

Input VisionIDA100%VE

The EnergyPLAN model 6.99



Electricity demand (TWh/year): Fixed demand 27.15 Electric heating 0.00 Electric cooling 0.00	Flexible demand 6.28 Fixed imp/exp. 0.00 Transportation 1.80 Total 35.23	Capacities Group 2: MW-e MJ/s CHP 1200 800 Heat Pump 200 700 Boiler 4800 Group 3: MW-e MJ/s CHP 2000 813 Heat Pump 300 1050 Boiler 7300 Condensing 8000					Efficiencies elec. Ther COP 0.54 0.36 3.50 0.90 0.64 0.26 3.50 0.90 0.64					Regulation Strategy: Technical regulation no. 2 KEOL regulation 23457 Minimum Stabilisation share 0.00 Stabilisation share of CHP 0.00 Minimum CHP gr 3 load 0 MW Heat Pump maximum share 0.50 Maximum import/export 0 MW					Fuel Price level: Capacities Storage Efficiencies MW-e GWh elec. Ther. Hydro Pump: 0 0 0.40 Hydro Turbine: 0 0.40 Electrol. Gr.2: 1000 150 0.80 0.15 Electrol. Gr.3: 1000 150 0.80 0.15 Electrol. trans.: 2800 100 0.85 Ely. MicroCHP: 2000 100 0.85 CAES fuel ratio: 0.000				
District heating (TWh/year) District heating demand Solar Thermal Industrial CHP (CSHP) Demand after solar and CSHP	Gr.1 1.35 0.70 0.00 0.65	Gr.2 11.03 1.53 0.00 9.50	Gr.3 13.58 0.42 0.00 13.16	Sum 25.96 2.71 0.00 23.25	Grid stabilisation share	Heatstorage: gr.2: 40 GWh Fixed Boiler: gr.2: 2.5 Per cent Electricity production from CSHP Gr.1: 0.00 TWh/year Gr.2: 0.00 TWh/year Gr.3: 2.31 TWh/year					Distr. Name : Price_DKV_2005.txt Addition factor 60.00 DKK/MWh Multiplication factor 1.04 Dependency factor 0.02 DKK/MWh pr. MW Average Market Price 349 DKK/MWh					(TWh/year) Coal Oil Ngas Biomass Transport 0.00 0.00 0.00 20.78 Household 0.00 0.00 0.00 2.72 Industry 0.00 0.00 0.00 23.23 Various 0.00 0.00 0.00 0.00					
Wind 3000 MW Offshore Wind 7000 MW Photo Voltaic 1500 MW Wave Power 882 MW Hydro Power 0 MW Geothermal 0 MW	6.44 TWh/year 27.25 TWh/year 1.5 TWh/year 3 TWh/year 0 TWh/year 0 TWh/year	0.00 TWh/year 0.00 TWh/year 0.00 TWh/year	0.00 TWh/year 0.00 TWh/year	0.00 TWh/year 0.00 TWh/year	Grid stabilisation share																

