Input CEIS_	_2030_BAU.txt		The EnergyPLAN model 16.1
Electricity demand (GWh/year): Fixed demand 32.49 Electric heating + HP 0.00 Electric cooling 0.00	Flexible demand 0.00 Fixed imp/exp. 0.00 Transportation 0.00 Total 32.49	Capacities Efficiencies	Regulation Strategy: Technical regulation no. 1 CEEP regulation 000000000 Minimum Stabilisation share 0.00 Stabilisation share of CHP 0.00 Capacities Storage Efficiencies Elec. Storage kW-e MWh Elec. Ther. Charge 1: 0 0 0.90
District heating (GWh/year) District heating demand Solar Thermal Industrial CHP (CSHP) Demand after solar and CSHP	Gr.1 Gr.2 Gr.3 Sum 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Boiler 0 0.90 Group 3: CHP 0 0 0.40 0.50 Heat Pump 0 0 3.00 Boiler 0 0.90 Condensing 0 0.53	Minimum CHP gr 3 load 0 kW Discharge 1: 0 0.90 Minimum PP 0 kW Charge 2: 0 0.90 Heat Pump maximum share 1.00 Charge 2: 0 0.72 Discharge 2: 0 0.51 Electrolysers: 7940 0 0.72 Distr. Name: CEIS_PUN_2030_LC.txt Rockbed Storage: 0 1.00
Wind 350 kW Photo Voltaic 7824 kW River Hydro 0 kW CSP Solar Power 0 kW Hydro Power 7000 kW Geothermal/Nuclear 0 kW	8.4 GWh/year 0.00 stabilition 0 GWh/year 0.00 sation 0 GWh/year 0.00 share 1 19.14 GWh/year	Heatstorage: gr.2: 0 MWh gr.3: 0 MWh Fixed Boiler: gr.2: 0.0 Per cent gr.3: 0.0 Per cent gr.3: 0.0 Per cent Electricity prod. from CSHP Waste (GWh/year) Gr.1: 0.00 0.00 Gr.2: 0.00 0.00 Gr.3: 0.00 0.00	Addition factor 0.00 EUR/MWh CAES fuel ratio: 0.000 Multiplication factor Dependency factor 0.00 EUR/MWh pr. MW (GWh/year) Coal Oil Ngas Biomass Average Market Price Gas Storage 0 MWh Household 14.50 0.00 15.12 20.70 Syngas capacity 0 kW Industry 0.00 0.00 0.00 0.00 0.00 Biogas max to grid 0 kW Various 0.00 0.00 0.00 0.00

