put a price on emissions. Therefore, the government considered options to assist the most affected business and residential consumers while the transition takes place.

¹⁵⁴ See supra 129, 24.

¹⁵⁵ Ibid, 25.

¹⁵⁶ Ibid, 25.

¹⁵⁷ Ibid, 93ff.

¹⁵⁸ Ibid, 25.

¹⁵⁹ Ibid, 26.

G The New Zealand Energy and Efficiency Strategy (NZEECS)

“The NZEECS has been written in accordance with section 10 (2) of the Energy Efficiency Act 2000. It replaced the National Energy Efficiency and Conservation Strategy 2001”.¹⁶⁰ Since the Strategy 2001 was written, oil prices tripled and climate change accelerated. Contemplating these two defining issues, the EECA -with the aid of the government, the MED and the Electricity Commission- thought it was about time to reconsider it and make the new strategy to “a key point of the government’s response to meeting its energy, climate change, sustainability and economic transformation goals”.¹⁶¹ The NZEECS came as a companion document to the NZES and was “a detailed action plan for increasing the uptake of energy efficiency, conservation and renewable energy programmes”.¹⁶² It demonstrated the government’s commitment to “addressing climate change concerns and progressing broader sustainability objectives”.¹⁶³

The NZEECS recognised lack of information, weak price signals and lacking access to capital as “barriers preventing individuals and businesses from taking up energy efficiency and renewable energy in the wider economy”.¹⁶⁴ Consumers would be “often unaware of the benefits of renewable energy and how to realise them”.¹⁶⁵ Furthermore, they would “struggle to meet the initial costs of these measures, even though they might be cost effective over time”.¹⁶⁶ Education and awareness raising programmes as well as “incentive programmes, such as discounted products”, special grants and loans or a an assistance programme to support landlords insulating their property and setting minimum standards could help in this regard.¹⁶⁷ The proposed actions should “be funded from a range of sources including the Government, the voluntary sector and individuals. The government already agreed to \$ 184 Million in funding for a number of programmes”¹⁶⁸ which are divided in five big chapters:

¹⁶⁰ See supra, n 149, statutory declaration.

¹⁶¹ Ibid., 4.

¹⁶² Ibid, 10.

¹⁶³ Ibid.

¹⁶⁴ Ibid, 11.

¹⁶⁵ Ibid.

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

¹⁶⁸ Ibid, 15.

1 Energywise homes

The first chapter's objective was to have a warm, dry healthy home with an improved air quality and reduced energy costs¹⁶⁹ for every single household in NZ. Especially, "inadequate insulation and poor quality heating would make many homes cold, damp and expensive to heat"¹⁷⁰ (more than a third of the total energy use in households was used for space heating in 2006). But many families would face the before mentioned "barriers to investing in energy efficiency and renewable energy"¹⁷¹. Therefore, the "government announced an Energywise Homes Package in its Budget 2007, casting \$ 66 million to be delivered over four years and comprising"¹⁷² five actions:

- Firstly, improving the performance of existing homes including energywise interest free loans and home grants for insulation, energy efficiency or clean heat upgrades.¹⁷³
- Secondly, introducing better products with will be supported by measures like MEPS¹⁷⁴ and MEPL¹⁷⁵. These measures should improve the energy efficiency of domestic appliances as well as commercial and industrial equipment.¹⁷⁶
- Thirdly, amendments to address thermal performances and hot water systems of new homes are expected by the end of 2008.¹⁷⁷
- Furthermore, the Home Energy Rate Scheme will develop a star energy rating for the energy performance of a home that advises potential purchasers of its energy performance and how it could be improved.¹⁷⁸

¹⁶⁹ In 2006, the households consumed 33 per cent of NZ total electricity and were responsible for 10 percent of the GHG emissions.

¹⁷⁰ See supra n 149, 21.

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Ibid, 24.

¹⁷⁴ Minimum Energy Performance Standards.

¹⁷⁵ Mandatory Energy Performance Labelling.

¹⁷⁶ See supra n 149, 26.

¹⁷⁷ Ibid, 27.

¹⁷⁸ Ibid, 28.

- Finally, the government is running a comprehensive programme to lift standards and encourage the uptake of solar hot water systems. The objective is to install 15,000 to 20,000 by the end of 2010.¹⁷⁹

2 *Energywise businesses*

The next chapter's goal was to have "more energy efficient and competitive businesses using more renewable energy and emitting less carbon dioxide".¹⁸⁰ The industrial and commercial sectors were responsible for 37 per cent of New Zealand's annual GHG emissions in 2006. Consequently, the interest increased on the part of the businesses for the uptake of energy efficiency measures and renewable energy.

The NZEECS encouraged this interest with the expansion of the Energy Intensive Businesses and Improve Programmes and the implementation of an energy efficiency programme for workers.¹⁸¹ Furthermore, renewable energy programmes are ready to be launched. Especially, woody biomass and geothermal projects will be supported by capital grants¹⁸² which leads in the, for this work, most important chapter.

3 *New Zealand's efficient and renewable electricity system*

As the NZES already set, the objective is to have 90 per cent of NZ's electricity generated from renewable resources by 2025. This chapter resumed this very important goal and presented some new ideas to promote an efficient electricity system. The section about promoting the uptake of renewable electricity introduced hardly new aspects.

(a) Promoting an efficient electricity system

The NZEECS presented a number of ways how an efficient electricity system could be promoted. It highlighted the need to improve consumer participation and the need "to optimise the operation and management of transmission and distribution systems

¹⁷⁹ See supra n 149, 29/30.

¹⁸⁰ Ibid, 31.

¹⁸¹ Ibid, 37.

¹⁸² Ibid. 38 f. for further details.

to minimise losses as well as the potential to reduce peak demand, when prioritising electricity efficiency investments and programmes”.¹⁸³ Reducing peak demand would lead to the reduction of “emissions from fossil fuel generators that are currently required in NZ to provide power at peak times”.¹⁸⁴ Besides the help to reduce the peak demand, according to the NZEECS:¹⁸⁵

An efficient electricity system could also improve the ability of consumers to respond to wholesale prices. It could help temper market volatility and reduce potential abuse of market power when supply is tight. It may also raise consumer’s awareness of their energy consumption and provide incentives for behaviour change around the uptake of electricity efficiency, conservation and renewable energy.

In terms of consumer participation, the NZEECS particularly concentrated on the small and medium-sized electricity consumer because there would be the most scope to improve. Especially, small users would have generally contracts “with electricity retailers offering the same flat rate for every unit of electricity consumed, regardless of whether wholesale prices would be high or if there would be network constraints”.¹⁸⁶ Therefore, these users would not respond to pricing signals. “Smart meters, coupled with appropriate tariffs could enable greater consumer participation in the market”.¹⁸⁷ For example, these smart meters could be linked to regularly used domestic consumer goods (e.g. washing machine or air conditioner). And as soon as “a cheaper power rate is on offer”, the washing machine could start or the air conditioner could run on a higher level. Also, demand-size aggregation is seen as “another key to unlock consumer participation from small- to medium-sized electricity consumers”.¹⁸⁸

Furthermore, the NZEECS proposed “an investigation into whether regulatory obligations on energy suppliers will deliver net benefits over current delivery mechanisms”.¹⁸⁹ Finally, the management of distribution and transmission losses (account for around 7.5 per cent of electricity generation per year) has to be handled. A work

¹⁸³ See supra n 149, 64.

¹⁸⁴ Ibid.

¹⁸⁵ Ibid.

¹⁸⁶ Ibid, 65.

¹⁸⁷ Ibid

¹⁸⁸ Ibid.

¹⁸⁹ Ibid, 67.

programme to solve the flaws in design, operation and physical characteristics of distribution will be developed.¹⁹⁰

(b) Promoting the uptake of renewable electricity

In terms of promoting the uptake of renewable electricity, the NZEECS pointed out that it would be “easier for New Zealand than for almost any other country to commit to a low emissions electricity system”.¹⁹¹ Although 90 per cent of renewable electricity by 2025 would be a challenging target, the NZEECS considered it achievable “given New Zealand’s wealth of renewable energy resources”.¹⁹² But “meeting the target would require generating from a diverse range of renewable sources such as wind, geothermal, hydro and biomass”.¹⁹³ Other contributions to achieve this target could be seen in “emerging renewable technologies (such as wave, tidal and solar photovoltaic)”¹⁹⁴ as well as in more distributed generation, including small-scale generation. In this connection, a number of issues have been identified which are, according to the NZEECS, important for the uptake of renewable electricity:¹⁹⁵

- The need for an emission trading scheme (ETS) including the cost of GHG emissions in order to stop the disadvantages for renewable compared to fossil fuel generation.
- Regulatory barriers in the EIRA, RMA and the Building Code could discourage developers from investing in renewable generation or make obtaining consents for renewable energy developments more difficult.
- According to the NZEECS, another problem is that the market for small-scale generation is small and has not yet been able to take advantage of economies of scale to reduce costs. Therefore, the capability and capacity of suppliers and installers to meet increases in demand will need to be improved.

¹⁹⁰ See supra n 149, 67.

¹⁹¹ Ibid, 68.

¹⁹² Ibid.

¹⁹³ See supra n 149, 68.

¹⁹⁴ Ibid.

¹⁹⁵ Ibid.

- Finally, the NZEECS criticised the lack of precommercial funding for emerging renewable technologies and the lack of information with respect to the industry, local government and consumers, which have to be better informed on the benefits and costs of renewable generation.

To grapple these issues, the NZEECS presented a variety of actions and programmes including the National Policy Statement on renewable energy under the RMA¹⁹⁶ and the “EECA’s regional renewable energy assessment programme”¹⁹⁷ in order to provide local governments with renewable energy information.

Furthermore, many measures were planned in terms of distributed and small-scale generation such as raise-awareness programmes on the benefits and costs of distributed generation, “a report on strategic implications of distributed generation, a work programme to develop technical guidelines or standards for small-scale distribution”¹⁹⁸ and a reporting programme monitoring the uptake of distributed generation.

Also, the NZEECS actions concentrated on marine energy with a four-year fund of NZ \$ 8 million “bring forward the deployment of wave and tidal energy”¹⁹⁹, a planned marine energy atlas as well as “a programme that will consider technical and industry standards for supporting the roll-out of marine energy systems”²⁰⁰. Concluding, this chapter the NZEECS pointed out the importance of continuing the support of associations like SEANZ, NZWEA, AWATEA and NZGA²⁰¹ in order to promote renewable energy.²⁰²

¹⁹⁶ Compare with last chapter of part II.

¹⁹⁷ See supra, n 149, 69.

¹⁹⁸ Ibid, 70.

¹⁹⁹ Ibid.

²⁰⁰ Ibid

²⁰¹ In the order of the abbreviations: Sustainable Electricity Association of New Zealand, New Zealand Wind Energy Association, Aotearoa Wave and Tidal Energy Association and New Zealand Geothermal Association.

²⁰² See supra n 149, 70.

4 Government leading the way as a role model

Besides the chapter” energywise transport” which falls not within the scope of this paper, the final chapter referred to:²⁰³

The government having a responsibility to improve its own performance with regard to electricity efficiency, conservation and the uptake of renewable energy. Doing so, would form a key part of the government’s programme for the core public service to help it become carbon neutral by 2012.

H After NZES and NZEECS: Reforms in 2008

Subsequent to the release of these both strategies, the government took important steps in 2008 in order to promote the uptake of renewable electricity. Besides the National Policy Statement (NPS) on Electricity Transmission, the GPS on Electricity Governance was updated and two important bills passed the parliament.

1 National Policy Statement on Electricity Transmission

On 13 March 2008, the National Policy Statement (NPS) on Electricity Transmission was issued. Since January 2005 the government had been looking at options for national guidance referring transmission issues by establishing a reference group. In 2007, the NPS was proposed and an independent Board of Inquiry was appointed to hear public views and prepare recommendations to the Minister for the Environment which loosely followed these recommendations when finalising the NPS.²⁰⁴

The NPS was developed from the central government to “recognise the national significance of the national grid and to ensure that there is a balanced consideration of the national benefits and the local effects of electricity transmission”.²⁰⁵ Previously, there was no national framework that local governments could use when they had to decide on proposals for transmission lines. Now, this NPS “sets out the objective and policies to enable the management of the effects of the electricity transmission network under the

²⁰³ See supra n 149, 74.

²⁰⁴ MfE *National Policy Statement on Electricity Transmission – infosheet* (Wellington, February 2005).

²⁰⁵ MfE *National Policy Statement on Electricity Transmission, preamble* (Wellington, March 2008).

RMA”.²⁰⁶ It emphasises that “the efficient transmission of electricity plays a vital role in the well-being of New Zealand, its people and the environment”.²⁰⁷ It gives guidelines for the “decision-makers”²⁰⁸ under the RMA when:²⁰⁹

Drafting plan rules, making decisions on the notification of the resource contents and considering notices of requirement for designations for transmission activities. However, the NPS is not meant to be a substitute for the RMA’s statutory purpose²¹⁰. It is intended to be a relevant consideration to be weighed along with other considerations in achieving the sustainable management purpose of the RMA.

According to the NPS, it is now a matter of national significance to “facilitate the operation, maintenance and upgrade of the existing transmission as well as any new transmission networks”.²¹¹ 14 policies are expressed in order to recognise the national benefits of transmission while also managing any adverse environmental effects as well as “managing the adverse effects of other activities on the network”.²¹²

2 Updated Government Policy Statement on Electricity Governance

On the 20 May 2008, the Minister of Energy signed an updated Government Policy Statement on Electricity Governance (GPS).²¹³ The GPS was revised and updated to reflect all the changes since the GPS was originally released in October 2004 and amended in 2006.²¹⁴

Obviously, the biggest issue was the implementation of the NZES and NZEECS. They got their own chapter²¹⁵, in which the responsibilities for delivering the NZES and NZEECS action are stipulated. “A Senior Energy Officials Group has been established to

²⁰⁶ See supra n 205.

²⁰⁷ Ibid.

²⁰⁸ Means all persons exercising functions and powers under the RMA.

²⁰⁹ See supra n 205.

²¹⁰ According to section 5 (1) RMA the purpose is to promote the sustainable management of natural and physical resources.

²¹¹ See supra n 22.

²¹² See supra n 22.

²¹³ MED *Government Policy Statement on Electricity Governance* (Wellington, May 2008).

²¹⁴ Compare with chapter II D 4 and II E 2.

²¹⁵ See supra n 213, chapter 2 (section 11 – 16).

oversee the implementation”²¹⁶ and to coordinate the development of the intended actions. “The group is led by the MED and includes the Electricity Commission as well as other relevant agencies such as the Ministry of Environment”.²¹⁷

Furthermore, the chapters on electricity efficiency and renewable energy were revised and updated in order to be consistent with the both strategies. The latter is now documenting the “target of generating 90 per cent of electricity from renewable sources by 2025”²¹⁸ as well as proposing an investigation, to be made by the Electricity Commission, of “ways in which wind generation could be best integrated into the current system in order to ensure that its maximum economic potential can be achieved”.²¹⁹

Finally, important changes included:²²⁰

Requiring consideration of the need for grid upgrades to transfer renewable electricity from the point of generation to the points of consumption and updating reserve energy policy in line with the outcome of a comprehensive review carried out by the Electricity Commission.

3 *The Electricity Industry Reform Amendment Bill*

As seen above²²¹, the EIRA 1998 “required ownership separation between lines and supply in order to facilitate competition in the electricity industry”.²²² The EIRA was amended twice²²³, mostly “to facilitate lines companies investing in generation of new renewables”.²²⁴ But the government noticed that despite these amendments “there was little investment in generation by lines businesses”.²²⁵ After consultations with line companies it was agreed that “the amendments did not go far enough and that barriers remained to the lines businesses investing in generation”.²²⁶ Therefore, the purpose of this

²¹⁶ See supra n 213 section 14.

²¹⁷ Ibid.

²¹⁸ Ibid, section 47.

²¹⁹ Id, section 50.

²²⁰ See supra n 22.

²²¹ See chapter II C 3.

²²² MED *Electricity Industry Reform Amendment Bill 2007: Consultation on the Draft Bill* (Wellington, July 2007) Introduction.

²²³ In 2001 and 2004, compare n 99 and n 122.

²²⁴ See supra n 222, Introduction.

²²⁵ Ibid.

²²⁶ Ibid.

bill was to “address the issues that discourage line companies from investing in renewable generation while retaining key restrictions on cross-involvement”.²²⁷ Three main policies should be implemented to achieve that:²²⁸

The first was to make it easier for owners of line businesses to sell the output of the generation they were permitted to own under the 2001 and 2004 amendments to the EIRA 1998. The objective was to encourage the owners of lines businesses to invest in permitted generation, especially from renewable sources. This policy objective was to be achieved by allowing retail sales of electricity of up to 100 per cent of the nominal annual output capacity of permitted generation.

