

## **Guidance for the template on reporting of used parameters and variables included in Annex 1, part 2, of the Energy Union Governance**

The aim of this excel file is to facilitate reporting of the quantitative parameters and variables under Annex I Part 2 in the indicated format

- All parameters and variables highlighted in green are already currently requested under existing legislation (MMR, RES Directive, or Energy Efficiency Directive), see e.g. [http://cdr.eionet.europa.eu/help/mmr/MMR\\_projections\\_templates\\_2018.zip](http://cdr.eionet.europa.eu/help/mmr/MMR_projections_templates_2018.zip)
- All energy related parameters and variables highlighted in red might require to rely on complementary tools than standard energy system models covering also new requirements in the revised legislation
- All variables highlighted in orange correspond to indicators to be computed on the basis of parameters and variables already available elsewhere in the excel file
- The request for historical data relates to data if and when used in modelling
- All monetary Euro values shall be expressed in constant 2023 prices using ESTAT HICP deflator.
- Elements in red font are meant to provide further precision to what is currently indicated in the template in the provisionally agreed Governance Regulation. They aim to provide additional guidance or specifications and should facilitate the better understanding of modelling results by the Commission. While they remain optional, their use is much encouraged.
- Please report the used values for the years 2005 to 2040 in five yearly steps, and if possible yearly for 2021 to 2030 (the latter indicated in the red font as not required in the template in the Governance regulation).
- Column T can be used for comments that MS wish to provide (e.g. explanation of different methodology, caveats or sources of projections)

<div>Reporting or used parameters and variables included in Annex 1, part 2, of the Energy Union</div> <div>Governance as agreed in trilogue</div> <div>All parameters and variables highlighted in green are already currently requested under existing legislation (e.g MMR, RED Directive, or Energy Efficiency Directive), see e.g. <a href="http://cdr.eionet.europa.eu/help/mmr/MMR_projections_templates_2018.zip">http://cdr.eionet.europa.eu/help/mmr/MMR_projections_templates_2018.zip</a></div> <div>All energy related parameters and variables highlighted in red might require to rely on complementary tools than standard energy system models, covering new requirements from the revised legislation</div> <div>All variables highlighted in orange correspond to indicators to be computed on the basis of parameters and variables already available elsewhere in the excel file</div>																			WEM
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1. General parameters and variables		Unit	2005	2010	2015	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040	Comments MS	Comments Commission
1	Population	million	5,4	5,5	5,7	5,8	5,9	5,9	5,9	5,9	5,9	6,0	6,0	6,0	6,0	6,0	6,1	6,2		
2	GDP	EUR million	240475	257200	274200	294000	314100	322700	326500	331100	333800	335500	337900	339600	343300	347900	365700	386100		
3	Sectorial gross value added	EUR million	206402	223500	238100	253800	271300	281000	284900	289400	291100	292400	294300	295600	298900	303000	318500	336200		
	Agriculture	EUR million	2775	3300	3200	3200	3000	2800	2700	2800	2800	2800	2900	2900	2900	3000	3200	3400		
	Construction	EUR million	10823	10100	12300	13100	13600	13700	13500	13600	15900	16600	17100	17400	17700	18000	18700	19800		
	Services	EUR million	132067	150400	159700	167600	179200	183100	183900	185900	186300	187400	188500	189400	191600	194400	205600	217700		
	Energy Sector	EUR million	14563	8700	6700	5300	5200	2500	2400	3000	3000	3100	3200	3300	3300	3300	2800	2400		
	Industry	EUR million	27143	30700	34500	40700	46200	53800	57800	58200	49700	47700	46700	45600	45500	45800	46600	48600		