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_											Electri									Exc	hange									
_	Demand				Produc	ction							Consu	umption						Production	on				Е	Balance			 Paym	nent
	Distr.		Waste+							Ва-	Elec.	Flex.&		Elec-		Hydro			Ну-	Geo-	Wast			Stab-					Imp	Exp
	heating		CSHP		CHP	HP	ELT	Boiler	EH		demand			trolyser		Pump	bine	RES		thermal		CHP		Load	Imp	Exp			'	•
	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	%	kW	kW	kW	kW	1000	EUR
January	0	0	0	0	0	0	0	0	0	0	3736	0	0	4332	0	0	0	731	1317	0	0	0	0	100	6021	1	0	1	409	
February	0	0	0	0	0	0	0	0	0	0	3556	0	0	2855	0	0	0	876	1119	0	0	0	0	100	4474	58	0	58	255	
March	0	0	0	0	0	0	0	0	0	0	3352	0	0	1733	0	0	0	1295	1324	0	0	0	0	100	2695	228	0	228	152	1
April	0	0	0	0	0	0	0	0	0	0	3478	0	0	712	0	0	0	1454	2157	0	0	0	0	100	1120	540	0	540	61	2
May	0	0	0	0	0	0	0	0	0	0	3487	0	0	0	0	0	0	1497	2782	0	0	0	0	100	161	952	0	952	10	4
June	0	0	0	0	0	0	0	0	0	0	3686	0	0	0	0	0	0	1842	3547	0	0	0	0	100	29	1733	0	1733	2	8
July	0	0	0	0	0	0	0	0	0	0	3990	0	0	0	0	0	0	1791	2868	0	0	0	0	100	249	919	0	919	16	5
August	0	0	0	0	0	0	0	0	0	0	4168	0	0	0	0	0	0	1628	2571	0	0	0	0	100	529	560	0	560	36	3
September	. 0	0	0	0	0	0	0	0	0	0	3713	0	0	0	0	0	0	1324	2373	0	0	0	0	100	504	489	0	489	33	2
October	0	0	0	0	0	0	0	0	0	0	3605	0	0	0	0	0	0	1039	2046	0	0	0	0	100	778	258	0	258	55	1
November	0	0	0	0	0	0	0	0	0	0	3583	0	0	0	0	0	0	646	2393	0	0	0	0	100	710	167	0	167	51	
December	0	0	0	0	0	0	0	0	0	0	4009	0	0	0	0	0	0	655	1638	0	0	0	0	100	1735	20	0	20	112	
Average	0	0	0	0	0	0	0	0	0	0	3698	0	0	798	0	0	0	1233	2179	0	0	0	0	100	1579	494	0	494	Avera	age pric
Maximum	0	0	0	0	0	0	0	0	0	0	6132	0	0	7940	0	0	0	5767	3779	0	0	0	0	100	10963	5457	0	5457	(EU	JR/MWI
Minimum	0	0	0	0	0	0	0	0	0	0	1511	0	0	0	0	0	0	91	1007	0	0	0	0	100	0	0	0	0	86	7
GWh/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.49	0.00	0.00	7.01	0.00	0.00	0.00	10.83	19.14	0.00	0.00	0.00	0.00		13.87	4.34	0.00	4.34	1193)0) EUF31
FUEL BA	I ANCE (G	:Wh/vea	r).							Wa	ste/ CA	te/ CAES BioCon- Electro- PV and Wind off Industry Imp/Exp Corrected C									2 emissi	ion (kt):								
1 OLL DA	DHP	CHP2	,	3 Bc	iler2 B	oiler3	PP	Geo/N	u. Hydro			ly. ver			Wind	CSP		e Hyd	dro S	olar.Th.	Transp.	househ	. Various			mp/Exp		- 1	Γotal N	` '
Coal					_	_						_	_									9.06		9.00	6 (0.00	9.06	+	2.09 2	2.09
Oil	_	_	_		_	_	_	_	_		_	_	_	_	_	_	_		_	- 5	9.85	-	_	59.8	-	0.12	59.97			6.01
N.Gas	_	_	_		_	_	_	_	_		_	_	_	_	_	_	_		_	_		10.47	_	10.4		7.90	18.37			3.71
Biomass	_	_	_		_	_	_	_	_		_	_	_	_	_	_	_		_	_		20.70	-	20.70		7.96 9.96	30.66			0.00
Renewab	le -	_	_		_	_	_	_	19.14		_	_	_	_	2.43	8.40	_	19.1	14 19	3.58	_	20.70	_	48.5	-	0.00	48.55			0.00
H2 etc.	-	_	_		_	_	_	_	.5.14		10.	12	_	_		-	_	10.1	· · · · · · · · · · · · · · · · · · ·	-	_	10.12	_	0.00	1	0.00	0.00			0.00
Biofuel	_	_	_		_	_	_	_	_		- 10.	-	_	_	_	_	_		_	_	_		_	0.00		0.00	0.00			0.00
Nuclear/C	cs -	_	_		_	_	_	_	_		_	_	_	_	_	_	_		_	_	_	_	_	0.00		0.00	0.00			0.00
Total															2.43					3.58 5	9.85						166.60	_		1.82
									19.14		10.	10				8.40		19.1				50.34		148.62	9 I 1	7.99 ′		1 2/	0.19 21	1 00