Output

District Heating	District Heating										Electricity														Exchange						
	Demand	Production								Ba-lance	Consumption						Production						Balance				Payment				
		Distr. heating MW	Solar MW	CSHP MW	DHP MW	CHP MW	HP MW	ELT MW	Boiler MW		EH MW	Elec. demand MW	Flexi-ble MW	Elec-trolyser MW	EH MW	Hydro Pump MW	Tur-bine MW	RES MW	Hy-dro MW	Geo-thermal MW	CSHP MW	CHP MW	PP MW	Stab-Load %	Imp MW	Exp MW	CEEP MW	EPP MW	Imp Million DKK	Exp Million DKK	
January	4241	119	0	187	1015	1721	44	1138	11	5	3493	869	651	2354	11	0	0	3922	0	0	263	2373	820	100	0	0	0	0	0	0	2
February	4320	252	0	154	684	1721	69	1394	44	1	3456	952	647	2449	44	0	0	5425	0	0	263	1587	272	100	0	0	0	0	0	0	20
March	3805	285	0	118	836	1636	42	872	16	0	3327	941	567	2376	16	0	0	4654	0	0	263	1906	403	100	0	0	0	0	0	0	7
April	3217	433	0	54	827	1379	43	440	48	-7	2931	918	450	2056	48	0	0	3979	0	0	263	1851	312	100	0	0	0	0	0	0	0
May	2706	470	0	8	753	1174	44	217	29	11	2860	931	383	2038	29	0	0	4060	0	0	263	1639	279	100	0	0	0	0	0	0	9
June	1688	396	0	0	570	653	49	24	7	-11	2780	910	218	1822	7	0	0	4162	0	0	263	1170	142	100	0	0	0	0	0	0	15
July	1688	444	0	0	692	486	35	6	4	22	2535	930	150	1641	4	0	0	3078	0	0	263	1447	472	100	0	0	0	0	0	0	15
August	1688	407	0	0	619	666	48	10	4	-65	2916	897	205	1779	4	0	0	3897	0	0	263	1264	377	100	0	0	0	0	0	0	13
September	2139	356	0	0	721	872	41	112	14	25	2993	929	276	1710	14	0	0	3972	0	0	263	1447	240	100	0	0	0	0	0	0	7
October	2773	245	0	51	431	1391	113	391	139	12	3104	948	454	2148	139	0	0	5595	0	0	263	868	66	100	0	0	0	0	0	0	54
November	3375	135	0	138	607	1568	105	656	164	2	3354	863	514	2417	164	0	0	5484	0	0	263	1384	181	100	0	0	0	0	0	0	31
December	3866	80	0	179	1009	1642	35	895	24	4	3355	951	568	2281	24	0	0	4013	0	0	263	2315	587	100	0	0	0	0	0	0	7
Average	2955	302	0	74	731	1241	56	510	42	0	3091	920	423	2088	42	0	0	4347	0	0	263	1606	348	100	0	0	0	0	0	0	Average price
Maximum	6777	2811	0	352	1613	1750	300	3728	2014	1147	4767	2910	985	4800	2014	0	0	11282	0	0	263	3830	4266	100	0	0	0	0	0	0	(DKK/MWh)
Minimum	1583	0	0	0	0	47	0	0	0	-1411	1548	0	13	0	0	0	0	39	0	0	263	0	0	100	0	0	0	0	0	0	(DKK/MWh)

Total for the whole year																								Million DKK					
TWh/year	25.96	2.65	0.00	0.65	6.42	10.90	0.49	4.48	0.37	0.00	27.15	8.08	3.72	18.34	0.37	0.00	0.00	38.19	0.00	0.00	2.31	14.11	3.05	0.00	0.00	0.00	0.00	0	182

FUEL BALANCE (TWh/year):																		Imp/Exp Corrected				CO2 emission (Mt):	
DHP	CHP2	CHP3	Boiler2	Boiler3	PP	Geo-th.	Hydro	Elc.ly.s	CAES	Wind	Offsh.	PV	Wave	Solar.Th	Transp.	househ.	Industry	Various	Total	Imp/Exp	Netto	Total	Netto
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00
Oil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00
N.Gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00
Biomass	0.72	7.83	11.48	1.85	2.07	4.77	-	-	-	-	-	-	-	-	20.78	1.63	23.23	-	74.37	0.00	74.37	0.00	0.00
Renewable	-	-	-	-	-	-	-	-	-	6.44	27.25	1.50	3.00	5.22	-	-	-	-	43.41	0.00	43.41	0.00	0.00
H2 etc.	-	0.50	1.69	0.35	0.71	-	-	-	-	-	-	-	-	-	9.52	2.62	-	-	0.00	0.00	0.00	0.00	0.00
Geothermal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00
Total	0.72	8.33	13.17	2.20	2.78	4.77	-	-	-	6.44	27.25	1.50	3.00	5.22	30.30	1.63	23.23	-	115.15	0.00	115.15	0.00	0.00