Furthermore, they planned to “allow trading in financial hedges to manage spot market risks and to lower the cost of corporate separation and compliance with arm length rules by raising the threshold for requiring compliance”²²⁹ as well as “allowing the same person to be the director of both lines and supply (generation and retailing) businesses”²³⁰ under certain circumstances. These amendments are particularly to find under the new section 17 of the EIRA.²³¹

The second main change was to narrow the scope of ownership separation requirements to focus on the geographic areas where there is potential for the exercise of market power, namely, where lines and supply businesses are co-located. This was achieved by allowing owners of lines businesses to be involved in generation and retailing without any limit outside of their lines area. On the other hand, existing ownership separation rules were retained in the case co-location between lines and supply. Because co-owned and co-located lines and supply businesses have both the incentive and ability to lessen competition in retailing and local generation. Where co-located cross-ownership of lines and supply is permitted in order to encourage investment in permitted generation, corporate separation and the requirement to act on arms-length basis is retained in order to reduce the risks of anti-competitive behaviour.²³²

²²⁷ Ibid.

²²⁸ Previously lines companies were restricted to sales of the actual output of the generating station, which could be very variable over time, especially in the case of generation from a new renewable source, making it difficult to retail to the customers, reducing their incentive to build renewable generation plants. See MED *Electricity Industry Reform Amendment Bill 2007: Consultation on the Draft Bill* (Wellington, July 2007) Detailed Explanation of Specific Policy Changes.

²²⁹ See supra n 222, Introduction

²³⁰ Ibid..

²³¹ For further details see: Electricity Industry Reform Amendment Bill 2007 - Government Bill Explanatory Note 191-1 (2007).

²³² See supra n 222.

“The third main change was to amend the definition of renewables. The 2001 amendments to the EIRA 1998 sought to create incentives for lines companies to build new renewables generation”.²³³ The definition of “new renewable energy sources” excluded consequently hydro and geothermal energy sources. The new amendments proposed changing the definition to all forms of renewable generation in order to allow owner of lines businesses now to invest in all renewables without quantity limitation.

4 The Climate Change (Emissions Trading and Renewable Preference) Bill

The purpose of this bill was “to establish New Zealand Emissions Trading Scheme and to legislate for the government’s preference for new renewable electricity generation”.²³⁴ It had two parts which were split in 2008 into two bills: the Climate Change Response (Emissions Trading) Amendment Bill and the Electricity (Renewable Preference) Amendment Bill. Both bills passed in parliament on 10 September 2008.

The first bill “amended the Climate Change Response Act 2002 (CCRA) to introduce a greenhouse gas emissions trading scheme in all sectors”.²³⁵ Most of the changes were to part 2 of the CCRA which extended the scope of the New Zealand Emission Units Register (NZEUR) allowing “New Zealand Units (NZUs) to be created, held and transferred between account holders and the linking of the ETS to the international Kyoto market as well as to other countries’ domestic trading schemes”.²³⁶ Furthermore, new parts 4 and 5 were inserted into the CCRA to implement the core provisions of the ETS including a determination of persons and their obligations covered by the ETS²³⁷ and dates when they will be covered²³⁸.

²³³ See supra n 228; see also new section 17 B of the bill.

²³⁴ See supra n 22.

²³⁵ For further details: MfE *A Guide to the Climate Change (Emissions Trading and Renewable Preference) Bill* (Wellington, December 2007).

²³⁶ Ibid.

²³⁷ See section 54 to 67 of the CCRA.

²³⁸ See schedules 3 and 4 of the CCRA.

The Electricity (Renewable Preference) Amendment Bill “gave legislative backing to the policy outlined in the NZES”²³⁹, adopting a target for renewable generation of 90 per cent of New Zealand’s electricity generation by 2025. Consequently, “the NZES stated a clear preference that all new electricity generation be renewable, except to the extent necessary to maintain to supply and signalled consideration of regulatory options under the Electricity Act 1992”²⁴⁰ in order to support the ambitious objective.

This bill inserted a new part 6A into the Electricity Act 1992 to create the targeted preference. It should be “achieved through a 10 year restriction on new fossil fuelled thermal generation, except to the extent required to ensure the security of New Zealand’s electricity supply”.²⁴¹ The provisions apply to any proposed thermal generation above 10 megawatts that uses more than 20 per cent fossil fuels as its fuel source. However, it allows for exemptions which can enable peaking and firming roles for fossil fuelled thermal generation to provide security of supply and to support a high renewables future, based on intermittent wind and hydro generation.²⁴² A new section 62G is proposed which prescribes in every single detail the processes and parameters for exemption.²⁴³

The latest reform step on the way to the target of 90 per cent of electricity generated from renewable sources by 2025 is the National Policy Statement for Renewable Electricity Generation. In the following, this paper will take a look on the concerns of the government and its possible solutions.

I National Policy Statement for Renewable Electricity Generation

In August 2008, the Ministry for Environment published the proposal for a National Policy Statement for Renewable Electricity Generation which is targeted to enable the sustainable management of renewable electricity generation under the RMA 1991. The intention to propose this NPS was announced with the release of the NZES in

²³⁹ See supra n 22.

²⁴⁰ Compare n 133.

²⁴¹ See supra n 22.

²⁴² MED *Renewable Preference Regulations 2008: Consultation on proposals for regulations to be made under the Electricity Act 1992 as amended by the Electricity (Renewable Preference) Amendment Act 2008* (Wellington, October 2008).

²⁴³ Ibid.

October 2007. It is a key action of the NZES in support of the government's sustainable energy goals and also complements the NZEECS.²⁴⁴ The explicit objective of the NPS is:²⁴⁵

To recognise the national significance of renewable electricity generation by promoting the development, upgrading, maintenance and operation of new and existing renewable generation activities, such that 90 per cent of NZ' electricity will be generated from renewable sources by 2025.

It introduces 5 policies in order to “provide guidance to decision-makers when considering applications for resource consent to undertake renewable electricity generation”²⁴⁶ on one hand. On the other hand, the last 2 policies are targeted to “remove unnecessary regulatory barriers to enable the identification of renewable electricity generation possibilities and the development of small and community-scale renewable electricity generation”.²⁴⁷

In the following, this paper illustrates the background of the policies' two main concerns:

1 Providing guidance

Between 1991 and 2006, “only 17 per cent of generation capacity consented under the RMA was renewable”.²⁴⁸ One of the main reasons was the “concern that renewable electricity projects faced particular hurdles under the RMA that reduced the attractiveness of these (already costly to develop) projects when compared with the alternative of fossil fuel-based thermal generation”²⁴⁹ which at the same time had grown substantially. During this period more than the half of all wind projects was “subject to appeal to the Environment Court”.²⁵⁰ The jurisdiction, council officers and the decision-makers were not sure at this time if and how to weigh the benefits of renewable electricity generation. But with the amendments of the RMA in 2004 and, even more

²⁴⁴ Compare n 196.

²⁴⁵ See supra n 3.

²⁴⁶ Ibid, xiii.

²⁴⁷ Ibid, xiv.

²⁴⁸ MfE *Proposed National Policy Statement for Renewable Electricity Generation, Evaluation under Section 32 of the Resource Management Act 1991* (Wellington, August 2008), 2.

²⁴⁹ Ibid, 3.

²⁵⁰ Ibid.

importantly, with “the release of the NZES and the Climate Change (Emissions Trading and Renewable Preference) Act 2008, the focus of the NZ electricity market has shifted towards the use and development of renewable energy sources”.²⁵¹

However, “renewable electricity generation activities are often accompanied by significant actual or potential adverse environmental effects”²⁵² (e.g. on “areas of significant natural character, historic heritage, outstanding natural features and landscapes”²⁵³). So “matters of national importance as set out in section 6 of RMA can compete with matters to which decision-makers are required to have particular regard under section 7(i) and (j) of the RMA”.²⁵⁴ These “balancing judgements made subject to part II of the RMA can be particularly complicated and take time”²⁵⁵ because though the decision-makers now know that they have to “consider the benefits of renewable electricity generation it still does not clarify the nature of these benefits or provide guidance on the weight that should be afforded to them”.²⁵⁶ “Decisions made by the Environment Court²⁵⁷ are beginning to establish case law that tackles and clarifies [the] issue. Nevertheless, the lack of statutory guidance complicates the decision-making process and has contributed to persistent uncertainty in the marketplace”.²⁵⁸ Therefore, this NPS tries to adopt “a nationally consistent approach to balancing the competing values associated with the development of New Zealand’s renewable energy resources. This will provide greater certainty to decision-makers, applicants and the wider community”.²⁵⁹

2 *Removing unnecessary regulatory barriers:*²⁶⁰

Many current and likely future means of generating electricity from renewable sources are in the early phases of commercialisation and their effects and viability are often unknown. As such, more research and investigation into potential generation technologies and energy sources will be necessary to ensure that

²⁵¹ Ibid, 4.

²⁵² Ibid, 3.

²⁵³ Examples taken from section of the RMA 1991.

²⁵⁴ See supra n 3, preamble.

²⁵⁵ See supra n 248, 19

²⁵⁶ Ibid.

²⁵⁷ *Genesis Power Limited v Franklin District Council* A 148/05; *Unison Networks and Hawke’s Bay Wind Farm v Hastings District Council* W 58/06

²⁵⁸ See supra n 248, 19.

²⁵⁹ See supra n 3, preamble.

²⁶⁰ See supra n 248, 20.

the decisions of New Zealand’s energy sector promote the sustainable management of natural and physical resources.

“Removing unnecessary regulatory barriers to innovation in New Zealand’s energy sector will support adaptation to market change; it will also enable generators to embrace new opportunities in the short to medium term”.²⁶¹ Therefore, “policy statements and plans will need to be amended to remove impediments to research and investigation”.²⁶² Many regional and district plans have to be also amended in another regard, their position on small-scale renewable projects. The NZ government recognised a “significant potential for smaller community-scale distributed renewable electricity generation [and that it could] make a valuable cumulative contribution towards developing a reliable, secure and clean electricity supply in NZ”.²⁶³ But many plans are silent on these projects. Consequently, the consent procedure under the RMA remains the same for small-scale projects as for big projects what leads to proportionately higher costs.²⁶⁴ Therefore, this NPS tries to remove regulatory barriers in order to encourage the investment in new technologies and small-scale projects.

The next chapter will examine how the NPS deals in detail with the above mentioned issues by presenting every policy in particular:

3 The NPS’ Policies

(a) Recognising the national significance of the benefits of renewable electricity generation activities

“This policy was drafted to explicitly ascribe national significance to the benefits of renewable electricity generation, not dependent on the scale of the project or the level of the benefit (national, regional or local)”.²⁶⁵ “It focuses attention on the three key benefits of renewable electricity generation”²⁶⁶, namely the increase of New Zealand’s electricity generation capacity, the decrease of GHG emissions and the

²⁶¹ See supra n 248, 44.

²⁶² Ibid, 20.

²⁶³ Ibid.

²⁶⁴ Ibid.

²⁶⁵ Ibid, 34.

²⁶⁶ Ibid.

increase of security of supply.²⁶⁷ This policy is meant to be “a clear signal as to how the government views the benefits of renewable electricity generation and should clarify”²⁶⁸ it for the decision-makers and also the generators who would have not anymore to justify the benefits of this generation. Consequently, it would reduce their costs and also increase market certainty.²⁶⁹

- (b) Acknowledging the practical constraints associated with the development, upgrading, maintenance and operation of new and existing renewable electricity generation activities:²⁷⁰

This policy has been proposed to recognise practical constraints set by location of the renewable energy resource or by the technical/engineering aspects of the generation technology. In some instances, it will limit the ability of the developers to avoid or mitigate adverse environmental effects of renewable electricity generation activities.

In summary, “policy 2 seeks to tip the balance in favour of renewable electricity projects that, for reasons deriving from practical constraints, might otherwise fail to gain commercially viable resource consent”.²⁷¹ The advantage of this policy is that it “is directed towards decision-makers and its effects will be felt immediately without having to wait”²⁷² for a regional plan to implement it. Furthermore it was stated that:²⁷³

Setting out the list of factors that may constrain project design, site selection, and therefore measures to avoid or mitigate adverse effects, will help both to define the information that should be supplied to decision-makers and the matters that decision-makers are required to consider. Therefore, the main benefit of this policy is likely to derive from the increased guidance it provides to consent authorities surrounding the consideration of adverse effects.

A possible disadvantage of policies 1 and 2 is that both combined could tip the “balance in favour of renewable electricity” programmes at a too high “cost of the natural

²⁶⁷ See supra n 3, policy 1.

²⁶⁸ See supra n 248, 35.

²⁶⁹ Ibid.

²⁷⁰ Ibid, 37.

²⁷¹ Ibid.

²⁷² Ibid, 37.

²⁷³ Ibid, 38.

and physical environment”.²⁷⁴ But on the other hand, there is still the main purpose of part II of the RMA (sustainable management of natural and physical resources) to consider which prevents that the development of renewable generation projects will come at any cost.²⁷⁵

(c) Having regard to the relative reversibility of adverse effects associated with particular generation types

This policy wants “to ensure that the relative degree of different generation technologies is recognised by developers when designing projects and considered by decision makers in the consent procedure”.²⁷⁶ According to this policy, “it is appropriate to consider the longevity of effects associated with generation technologies and to provide an avenue of policy support for those that can be removed with relatively little long-term impact”.²⁷⁷ For instance, some technologies have the potential to be transitional like marine and wind turbine generators which can be removed at the end of projects, while others like hydro-generation have functionally irreversibly effects. As reasonable this policy seems at the first sight, its implementation would bring some questions and problems. Some could argue that the policy proves prejudicial against technologies like hydro-generation and therefore risk the overall objective of 90 per cent by 2025 because hydro is the main renewable source in New Zealand.²⁷⁸ Another problem seems to be that “section 3 of the RMA already contemplates temporary effects”.²⁷⁹ In this regard, decision-makers have the chance “to consider the temporary nature, or reversibility, of effects associated with a particular proposal. This policy therefore risks replicating an existing requirement of the RMA”.²⁸⁰ Furthermore, “the concept of reversibility is open to interpretation”.²⁸¹ While it is quite easy to remove the turbines of a shut off wind farm, it is very unlikely that the foundations or the access roads will be removed. “This lack of

²⁷⁴ See supra n 248, 39.

²⁷⁵ Ibid, 39.

²⁷⁶ Ibid, 40.

²⁷⁷ Ibid, 41.

²⁷⁸ See chapter

²⁷⁹ See supra n 248, 41.

²⁸⁰ Ibid.

²⁸¹ Ibid.

clarity could be used in arguments against particular development proposals and has the potential to increase litigation costs”.²⁸²

(d) Enabling identification of renewable electricity generation possibilities

This policy tries to help ensure a secure supply in NZ. It “encourages research and investigation into new sites and sources of generation”.²⁸³ Therefore, “it will provide the market participants with easier access to the information they require to develop sufficient renewable generation capacity”.²⁸⁴ This policy will also enable smaller players to enter the market by carving themselves a niche using new technologies. “Building a regulatory environment that supports research and innovation will enable the NZ generator market to respond quickly to overseas innovation and experience, and to adapt the market movement”.²⁸⁵

(e) Supporting small and community-scale renewable electricity generation

This policy “addresses the disproportionately high consenting costs associated with small and community-scale renewable electricity generation projects”.²⁸⁶ It “will remove barriers to investment in a scale of generation that has the potential to make a significant contribution to ensuring security of supply as well as to meeting the government’s 2025 renewable generation target”.²⁸⁷ A certain threshold of²⁸⁸

Installed capacity has been selected to capture the great majority of small-scale projects that are expected to be viable in rural and island locations across NZ, without providing a streamlined resource consenting process for those projects that may result in unacceptably significant adverse effects.

²⁸² See supra n 248, 41.

²⁸³ Ibid, 43.

²⁸⁴ Ibid.

²⁸⁵ Ibid.

²⁸⁶ Ibid, 46

²⁸⁷ Ibid.

²⁸⁸ Ibid, 46.

Possible disadvantages of this policy could be the “emergence of one to three wind turbine assemblages in various rural and island locations, thereby spreading the adverse effects over a wider area”.²⁸⁹ Also, this policy “could be misinterpreted as indicating particular support for small scale over large scale development”.²⁹⁰

III GERMANY

A The Early History of the German Electricity Market

1 The beginning of Germany’s electrification

The electrification in Germany began around 1890. At first, the electricity market could not compete with the prices of the gas market. But local public transport grew in this time and needed electricity constantly. In this time, the profitability of electricity supply grew immensely because the municipalities built electric power stations in order to support their local public transport system with their own electricity. By 1910, almost every bigger city in Germany had their own electric power station.²⁹¹

With the establishment of a transmission system from the very end of the 19th century on, many municipalities operated rather as a distributor than as a generator. Already in 1898, the *Rheinisch Westfälisches Elektrizitätswerk (RWE)* was founded as the first supra regional electricity company and took over the generation in the whole northwest of Germany within a short period of time.²⁹²

During the First World War, the government, more precisely the department for energy resources of the ministry of war, started to monitor the electricity market. In this connection, the government also took over the generator *Elektrowerke AG (EWAG)*²⁹³ and entered the circle of electricity suppliers. By the middle of the 1920s, VIAG and RWE generated almost 50 per cent of Germany’s electricity while the other half was still

²⁸⁹ See supra n 248, 46.

