



Sustainability in the Dutch Power Sector

Fact Sheet Series

Investment in Generation Capacity

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1 Investments in new power generation capacity in Europe

1 Introduction

This series of fact sheets is designed to investigate the Dutch power sector and raise public awareness about the sustainability of power companies operating in the Netherlands. The series consists of ten company fact sheets and four thematic fact sheets, for a total of 14. The ten company fact sheets focus on ten of the Netherlands' leading power companies: DELTA, Electrabel, Eneco, E.ON, Essent, Greenchoice, Nuon, Oxxio, RWE, and Windunie. For each company, the fact sheet will contain information on four measures of sustainability: the company's current fuel mix for installed electricity generation capacity in Europe, current fuel mix of electricity supplied in the Netherlands, investments in new generating capacity in Europe, and initiatives to encourage consumers to become more sustainable in their energy use by conserving energy and reducing overall use (demand-side initiatives) in the Netherlands. The thematic fact sheets focus on these same four areas and compare the ten companies' performance in each area. Information for the fact sheets has been gathered from news articles and databases; company sources such as websites, annual reports and CSR reports; and personal interviews with the companies. All of the companies were given and used the opportunity to review a draft of their fact sheet, provide comments, and correct any factual errors. Funding for the fact sheets was provided by Greenpeace. All fact sheets in this series are available on the SOMO website at www.somo.nl.

This thematic fact sheet provides a forecast of the future fuel mixes of the generation capacity of the ten companies by examining these companies' current and announced investments in new electricity generation capacity in Europe.¹ A distinction is made between current investments, projects that are already under construction (and for which the investments are definite), and announced investment plans, those projects that are in various stages of planning (and which could still be cancelled or modified by the company).

2 Current investments in new generation capacity in Europe

This section analyses investment in electricity generation plants that are currently under construction in Europe. It does not include the announced investment plans. Table 1 presents the financial amount (in millions of €) of the investments, broken down into capacity for renewable, gas, coal and nuclear generation. Table 2 lists the investment according to the maximum amount output planned (in MW) for the investments, broken down in the same fashion.²

Table 1: Investments in new generation capacity in Europe, per fuel source (million €)³

Fuel type	DELTA	Electrabel	Eneco	E.ON ⁴	Essent	Green choice	Nuon	Oxxio	RWE	Windunie
Renewable	120	482.5	395.5	400	112	N/A	100	0	380	0
Gas	550	525	950	2,591	0	0	1,500	480	1,400	0
Coal	0	1,000	0	4,800	0	0	0	0	4,200	0
Nuclear	0	N/A	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Total	670	2,007.5	1345.5	7,791	112	N/A	1,600	480	5,980	0

Table 2: Investments in new generation capacity in Europe, per fuel source (MW)⁵

Fuel type	DELTA	Elec tra bel	Eneco	E.ON	Essent	Green choice	Nuon	Oxxio	RWE	Wind unie
Renewable	36.5	286	135	375	183.5	N/A	78	0	398	0
Gas	870	3,235	1,090	5,559	0	0	1,300	428	2,526	0
Coal	0	800	0	4,400	0	0	0	0	3,630	0
Nuclear	0	100	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Total	906.5	4,421	1,225	10,334	183.5	N/A	1,378	428	6,554	0

3 Announced investment plans for new generation capacity in Europe

In addition to the plants that are currently being developed, companies have also announced various investments to be made in the future. These plans have a varying level of concreteness; some plans have been developed in detail and are only awaiting permits, while others are vague plans of possible future investment strategies. Due to this and other factors, not all financial details of these plans are known. This results in incomplete information that should be interpreted with caution.

Table 3 and Table 4 present the companies' additional investment plans. Table 3 provides the information in monetary terms (million €), while Table 4 presents the figures in terms of maximum output capacity (MW).