4	Number of households	million	2499606	2573417	2636586	2728132	2757161	2788291	2814782	2834240	NA	NA	NA	NA	NA	NA	NA	NA		
5	Households size	inhabitants/household	2,16	2,16	2,16	2,14	2,12	2,11	2,10	2,09	NA	NA	NA	NA	NA	NA	NA	NA		
6	Disposable income of households (yearly)	EUR	89605	116500	131700	152800	157500	172700	178200	189300	205300	214500	221600	228200	236000	244100	285300	334200		
7	Number of passenger-kilometers	million pkm	75870	77425	81277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Public road transport	million pkm	7169	6837	6850	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Private cars	million pkm	59013	60737	63900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Motorcycles	million pkm	3010	2620	3090	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Rail	million pkm	6136	6577	6808	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Aviation	million pkm	316	470	357	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Inland navigation	million pkm	226	184	272	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
8	Freight transport tonnes-kilometres	million tkm	11501	12689	14463	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Trucks	million tkm	11059	10573	12324	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Rail	million tkm	442	167	203	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Inland navigation	million tkm	NA	1949	1936	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
9	International Fuel prices	EUR/GJ or EUR/toe																		Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
	Oil	EUR/GJ or EUR/toe	9	11	8	7	11	16	13	13	13	12	12	12	12	11	11	11	EUR/GJ	Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
	Gas (NCV)	EUR/GJ or EUR/toe	6	6	7	3	15	37	13	15	14	14	12	11	9	8	8	8	EUR/GJ	Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
	Coal	EUR/GJ or EUR/toe	2	3	2	2	4	10	5	4	4	5	5	4	4	3	3	3	EUR/GJ	Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
10	Carbon price ETS sectors	EUR/ ton CO2	22	17	9	26	55	78	83	84	88	91	95	99	104	108	136	173	EUR/GJ	Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
11	Exchange rate to EUR and to US dollar	EUR/currency and/or USD/currency	NA	7,45	7,46	7,45	7,44	7,44	7,45	7,45	7,45	7,45	7,45	7,45	7,45	7,45	7,45	7,45	EUR/DKK	
12	Heating degree days		3068	3742	2921	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
13	Cooling degree days		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
14	Technology cost assumptions (see <a href="https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2040-climate-target_en">https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2040-climate-target_en</a> for technology cost assumptions as used in 2040 Climate Target Plan for suggestions on what could be relevant to report		See: <a href="https://ens.dk/service/teknologikataloger">https://ens.dk/service/teknologikataloger</a>																	
2. energy balances and indicators																				
2.1 energy supply																				
1	Production (incl.recovery of products)	ktoe	31017	22960	15775	9118	9132	9537	9817	13788	15159	15034	15404	16993	17499	18587	17775	16729		
	Solids	ktoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Oil	ktoe	19025	12486	7899	3615	3324	3271	2978	4733	5023	4760	4632	5144	5284	5422	3820	2743		
	Natural gas	ktoe	9384	7343	4144	1191	1265	1244	1136	3022	3621	3319	3128	3590	3386	3127	1914	1396		
	Nuclear	ktoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Renewable energy sources	ktoe	2518	3028	3582	3807	3918	4333	4935	5233	5663	6037	6638	7217	7743	8897	10852	11413		
	Biogases	ktoe	91	104	150	505	625	689	769	800	852	918	1006	1042	1085	1141	1189	1176		please, indicate what is the projection to produce biogas (primary production), regardless on its end-use
	- out of which, injected in the natural gas grid	bcm	0	0	24	345	470	540	613	646	699	775	885	926	969	1033	1120	1123		indicate quantity of biomethane injected in grid as in Energy Balances [TI_BNG_E] Transformation input - for blending with natural gas - energy use; 1 ktoe = 1.15 million m3