²⁹⁰ Ibid.

²⁹¹ Christian Theobald “Grundlagen des deutschen Rechts der Energiewirtschaft” in Jens-Peter Schneider and Christian Theobald (ed) *Handbuch zum Recht der Energiewirtschaft* (Beck, München, 2003) 13.

²⁹² Ibid, 17.

²⁹³ Since 1923 known as VIAG.

produced by industrial companies in their own power stations.²⁹⁴ But the Energy Industry Act 1935²⁹⁵ changed the whole situation in Germany.

2 *The Energy Industry Act 1935*

This act broke with the tradition of Germany's energy law that the electricity market follows the principle of freedom of trade. Instead, the Energy Industry Act 1935 introduced a state-directed economy in which construction and extension of plants, their corporate governance and the price setting of tariffs were subject to the government's supervision.²⁹⁶ The most important supervisory instrument was the government's mandatory consent in order to practise in the area of energy supply. The consent was denied if the electricity supplier could not grant security of and economically priced supply which were both the main objectives of the Energy Industry Act 1935.²⁹⁷

Until 1998, the Energy Industry Act itself was only slightly amended. However, the Competition Act 1958²⁹⁸ brought further changes in the electricity market.

3 *The Competition Act 1958*

In 1958, the Competition Act passed in the German parliament and added to the above mentioned governmental supervision another form of supervision. Namely, the Cartel Office supervised over potential violations caused by internal agreements between the big electricity companies. This supervision became necessary because of two unique features of the German electricity market: concession and demarcation contracts.²⁹⁹

A concession contract is concluded between a municipality and the distribution network operator which exclusively entitles the operator to build, operate and maintain lines in order to provide electricity within a well defined area for a certain period of time.

²⁹⁴ See supra n 291, 18.

²⁹⁵ *Gesetz zur Förderung der Energiewirtschaft (EnWiG)1935 (Germany) RGBl. I 1451.*

²⁹⁶ See supra n 291, 19.

²⁹⁷ section 5 EnWiG.

²⁹⁸ *Gesetz gegen Wettbewerbsbeschränkungen (GWB) 1958 (Germany) BGBl. I 1761.*

²⁹⁹ section 103 GWB.

In return the municipality receives a concession fee, capped by law, which is calculated on a special scheme based on the amount of energy consumed in the municipality.³⁰⁰

Demarcation contracts are concluded between two suppliers in order to determine the supply areas in a mutual binding. Therefore, only one electricity supplier was responsible for one supply area and in this area no one else did retail except the one.

These two sorts of contracts were heavily inhibiting fair competition and violated consequently the basic principle of the GWB. But the exceptions in section 103 GWB were based on the thought that it is the very nature of the network infrastructure being a natural monopoly.

B The First Wave of Liberalisation

1 First steps

It lasted until the late eighties till the opinion was generally accepted that electricity should be liberalised. In this time, the network access for new competitors was discussed within the European Community (EC). In this connection, Great Britain was the leading country by not only opening the network access for third parties but also starting to privatise and “unbundle” its electricity monopoly. The European Commission showed the first time with a working paper on the internal energy market from 2 May 1988 that the monopolisation of the electricity market in the member states might not be compatible with the law of the European Union (EU).³⁰¹

Additionally in Germany, a committee for questions of deregulation, formed by the government, published a report in 1991, in which it called for the abolition of section 103 GWB and its system of protected supply areas in order to facilitate the competition in the German electricity market. Furthermore, the government started to worry that the competitiveness of Germany as a business location would be in danger because of the

³⁰⁰ Regulation of Electricity Tariffs (Verordnung über Allgemeine Bedingungen für die Elektrizitätsversorgung von Tarifkunden 21 June 1979 BGBl I 1979, 684).

³⁰¹ EU Commission *Working paper on security of supply, the internal energy market and energy policy* COM(88) 238 final (Brussels, May 1988).

excessive prices caused by the monopolisation.³⁰² But the liberalisation of the German electricity market did not happen before the government had to implement the European Directive in 1996.

2 *The European Directive 96/92/EC*

Germany's liberalisation process was initiated by the European Directive 96/92/EC. There were two principles of the EU Treaty which should have been applicable to the electricity market even before. Firstly, the free movement of goods, persons, services and capital within the market and the rules relating to cartel and market abuse. In 1990, there was a first try to step towards these two principles by defining price transparency charged to industrial end users.³⁰³ "However, the Directive 96/92/EC introduced common rules with stronger measures on the European electricity market and set the framework and the policy for market liberalisation by breaking national monopolies".³⁰⁴

Its overall goal was to open the access in the grid systems of the member states which should lead "to a directly comparable level of opening up markets and to a directly comparable degree of access to electricity markets in the states".³⁰⁵ "Network access was considered to be the crucial issue and main barrier to competition".³⁰⁶ According to the directive, network operators should be "obliged to allow generators and consumers to have access to their networks to trade in accordance with the objectives of transparency and non-discrimination".³⁰⁷ Chapter VII of the directive left the member states the choice between three options for the organisation to open up their network: negotiated or regulated third party access (TPA) or single buyer procedure.³⁰⁸ Furthermore, the directive aimed on the unbundling and transparency of accounts. Electricity supply companies were required to "keep separate accounts for their generation, transmission

³⁰² Hans Markert „Recht der leitungsgebundenen Energieversorgung“ in Ulrich Immenga and Hans-Joachim Mestmäcke (ed) „Wettbewerbsrecht“ (Beck, München 2007, 4th edition) section 4.

³⁰³ Directive 90/377/EC.

³⁰⁴ See supra n 9, 45.

³⁰⁵ Directive 96/92/EC of the European Parliament and the Council of 19 December 1996 concerning common rules for the internal market in electricity, (12).

³⁰⁶ See supra n 9, 45.

³⁰⁷ Ibid.

³⁰⁸ Directive 96/92/EC, chapter VII.

and distribution activities in order to avoid discrimination, cross-subsidisation and distortion of competition”.³⁰⁹ The directive was only the framework for the national legislator to create a competitive market at the national level. Every member state of the EU radically changed the structure of their electricity industry. But without standardised guidelines or a certain experience on details, which are recognised as essential for market and reform success, the result was a wide range of different reform approaches reflecting the different national interests.³¹⁰ Germany did its reform approach in the form of the Energy Industry Act 1998.

3 *The Energy Industry Act 1998*

Germany implemented the Directive 96/92/EC with the Energy Industry Act on 29 April 1998, of which following aspects stood out. First, Germany’s entire electricity was opened to all consumers by removing the exceptional provisions of the GWB, especially section 103. With respect to generation this was surprising, but 100 per cent end user eligibility from the start was exceptional in 1998 and went far beyond the required measures of the directive in article 19. “Full retail competition in Germany worked well technically, but competition only developed slowly for domestic and small end users”.³¹¹

Second, the minimal requirements of unbundling were also implemented into national law but the rules were weak and not enforced. Finally, Germany took a very light handed approach with respect to the regulation of network access and opted for the negotiated TPA, being the exception within Europe, whereas in most countries of the EU regulated TPA was the standard:³¹²

Negotiated TPA implied that – despite the monopolistic networks – the sector was left without sector specific regulation and regulator. The government trusted the industry to resolve the problems around network access and network charges by voluntary negotiations controlled by the Cartel Office.

³⁰⁹ Directive 96/92/EC, chapter XIV (3).

³¹⁰ See supra n 9, 46.

³¹¹ G.Brunekreeft and D.Bauknecht “Energy Policy and Investment in the German Power Market” in Barry Barton et al (ed) *Regulating Energy and Natural Resources* (Oxford University Press, Oxford, 2006), 241.

³¹² Ibid.

Network access had to be arranged collectively in the so called association agreements (*Verbändevereinbarungen*).

4 *The association agreements*

In practice, the economic rules of access to electricity were private agreements, called association agreements (AA). They were collective contracts which linked “electricity utilities among themselves with the Association of the Industrial Energy”³¹³ and Power Industry (*VIK – Verband der Industriellen Kraftwirtschaft*) and with the Federation of German Industries (*BDI – Bundesverband der Deutschen Industrie*). The first two agreements on criteria for the regulation of network access fees³¹⁴ were only negotiated between the both aforementioned VIK and BDI as well as the German Electricity Association (*VDEW – Vereinigung Deutscher Elektrizitätswerke*). Private consumers and small businesses as well as new retail companies were left out.³¹⁵ These agreements led to a self regulation of the different network operators by common understanding which was too unsatisfactorily controlled by the little countervailing power of the association of the consumers, BDI and VIK.³¹⁶

Therefore, the third and last AA on criteria for the regulation of network access fees for electric energy and principles on network access³¹⁷ was negotiated by more participants. “On one hand, the Federal Ministry of Economics created its task force on access to the grid in April 2001”³¹⁸ which participated in the negotiations as well as smaller consumer associations now took part. But “on the other hand, the electricity industry had split into four parts with the appearance of three new players”³¹⁹: the association of grid operators (*DVG – Deutsche Verbundgesellschaft*), the association of regional utilities (*ARE- Arbeitsgemeinschaft Regionaler Energieversorgungsunternehmen*)

³¹³ Jean-Michael Glachant, Ute Dubois and Yannick Perez “Deregulating with no regulator: Is the Germany electricity transmission regime institutionally correct?” (2008) 5 Energy Policy Volume 36.

³¹⁴ *Verbändevereinbarung über Kriterien zur Bestimmung von Durchleitungsentgelten vom 28. Mai 1998* and *Verbändevereinbarung über Kriterien zur Bestimmung von Netznutzungsentgelten vom 13. Dezember 1999*.

³¹⁵ See supra n 9, 48

³¹⁶ See supra n 302, section 10.

³¹⁷ *Verbändevereinbarung über Kriterien zur Bestimmung von Netznutzungsentgelten für elektrische Energie und über Prinzipien der Netznutzung vom 13. Dezember 2001*.

³¹⁸ See supra 313.

³¹⁹ See supra n 9, 48.

and the association of municipal distribution utilities (*Verbund Kommunalen Unternehmen*).

Results of this third AA were the enhancement of TPA in the area of the mass retail industry as well as more transparency of different access fees and of the different network structures.³²⁰ “But at no stage the precise level of network charges were agreed upon or laid down. These were the sole responsibility of the individual network owners”.³²¹ The agreements were neither legally binding nor were the recommendations of the task force or the consumer associations legally binding. In this time, the only control was in the hands of the Cartel Office.

5 *The Cartel Office*

Though the network access regulation and the methods for calculating the fees were set in an almost totally private environment³²², there was some control in terms of network access and charges exercised by the Cartel Office. “To facilitate its task the Competition Act was strengthened with an essential facilities doctrine in 1998, which required that access to the network should be provided on non discriminatory terms and a fair and reasonable charge”.³²³ There was only one clause in the Competition Act, being the main regulatory instrument.

“Control was not strong and network charges were (and in fact still are persistently high). The Cartel Office faced a number of problems”.³²⁴ Most importantly, its traditional regime of intervention was *ex post*, which means that most claims and cases were opened because of the abuse of dominant market power by incumbent utilities. These companies had the power and the stamina to protract proceedings in contrast to new market participants which did often not have the financial backing. Furthermore, “the cases were decided on case by case basis and not by precedent, and decisions made by the Cartel Office could be challenged in court”.³²⁵

³²⁰ Jürgen Pilny „Verbändevereinbarungen“ in Ulrich Loewenheim, Alexander Riesenkampff and Karl Meeser (ed) *Kartellrecht* (Beck, München 2005) section 72.

³²¹ See supra n 304, 242.

³²² See chapter III 4.

³²³ See supra n 311, 242.

³²⁴ Ibid.

³²⁵ See supra n 9, 49.

Another problem was that the Cartel Office was seriously understaffed for its intended task. Finally, the Competition Act was “well suited to address discriminatory behaviour but the more persistent problem turned to be the high level of network charges which was difficult to address with the Competition Act”.³²⁶

6 *Outcome of the first liberalisation wave*

“After the German market was liberalised in 1998, foreign companies showed special interest in entering the German electricity market”.³²⁷ Although the German generation market was by far not as attractive as other European markets in terms of the wholesale price, “the need for additional capacity or expected demand growth, many companies considered it strategically important to be present in the largest electricity market in Europe”.³²⁸ But it took only a few years to let the excitement die down. Several reasons can be given for this development. The most important one was the hostility of the German electricity market towards new entrants. As seen above, the first association agreements were biased against third parties. In these times, there had been persistent complaints about discrimination of third parties. Furthermore, it was very difficult to get hold of new plant sites. Finally, as already indicated above, the wholesale prices were unattractively low.³²⁹ As a result, “many new plant projects were either given up or had to look for new investors who were willing to keep these projects alive and wait for better times. New firms entered the market mainly through acquisitions”.³³⁰ The leading examples in this connection were the French EDF who bought a stake in the EnBW (*Energie Baden-Württemberg*)³³¹ and “the Swedish Vattenfall Group which bought Hamburg’s municipal utility and a 44.8 per cent share in Berlin’s utility BEWAG”.³³²

Besides the generation market, there was also a lot of frustration with respect to the retail market. In the years between 1998 and 2002 several retailers were initially successful but went bankrupt by and by because of high marketing costs and decreasing

³²⁶ See supra n 311, 242

³²⁷ Ibid, 246.

³²⁸ Ibid.

³²⁹ Ibid, 247.

³³⁰ Ibid.

³³¹ Compare also chapter III C 1.

³³² See supra n 9, 50.

margins. The explanation of this phenomenon can be found in the institutional framework.³³³

The vertical integration of competitive and monopolistic businesses usually provides an incentive to secure profits in the natural monopolies and set low margins at the competitive stages which will frustrate development of active competition and the entry of new market participants.

In other words, Germany's big transmission system operators did not gain their profits in generation or retail but in the wire business through inadequately high prices in the time after the first liberalisation wave. Economists estimated that incumbent vertically integrated operators did close at least 40 per cent of the retail market in this manner.³³⁴

C The Second Wave of Liberalisation

1 Status quo: Market concentration and protection

Despite the reform steps, described in chapter B, the structure of the German electricity market still remained strongly vertically integrated. An oligopoly dominated (and still dominates) Europe's largest electricity market and four predominantly privately owned big utilities own and operate the transmission grids and most of the power plants.³³⁵ These firms are both transmission system operators and dominant generators. The amount of the utilities had been reduced from eight to four during the first wave of liberalisation. In 2000/2001, RWE and VEW merged into RWE, and VEBA and VIAG merged into E.ON. In the northeast of Germany the Swedish Vattenfall Energy Group took over VEAG, HEW and BEWAG and united their formerly three different supply areas into a big one. After these mergers and acquisitions the four big utilities (RWE, E.ON, Vattenfall and the already earlier mentioned EnBW) owned more than 80 per cent

³³³ See supra n 9, 50.

³³⁴ Gert Brunekreeft and Sven Twelemann „Regulation, Competition and Investment in the German Electricity Market: RegTP or REGTP Working Paper SESSA European Regulation Forum on Electricity Reform (2004) 6.

³³⁵ See supra n 9, 50.

of the generation capacity and the transmission network.³³⁶ Moreover, they also have majority shares in many distribution networks and retail activities. The Cartel Office noticed in their monitoring report from 2002 that RWE and E.ON alone had shares in about 25 per cent of the 800 different municipality owned firms, which are responsible for distribution and retail in their area.³³⁷

These mergers and acquisitions increased the market concentration in generation as well as in retail since the beginning of the liberalisation in 1998. The oligopoly tried by all means to protect their strong position in the German electricity market. Hence, the government, more precisely the Ministry of Economics, felt the need to call for stronger regulation in 2003.

2 *Monitoring report 2003 of the Ministry of Economics*

In August 2003, the Ministry of Economics published the so called monitoring report on the industrial and competitive effects of the association agreements in the electricity sector.³³⁸ This report considered the question whether improvement with respect to the network access and the regulation of competition could be made. According to this report, the association agreements and the control of the Cartel Office helped to quickly develop a reasonable system for the network access. The liberalisation would have lead first to a significant decrease of the electricity prices, but after a couple of years the prices increased again.³³⁹ This was of course not only related to higher retail prices but also a result of taxes deriving from the German environment policy.³⁴⁰

Unfortunately, the impetus of new and more competition, caused by the liberalisation of the electricity market, did not result in sufficient price decrease. According to the report, this could be explained by the concentration in the generation market as well as in the increasing vertical integration of the big electricity utilities.³⁴¹

³³⁶ Bundesministerium für Wirtschaft und Arbeit *Bericht an den Deutschen Bundestag über die energiewirtschaftlichen und wettbewerblichen Wirkungen der Verbändevereinbarungen (Monitoring-Bericht)* (Berlin, August 2003).