Table 3: Additional investment plans for new generation capacity in Europe, by company and fuel source (million €)⁶

Fuel type	DELTA	Elec tra bel	Eneco	E.ON	Essent	Green choice	Nuon	Oxxio	RWE	Wind unie
Renewable	0	875	2,600	1,400 ⁷	0	0	N/A ⁸	0	5,850	0
Gas	N/A	1,170	0	N/A	1,500	0	N/A	0	1,100	0
Coal	0	4,400 ⁹	0	2,000	N/A	0	N/A ¹⁰	0	8,850*	0
Nuclear	0	2,300	0	N/A	0	0	0	0	7,000*	0
Other	0	0	0	0	0	0	0	0	0	0
Total	0	8,745	2,600	3,400	1,500	0	0	0	22,800	0

* including joint investments

Table 4: Additional investment plans for new generation capacity in Europe, by company and fuel source (MW)

Fuel type	DELTA	Elec tra bel	Eneco	E.ON	Essent	Green choice	Nuon	Oxxio	RWE	Wind unie
Renewable	0	3,332	729.5	2,724.4 ¹¹	0	0	N/A ¹²	0	8,299	0
Gas	400	3,493	0	4,800	1,040	0	1,900	0	2,000	0
Coal	0	5,030 ¹³	0	5,950	N/A	0	N/A ¹⁴	0	6,920	0
Nuclear	0	3,460	0	2,000	0	0	0	0	2,000	0

Other	0	0	0	0	0	0	0	0	0	0
Total	400	15,315	729.5	15,474.4	1,040	0	1,900	0	19,219	0

On the basis of the data on the plants that are currently being constructed (Tables 1 and 2), an estimation can be made for each company about the fuel mixes for electricity generation once the investments have been completed. When all the additional capacity is added up, DELTA, Electrabel, Eneco, and E.ON will all have less sustainable fuel mixes in the near future than they currently have. Oxxio, a company that currently does not own any generation capacity, will only have non-renewable capacity once its investments have been completed.

When calculating the estimated fuel mix if all investments *and* investment plans were completed according to current projection, quite a different picture emerges. Two of the least renewable companies today, RWE and Nuon, would greatly increase the renewable share of their generation capacity. Others, such as DELTA, would actually decrease their relative share of renewables. However, these announced investments are unlikely to all be realized in the same form as they have been announced. Therefore, only limited weight should be given to these projections. Table 5 summarises these projections.

Table 5: Percentages of investments in sustainable electricity generation

Percentage	DELTA	Electrabel	Eneco	E.ON ¹⁵	Essent	Green choice	Nuon	Oxxio	RWE	Wind unie
Current (2007) % renewable	7.0	16.7	43.8	16.2	17.1	100	3.5	N/A	3.0	100
% renewable after current investments are finished	5.4	14.6	29.2	14.2	19.5	100	4.0	0	3.1	100
% renewable after planned investments are finished	4.3	17.3	44.1	14.8	16.7	100	3.0	0	14.3	100

4 Investments per fuel type

This section presents the combined current and planned investments per fuel type in order to give an indication of the current trends regarding fuel type, as well as serving as further specification of the information provided above.¹⁶ Table 6 reveals that most of the companies are building or are planning to build new capacity for power generation from renewable sources of some sort. Similarly, Table 7 indicates that most companies have plans for new natural gas capacity. Table 8 shows that E.ON and RWE are the most active in developing new coal plants, and that Electrabel and Nuon have announced plans as well. Finally Table 9 illustrates that E.ON and Electrabel are the companies interested in increasing power generation capacity from nuclear fuel.

Table 6: Investment in sustainable generation capacity, by company

Investment	Company	Value (€ million)	Capacity (MW)
Current			
Biomass	DELTA	120	36.5
	Essent	112	27.5
Wind	Electrabel	482.5*	282
	Eneco	395.5	135
	Essent	N/A	156
	Nuon	100	78
	RWE	380*	398
	E.ON	400*	375
Hydro	Greenchoice	N/A	N/A
	Electrabel	N/A	4
Planned			
Biomass/coal	Electrabel	N/A	150
Biomass	E.ON	300	175
	Eneco	N/A	4.5
Wind	Electrabel	875*	2,865
	Eneco	1,600	525*
	RWE	5,580*	8,299*
	E.ON	1,100	2,549.4
Hydro	Electrabel	N/A	60
Solar	Electrabel	N/A	257
Osmosis	Eneco	N/A	200