2	Net Imports (ktoe)	ktoe	18079	9595	3822	5456	3045	5388	4622	3935	3926	3835	3828	3828	3149	3752	2649	1969		
	Solids	ktoe	3505	2643	1545	547	123	1080	325	456	314	236	193	171	51	47	38	30		
	Oil	ktoe	9446	3833	395	3527	1967	3789	3855	1656	1052	1137	1043	302	25	422	296	582		
	Natural gas	ktoe	5010	3022	1374	790	537	402	216	1707	2435	2423	2485	3049	2911	2649	1475	974		
	Electricity	ktoe	118	98	508	592	419	117	226	116	125	40	107	306	162	635	841	383		
3	Import Dependency	%	36,8	29,5	19,5	37,4	25,0	36,1	32,0	22,2	20,6	20,3	19,9	18,4	15,3	16,8	13,0	10,5		

		Unit	2005	2010	2015	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040	Comments MS	Comments Commission
4	Main import sources for energy carriers																			
	Main country SWEDEN of origin of Electricity Purchases	% of total imports	NA	NA	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0	0		
	1st main country Germany of origin of Gas Purchases	% of total imports	NA	100	17	100	100	72	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	2nd main country Norway of origin of Gas Purchases	% of total imports	NA	0	82	0	0	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	3rd main country (please specify here) of origin of Gas Purchases	% of total imports	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		If more countries to be reported please add rows
5	Gross Inland Consumption	ktoe																		
	Solids	ktoe	3758	3961	1881	912	1400	1080	325	456	314	236	193	171	51	47	38	30		
	Oil	ktoe	35732	29786	29605	22807	22544	21608	15896	15305	14520	13912	13347	12742	12183	11668	11597	11531		
	Natural gas	ktoe	9708	9285	5927	4143	4239	3962	1664	3281	3821	3440	3177	3608	3386	3127	1914	1396		
	Nuclear	ktoe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Electricity	ktoe	5283	5316	4795	5028	5599	5537	6417	6939	7457	7906	8339	8710	8998	9742	11368	11871		
	Renewable energy forms	ktoe	3353	4308	5320	6390	7114	7111	8275	8502	9027	9623	10192	10697	11002	11951	13282	13622		
	Other	ktoe	NA	6186	5538	5499	5952	5480	5707	5768	5814	5837	5920	5920	5919	5916	6158	6368		
2.2. Electricity and heat																				
1	Gross electricity generation	GWhe	33828	36843	27279	28728	33050	35123	38513	41877	45128	48844	53866	58803	61135	70878	88739	92124		
2	By fuel																			
	Nuclear energy	GWhe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Solids	GWhe	15463	17006	7110	3062	4365	4429	977	1727	1135	752	592	512	0	0	0	0		
	Oil (including refinery gas)	GWhe	1370	773	312	263	257	332	182	207	191	180	175	175	185	178	168	155		
	Gas (including derived gases)	GWhe	9062	8264	2266	1666	1816	1257	861	758	642	443	394	429	417	391	430	288		
	Biomass-waste	GWhe	2892	4237	3721	5246	8104	6699	9072	9140	9165	9964	9407	8829	7457	5575	3592	3301		
	Hydro (pumping excluded)	GWhe	23	21	18	17	16	15	15	15	15	15	15	15	15	14	14	13		
	Wind	GWhe	6614	7809	14133	16330	16054	19022	21693	23057	23839	24136	26646	29212	30358	38959	47715	42216		
	Solar	GWhe	2	6	604	1181	1309	2203	4381	5636	8807	12075	15448	18464	21541	24635	36100	45588		
	Geothermal and other renewables	GWhe	NA	NA	NA	NA	NA	NA	1332	1337	1334	1279	1189	1167	1162	1126	720	563		
	Other fuels (hydrogen, methanol)	GWhe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	Share of power generation from combined heat and power generation in total electricity generation (CHP electricity generation divided by the total gross electricity generation, including the generation in pumped storage power stations	%	81,6%	79,6%	49,0%	41,3%	NA	NA	30,7%	30,0%	26,2%	24,5%	20,6%	17,7%	13,8%	9,1%	4,9%	4,2%		
	Share of heat generation from combined heat and power generation in total heat generation (CHP heat generation divided by the total heat for district heating)	%	82,5%	77,2%	65,7%	75,8%	NA	NA	63,9%	65,3%	62,4%	61,7%	58,6%	55,5%	51,4%	44,2%	33,1%	28,2%		