³³⁷ Bundeskartellamt *Tätigkeitsbericht 2001/2002* (Bonn, July 2003) 163.

³³⁸ *Ibid.*

³³⁹ *Ibid.*, 30/31.

³⁴⁰ See later in chapter III G.

³⁴¹ See chapter III C 1.

Another point of criticism was the absence of a broadly accepted procedure to calculate adequate network fees. In this connection, the association agreements would have not been satisfactory. The report especially criticised that the AA would not adequately address the issue of energy efficiency (e.g. how the big utilities could ensure energy efficiency all over the country beyond their own supply areas).³⁴²

Concerning the problems of the Cartel Office, the Ministry of Economics agreed with the opinion that the Office's competence in respect of controlling the network access and its fees would not be sufficient. Responsible for that would be – besides the already mentioned reasons³⁴³ – the complexity of the cases.

Besides the problems with the network access fees, the report recognised other factors as impediments to the market entrance of new participants. According to the report, impediments to the market entrance would be still not standardised contracts and procedures when switching the distribution sector which would cause a lot of transaction costs. Furthermore, the stronger unbundling of the network could contribute to exclude cross subsidisation.³⁴⁴

The report concluded that the last association agreement created a basis for competition on the electricity sector which is able to operate. But important regulation should be improved or stated more precisely. Especially, the calculation of the network access fees would need adequate mechanisms which could lead to competitive prices as well as to secure electricity supply. Parallel to this report, the German government gave up its resistance in Brussels and the EC seized the opportunity to remove negotiated TPA from its directive.³⁴⁵

3 The European Directive 2003/54/EC

The Commission of the European Union “was not satisfied with the outcome of a free and unregulated market and announced another directive³⁴⁶ to advance market

³⁴² See supra n 337, 33.

³⁴³ See chapter III B 5.

³⁴⁴ See supra 337, 29.

³⁴⁵ Ibid, 30.

³⁴⁶ European Commission *Directive 2003/54/EC concerning common rules for the internal market in electricity and repealing directive 96/92/EC* (26. June 2003).

liberalisation”³⁴⁷. “The new Directive 2003/54/EC included some key elements of an energy liberalisation package and represented a major step towards fully competitive and liberalised markets”.³⁴⁸

The most important regulation of this directive was the obligation to open the retail market for all non household electricity consumers by July 2004 and for all others by July 2007 (article 21 (1)), the establishment of a national economic independent regulator (article 23), and a legal separation of lines businesses from the competitive parts (articles 10 and 15).

As seen above, the first obligation was already carried out in Germany with the enforcement of the Energy Industry Act 1998. But establishing an “economic independent regulator from July 2004 with specified duties related to network fees and transparency of financial unbundling as well as monitoring the electricity market with respect to fair competition”³⁴⁹, excluded the industrial self regulation which was practised in the German electricity supply industry until this point. Therefore, the model of negotiated third party access, chosen by Germany, had to give way to the in Europe commonly used model of regulated third party access.

In this context, it is mentionable that Germany was successful in influencing and weakening the directive to the effect that the regulator was “only required to agree to the methodology underlying the calculation of network fees, and subsequently the level of the charges could remain subject of ex post control”.³⁵⁰

To the provisions, concerned with the unbundling of network system operators, it is notable that the directive had an exception clause. According to article 15 (2), member states may decide not to apply the unbundling of integrated electricity undertakings, if they serve less than 100,000 connected customers. For the German market this meant that almost 85 per cent of all utilities were exempt from unbundling.³⁵¹

³⁴⁷ See supra n 9, 54.

³⁴⁸ Ibid.

³⁴⁹ Ibid, 53

³⁵⁰ See supra n 334, 1.

³⁵¹ See supra n 9, 54.

This directive and the monitoring report, discussed in the last chapter, were the key developments which lead to the new German Energy Industry Act which entered into force on 13 July 2005.

4 *The Energy Industry Act 2005*

As explained in the last chapters, the Energy Industry Act 1998 was replaced by the Energy Industry Act 2005 for a variety of reasons. It is by far more complex than the old act, caused by the numerous provisions of the Directive 2003/54/EC which had to be implemented.³⁵² General purpose of the act is a secure, non-discriminatory, reasonably priced, customer-friendly, efficient and sustainable supply of electricity. The key elements in the new act are the following. First, the rules on unbundling were strengthened but they still only minimally fulfil the directive's requirements. Second, the rather artificial hybrid approach of ex ante approval of the methodology and ex post control was not carried through, and a clear step has been taken forward ex ante regulation of the network charges. Third, there was created a sector specific regulator: the Federal Network Agency (*BNA – Bundesnetzagentur*).³⁵³

(a) Unbundling

The unbundling requirements correspond to the Directive 2003/54/EC. Hence, the Energy Industry Act requires legal (section 7 of the Energy Act 2005) as well as functional and management (section 8) separation of transmission system operator and distribution system operator with the exemption made in article 15 (2) of the directive³⁵⁴, confidentiality of information (section 9) and accounting separation. But the problem was not the implementation of these provisions. The more urgent point seemed to be the enforcement and the control of the unbundling regulations. Concerns were raised whether ownership unbundling would have any prospect. In this context, the legal problem would be that the “four transmission system operators are largely in private hands, and that ownership unbundling is expropriation and violates the constitution”.³⁵⁵

³⁵² See supra n 302, section 16.

³⁵³ See supra n 311, 247.

³⁵⁴ See chapter III C 3.

³⁵⁵ See supra n 311, 251.

However, the obligation for the vertically integrated utilities to start unbundling had to be applied not until July 2007, so that this dissertation will come back to this topic later.

(b) Ex ante regulation of the network charges

Article 23 (2) of the Directive 2003/54/EC “requires fixing or approving, prior their entry at least the methodologies to calculate the network charges. The precise phrasing reflected Germany’s wish to stick to ex post control of the level of the charges”.³⁵⁶ After a long discussion, “it had been decided in Germany that the by-pass in the directive should be ignored and the ex ante regulation of the level of the access charges should be applied”.³⁵⁷

But the main debate had been on the type of regulation. The formal current state at that time was that regulation was cost based (see section 21 of the Energy Industry Act 2005), which reflected business as usual. “Previously, the self regulation followed the accounting principles laid down in the association agreement”³⁵⁸: With the Energy Industry Act 2005, “the legislator explicitly allowed the option to switch to incentive-based regulation (section 21a), which can be a price-cap or revenue-cap regulation. The regulator had been given to develop an incentive-regulation mechanism”.³⁵⁹ The government finally implemented this mechanism in an ordinance in 2007.³⁶⁰

(c) Federal Network Agency

The new Energy Industry Act created the sector-specific regulator Federal Network Agency (*BNA – Bundesnetzagentur*) which includes the regulator for gas, telecommunications and postal services. “Authority had been split though. The federal regulator BNA is responsible for all network operators with more than 100,000 customers (and for network owners with less than 100,000 customers that operate in more than one state)”.³⁶¹ Therefore, the BNA performs tasks and executes powers which under the

³⁵⁶ See supra n 311, 247.

³⁵⁷ Ibid, 247/248.

³⁵⁸ Ibid, 249

³⁵⁹ Ibid.

³⁶⁰ See later in chapter III D 3.

³⁶¹ See supra n 311, 250.

Energy Industry Act have not been assigned to the state regulatory authorities. It is the Federal Network Agency's central task to create the prerequisites for functioning competition on the upstream and downstream markets by unbundling and regulating the power supply grids.³⁶² The regulatory task of the BNA covers ensuring non-discriminatory network access and the control of the network usage rates levies by the power supply companies.³⁶³ The Federal Network Agency's range of tasks also includes the supervision of anti-competitive practices and the monitoring of the regulations concerning network areas and the system responsibility of the network operators.³⁶⁴ In contrast, objections to excessive rates for end customers continue to be dealt with by the federal states. Pricing of nationwide operating retailers is still controlled by the Federal Cartel Office.³⁶⁵

Besides these key elements, the Energy Industry Act 2005 delegated the power to the government to issue various ordinances in order to continue and specify the liberalisation of the German electricity market in further steps.

D Further Step: Ordinances after the Energy Industry Act 2005

Section 24 of the Energy Industry Act 2005 provides an extensive list of areas in which the government has the possibility to enact an ordinance. Especially, questions to conditions of network access or network access fees should be – according to the different paragraphs of section 24 – specified by the government. In the last years, six important ordinances were enacted in respect of the German electricity market.

1 Ordinances directly after the Energy Industry Act 2005

The first two ordinances were enacted very promptly after the enforcement of the Energy Industry Act 2005. On 29 July 2005, the ordinance on access to the electricity network (*StromNZV - Stromnetzzugangsverordnung*)³⁶⁶ as well as the ordinance on fees

³⁶² www.bundesnetzagentur.de

³⁶³ Section 30 of the Energy Industry Act 2005.

³⁶⁴ Section 35 of the Energy Industry Act 2005.

³⁶⁵ www.bundesnetzagentur.de

³⁶⁶ Verordnung über den Zugang zu Elektrizitätsversorgungsnetzen, BGBl. I 2005, 2243.

for the access to the electricity network (*StromNEV – Stromnetzentgeltverordnung*)³⁶⁷ came into force.

The StromNZV should concretise the Energy Industry Act 2005 and thus serve the creation of a well functioning competition of the electricity market in Germany. Therefore, the grid should be open to everybody without any discriminatory conditions so that the different electricity suppliers can compete for the end customers in a fair manner. Consequently, the legislator gave the different distribution network operators and retailers permission to use the grid in order to supply the end customer with electricity (in terms of the Energy Industry Act 2005 this is called network access). So, the end customers would have nowadays a real chance to choose the retailer.³⁶⁸

To ensure the above described freedom of the end customer to choose, it is very important to establish equal conditions. On one hand equal conditions with respect to the determination of the fees which have to be paid for the network access. In this connection, the StromNEV provides the grid users with further regulation. On the other hand in terms of a detailed definition of the essential conditions how to access the network. This was done by the enforcement of the Strom NZV.³⁶⁹

2 Ordinances in 2006/2007

In November 2006, the ordinance on the access to the distribution network (*NAV – Niederspannungsanschlussverordnung*)³⁷⁰ and the ordinance on general terms and conditions for the basic electricity supply of the end customer (*GVV Strom – Grundversorgungsverordnung Strom*)³⁷¹ came into force. The NAV provides regulations to general requirements for the network operators' obligation to open the distribution network and its access according to section 18 of the Energy Industry Act 2005. Therefore, the NAV contains regulations concerning the network access and its usage, in detail, form and quality of the network access as well as regulations on its cancellation

³⁶⁷ Verordnung über die Entgelte für den Zugang zu Elektrizitätsversorgungsnetzen, BGBl. I 2005, 2225.

³⁶⁸ Alexander Lüdtke-Handery „Verordnung über den Zugang zu Elektrizitätsversorgungsnetzen“ in Wolfgang Danner und Christian Theobald *Energierecht* (Beck, München 2008) section 1.

³⁶⁹ Ibid, section 2

³⁷⁰ Verordnung über Allgemeine Bedingungen für den Netzanschluss und dessen Nutzung für die Elektrizitätsversorgung in Niederspannung, BGBl. I 2006, 2477.

³⁷¹ Verordnung über Allgemeine Bedingungen für die Grundversorgung von Haushaltskunden und die Ersatzversorgung mit Elektrizität aus dem Niederspannungsnetz, BGBl. I 2006, 2391.

and the use of land, measuring and the right of access. Furthermore, the NAV provides regulation on questions of liability which are very important in practice (section 18 of the NAV determines for example the maximum limits of liability on the part of the network operator in cases of blackouts et cetera). But the network operator's liability is strictly limited because of the fact that the connection of electricity grids and the highly advanced engineered line system are particularly interference-prone. Consequently, this ordinance limits the liability with respect to maximum sum of compensation as well as the degree of negligence on the part of the network operator.³⁷²

The GVV Strom deals with the general terms and conditions under which the distribution network operator has to supply electricity. In this connection, section 2 of the GVV Strom provides the detailed requirements for the conclusion of a basic supply contract. Worth mentioning is a significant increase of the distribution network operator's duty of notification. Furthermore, the GVV Strom contains provisions concerning the extent of the electricity supply, measurement and paying modalities. In addition, section 19 of the GVV Strom allows the network operator to disconnect the end customer from the electricity supply in cases of serious infringements.

The next ordinance was on the regulation of the network access for power stations (*KraftNAV – Kraftwerks-Netzanschlussverordnung*)³⁷³. It came into force in July 2007 and aimed for the facilitation of the network access for new power station projects which should boost the competition. According to the ordinance, the network operator has the obligation to facilitate the network access provided that the connection is technically possible. If the connection is technically possible the network operator grants the consent to connect in return for payment of a fee. In the case of too many applicants for one connection point, the access will be allocated in the order of the arrival of the applications.³⁷⁴

³⁷² Franz-Rudolf Groß „Die neuen Netzanschluss- und Grundversorgungsverordnungen im Strom und Gasbereich“ (2007) NJW 1032.

³⁷³ Verordnung zur Regelung des Netzanschlusses von Anlagen zur Erzeugung von elektrischer Energie, BGBl. I 2007, 1187.

³⁷⁴ Boris Scholtka and Antje Baumbach “Die Entwicklung des Energierechts seit Inkrafttreten des EnWG 2005” (2008) NJW 1130.

3 Ordinance on incentive based regulation of the power grid

Though the ordinance on incentive based regulation of the power grid (*ARegV – Anreizregulierungsverordnung*)³⁷⁵ came into force on the 6 November 2007, it will not be introduced until January 2009.³⁷⁶ Turning away from the cost based approach, the German government finally decided for incentive based regulation which it had already planned in the Energy Industry Act 2005.³⁷⁷

Incentive based regulation aims at improving the incentives of the regulated firm to produce efficiently. The means to do so is to allow the firm to keep the profits resulting from efficiency improvements. Not having to lower the (ex ante allowed) prices after lowering costs for some predetermined period is the incentive.

The ordinance followed the Energy Industry Act 2005, more precisely section 21a (2), which “highlighted the ex ante determination of the average revenue cap as the decisive point”.³⁷⁸ The control period will be five years. The question of “relative efficiency will be determined by benchmarking with comparable firms”.³⁷⁹ Furthermore, “only the cost components which are under control of the firms will be subject to efficiency incentives”.³⁸⁰ “The price cap regulation will be tariff basket, capping the weighted average price of a basket of products and leaving individual prices to the firm”.³⁸¹

The period of improving efficiency in the firm will be for the first time ten years (two control periods) and afterwards five years (one control period).

³⁷⁵ Verordnung über die Anreizregulierung der Energieversorgungsnetze, BGBl. I, 2529.

³⁷⁶ Section 3 (1) of the ARegV.

³⁷⁷ See supra n 311, 249.

³⁷⁸ Ibid, 250

³⁷⁹ Ibid.

³⁸⁰ Ibid.

³⁸¹ Ibid.

E Introduction to Renewable Energy: The Electricity Feed Act 1991

1 Before the Electricity Feed Act 1991

At the end of the 1970s it was agreed upon by the VDEW, VIK and BDI³⁸², that the feeding of electricity generated from renewable sources should be compensated. From then on, they stipulated a minimum rate which should be paid to people who fed in electricity generated from renewables.³⁸³ In the course of the next decade, a general discussion about environmental issues in Germany started. The German Green Party was founded and celebrated first successes in elections. Within this period of time many called for an increase of the remunerations for feeding. The aim was the increase of the share of electricity from renewable sources. As a consequence of this debate, Germany and its federal states had various political and parliamentary controversies which ended into the draft of the Electricity Feed Act in 1990.³⁸⁴

2 The Electricity Feed Act 1991

It came into force on 1 January 1991, and “for the first time ever obligated grid system operators to purchase renewable electricity generated by hydro-electric power, wind power, solar energy, landfill and sewage treatment plant gases and biomass, and to pay a fee for it”.³⁸⁵ According to the German government, the act came into force with the aim to increase the share of renewable energy in order to enhance issues of resources conservation and climate protection.³⁸⁶

Section 1 limited the scope of the Electricity Feed Act to power stations with a capacity smaller than 5 MW. Additionally, the act was only valid for installations in which the state or the big electricity suppliers did not hold more than 25 per cent share of the power station. Section 3 divided the fees, which were paid, into two groups. Electricity from hydroelectric power, landfill gas, sewage treatment plant gas and

³⁸² Compare chapter III B 4.

³⁸³ Jan Reshöft, Sascha Steiner and Jörg Dreher *Erneuerbare Energien-Gesetz Handkommentar* (Nomos, Baden-Baden 2005) section 1.