*incomplete information

Table 7: Investment in natural gas generation capacity, by company

Investment	Company	Value (€ million)	Capacity (MW)
Current			
	DELTA	550	870
	Electrabel	525*	3,235
	Eneco	950	1,090
	E.ON	2,591*	5,559
	Nuon	1,500	1,300
	Oxxio	480	428
	RWE	1,400	2,526
Planned			
	DELTA	N/A	400
	Electrabel	1,170*	3,493
	E.ON	N/A	4,800
	Essent	N/A	1,040
	Nuon	N/A	1,900
	RWE	1,100	2,000

* incomplete information

Table 8: Investment in coal generation capacity, by company

Investment	Company	Value (€ million)	Capacity (MW)
Current			
	Electrabel	1,000	800
	E.ON	4,800	4,400

	RWE	4,200	3,630
Planned			
	Electrabel	4,400	5,030**
	E.ON	2,000	5,150
	Nuon	N/A	N/A
	RWE	8,850***	6,920

* incomplete information

** including biomass co-generation

*** including joint investments

Table 9: Investment in nuclear generation capacity, by company

Investment	Company	Value (€ million)	Capacity (MW)
Current			
	Electrabel	N/A	100
Planned			
	Electrabel	2,300*	3,460
	E.ON	N/A	2,000

incomplete information

¹ The data and figures found in this fact sheet are based on information in the individual company fact sheets, a draft of which was reviewed and commented on by each company. Visit www.somo.nl for all fact sheets.

² Note that these tables include only investments for which information with regard to monetary amounts and MW is available. It is therefore possible that more investments are currently under construction than those that are given in Tables 1 and 2.

³ This Table only examines investments in new electricity generation capacity. This means that investments in new technologies or efficiency measures in existing plants are not taken up. For calculating these figures, the full amount of the investment is taken up, including when these projects are in collaboration with other companies/parties. If companies have specified their share, only their own investment is used. In the case of E.ON, the investments by E.ON UK and E.ON Nordic are also included.

⁴ No financial information was found for several of the projects, including Irsching 4, Bahia de Algeciras, Alpha Ventus and various wind parks in Spain and Portugal. Therefore, these are not included in the calculations. This means that the actual investment in natural gas and wind capacity, as well as the total investment, could be higher than given in this table.

⁵ When the capacity of a project is given as a range rather than as a single figure, the average of the range is used in the calculation.

⁶ Only the known investment figures are taken up. This means that a number of projects that are in advanced stages of planning, but for which no financial details have been disclosed, are not taken up in this table.

⁷ This figure does not include the €6 billion of investments in renewable capacity announced by E.ON, as no information was found on actual projects or investments. On 9 September 2008, E.ON announced a framework agreement with Siemens in which E.ON's new Climate and Renewables Business Unit agreed to purchase 500 Siemens wind turbines with a total capacity of 1,150 MW for approximately €1.4 billion. E.ON claims that 550 MW of this new wind power will be installed in Europe, but the Siemens deal is only a framework agreement and E.ON has not yet announced any concrete plans or actually purchased any turbines, as specific orders will take place later. Since no specific plans have been announced or specific monetary amounts spent, this potential investment is not taken up the fact sheets. For more details on the deal, see: <http://www.eon.com/en/presse/news-show.do;jsessionid=D754ABC6493000296EA19DAC572BC516.2?id=8782&back=%2fen%2findex.jsp>.

⁸ It should be noted that Nuon has plans to develop coal and biomass co-generation facilities at the Magnum plant. However, as no information is yet available about the amount of electricity that can be generated from these two sources, these were left out of the calculations in the two tables. See the Nuon fact sheet for more information.

⁹ These investments in coal concern power plants in which co-firing of biomass is possible.

¹⁰ See footnote 8.

¹¹ See footnote 7.

¹² See footnote 8.

¹³ These investments in coal concern power plants in which co-firing of biomass is possible.

¹⁴ See footnote 8.

¹⁵ Due to organizational restructuring, all investments in renewable capacity has shifted to the E.ON Climate and Renewables business unit. Only the E.ON Energie business unit was looked at for the projections of future fuel mixes, as no concrete investment plans of the E.ON Climate and Renewables business unit was found. Investments in the UK and the Nordic countries were excluded in this calculation, as the data for the current generation mix is based on the E.ON Energie business unit only. See the E.ON company factsheet for further information.

¹⁶ For the tables in this section, info on the monetary amounts (€) of investments planned are often not available, so these results should be interpreted with caution.