4	Capacity electricity generation including retirements and new investments [note: split between retirements and new investments may not be straightforward to achieve with standard models]	GW	NA	NA	NA	NA	NA	NA	17	19	20	22	25	27	29	35	43	50		
	Nuclear energy	GW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Solids	GW	NA	NA	NA	NA	NA	NA	1	2	0	0	0	0	0					
	Oil (including refinery gas)	GW	NA	NA	NA	NA	NA	NA	1	1	1	1	1	1	1	1	1	1		
	Gas (including derived gases)	GW	NA	NA	NA	NA	NA	NA	2	2	2	2	2	2	1	1	1	1		
	Biomass-waste	GW	NA	NA	NA	NA	NA	NA	2	2	2	2	2	2	2	2	1	1		
	Biogases	GW	NA	NA	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0	0		
	Hydro (pumping excluded)	GW	NA	NA	0	0	NA	NA	0	0	0	0	0	0	0	0	0	0		
	Wind	GW	NA	NA	5	6	NA	NA	7	8	8	8	9	9	9	13	14	12		
	Solar	GW	NA	NA	1	1	NA	NA	3	4	7	9	11	13	16	18	27	35		
	Geothermal and other renewables	GW	NA	NA	0,0	0,0	NA	NA	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
	Other fuels (hydrogen, methanol)	GW	NA	NA	0,0	0,0	NA	NA	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
	Installed capacity of stationary batteries	GWh	NA	NA	NA	NA	NA	NA	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1		Might be significant by 2040, useful in view of the preparation of the next Reference Scenario, model calibration, and to monitor progress on NZIA objectives.
5	Heat generation from thermal power generation	GWhe	NA	NA	NA	NA	NA	NA	33800	34626	33882	33319	31369	30118	27380	23633	18679	16758		
6	Heat generation from combined heat and power plants, including industrial waste heat	GWhe	NA	NA	NA	NA	NA	NA	29560,0	30625,0	30033,0	29985,0	28907,0	28024,0	25901,0	22635,0	18632,0	16956,0		
7	Cross-border interconnection capacities for electricity [the level of electricity interconnectivity in line with Article 4(d)(1) and the relevant annex of the Energy Union Governance regulation] and their projected usage rates [note that such information may not be available in standard energy system models; complementary tools or assumptions might be needed]		NA	NA	6,1	7,4	NA	NA	9,1	9,9	10,2	11,5	11,5	11,5	11,5	11,5	11,5	11,5		
2.3. Transformation sector																				
1	Fuel Inputs to Thermal Power Generation	ktoe	6936	7461	4039	NA	NA	NA	4550	4698	4527	4558	4244	4016	3512	2918	2198	1974		
	Solids	ktoe	3441,0	3765,0	1706,0	NA	NA	NA	785,6	908,3	720,3	647,5	613,7	598,6	484,2	483,5	373,5	373,4		
	Oil	ktoe	307,0	170,0	32,0	NA	NA	NA	30,0	53,0	29,1	28,7	18,6	15,6	18,5	16,9	15,8	11,1		
	Gas	ktoe	1726,0	1660,0	356,0	NA	NA	NA	226,7	181,5	180,8	100,4	71,4	74,3	68,1	54,4	68,5	38,7		
2	Fuel Input to other conversion processes	ktoe	NA	1439	4630	6322	5873	6065	165	166	164	162	145	145	134	134	102	93		
2.4. Energy consumption																				

		Unit	2005	2010	2015	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040	Comments MS	Comments Commission
1	Primary energy consumption	ktoe	19817	20294	16671	15066	16381	16045	16647	16911	16795	16885	16897	16952	16684	17005	17171	16435		In practice this is the PEC(2020-2030) indicator of Eurostat
1	Final energy consumption	ktoe	15727	19801	17950	17032	18091	17242	18776	18772	18571	18413	18299	18210	18196	18185	18066	17798		In practice this is the FEC(2020-2030) indicator of Eurostat
2	by sector																			
	Industry	ktoe	2696	2292	1970	2130	2273	2163	2358	2377	2311	2248	2200	2170	2139	2109	2102	2159		
	Residential	ktoe	4530	9063	7937	7747	8210	7382	8465	8452	8387	8287	8193	8142	8092	8042	7850	7633		
	Tertiary	ktoe	1996	2129	1899	1797	2037	1901	2137	2209	2271	2363	2475	2580	2747	2900	3424	3764		
	Transport	ktoe	5154	5009	4964	4249	4421	4660	4696	4638	4519	4448	4378	4278	4190	4120	3723	3291		
	Other	ktoe	288	263	251	226	226	208	208	208	208	208	208	208	208	208	208	208		
	Number of heat pumps	Million Units	NA	NA	75817	140136	153000	174000	194600	199603	221474	237140	254339	271772	289522	307596	324884,2	NA		Useful in view of the preparation of the next Reference Scenario, model calibration, and to monitor progress on NZIA objectives.