³⁸⁴ *Ibid*, section 2.

³⁸⁵ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *EEG-The Renewable Energy Sources Act* (Berlin, July 2007) 13.

³⁸⁶ Government *Entwurf zum Gesetz über die Einsparung von Strom aus erneuerbaren Energien in das öffentliche Netz (StrEinspG)* BT-Drs. 11/7971, 4.

biomass received 75 per cent of the average electricity price paid by the end user. Electricity generated from solar and wind power was remunerated at 90 per cent.

Until 1995, additional costs of NZ \$ 250 million accrued for the obligated grid system operators from the Electricity Feed Act 1991. Half of this sum alone came from the electricity generated from wind power. Caused by this unequal development of electricity generated from renewable sources, the financial burdens of the different regional system operators in Germany were unequally distributed. The very high proportion of wind energy led to the problem, that the grid system operators, based in especially windy regions like the very north of Germany (the federal state *Schleswig-Holstein*), faced unequally higher financial burdens than the operators in the rest of Germany.³⁸⁷ But the legislation set the market in motion and invigorated the wind power sector enormously. Between 1990 and 1999, almost 7500 new wind energy installations were commissioned (in 1990: 405 installations, in 1999: 7681).³⁸⁸

Despite these great numbers, first and foremost the government of *Schleswig-Holstein* demanded an amendment of the Electricity Feed Act in order to distribute the financial burdens in a fairer manner.

3 Reform of the Electricity Feed Act

Already in 1996, the government of *Schleswig-Holstein* initiated a draft for the amendment of the Electricity Feed Act 1991.³⁸⁹ But it took longer than a year until a serious debate emerged between the different parties in the German parliament. There was a common consensus that the act had the desired effect to enhance the use of renewable energies.³⁹⁰ Finally on 29 April 1998, simultaneously with the Energy Industry Act 1998³⁹¹, the Electricity Feed Act was reformed. The most important amendment was the introduction of a hardship clause. According to the new section 4 of the act, the transmission system operators should now compensate the regional system operators if

³⁸⁷ See supra n 383, section 5.

³⁸⁸ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *Development of renewable energy sources in Germany in 2007* (Berlin, July 2008).

³⁸⁹ Federal Council *Gesetzentwurf des Bundesrates v. 14.6.1996 betr. den Entwurf eines Gesetzes zur Änderung des Gesetzes über die Einsparung von Strom aus erneuerbaren Energien in das öffentliche Netz (StrEinspG)* (Berlin, June 1996) BT-Drs. 13/5357.

³⁹⁰ Peter Salje *Stromeinspeisungsgesetz – Kommentar* (Carl Heymanns Verlag, Köln 1999) 26.

³⁹¹ See supra chapter III B 3.

the purchased renewable electricity was more than five per cent of the regional system operator's sales volume. Furthermore, the transmission system operator's duty to compensate was also capped which led to a total cap of 10 per cent. If the cap was reached, the duty to compensate new installations was interrupted for one year.³⁹²

This amendment led to vehement protests of German environmental associations. In the meantime, there was a public debate whether the Electricity Feed Act 1991 and its amendments would be sufficient enough in order to achieve the environmental aims of Germany. For example in 1997, under the EU burden-sharing agreement to implement the Kyoto climate protocol, Germany had committed itself to reducing its GHG emissions by 21 per cent between 2008 and 2010, as compared to the 1990/1995 emission levels.

Besides the already in detail explained problem of the unequal distribution and its quite unsatisfying solution by using the hardship clause which resulted in a factual stop of investing in new installations for renewable energies, the enforcement of the Energy Industry Act 1998 also led to doubts whether the Electricity Feed Act was still sufficient.³⁹³ Because the Energy Industry Act caused a liberalisation wave³⁹⁴ which consequently led to a bigger circle of electricity suppliers who were back then affected by the Electricity Feed Act. Therefore, the Electricity Feed Act was revised and expanded. The new legislation came into force on 1 April 2000: The Act on granting priority to renewable energy sources (Renewable Energy Sources Act – RES Act).

F The Renewable Energy Sources Act 2000

Germans Ministry for Environment stated:³⁹⁵

Replacing the Electricity Feed Act, the RES Act 2000 regulated the prioritisation of grid-supplied electricity from renewable sources. It specified mechanisms for implementing the option of granting priority to renewable power generation envisaged in the EU Directive on the internal market in electricity.

³⁹² See supra n 383, section 5/6.

³⁹³ Ibid, section 9/10.

³⁹⁴ See supra chapter III B.

³⁹⁵ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *Breakthrough for renewable energy sources – priority law is passed* (Berlin, March 2000).

From April 2000, energy utilities also benefited from the compensation for supplying the grid with electricity from renewable sources.³⁹⁶

The act targeted a 12 per cent share for electricity generated from renewable energy by 2010 (according to section 1, the declared purpose was too at least double the generation which was at about 6 per cent in 2000). The obligation to give grid access to renewable energy plants and purchase the electricity at premium prices was shifted from the utilities to the grid operators. The tariffs were set for each individual technology based on its actual generation cost.³⁹⁷ “While under the Electricity Feed Act compensation rates were expressed as percentages of average customer tariffs, the new rates were now fixed for 20 years”³⁹⁸ after commissioning the plant.

For wind power, they were made dependent on the quality of the location: all operators would receive a favourable rate for at least five years, thereafter the rate would decline, but later in the case of less favourable locations. Rates were particularly favourable for solar photovoltaic, offshore wind and biomass. At the same time, there now was an annual decline in compensation for most sources, not for existing installations but for new installations and determined by the year they would go on line.³⁹⁹

“The act also stipulated obligations concerning costs of grid connection and reinforcement. Plant operators had now to pay for the grid connection, but the grid operator had to bear the cost of grid reinforcement if necessary”.⁴⁰⁰

The act also solved the problems of unequal distribution of burdens (as in the Electricity Feed Act):⁴⁰¹

The costs of the feed-in mechanism are now socialised over all end users. Whilst under the old mechanism, each distribution network operator had to bear the total cost of electricity generated from renewable energy sources in their area individually, the RES Act 2000 established a mechanism whereby the costs are spread countrywide.

³⁹⁶ See supra n 395.

³⁹⁷ International Energy Agency *Renewable Energy – Market and Policy Trends in IEA Countries* (Paris 2004) 317.

³⁹⁸ See supra n 1, 610.

³⁹⁹ *Ibid*, 610.

⁴⁰⁰ See supra n 397, 317.

⁴⁰¹ See supra n 311, 254.

The distribution network operator, to which the RES plant is connected, is obliged to feed in the renewable electricity, but passes this on to one of the four big transmission system operators to which it is connected:⁴⁰²

The transmission system operators spread the burden equally amongst them and calculate a nationwide compensation charge. They then pass it on proportionally to the suppliers in their region, who in turn pay the compensation charge and pass through the costs into the end user price.

The extra costs of this “balancing regulation” were calculated in 2004 to an amount of additional NZ \$ 0.01 per kWh.⁴⁰³

An additional ordinance issued in 2001 which biogenic substances and which technical processes are eligible for remuneration according to the Renewable Energy Sources Act.⁴⁰⁴ Originally, the remuneration to photovoltaic plants was limited to total capacity of 350 MW. In 2002, this cap was increased to 1000 MW. In November 2003, remuneration for photovoltaic installations was further differentiated depending on site specifics.⁴⁰⁵

Every two years, the parliament re-evaluated the act on the basis of a report prepared by the Ministries of Economics and technology, in close consultation with the Ministry of Environment and the Ministry of Agriculture. This led to the Renewable Energy Sources Amendment Act 2004. But before this dissertation comes to these amendments in the RES Act, in the next chapter other incentives of a new energy policy in Germany will be presented.

G The New Energy Policy of the Red-Green Coalition

After a period of 16 years in which the conservative party (*CDU*) and the liberal party of Germany (*FDP*) were in power, the government changed in October 1998. The social democrats (*SPD*) and the green party took over and it was stated that:⁴⁰⁶

⁴⁰² See supra n 311, 254.

⁴⁰³ Ibid.

⁴⁰⁴ Verordnung über die Erzeugung von Strom aus Biomasse, 21. June 2001 (BGBl. I 1234).

⁴⁰⁵ See supra n 397, 318.

⁴⁰⁶ See supra n 1, 607.

The new red-green federal government emphasised ecological modernisation and climate change policy as well as job creation and socio-economic development; energy policy was to be a leading example. It included tax reform (eco-tax on energy), phasing out nuclear power, and strengthening of renewable energy sources and of combined heat and power.

1 Eco-Tax Reform

This reform was passed as one of the first environmental initiatives of the new government in two consecutive laws which introduced a tax on the consumption of electricity (at a reduced rate for the industry) and raised existing mineral oil taxes, i.e. on petrol, diesel, natural gas and various mineral oils.⁴⁰⁷

The electricity tax was gradually increased in the period from 1. April 1999 to 1 January 2003. After the last raise, the tax rate was at about NZ \$ 0.04 per kWh in 2004, which made up somewhat more than 11 per cent of the total price back then.⁴⁰⁸

Since the law increased the price of fossil energy and exempted bio-fuels from the oil taxes, the eco-tax reform enhanced the competitive position of renewable energy technologies in the heating and transport markets. But electricity generation from renewable energy did not benefit directly from the tax because all electricity was taxed irrespective of the fuel used for generation. However, eco-tax revenues from electricity generated with renewable energies were used to finance several programmes.⁴⁰⁹ In 1999 and 2000, the amount of about NZ\$ 200 million per year “was reserved for renewable subsidies, particularly to finance the 100,000 roof programme”.⁴¹⁰ “This programme supported the installation or extension of photovoltaic systems”.⁴¹¹ Loans with interest rates of 4.5 per cent below market conditions were offered. “When the programme ended in July 2003, 55,000 installations with a total capacity of 261 MW had been

⁴⁰⁷ See supra n 1, 608.

⁴⁰⁸ See supra n 311, 242/243.

⁴⁰⁹ See supra, n 397, 315.

⁴¹⁰ See supra n 1, 609.

⁴¹¹ See supra n 397, 314.

supported”.⁴¹² “At that point, the programme was terminated and the photovoltaic market development turned over to improved feed in tariffs”.⁴¹³

Another programme, sponsored by the eco-tax revenues, was the Market Stimulation Programme (*Marktanreizprogramm*). Under the auspices of the Ministry of Economics and Technology, it was introduced in 1999 with an annual budget of about NZ \$ 200 million. For several reasons it was not possible to exempt renewable energy power plants from the eco tax. Nevertheless it was felt that this additional income should be used to the benefit of renewable energy technologies. Thus the annual NZ \$ 200 million represented the estimated additional tax revenue from renewable energy power plants due to the tax reform. “Under this scheme, individuals and small and medium-sized businesses may apply for grants and soft loans for solar collectors, biomass boilers or heat pumps driven with renewable electricity”.⁴¹⁴

This programme still exists to this date and has a budget of about NZ \$ 700 million for the year 2008.

2 Nuclear power phase-out

“The fundamental revision of nuclear politics reflected the consensus among the green party and many of the SPD”⁴¹⁵ since the worst nuclear power plant disaster in Chernobyl (former Soviet Union, nowadays Ukraine) back in 1986. It was stated that:⁴¹⁶

The basic decision against the future construction of nuclear power plants was enshrined in the Nuclear Energy Phase-Out Act. The legislative process was characterised by the governments endeavour to reach a consensus with nuclear power interests and to avoid legal disputes before the courts.

Finally, “the agreement stipulated a generation limit based on a 32-year plant operation, which means that nuclear power will be phased out at around 2020 according to this plan”.⁴¹⁷ “However, companies have the option to shift allowances between plants

⁴¹² See supra n 397, 314.

⁴¹³ See supra n 1, 609.

⁴¹⁴ See supra n 397, 315/316.

⁴¹⁵ See supra n 1, 608.

⁴¹⁶ Ibid.

⁴¹⁷ See supra n 311, 238.

to increase the output in more efficient plants.”⁴¹⁸ Until now only three of the twenty plants in Germany were closed. And in the latest study of the electricity generation mix in Germany, nuclear power is still one of the most important energy resources with a share of about 25 per cent of the total electricity generated in Germany.⁴¹⁹

Therefore, there is still a vehement discussion about the future of nuclear power, and whether Germany will need it beyond the stipulated phase out in order to secure the electricity supply. Many members of the conservative party CDU announced in the recent past that they want to do away with the above mentioned agreement and extend the plant’s lifetime. However, with the current conservative-socialist coalition, they will not find the majority to do so.

3 Support for renewable energy sources and combined heat and power and end use efficiency

RES and combined heat and power (CHP) are supported by the RES Act⁴²⁰ and the CHP Act respectively. These both acts work different in detail. “While the RES plants get a fixed remuneration depending on technology and plant size under the RES Act, the payment for CHP plants varies with the market price”.⁴²¹ The act requires grid operators to purchase electricity from CHP plants and pay a premium on top of the market price:⁴²²

The arrangement is a result of stranded cost compensation, after it turned out that CHP became unprofitable after liberalisation. The CHP Act applies only to CHP plants that were in operation when the act entered into force and will be phased out. The act does only apply to new plants if they replace existing plants (modernisation) and for small plants. As a result, the CHP Act does little for investment which expands CHP capacity.

As to end use efficiency, activities were initiated in line with EU policy. As a first step, the Energy Savings Ordinance (*Energieeinsparverordnung*)⁴²³ entered into force in February 2002. It set the

⁴¹⁸ See supra n 311, 238.

⁴¹⁹ Federal Ministry of Economics *Energy Data – National and International Development* (Berlin, August 2008).

⁴²⁰ See supra chapter III F.

⁴²¹ See supra n 311, 254.

⁴²² Ibid.

⁴²³ Verordnung über energiesparenden Wärmeschutz und energiesparende Anlagentechnik bei Gebäuden, 1 February 2002.

total energy requirement of new buildings at 30 per cent below current standards; for old buildings insulation requirements and exchange of heating systems were prescribed. Several measures were taken in favour of renewable energy.⁴²⁴

. Besides several programmes sponsored by the eco-tax revenue⁴²⁵, the most important step was the enforcement of the Renewable Energy Sources Act 2000 and its amendment in 2004.

G The Renewable Energy Sources Act 2004

1 The first four years of the RES Act

From 2000 to 2004 the RES Act already had shown its effectiveness. “The volume of electricity generated from renewable energies supported by”⁴²⁶ the RES Act almost tripled (it increased from around 13.6 TWh to 34.9 TWh). “During the same period the act doubled the volume of electricity generated from wind and biomass, and brought a nine-fold increase in electricity generated from photovoltaic systems in Germany”.⁴²⁷

Another reason for the effectiveness was the structure of the RES Act which guaranteed a particularly high investment security, leading to relatively low credit interest rates and risk mark-ups. These were very good conditions for investors to loan money from the bank in order to finance new renewable energies installations. In other words, the decrease of the costs for renewable energy hinge largely on investment security which the RES Act gives to the investors. The Ministry for Environment stated that:⁴²⁸

Furthermore, the lowering of fees as laid down in the RES Act for installations commissioned at a later date ensured further price reductions. This so called “degression” had already an impact: The costs for installing photovoltaic systems dropped by 25 per cent between 1999 and 2004. For wind turbines, costs were reduced by 30 per cent between 1993 and 2003. This “degression” also led to installations being

⁴²⁴ See supra n 1, 608.

⁴²⁵ See chapter III G 1.

⁴²⁶ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *The main features of the Act on granting priority to renewable energy sources (Renewable Energy Sources Act) of 21 July 2004* (Berlin, July 2004) 2.

⁴²⁷ Ibid.

⁴²⁸ Ibid, 3.

constructed as quickly as possibly in order to obtain a high payment level and ruled out the possibility for operators waiting until installation become cheaper.

Additionally, the RES Act guaranteed a great incentive for operators to commission high-quality installations which are run as efficiently as possible (at least during the 20 years of paid tariffs) because the tariffs depend on the kw/h produced. “Therefore, operators demanded high standards from the installation manufacturers”.⁴²⁹

2 The need to reform

“In order to continue advancing the positive development of renewable energies in all sectors, and to adapt the RES Act to this development, it was amended on 1 August 2004”.⁴³⁰ The particular aims of the Renewable Energy Sources Act 2004 were the “further development of technologies for the generation of electricity from renewable energy sources”⁴³¹ and “to increase the share of renewable energies in the total electricity supply to at least 12.5 per cent by 2010 and to at least 20 per cent by 2020”.⁴³²

Other reasons for the amendment of the RES Act were the need to implement a European directive as well as the progress report 2002 on the RES Act⁴³³. Due to the European Directive on electricity production from renewable energy sources (2001/77/EC)⁴³⁴ there was need for further reforms. For example, according to article 5 of this directive, “every member state should have the duty to guarantee the origin of electricity produced from renewable energy sources”.⁴³⁵

According to section 12 of the RES Act 2000, the Ministry of Economics had to do a progress report on the act every two years. On 28 June 2002, the first report was due and revealed that there was need to adjust the compensation rates which were different

⁴²⁹ See supra n 426, 3.