	District Heating Production																								RES specification					
	Gr.1				Gr.2										Gr.3										RES specification					
	District heating MW	Solar MW	CSHP MW	DHP MW	District heating MW	Solar MW	CSHP MW	CHP MW	HP MW	ELT MW	Boiler MW	EH MW	Storage MW	Bal- lance MW	District heating MW	Solar MW	CSHP MW	CHP MW	HP MW	ELT MW	Boiler MW	EH MW	Storage MW	Bal- lance MW	RES1 Wind MW	RES2 Offsho MW	RES3 Photo MW	RES4 Wave MW	Total er MW	
January	221	33	0	187	1802	67	0	506	693	5	519	11	11048	1	2219	18	0	509	1028	40	619	0	20953	4	719	2839	24	340	3922	
February	225	71	0	154	1835	142	0	335	694	14	624	22	11267	4	2260	39	0	349	1026	55	770	22	19975	-2	1053	3726	73	573	5425	
March	198	80	0	118	1617	161	0	409	663	4	374	6	10025	-1	1991	44	0	427	972	38	498	10	19843	1	835	3247	146	427	4654	
April	167	113	0	54	1367	251	0	382	540	8	170	19	11042	-4	1683	69	0	445	839	34	270	30	19402	-4	652	2875	212	240	3979	
May	141	133	0	8	1150	264	0	340	434	9	84	13	10968	5	1416	73	0	413	740	35	133	17	22274	6	618	2838	380	224	4060	
June	88	88	0	0	717	242	0	243	215	6	13	4	10073	-5	883	66	0	328	437	43	11	3	19099	-5	569	3081	304	207	4162	
July	88	88	0	0	717	279	0	268	151	6	3	2	9796	8	883	77	0	424	335	29	3	1	20415	14	382	2139	366	190	3078	
August	88	88	0	0	717	251	0	271	209	6	4	3	9179	-26	883	68	0	348	456	43	6	1	14972	-39	613	2787	238	260	3897	
September	111	111	0	0	909	192	0	341	299	9	54	6	13062	8	1119	53	0	379	573	32	58	7	23667	17	650	2846	138	338	3972	
October	144	93	0	51	1178	120	0	200	563	43	174	72	12207	7	1451	33	0	230	828	70	217	68	21869	5	955	4096	82	464	5595	
November	176	38	0	138	1434	76	0	283	645	35	302	89	11200	2	1766	21	0	323	923	70	354	75	21535	0	1024	3925	65	469	5484	
December	201	22	0	179	1643	45	0	513	665	3	402	14	11584	1	2022	12	0	496	977	32	493	10	21624	3	744	2875	21	373	4013	
Average	154	80	0	74	1256	174	0	342	481	12	226	22	10948	0	1546	48	0	390	761	43	285	20	20467	0	733	3102	171	341	4347	
Maximum	352	333	0	352	2879	2009	0	800	700	150	1713	1240	25001	509	3545	588	0	813	1050	150	2015	1189	39964	638	3000	7000	1500	882	11282	
Minimum	82	0	0	0	673	0	0	0	31	0	0	0	0	-800	828	0	0	0	15	0	0	0	0	-977	0	0	0	7	39	
Total for the whole year																														
TWh/year	1.35	0.70	0.00	0.65	11.03	1.53	0.00	3.00	4.22	0.11	1.98	0.19		0.00	13.58	0.42	0.00	3.42	6.68	0.38	2.50	0.18		0.00	6.44	27.25	1.50	3.00	38.19	

ANNUAL COSTS (Million DKK)

Total Fuel =	8712
Coal =	0
FuelOil =	0
Gasoil/Diesel=	0
Petrol/JP =	0
Ngas =	0
Biomass =	8712
Maginal operation costs =	319
Total Electricity exchange =	-182
Import =	0
Export =	-182
Bottleneck =	0
Fixed imp/ex=	0
Total CO2 emission costs =	0
Total variable costs =	8849
Fixed operation costs =	5146
Annual Investment costs =	31681
TOTAL ANNUAL COSTS =	45676