	By transport activity, when available																			
	Passenger transport	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Freight transport	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Batteries for Evs	GWh	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		Useful in view of the preparation of the next Reference Scenario, model calibration, and to monitor progress on NZIA objectives.
	Electrolysers	GW	NA	NA	NA	NA	NA	NA	0,0	0,1	0,4	0,4	0,7	0,7	0,7	0,7	1,2	1,2		Useful to monitor progress on NZIA objectives.
3	by fuel																			
	Solids	ktoe	NA	137,8	117,8	112,8	131,7	98,2	102,1	88,7	73,9	67,4	59,7	55,4	51,1	46,7	37,8	30,1		
	Oil	ktoe	NA	7316,4	6365,6	5384,3	5545,6	5893,6	5842,2	5642,5	5352,8	5170,7	4998,7	4757,3	4554,7	4283,5	3380,2	2565,8		
	Gas	ktoe	NA	2474,6	2039,5	1743,0	1738,4	1201,6	1116,7	965,9	773,3	486,3	207,4	78,2	0,1	0,1	0,1	0,1		
	Electricity	ktoe	NA	3654,9	3526,7	3487,2	3692,6	3449,8	3855,2	4071,4	4204,7	4342,0	4519,5	4705,7	4972,2	5231,4	6106,6	6659,9		
	Heat	ktoe	NA	4670,4	4084,3	4038,5	4450,5	4057,3	4414,0	4458,3	4485,0	4505,2	4502,1	4500,8	4499,6	4498,3	4673,0	4851,7		
	Renewable energy forms	ktoe	NA	1471,1	1741,4	1822,3	1944,5	1849,0	2635,6	2677,0	2754,7	2790,3	2833,6	2909,4	2940,9	3023,4	2816,1	2653,7		
	Other	ktoe	NA	4716,0	4131,6	4100,4	4508,5	4110,7	4459,0	4513,7	4540,4	4560,0	4556,4	4553,9	4551,4	4549,7	4754,4	4966,5		
4	Final non energy consumption	ktoe	NA	263,4	251,5	226,3	225,8	208,3	208,3	208,3	208,3	208,3	208,3	208,3	208,3	208,3	208,3	208,3		
5	Primary energy intensity of the economy	toe/euro	0,082	0,079	0,061	0,051	0,052	0,050	0,051	0,051	0,050	0,050	0,050	0,050	0,049	0,049	0,047	0,043		
6	Final energy intensity by sector																			
	Industry	toe/euro of value added	0,00010	0,00007	0,00006	0,00005	0,00005	0,00004	0,00004	0,00004	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00005	0,00004		Energy consumption of the sector and value added of the secto
	Agriculture	toe/euro of value added	NA	0,00026	0,00024	0,00022	0,00024	0,00026	0,00026	0,00024	0,00024	0,00023	0,00022	0,00022	0,00021	0,00020	0,00018	0,00016		
	Residential buildings	kWh/m2	NA	140,39924	134,13871	124,96892	120,23126	113,32410	114,21076	111,29611	109,11562	107,26497	105,53312	104,46784	103,41128	102,36332	99,03222	NA		Energy consumption of the sector and value added of the secto
	Service buildings	kWh/m2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Passenger transport	toe/million pkm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Freight transport	toe/million tkm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
2.5. Prices																				
1	Electricity prices by type of using sector (residential, industry, tertiary)																			
	residential	euro/MWh	NA	NA	NA	NA	NA	NA	144	151	148	153	145	140	130	108	107	105		
	industry	euro/MWh	NA	NA	NA	NA	NA	NA	118	125	122	127	119	114	104	82	81	79		
	tertiary	euro/ktoe	NA	NA	NA	NA	NA	NA	118	125	122	127	119	114	104	82	81	79		
2	National retail fuel prices (including taxes, per source and sector)																			
	Diesel oil	euro/ktoe																		
	Industry	euro/ktoe	NA	NA	NA	587802	748453	1105497	739396	714087	706123	693123	682704	674299	667551	653041	653221	645009		
	Households	euro/ktoe	NA	NA	NA	705190	860463	1231986	888963	863566	855602	842602	832183	823778	817030	802520	802700	794488		
	Transport private	euro/ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Transport public	euro/ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Gasoline	euro/ktoe																		