⁴³⁰ Ibid.

⁴³¹ Ibid

⁴³² Section 1 of the Renewable Energy Act 2004.

⁴³³ Compare with the end of chapter III F.

⁴³⁴ Directive 2001/77/EC of the European Parliament and of the Council on the Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market, PE-CONS 3648/1/01 REV 1, 27 September 2001.

⁴³⁵ Ibid, article 5.

for every technology in order to propel and optimise those technologies which had not been successfully enough established like offshore wind parks.⁴³⁶

3 The regulations in detail

In the following, this work will examine the most important amendments of the RES Act regulations.

The new section 4 (which was the former section 3) still provided the regulations concerning the obligation to purchase and transmit. But the grid system operators should, after the amendment, “give immediate priority to connecting plants generating electricity from renewable energy sources”.⁴³⁷ The word “immediate” was added and should show the growing importance of electricity generated from renewable energy sources once again.

Further amendments created incentives for plant operators of renewable energy sources “to agree with the grid operators on generation management in their mutual interest”.⁴³⁸ This was especially relevant for grid upgrading and stand-by energy. Such an agreement could take the –at times- fluctuating electricity supply into consideration in a way [that would enable to minimise] the cost for grid upgrades, reserves and stand-by energy”.⁴³⁹ In order “to facilitate better integration of renewable energies into the electricity system”⁴⁴⁰, the RES Act 2004 contained, according to new section 5, “an obligation to measure and record the capacity for plants with a capacity of 500 kW or more”.⁴⁴¹

As already pointed out, the RES Act stipulated “fixed tariffs which grid operators had to pay for the feed in of electricity from”⁴⁴² renewable energy sources. The new sections 6 to 11 replaced the former sections 4 to 8 and regulated the minimum payments for the different energy sources. For 2005, fees under the RES Act 2004 ranged from about NZ \$ 0.10 per kWh for electricity from wind energy up to about NZ \$ 1.20

⁴³⁶ See supra n 383, section 34/35.

⁴³⁷ See supra 426, 4.

⁴³⁸ Ibid.

⁴³⁹ Ibid.

⁴⁴⁰ Ibid.

⁴⁴¹ Ibid.

⁴⁴² Ibid.

for solar electricity from small façade systems. “In principle, the guaranteed payment period was and is 20 calendar years”⁴⁴³, but new section 12 provided for hydropower generated electricity a period of either 15 or 30 years (depending on capacity). “The fee, valid for the year of commissioning, remained constant, for this period, with the exception of wind energy. For wind-generated electricity, special regulations were laid down in section 10”.⁴⁴⁴ For onshore wind parks the regulations remained pretty much constant (starting fee paid for five years, afterwards fee depends on wind conditions at the site), but offshore wind parks were promoted with the enforcement of the RES Act 2004. “Starting fees for offshore wind parks were paid for 12 years. This period was even extended for installations located further from the coastline and erected in deeper water”.⁴⁴⁵ While the payment rate for wind energy on land was slightly lowered and cancelled in cases of wind parks which could not achieve at least 60 per cent of the reference yield at the planned location, higher starting fees for offshore wind parks were paid under the RES Act 2004. Furthermore, the RES Act 2004 extended the period for the payment of offshore wind parks for four more years (from 2006 to 2010).⁴⁴⁶ The Ministry for Environment stated that:⁴⁴⁷

In order to take account technological developments and their economic efficiency, and to optimise the use of cost reduction potential, the tariffs for most branches were degressive in structure. The degression annually lowered the payment in rates in all branches for new installations (except small hydropower plants). For installed plants, the fee valid for the respective year of commissioning applied for the entire payment period.

Compared with the RES Act 2000, the new act provided “for a more differentiated fee structure, taking efficiency aspects into account. In particular, the payment conditions for geothermal energy and biomass were improved”.⁴⁴⁸ In the case of modernisation and expansion of existing large hydro power plants, “the additional

⁴⁴³ Ibid.

⁴⁴⁴ Ibid.

⁴⁴⁵ See supra n 419, 5.

⁴⁴⁶ Ibid.

⁴⁴⁷ Ibid.

⁴⁴⁸ Ibid.

electricity generated is included in the fee. The degressive structure was strengthened and further developed”.⁴⁴⁹ Furthermore, the Ministry for Environment stated that:⁴⁵⁰

For the area of bio energy, in addition to the minimum fees laid down, the new version of the RES Act provided for additional fees (bonuses), if the electricity was exclusively produced from self-regenerating raw materials, combined heat-power, or if the biomass was converted using innovative technologies (e.g. thermal chemical gasification, fuel cells, gas turbines, etc.).

The bonuses could be used additionally.

Furthermore, the RES Act 2004 gave:⁴⁵¹

Greater consideration to aspects of nature conservation, in particular with regard to the use of hydropower, photovoltaic and wind energy. To improve transparency, the act introduced an obligation on the part of the grid operators to publish energy volumes and payment figures” (section 15). To improve information on the increased use of renewable energies, the RES Act 2004 initiated the creation of an installation register (also section 15). In accordance with the provisions laid down by the Directive 2001/77/EC, the RES Act 2004 allowed authorised bodies to issue guarantee of origin for electricity from renewable energy (section 17). This should promote consumer information and protection.

Section 18 forbade that electricity produced from renewable energy sources could be sold or otherwise transferred more than once. This prohibition of multiple sales was only introduced due to reasons of clarification. Of course, it was not allowed under the Electricity Feed Act and the RES Act 2000 but it was not explicitly regulated.⁴⁵²

H The Integrated Energy and Climate Programme

In the spring of 2007, meeting under the German presidency, the Ministry for Environment stated that:⁴⁵³

⁴⁴⁹ Ibid.

⁴⁵⁰ Ibid.

⁴⁵¹ See supra n 419, 6.

⁴⁵² See supra n 383, section 18 para 3.

⁴⁵³ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *Key Elements of Integrated Energy and Climate Programme* (Berlin, August 2007).

The European Council set the parameters for an integrated European climate and energy policy. It included ambitious climate protection targets, as well as it aimed at the expansion of renewable energies and increases in energy efficiency. With the key elements of an integrated energy and climate programme set out in the following, the German government implemented these fundamental European policy decisions at national level by means of a concrete programme of measures. The guiding principles remained the three objectives of security of supply, economic efficiency and environmental protection.

At its meeting in Meseberg, a castle in the middle between Berlin and Hamburg, in August 2007, the German government “adopted an ambitious energy and climate programme, consisting of 29 key elements. On 5 December 2007 the government submitted a comprehensive package of 14 acts and ordinances. Another smaller package containing further legislative proposals [followed in May 2008]”.⁴⁵⁴

Hence, in time for the 13th Conference of Parties to the UN Framework Convention on Climate Change from 3 to 14 December 2007 in Bali, the German government had elaborated “an integrated energy and climate programme that set global standards and set out an appropriate response for a modern economy”.⁴⁵⁵ Before the negotiations about the future of international climate protection had even begun, Germany adopted a concrete programme of action to implement strategic EU decisions at national level. After all, energy and climate policy could only be credible if ambitious aims are backed by practical measures. “No other comparable industrialised country had and has an equally ambitious and concrete programme”.⁴⁵⁶

In the following, this dissertation will try to present the major aspects of the Integrated Energy and Climate Programme (IECP). Of course, it will predominantly concentrate on the measures which are directly influencing the German electricity market and the use of renewable energy sources respectively. And key element two, the expansion of renewable energies in the power sector is consequently the most important one for this dissertation and will be discussed in detail. After this, a concise overview of other – for the electricity market – important measures will be illustrated.

⁴⁵⁴ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *The Integrated Energy and Climate Programme of the German Government – Backgroundpaper* (Berlin, December 2007).

⁴⁵⁵ Ibid.

⁴⁵⁶ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *Report on implementation of the key elements of an integrated energy and climate programme adopted in the closed meeting of the Cabinet on 23/24 August 2007 in Meseberg* (Berlin, December 2007).

1 Expansion of renewable energies in the power sector

Within this key element certain measurements were planned which will be illustrated in the following.

(a) Amendment to the Renewable Energy Sources Act

First and foremost, the Renewable Energy Sources Act 2004 will be amended in 2009. The government's goal is that "the expansion of renewable energies should continue and that its share in electricity consumption in Germany should be increased to 25 – 30 per cent by 2020, with continued steady expansion thereafter".⁴⁵⁷ While retaining its fundamental structure, "a fine-tuning of the RES Act would be required to facilitate an optimum response to the current situation at all times".⁴⁵⁸ The most important key measures to the amendment of the RES Act can be found in the Progress Report 2007 which is required every two years under section 20 of the RES Act. According to this report, "improvements in the expansion of offshore wind energy"⁴⁵⁹ as well as better incentives for re-powering old onshore wind energy systems would be needed. Furthermore, "better conditions for electricity generation from biomass"⁴⁶⁰ would be required. "In particular, the fees paid to small scale biomass and especially biogas plants as well as bonuses for combined heat and power and the use of cultivated biomass"⁴⁶¹ would have to be increased. Also, the progress report demanded "a boost for the expansion of geothermal activity generation, especially through higher fees and investment subsidies"⁴⁶² in order to cover drilling risks for example. A further measure needed, should be the:⁴⁶³

Adjustment of fees payable for electricity from photovoltaic electricity. The high rate of growth in photovoltaics resulted in a decrease in manufacturing costs, which would offer scope for a one-off reduction in fees and an increase in the rate of depreciation".

⁴⁵⁷ See supra n 456, 3.

⁴⁵⁸ Ibid.

⁴⁵⁹ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *Renewable Energy Sources Act – Progress Report 2007 Background Information* (Berlin, November 2007) 3.

⁴⁶⁰ Ibid.

⁴⁶¹ Ibid.

⁴⁶² Ibid.

⁴⁶³ Ibid.

Lastly, “measures to avoid powering down of renewable energy plants due to grid bottle necks should be planned. To this end, grid integration should be improved and optimised feed in management introduced”.⁴⁶⁴

(b) Regulation on the demarcation of areas for specific uses at sea

The IECP envisaged “spatial planning in Germany’s Exclusive Economic Zone in the form of a regulation issued by the Federal Ministry of Transport demarcating areas for specific uses at sea, in particular offshore wind energy”.⁴⁶⁵ This includes the designation of priority areas. “The legal impact of this status would be that any other use not compatible with the designated priority must be disallowed or denied authorisation, thereby ring-fencing potential locations for offshore wind farms”.⁴⁶⁶ The government’s strategy for offshore wind energy use aims for the installation of wind turbines with a combined capacity of up to 25,000 MW by 2030.

(c) Support strategy for re-powering wind turbines

The IECP envisaged a support strategy for re-powering wind turbines within the framework of master building development planning and regional planning (in partnership with the federal states and associations of local authorities). “One major component would be developing onshore wind conversion by supporting the re-powering process, i.e. replacing smaller, older wind turbines with low output, of the kind built in the 1990s by state-of-art- turbines with greater capacity”.⁴⁶⁷ This step would increase energy efficiency, diminish the aesthetic strain on the landscape by cutting site scatter, and reduce the negative impact on humans and the environment (e.g. by enhanced turbine features, site selection and concentration).

Solitary wind turbines had been a frequent phenomenon, particularly in the 1990s, encouraging an “asparagus effect in the landscape”, a new phrase in the German language meaning the transformation of the German landscape into an asparagus field.

⁴⁶⁴ See supra n 459.

⁴⁶⁵ See supra n 456, 10.

⁴⁶⁶ Ibid, 10/11.

⁴⁶⁷ Ibid, 11.

Concentrating turbines in wind farms and removing lone turbines would make it easier to protect the landscape visually. Apart from improving the commercial incentives by amending the RES Act, re-powering would call for support in achieving the parallel objective of “tidying” the landscape, in particular from master planning for building development, but also from regional planning. Current law would already provide for the instruments required, but there would be a need for practical application guidance.⁴⁶⁸

(d) Grid expansion and undersea cables

Like already mentioned, rapid expansion of the share of renewable energies is one of the key elements in the government’s Energy and Climate Programme adopted at the Meseberg meeting. In order to realise this aim Germany needs “new high-voltage transmission lines, above all to carry electricity following the proposed expansion of wind energy (offshore and onshore), but also to connect proposed new power stations to the grid and handle the increase in cross-border power trading”.⁴⁶⁹ However, delays could be and can still be expected in planning procedures and in the construction of cable systems. Therefore, the government adopted the following measures to speed up grid expansion: The adoption of an Energy Grid Expansion Act which will permit the definition of priority needs for transmission cables and include a bundled approval procedure for undersea cables connecting offshore wind turbines when urgent new grid construction is undertaken. Model guidelines are to be drawn up for energy grid approval procedures, after which they will be made available to planning authorities in the federal states. To standardise the administrative practice which often varies from one federal state to another would make it easier for project agencies to prepare for these approval procedures. Furthermore, judicial simplification was considered, more precisely shortening the judicial procedure for planning decisions relating to priority projects, focusing on a single chamber at Higher Administrative Court in the region with jurisdiction and relinquishing the appeal to the Federal Court. Lastly, several amendments to the Energy Industry Act were proposed like the prolonged validity of offshore connection rules defined in section 118 (7) of the Energy Industry Act, or detailed measures for cost efficient, need-oriented grid expansion (section 11), or the

⁴⁶⁸ . See supra n 456, 11/12.

⁴⁶⁹ Ibid, 12.

expansion of the duty to report in section 12 (3a) with regard to include concrete measures to expand the grids within a defined time frame. Furthermore, rules were planned to ensure that grid operators bear the burden of substantiation and proof if they refuse a grid connection on the ground that it is commercially unacceptable.⁴⁷⁰

2 *Other important measures*

An overview of important key element of the IECP is now following:

(a) Smart metering

“The metering of electricity consumption in Germany had not kept pace with progress. Usually meters in households and small and medium sized companies were only read once a year”.⁴⁷¹ The government wanted to reform this in order to offer people the possibility to keep close track of what they are using, both to manage their own consumption and that energy service contracting could be optimised. Therefore, the government’s objective was the “rapid dissemination of new technologies in a liberalised power metering environment, enabling consumers to know exactly how they are consuming power”.⁴⁷²

On 9 September 2008 the amendment to the Energy Industry Act on liberalising metering was enforced. It set out to open the market beyond the operation of meters for electricity and gas to the actual reading and data processing. Network operators have hitherto been responsible for measuring consumption, even when the meters are already being operated by a different company. This activity is now to be opened completely to competition. The liberalisation envisaged in the act is designed not only to help tap into price advantages for consumers, but above all to promote technical innovation in meter design and management, and also concepts for smart networks. The aim is to establish conditions for the introduction of intelligent digital meters, partly to encourage a broader offering of variable load-related tariffs. Wherever their installation makes economic sense, these new technologies permitting the management of consumption should become

⁴⁷⁰ See supra n 456, 12 ff.

⁴⁷¹ Ibid, 20.

⁴⁷² Ibid.

more widespread in commercial, industrial and household environments and should be ready for use in six years.⁴⁷³

(b) Support programmes for climate protection and energy efficiency

Other key elements of the IECF included support programmes in the fields of international climate protection, energy efficiency, renewable energies and other domestic measures to protect the climate. The objective of these planned programmes is to provide consultancy and economic incentives for climate protection and energy efficiency without incurring excessive costs. “As announced by Chancellor Merkel during Germany’s presidency of the G8, some of the proceeds from the sale of emission allowances could be used for climate protection measures in newly industrialising and developing countries”.⁴⁷⁴

In the productive sector, small and medium-sized businesses had so far been slow to tap the potential for energy efficiency, especially due to financial limits and a lack of information. Consequently the Federal Ministry of Economics and its lending facility have put together a promotional programme, the Special Fund for Energy Efficiency in Small and Medium Sized Businesses that began in 2008. “Grants are to be paid for independent, expert consultancy provided to companies about energy efficiency. Low-interest loans are available to fund company investments in energy-saving measures that generate major energy-saving impacts”.⁴⁷⁵

Private households would often lack detailed information about energy efficiency measures. Therefore, Germany supports them with over 400 consumer advice centres and a common nationwide website in order to offer energy consulting to private households. The advice includes a thorough survey of the building and a comprehensive report with detailed proposals or action packages for optimising the energy balance of thermal insulation and heating systems. From 2008 on, the programme became much more attractive because of a higher grant for consultancy as well as broader conditions of eligibility.⁴⁷⁶

⁴⁷³ See supra n 456, 20.

⁴⁷⁴ Ibid, 25.

⁴⁷⁵ Ibid.

⁴⁷⁶ Ibid, 25/26.