Output specifications	CEIS_2030_BAU.txt
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The EnergyPLAN model 16.1

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19-November-2021 [01:43]

	District Heating Production															1 C													
	Gr.1 Gr.2											Gr.3									RES specification								
	District	Color	CSHP	DHD	District	Solar	CSHP	CHP	HP	ELT	Boiler	EH	Stor-	Ba-	District	Solar	CSHP	CHP	HP	ELT	Poilor	EH	Stor-	Ba-	I	RES2 Photo \ I			Total
	heating kW	Solar kW	kW	kW	heating kW	kW	kW	kW	kW	kW	kW	kW	age kW	lance kW	heating kW	kW	kW	kW	kW	kW	Boiler kW	kW	age kW	lance kW	kW	kW	kW	kW	kW
January	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	270	461	0	0	731
February	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	274	603	0	0	876
March	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	1013	0	0	1295
April	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281	1172	0	0	1454
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280	1217	0	0	1497
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	274	1569	0	0	1842
July	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	272	1519	0	0	1791
August	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	1346	0	0	1628
Septembe	er O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	276	1048	0	0	1324
October	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	277	762	0	0	1039
November	r 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	275	372	0	0	646
December	r 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	274	381	0	0	655
Average	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	276	956	0	0	1233
Maximum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	295	5488	0	0	5767
Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	0	0	0	91
Total for the	Total for the whole year																												
GWh/year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	2.43	8.40	0.00	0.00	10.83

Own use of heat from industrial CHP: 0.00 GWh/year

Annual Investment costs =

RES Share:

TOTAL ANNUAL COSTS =

22151

42542

75.9 Percent of Electricity

46.6 Percent of Primary Energy

									NATU	RAL GAS	EXCHAN	GE						
ANNUAL COSTS (1000 EUR)			DHP &	CHP2	PP	Indi-	Trans	Indu.	Demand	Bio-	Syn-	CO2Hy	SynHy	SynHy	Stor-	Sum	lm-	Ex-
Total Fuel ex Ngas exchange =	12936		Boilers	CHP3	CAES	vidual	port	Var.	Sum	gas	gas	gas	gas	gas	age		port	port
Uranium = 0			kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
Coal = 1153		January	0	0	0	3449	0	0	3449	0	0	0	0	0	0	3449	3449	0
FuelOil = 0		February	0	0	0	2709	0	0	2709	0	0	0	0	0	0	2709	2709	o l
Gasoil/Diesel= 10975		March	0	0	0	2022	0	0	2022	0	0	0	0	0	0	2022	2022	o l
Petrol/JP = 0		April	0	0	0	1155	0	0	1155	0	0	0	0	0	0	1155	1155	o l
Gas handling = 0		May	0	0	0	154	0	0	154	0	0	0	0	0	0	154	154	o l
Biomass = 808		June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	o l
Food income = 0		July	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	o l
Waste = 0		August	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Ngas Exchange costs =	923	September	. 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		October	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marginal operation costs =	0	November	0	0	0	1685	0	0	1685	0	0	0	0	0	0	1685	1685	0
Total Electricity exchange =	883	December	0	0	0	3165	0	0	3165	0	0	0	0	0	0	3165	3165	0
Import = 1193			•			4400			4400		•	•	•					
Export = -310		Average	0	0	0	1192	0	0	1192	0	0	0	0	0	0	1192	1192	0
Bottleneck = 0		Maximum	0	0	0	6135	0	0	6135	0	0	0	0	0	0	6135	6135	0
Fixed imp/ex= 0		Minimum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	•	Total for the	e whole ye	ear														
Total CO2 emission costs =	0	GWh/year	0.00	0.00	0.00	10.47	0.00	0.00	10.47	0.00	0.00	0.00	0.00	0.00	0.00	10.47	10.47	0.00
Total variable costs =	14742	·																
Fixed operation costs =	5650																	
1																		

30.0 GWh electricity from RES