	Transport private	euro/ktoe	NA	NA	NA	708254	863902	985138	903321	877916	869952	856952	846533	838128	831380	816869	817050	808838		
	Transport public	euro/ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Natural gas	euro/ktoe																		
	Industry	euro/ktoe	NA	NA	NA	202085	670976	1635725	652007	728094	677995	688709	623900	562471	502945	445333	459295	463908		
	Households	euro/ktoe	NA	NA	NA	329620	791187	1758144	845177	971559	921030	936856	879262	826521	773652	722155	745276	750196		
2.6. Investments																				
	Energy-related investment costs for overall economy	% of GDP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		If possible a further disaggregated overview . The following categories could be used: energy generation, energy conversion, energy storage, energy transmission and
	Energy related investments costs for Industry	% of value added	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
2.7. Renewables																				
1	Gross final consumption of energy from renewable sources and share of renewable energy in gross final energy consumption and by sector (electricity, heating and cooling, transport) and by technology																			
	RES in Gross Final Energy Consumption	%	NA	NA	NA	NA	NA	NA	50,0%	53,5%	57,3%	61,1%	65,0%	68,0%	68,9%	73,8%	82,0%	82,3%		In line with RED recast
	RES-H&C share	%	NA	NA	NA	NA	NA	NA	65,3%	68,1%	71,4%	75,3%	78,7%	80,3%	81,8%	81,3%	81,5%	81,1%		In line with RED recast
	RES-E share	%	NA	NA	NA	NA	NA	NA	86,9%	89,1%	91,5%	97,0%	99,1%	102,6%	99,9%	110,1%	112,0%	103,2%		In line with RED recast
	RES-T share	%	NA	NA	NA	NA	NA	NA	12,4%	14,7%	17,4%	19,7%	22,2%	27,7%	31,7%	37,8%	54,9%	67,5%		In line with RED recast (as per Art 25 (1))
	(final consumption of renewable energy in transport as contribution to overall target	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		In line with RED recast (as per Art 7 (4))



		Unit	2005	2010	2015	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040	Comments MS	Comments Commission
	Contribution of biofuels and biogas produced from feedstock listed in part A of Annex IX and consumed in transport	%	NA	NA	NA	NA	NA	0,2%	0,2%	0,2%	0,2%	0,2%	0,2%	0,1%	0,1%	0,1%	0,1%	0,1%		In line with RED recast
	Contribution of biofuels and biogas produced from feedstock listed in part B of Annex IX and consumed in transport	%	NA	NA	NA	NA	NA	1,3%	1,3%	1,2%	1,5%	1,6%	1,6%	1,7%	1,8%	2,2%	2,7%	3,8%		In line with RED recast
	Contribution from biofuels, bioliquids and biomass fuels consumed in transport, produced from food or feed crops	%	NA	NA	NA	NA	NA	2,5%	2,5%	2,5%	2,5%	2,4%	2,4%	2,7%	2,6%	3,1%	2,0%	1,2%		In line with RED recast
	Contribution of other biofuels and consumed in transport	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		In line with RED recast
	Contribution of renewable fuels of non-biological origin	%	NA	NA	NA	NA	NA	0,0%	0,0%	0,0%	0,1%	0,1%	0,2%	0,2%	0,3%	0,5%	1,4%	2,6%		
	Gross final consumption of RES for heating and cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	4772	4932	5121	5274	5337	5385	5309	5279	5264		
	Gross final consumption of electricity from RES	ktoe	NA	NA	NA	NA	NA	NA	NA	3247	3597	3963	4414	4799	5020	5935	7549	7737		
	Gross final consumption of energy from RES in transport	ktoe	NA	NA	NA	NA	NA	NA	NA	396	437	472	503	618	685	837	1174	1454		
	Total Gross final consumption of RES	ktoe	NA	NA	NA	NA	NA	NA	NA	8166	8671	9206	9762	10259	10481	11196	12543	12683		
	Gross final consumption of waste heat and cold for heating and cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		If applicable for H&C obligation
	Waste heat and cold share in gross final consumption for heating and cooling	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		If applicable for H&C obligation