Another objective of the IECF is the energy-efficient modernisation of federal buildings. The programme for the energy-efficient modernisation of federal buildings was launched in 2006 in order to renovate public buildings to improve their energy performance, especially reduce building specific GHG emissions. Between 2006 and 2009 the programme should have made a total of about NZ\$ 950 million available for work on buildings and systems in federal civil and military properties. But the IECF approved an extension of the programme for further two years until 2011.⁴⁷⁷

Furthermore, general administrative rules/guidelines on the procurement of energy-efficient products and services were planned. By adopting such rules or guidelines, the German government would set a good example to others. Therefore, energy-efficient appliances and services are promoted with the aid of preferential procurement.⁴⁷⁸ For energy efficient products a wide scale market introduction was planned. Via standards and clear consumer friendly labelling for all energy using appliances the German government wants to achieve the European energy efficient target (20 per cent efficiency gain compared with business as usual through European eco-design and energy consumption label).⁴⁷⁹

Also an expansion of the energy efficiency and information campaign of the German Energy Agency started after the IECF. Since 2002, the agency had been conducting nationwide campaigns about the efficient use of electricity and the future of buildings. The aim is to network participants and create action platforms for projects designed to achieve an efficient use of electricity in all consumption sectors and energy-efficient construction. Specifically targeted campaigns and projects inform end users in private households, industry and commerce and the service sector about ways they can use electricity efficiently and about energy-efficient trading and construction. The intention is to build on these various information vehicles and campaigns that the German Energy Agency pursued and still pursues.⁴⁸⁰

As a last important key element for this dissertation, the IECF provided consolidation of market incentive programme for renewable energies. It included

⁴⁷⁷ See supra n 456, 44.

⁴⁷⁸ See supra n 453, 3.

⁴⁷⁹ See supra n 456, 31.

⁴⁸⁰ Ibid, 27.

measures relating to the use of renewable energies for heating. To secure a steady market development, the promotion of renewable energy technologies with discerning technical standards continued 2008. The eligibility criteria geared more strongly towards innovation, efficiency and hybrid scenarios. Support expanded to include, for example, the costs of deep geothermal drilling, mini district heating networks (in addition to the Combined Heat and Power Act if the feed includes a certain minimum of share of renewables), and high performance heat pumps with a renewable component, and biogas processors. The support will be adjusted accordingly when obligations to use renewables are imposed by the Renewable Energies Heat Act 2009 “(renewable energies in the heat sector offer huge potential for climate protection and savings in fossil fuels. The share of renewable energies in heat provision will therefore be increased to 14 per cent by 2020”⁴⁸¹ according to this act).

IV CONCLUDING COMPARISON

Chapter II and III of this dissertation tried to illustrate the most important electricity market reforms of New Zealand and Germany. Furthermore, the handling of the in the last two decades emerged question of sustainable electricity was scrutinised. In this chapter, the dissertation tries to summarise and compare the most important measures of New Zealand and Germany. In addition, it will try to take a look into the future of these both countries. Concluding, the dissertation will explain the – at the beginning – held thesis which of these both countries is on a better way in the 21st century concerning the secure and sustainable supply of electricity.

But before the findings of the last two chapters will be presented, a general overview over the numbers of these both countries electricity generation follows.

A Electricity generation in New Zealand and Germany

At first sight, the objectives of New Zealand and Germany do not seem comparable. On one hand, the government of New Zealand set the primary target in the

⁴⁸¹ See supra n 456, 27/28.

NZES to accomplish “that 90 per cent of electricity will be generated from renewable sources by 2025”.⁴⁸² On the other hand, the German government defined - quite recently in the draft of the RES Act 2009 – its goal to increase the share of renewable electricity generation to at least 30 per cent by 2020.

But the following numbers will show that the latter objective of the German government is more ambitious than the goal of New Zealand. Besides the enormously differing population of these both countries, and therefore also unequal demand and supply of electricity, the history of electricity generation of these both countries has to be considered.

1 New Zealand

The New Zealand energy system has largely been built around the “transmission of electricity generated in the southern hydro-lakes to major load centres further north. This has given the country relatively cheap and sustainable supply of renewable electricity”.⁴⁸³ In 2007, the total gross production of electricity was about 43 TW per hour. Around 67 per cent of this number was from renewable sources.⁴⁸⁴ Generation from non-renewable energy sources was less in 2007 than in 2006 with a 1 per cent decrease in total generation from these sources. The share of electricity generated by coal was almost halved in 2007 with the consequence that coal represented only 7 per cent of the total electricity generation in New Zealand. This significant decrease in coal generation can be attributed to the new Huntly e3p gas combined cycle plant which came online in 2007 and displaced much of the generation from the older coal-fired Huntly units. Therefore, gas represents almost 80 per cent of non renewable sources and has a share of more than 26 per cent of the total electricity generation in New Zealand.⁴⁸⁵

But the more interesting issue for this dissertation is the share of renewable electricity generation. In the following, this chapter gives a short overview over the mix and the numbers of the renewable energy sources in New Zealand.

⁴⁸² See supra n 22.

⁴⁸³ See supra n 248, 1.

⁴⁸⁴ MED *New Zealand Energy Data File* (Wellington, June 2008) 89.

⁴⁸⁵ *Ibid*, 96.

(a) Hydro generation

The biggest share of renewable electricity has been from hydro generation, namely about 82 per cent. Historically, electricity from hydro generation has always been a big part of New Zealand's energy system. Already one century ago, the government commissioned hydro plants such as Waipori and Coleridge. In 1965, the high voltage direct current transmission line between the South and the North Island was commissioned. From this point onwards, hydro capacity in the South Island exploded. By the 1990s, hydro capacity had reached its zenith and remains around this level today. Most new hydro developments currently under consideration are relatively small.⁴⁸⁶

(b) Geothermal generation

Geothermal generation has for a long time been and still is the second largest renewable resource and continues to play a significant role in 2007 with around 12 per cent of total net electricity generation from renewable energy sources. The first geothermal power station, Wairakei, was opened 50 years ago and remains, after a binary plant was added in 2005, New Zealand's largest geothermal power station.⁴⁸⁷

(c) Wind generation

From 2006 to 2007, wind generation increased about 50 per cent and is now the third most important source for renewable electricity generation with a share of about 3 per cent. It is, compared to hydro and geothermal generation, a quite young technology in New Zealand. The first wind farm, Hau Nui, was commissioned only a decade ago. Today New Zealand's largest wind farm, Tararu, provides the half of the total capacity generated by wind.⁴⁸⁸ But further big projects are already under construction (West Wind) or at least consented (Hawke's Bay Wind Farm).⁴⁸⁹

⁴⁸⁶ See supra n 484, 90/91.

⁴⁸⁷ Ibid, 91.

⁴⁸⁸ Ibid.

⁴⁸⁹ See supra n 248, 16.

(d) Generation from other resources

Biomass, biogas and solar energy are mainly used directly for heating and as biofuels for commercial and industry applications and do not play a significant role for New Zealand's electricity generation.⁴⁹⁰

Marine energy has been identified as a promising source of electricity generation:⁴⁹¹

A project to trial a tidal stream turbine in the Cook Strait was granted a permit in April 2008, and a council hearing was held in May 2008 to consider an application to install marine turbines in the Kaipara Harbour. Additionally, at least 14 wave and tidal stream technologies are currently being investigated around New Zealand.

2 Germany

In 2007, the total gross production of electricity was about 636 TW per hour in Germany. Around 86 per cent of this number was generated from non renewable sources. The main energy source for electricity generation is coal, "which accounts for around 50 per cent of the electricity production, with hard coal and lignite each accounting for about half of this".⁴⁹² "Yet German hard coal is about three to four times as expensive as imported coal and relies on state subsidies".⁴⁹³ "Since the number of miners has become too small to a serious interest group and the commission of the European Union does not allow the subsidy, it is gradually reduced".⁴⁹⁴ But experts say that this would "not influence the generation mix or investment decisions, which are based on the price of imported coal, but would reduce domestic coal consumption and increase coal imports".⁴⁹⁵ "Lignite is the only other major domestic energy resource in Germany. As it can be accessed through open cast mines, it is relatively cheap and does not require state subsidies".⁴⁹⁶ "The downside is that open cast mines consume vast chunks of land, leading to significant public opposition".⁴⁹⁷ As already discussed⁴⁹⁸, nuclear plants still

⁴⁹⁰ See supra n 484, 92

⁴⁹¹ See supra n 248, 16.

⁴⁹² See supra n 311, 237.

⁴⁹³ Ibid.

⁴⁹⁴ Ibid.

⁴⁹⁵ Ibid.

⁴⁹⁶ Ibid.

⁴⁹⁷ Ibid, 238.

generate a quarter of Germany's electricity despite the phase-out programme. Another 10 per cent comes from the electricity generation from gas.

Renewable energy sources had a share of about 14 per cent of Germany's electricity generation in 2007. Similar to the first part of this chapter, in which New Zealand's electricity generation was examined, this work takes a closer look on the renewable electricity mix of Germany.

(a) Wind generation

In 2007, a total of 883 new wind turbines were installed in Germany, bringing the overall number of wind turbines for electricity generation to 19, 460 all over Germany. With a total share of more than 6 per cent of the gross electricity generation, wind power was and still is by far the most important renewable energy source in Germany. However, the German government states that there would be still considerable potential by developing suitable sites "in Germany's southern states, and by replacing small-scale old turbines by larger new turbines".⁴⁹⁹

Also, the German government has big plans concerning offshore wind energy use, which will be discussed later.

(b) Hydro generation

With the Electricity Feed Act and its successor, the RES Act, "electricity generation from hydropower has been maintained at a high level".⁵⁰⁰ Since 1990, the gross electricity production of hydropower is around 20 TW per hour, which means a share of over 3 per cent of the total electricity generated in Germany. The German government acknowledges that electricity production from hydropower could be only increased slightly by modernisation of outdated technologies in existing plants as well as new constructions, especially at transverse structures.⁵⁰¹

⁴⁹⁸ See supra chapter III G 2.

⁴⁹⁹ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *General Information - Renewable Energy, August 2008; Development of renewable energy sources in Germany in 2007* (Berlin, June 2008).

⁵⁰⁰ Ibid.

⁵⁰¹ Ibid.

(c) Biomass generation

Similar to the wind generation, the contribution of biomass to the electricity generation exploded in Germany from 1990 to 2007. Due to the Electricity Feed Act and the RES Act the share of this renewable raw material (such as wood but also plants' and animals' waste) could be almost centupled in the last 17 years (from 0.2 TW per hour to 19.5 TW per hour in 2007. Along "with landfill and sewage gas and biogenic share of waste, more electricity was produced from biomass (total sum of 23.8 TW per hour) than from hydropower for the first time in 2007".⁵⁰² Additionally, the "contribution of biomass to heat supply totalled around 84 TW per hour"⁵⁰³ which was about 93 per cent of all renewable energy sources in this sector.

According to the German government, "the use of bioenergy should be further expanded. The technical potential required for this would be available in Germany. In the agricultural and forestry sector"⁵⁰⁴, around 30 million hectares of agricultural land and woodland would be available for biomass production.

(d) Solar generation

In Germany, options for exploiting solar energy include "solar thermal heat use through solar panels, passive solar use"⁵⁰⁵ and, of particular importance for this dissertation, electricity generation using photovoltaic installations. By the end of 2007, "over 9.6 million square metres of sun collectors were installed in Germany".⁵⁰⁶ Especially the RES act 2004 with the increase of fees for photovoltaic installations caused a boost for the electricity generation from solar energy (from about 0.5 TW per hour in 2004 to 3.5 ZW per hour in 2007). With the new Renewable Energies Heat Act⁵⁰⁷, entering into force on 1 January 2009, and its obligation to use renewable energy for heat supply in new buildings, solar energy will also increase its share in the heat supply.⁵⁰⁸

⁵⁰² See supra n 499.

⁵⁰³ Ibid.

⁵⁰⁴ Ibid.

⁵⁰⁵ Ibid.

⁵⁰⁶ Ibid.

⁵⁰⁷ See chapter II H 2 b.

⁵⁰⁸ See supra n 499.

3 Comparison

In order to analyse above mentioned numbers properly, the fact has to be considered that New Zealand and Germany have such a big difference in population and consequently also in demand and supply of electricity. While New Zealand's electricity generation supplied their 4.3 million inhabitants with 43 TW per hour in 2007, Germany generated electricity of about 636 TW per hour for their population of 82.1 million in the same year. Therefore, leaving the percentages (share of renewable electricity in NZ: 67 per cent, in Germany: 14 per cent) behind, it has to be considered that Germany generated more than three times more electricity from renewable sources than New Zealand.

Another significant aspect is the big difference in electricity consumption between the inhabitants of these both countries. Comparing the above mentioned numbers, New Zealanders are consuming 30 per cent more electricity per capita than Germans.

Contemplating the different renewable sources, it stands out that New Zealand has a long history in generation from hydroelectric plants. It always played a big part in the electrical supply of New Zealand. Therefore, the electricity generation from renewable sources in New Zealand was and still is very orientated on hydro generation. Consequently, the electricity generation from wind and solar energy has been disregarded for a long time and only started to develop in the recent times. In contrast, the situation in Germany is very different. In 1990, electricity generation from renewable sources – with the exception of hydro generation – was practically non-existent. Nowadays, a very big share of renewable electricity comes from the comparatively new technologies like wind and solar generation as well as electricity generation from biomass. As seen in chapter III, Germany developed a system of fees, supporting the feed in of electricity from renewable sources into the grid, already in 1991. With the enforcement of the RES Act in 2000, this system became very elaborate. Therefore, Germany was far ahead of New Zealand and also the rest of the world, with regard of developing and supporting renewable energy technologies. This led and still leads to Germany being a role model in this sector and also becoming the export hit in terms of regulation and technology. Within a short space of time, the RES Act “has developed into an international model and has

paved the way for the promotion of renewable electricity production”.⁵⁰⁹ By the end of 2005, 32 of 49 nations, which had set themselves certain goals for renewable electricity, decided for legislation, using the supported feed in principle. “Even India and China introduced comparable support instruments”.⁵¹⁰

In the wind energy sector Germany is leading the market with a share of about 30 per cent of all installed wind capacity all over the world. Therefore, it does not come as a big surprise that wind turbines with the tag “Made in Germany” are wanted all over the world. On average and estimating conservatively, the export quota of wind installation manufactures increased from 55 per cent in 2006 to 70 per cent in 2007. The resulting turnover was more than NZ \$ 10 billion which is around 7 per cent over the value of 2006.⁵¹¹

Due to their success the German businesses in the renewable energies sector are a unique job machine. From 2004, the year of the amended RES Act, the number of people employed in this sector rose from 157,000 people to the total estimated employment figure of 249,000 employees for 2007. Around 75 per cent of this number came from the well established wind energy sector and the fast rising supply of biomass (increase of almost 30,000 jobs within the last three years).⁵¹² From this increase of nearly 60 per cent numerous professional groups are benefiting because the generation of renewable energy covers the entire supply chain: From manufacturing the components and developing the installations down to planning the project.⁵¹³

But being now one of the global players concerning renewable electricity technologies was a long and hard way for Germany. In the next two chapters, this paper wants to compare the most important reforms which have been taken by the both countries’ governments in order to tackle the problems on the way to deliver sustainable and secure electricity to their people.

⁵⁰⁹ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *EEG – The Renewable Energy Sources Act (Berlin July 2007)* 20.

⁵¹⁰ *Ibid.*

⁵¹¹ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety *Short and Long Term Impacts of the Expansion of Renewable Energy on the German Labour Market* (Berlin, March 2008).

⁵¹² *Ibid.*

⁵¹³ See supra n 509, 15.

B Comparison of the Electricity Market Reforms in Both Countries

The starting points of these both countries' markets were different. While New Zealand's electricity market became economically unviable in the 1980s and the government was forced to reform the electricity industry in order to reach the best outcome for the country's economy, the first big German electricity market reform did not come from the inside. Germany had to implement a directive of the European Union in 1998. Until 1984, the generation and transmission system in New Zealand was completely state-owned and aimed at supplying the New Zealanders with cheap electricity, understanding the electricity sector as social service. But this monopoly could only work as long New Zealand's economy was prospering. In Germany, the state played only a subsidiary role, holding shares in a few electricity generators. The sector was never institutionally monopolised. Instead a handful of privately owned big utilities owned and operated the transmission grids and most of the power plants. But the disadvantage of this oligopoly was that these firms, both transmission system operators and dominant generators, had agreements dividing the German electricity market into approximately equal parts, avoiding competition among themselves. Therefore, electricity prices were never as cheap as they could be.

So, on one hand there was New Zealand and its state-owned model, where the electricity prices were relatively cheap at the expense of New Zealand's Treasury. On the other hand, the big players of Germany's electricity supply system were economically well positioned but the consumers had to suffer higher electricity prices.

Therefore, New Zealand's more urgent need to reform, caused by the economically not viable and monopolistic state-owned system, resulted in earlier efforts. As seen in chapter II B and C, New Zealand took UK as a role model and initiated the liberalisation of the electricity market already in the late 1980s and early 1990s. Compared to Germany's first liberalisation wave in 1998, it seems that New Zealand was far ahead. But it has to be taken into account that the first efforts like the SOE Act 1986 and the Electricity Act 1992 aimed inter alia on targets which had been the status quo in Germany (e.g. ending the state-owned monopoly). On the other hand, the efforts of New Zealand's government were quite progressive and innovative for these times. As the first country, New Zealand adopted the light-handed approach to electricity regulation, trying

to solve the danger of power market abuse and its problems without installing an industry regulator. Within the EU, Germany was the only country which followed this approach in 1998. Also, the legal measures to remove statutory distribution and retail monopolies as well as enforcing provisions for information disclosure concerning the market structure and prices came comparatively early in New Zealand in 1993 and 1994. Similar reforms were enforced in Germany not until 1998. But unlike in New Zealand, where - despite the above mentioned reform - the local electricity companies still used their market power in distribution to exclude competition at the retail level, the German efforts went further. From the start and at that time in 1998, 100 per cent end user eligibility was very unique in Europe and went far beyond the required measures in the European directive. Nevertheless, after several years the German electricity market had to cope with the same problems as the market in New Zealand. The big electricity firms gained their profits not in generation or retail but in the wire business through inadequately high prices.

Contemplating the outcome of these both countries' measures in numbers, the results in Germany were distinctly better than in New Zealand. Especially commercial customers benefited from the reforms. An estimated 65 per cent either switched the retailer or negotiated better prices with the old one.⁵¹⁴ These numbers could not even close be achieved in New Zealand. And although the reforms resulted in savings to industrial and commercial customers, private households experienced further price raises in New Zealand. In Germany, at least one third of the private households switched their retailer or negotiated better conditions for their contracts due to the reforms.⁵¹⁵ Better results regarding the private households were impeded by the anticompetitive consumer behaviour. In particular, consumers of small and medium local and regional retail companies, still mostly owned by the municipalities, show a high grade of loyalty and simply refuse to switch, even when the prices are higher than of any competitor in the area. Explanation for this anticompetitive behaviour is that these companies have traditionally strong positions in the communities. They usually play a major part in the infrastructure and social life as a major local employer or as an important local investor. Therefore, higher prices are mostly accepted because the municipalities are benefiting

⁵¹⁴ OECD Report „Energy Policies of IEA Countries, 2002 Review Germany“ (Paris, 2003) 110.

⁵¹⁵ Ibid.

from the companies' profits. Consumers, especially in rural areas and smaller cities, are not willing to increase profits of not regional or even foreign companies.⁵¹⁶

However, the electricity prices in Germany also started to increase significantly again three years after the reform in 1998. Like before mentioned, the big electricity companies in both countries abusing their market power were responsible for holding the competition down, and therefore increasing the retail prices.

The countries had different answers to this dilemma. New Zealand responded by introducing and passing the Industry Reform Act 1998. The mandatory separation of the monopoly distribution businesses from the contestable retail/generation businesses were the key feature. Mandatory separation is an extreme policy response to the competition issues raised by vertically integrated networks: it makes vertical integration illegal. It is self evident that a vertically integrated network has incentives to make access difficult or expensive where it is competing in the downstream contestable market with the access-seeker, but has no such incentives if it is a stand-alone network industry which does not compete in the upstream or downstream market. However, mandatory separation of the network and energy businesses was necessary only because light-handed regulation had failed. The government was not prepared to introduce an access model along the lines developed in other jurisdictions. In the absence of an effective access regime, the only alternative was mandatory separation.⁵¹⁷

Germany, three to five years in the development - compared to New Zealand - behind, also tried handed the light-handed approach at first and opted for the negotiated Third Party Access. But Germany's reasons for the weak rules on unbundling of the vertically integrated monopolistic networks were multiple. On one hand, the big issue is that the big electricity companies are largely in private hands. The obligation to split off the grid system operators from the rest of the firm could mean under certain conditions expropriation and would violate the constitution. Besides this legal problem, there had been several political considerations why the government decided for the light-handed approach first. First, the electricity supply industry had and still has a quite big influence on politics. The big companies' directors and managers have a lot of friends in the

⁵¹⁶ See supra n 9, 57.

⁵¹⁷ See supra n 61, 12.

parties. And it is not unusual that politicians get a good job in the board of a big electricity company after their careers in the government or parliament. Second, the electricity sector is considered to be strategic. Facing counterparts like the Russian giant Gazprom, the government hesitates to fragment the industry too heavily and tries to balance between competition and countervailing power. In this context, there has always been this competitiveness of having the biggest and best company within Europe. Therefore, the European governments tend to create and support their “national champions”. Lastly, the West German firms committed themselves to invest heavily in the former East after the reunification in the 1990s. The light-handed regulation might have been something like a reward for all the money the big companies had spent.⁵¹⁸

Retrospectively, the light-hand approach, both in New Zealand and in Germany, failed. Both countries’ industries were not capable of regulating themselves. In New Zealand, it worked slightly better with the development of the self-regulatory arrangements between 1994 and 1999 called NZEM, MARIA and MACQS which merged later into the EGB. But it still was too less regulation and the Commerce Act 1986 alone was not appropriate to control the price regime of the industry. The government realised that a monopolist had no incentive to offer terms more favourable than those it believed were legal under existing law. A vertically integrated natural monopoly would seek to test the limits of what is lawful by forcing an entrant to litigate at every point, while in the meantime consumers were denied the benefits of competition.⁵¹⁹ The Association Agreements, for the most part organised by the German electricity industries, were completely insufficient to solve the big problems as they were not legally binding. Network access regulations and methods for calculating the network fees were set in an almost totally private environment and the control exercised by the Federal Cartel Office was too weak.⁵²⁰

⁵¹⁸ See supra n 311, 251.

⁵¹⁹ See supra n 61, 9.

⁵²⁰ See supra chapter III B 5.

“The fundamental flaw of the light-handed model adopted in New Zealand [and Germany was that it relied on the incumbent monopolist and the oligopoly in Germany respectively] to act in a fair and reasonable way”:⁵²¹

As a matter of public policy, a regime to control the activities of industries with natural monopoly characteristics which has, as its basic principle, an assumption that the monopolist will act fairly and reasonable, and not use its monopoly position to benefit itself at the expense of its competitors, is at best naïve. It is because economic theory predicts that a monopolist will act in its own self interest in confronting emerging competition, and is likely in the process to misuse its monopoly power that a policy to prevent, that a policy to prevent that possibility is needed at all.

Therefore, both countries had to end the self regulation of the electricity supply industry at a certain point and installed an industry regulator. In New Zealand, the Electricity Commission took over on 1 March 2004. In Germany, the government delegated the power to monitor the electricity market to the Federal Network Agency on 1 January 2006. Again, this was a requirement of a European directive which was implemented by the German government in form of the Energy Industry Act 2005.

These both regulators are in many ways similar. They stand both for the effort to provide all classes of consumers with secure, efficient, reliable and environmentally sustainable electricity. But, there are some different priorities. The Electricity Commission has a special focus on reserve energy. Since New Zealand relies mainly on hydro generation, the country faces unpredictably shortages of electricity supply in times of drought. Furthermore, the Electricity Commission concentrates on plans to upgrade the grid. According to the government’s expectations, they should work with Transpower and grid users to facilitate priority investment in the grid. However, the Federal Network Agency has only limited power because it shares its authority with the state regulatory authorities as well as the Federal Cartel Office. The main focus of the Federal Network Agency lies in the supervision of the transmission and distribution networks as the access to them were causing several problems in the past.

Comparing these both industry regulators seems quite hard as they are not working that long, especially in Germany. Furthermore, although they have similar main

⁵²¹ See supra n 61, 10.

tasks, the focus on them is different. But at the moment, New Zealand's model seems to work more efficiently. The objectives are more precisely defined and the trust in the Electricity Commission seems to be bigger than in Germany in its Agency. The Electricity Commission was entrusted with issues relating to security of supply and transmission investment decisions, which were formerly under the control of the Commerce Commission, while the Federal Network Agency still has to share its power with the other authorities in Germany. Therefore, the Electricity Commission seems a bit more established.

In recent times, the German government concentrated on enacting ordinances in order to support the Federal Network Agency. They concretised the regulation concerning access on the transmission and distribution network and on fees for this access. Furthermore, the KraftNAV⁵²² came into force in July 2007 in order to facilitate network access for new power station projects which should boost the competition. Having these new rules, the Federal Network Agency can now monitor the industries' compliance with the ordinances. In New Zealand, the investment in the national grid was the biggest concern. The NPS on Electricity Transmission was issued in September 2008, recognising the national significance of the national grid and giving the national governments a framework they could use when they had to decide on proposals for transmission lines. Also in September 2008, the Electricity Industry Reform Act Amendment Act 2008 implemented a policy change concerning the mandatory separation of lines and supply businesses. The government took partially back their extreme approach and "narrowed the scope of ownership separation requirements to focus on the geographic areas where lines and supply businesses are co-located".⁵²³

Having contemplated the last 25 years of both countries' electricity market reforms, New Zealand has taken more efforts to reform its electricity market than Germany. New Zealand's government was always years ahead in the development and reacted faster (e.g. Electricity Reform Act 1998) and more forcefully (e.g. mandatory separation of lines and supply businesses, wider power for the industry regulator). Of

⁵²² See supra III D 2.

⁵²³ See supra n 22.

course, New Zealand made on his way to reform its electricity market some wrong decisions (e.g. light handed approach or even the too extreme mandatory separation) but it recognised it at a certain point and initiated counteractive measures. However, Germany had to follow the European policy of market liberalisation. In this context, the government did not want to take the chance to establish fair competition on its electricity market but was eager to prepare its industry for pan-European market participation. The big electricity played and are still playing a big role in the governments decision with the consequence that the implementation of European directives into national law was and is half hearted (e.g. in 1998, only European country with regulated Third Party Access; industry regulator has to share its power).

C Comparison of the Renewable Electricity Market Reforms in Both Countries

With respect to reforms which aimed on the uptake of renewable electricity, the comparison between New Zealand and Germany is completely different. In this context, New Zealand had traditionally the much better starting point because of the dominant hydro generation. Therefore, New Zealand rested a little bit too long on its laurels. While Germany already made important decisions to start the uptake of renewable electricity in the 1990s, New Zealand discovered this topic not until this millennium. Germany's Electricity Feed Act 1991 was the most innovative legislation concerning the uptake of renewables at this time. Already in 1997, Germany committed itself to implement the Kyoto climate protocol in order to reduce GHG emissions. New Zealand officially recognised climate change as a global issue not until December 2002 when Helen Clark signed New Zealand's ratification of the Kyoto Protocol. Furthermore, with the election of the new government in 1998, Germany took more steps towards sustainable electricity. Eco taxes were introduced in order to fund several programmes aiming on the installation and extension of renewable technology systems. In 2000, the core of Germany's efforts to deliver sustainable electricity was introduced: The Renewable Sources (RES) Act 2000. At this time, objectives relating energy efficiency and renewable energy as well as climate change were expressed very vaguely by New Zealand's government. The National Energy Efficiency and Conservation Strategy 2001 for example had no precise numbers with regard to the increase of renewable energy. The Resource Management Act

was amended not until 2004, giving greater weight to the energy efficiency and the use and development of renewable energy. In this year, the German government had already evaluated the outcomes of the RES Act 2000 critically and tried to improve flaws. It increased the fees for underdeveloped and therefore not much used renewable energy technologies, like at this time solar energy, in order to give these technologies a boost. In contrast, fees for wind energy installations were decreased because wind energy technology was well developed and established in 2004. Besides the well established hydro and geothermal generation, New Zealand spared its efforts regarding other renewable technologies. It was for example not until 2007 that the government proposed an investigation, to be made by the Electricity Commission of “ways in which wind generation could be best integrated into the current system in order to ensure that its maximum economic potential can be achieved”.⁵²⁴

In 2007, both New Zealand and Germany developed big programmes concerning the climate and energy policy for the future. The New Zealand Energy Strategy (NZES) and its companion document the New Zealand Energy and Efficiency Strategy (NZEES) were released in October 2007, proposing several measures to achieve the primary target that 90 per cent of electricity will be generated from renewable sources by 2025. These measures included the establishment of an Emission Trading Scheme (ETS) which became law in September 2008 when the Climate Change Bill passed in parliament. However, Germany started the European ETS within the EU already in January 2005. Also plans of the NZES to use low carbon technologies such as Carbon Capture and Storage (CCS) in New Zealand’s future have been already realised in Germany. In 2008, the first CCS plants were connected to the grid.

As seen above⁵²⁵, the renewable energy sector has become a significant factor in the economy of Germany. Around a quarter of a million are working in this industry. In order to continue supporting this sector, the German government alone spends more than NZ \$ 300 million every year for the research and development of new renewable energy technologies. Furthermore, the government focused on energy efficiency. It has substantially expanded the CO2 Building Renovation Programme since early 2006 –

⁵²⁴ See supra n 22.

⁵²⁵ See supra chapter IV A 3.

making around NZ \$ 2.8 billion per year available for the period 2006-2008, in the form of low-interest loans and grants and tax concessions. This quadrupled the programme's previous budgets. The government's first economic stimulus programme of November 2008 adopted further funding of an additional NZ \$ 6 billion for 2009-2011.⁵²⁶

These are unimaginable sums for New Zealand which agreed in the NZEECS to NZ \$ 184 million in funding for a number of programmes over a period of five years.

Envisaged programmes in the NZEECS like smart metering have become in Germany already reality through the Integrated Energy and Climate Programme (IECP) which the German government adopted in December 2007. With this programme, the government elaborated a comprehensive package of future acts, ordinances and measures. In this connection, the new RES Act 2009 is especially to point out. The government again adjusted its aim upwards. Now, 30 per cent of electricity should be generated from renewable energy sources by 2020. Furthermore, the German government wants to focus on offshore wind energy which has in their opinion a great potential. Therefore, several measures should be taken to support the ambitious plans of installing offshore wind turbines with a combined capacity of up to 25,000 MW by 2030 (e.g. involvement of the Federal Ministry of Transport, undersea cables).

In the meantime, New Zealand is still developing a NPS for Renewable Electricity Generation under the Resource Management Act. This NPS shall give "clear statutory recognition of the national benefits of renewable electricity generation, and therefore provide generators with a degree of certainty that decision-makers will give appropriate consideration to these benefits when considering plan provisions and applications".⁵²⁷ This step is very necessary because not even a fifth of generation capacity consented under the RMA was renewable between 1991 and 2006. In contrast, Germany amended its federal building codes already in 1998 in the way that the installation of wind power plants and hydropower plants were facilitated immensely, of course, with the detriment of the asparagus effect⁵²⁸. But due to the by the IECP initialised support strategy for re-powering wind turbines this effect shall be removed.

⁵²⁶ www.bmu.de.

⁵²⁷ See supra n 3.

⁵²⁸ See chapter III H 1 (c).

Concluding, New Zealand has been a long time a role model all over the world delivering renewable electricity in a high percentage to its people. But they missed the trend in the 1990s. In contrast, Germany's environmental policy was very progressive from the start. The fees for the feed in of renewable electricity to the grid are nowadays copied by many countries. Furthermore, the government started various programmes to boost every form of renewable electricity generation. In addition, the RES Act was amended in order to support underdeveloped renewable energy technologies with higher fees. For the future, the IECP and its measures seems more promising than the NZES and NZEECS because there is more money, work and experience involved in the German renewable energy sector than in New Zealand. In 2008 and in the beginning of 2009, many key points of this IECP have been realised already in Germany (e.g. smart metering in 2008 or the RES Act 2009 on 1 January 2009), while in New Zealand important measures like the NPS for Renewable Electricity Generation are still under progress. Being an isolated country, it is also understandable that New Zealand's biggest concern seems to be security of supply. In this connection, the new elected government around John Key is expected to soften the impact of the planned ETS (postponing it a year or more) and to lift Labour's 10-year ban on new gas or coal-fired power stations.⁵²⁹ But this means that New Zealand is taking a step back towards delivering sustainable electricity.

D Result

Overall, Germany seems to be on a better way to tackle the big challenges of the 21st century in the electricity sector. Due to its exemplary and progressive environment policy it seems to be prepared and willing to deliver its people a big amount of renewable electricity in the future. However, this is only a snap-shot in the fast moving electricity sector. And New Zealand has shown in the past that it can reform its electricity market in a fast and forceful way.⁵³⁰ In addition, it remains to be seen whether the big economic crisis will have a negative impact on sustainability.

⁵²⁹ James Weir „Energy shakeup looms“ (11 November 2008) *The Dominion Post*.

⁵³⁰ See evaluation in chapter IV B.

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