	Gross final consumption of RES from district heating and cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	2665	2749	2803	2807	2807	2832	2795	2929	3049		In line with RED recast
	RES share from district heating and cooling in gross final consumption for heating and cooling	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		In line with RED recast
	Gross final consumption of waste heat and cold from district heating and cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		In line with RED recast
	Waste heat and cold share from district heating and cooling in gross final consumption for heating and cooling	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		In line with RED recast
	Total final energy consumption (not gross final) in buildings	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 15a
	Total Renewables final energy consumption (not gross final) in buildings	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 15a
	Total waste heat final energy consumption (not gross final) in buildings (N.B. waste heat cannot be part of Total final energy consumption indicator above)	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 15a
	Renewables-share in buildings including waste heat	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 15a
	Renewables-share in buildings excluding waste heat	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 15a
	Total gross final energy consumption for energy and non-energy in industry	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Total Renewables gross final energy consumption for energy and non-energy in industry	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Total waste heat for energy and non-energy in industry (N.B. waste heat cannot be part of Total gross final energy consumption indicator above)	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Total hydrogen for energy and non-energy in industry	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Total RFNBO for energy and non-energy in industry	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Renewables-share in industry	%	NA	NA	NA	NA	NA	NA	NA	64,1%	67,8%	73,5%	78,0%	80,4%	82,2%	82,8%	84,6%	85,3%		As per RED Article 22a
	Renewables-share in industry including waste heat	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Renewables-share in industry excluding waste heat	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 22a
	Total gross final energy consumption in Heating and Cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	7005	6905	6803	6704	6645	6586	6528	6476	6487		As per RED Article 23
	Total renewables gross final energy consumption in Heating and Cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 23
	Total waste heat in Heating and Cooling (N.B. waste heat cannot be part of total gross final energy consumption indicator above)	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 23
	Total renewable electricity in Heating and Cooling (N.B. renewable electricity cannot be part of total gross final energy consumption indicator above)	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 23
	Renewables-share in Heating and Cooling	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 23
	Renewables-share in Heating and Cooling including waste heat and/or renewable electricity	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 23
	Renewables-share in Heating and Cooling excluding waste heat and/or renewable electricity	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 23
	Total gross final energy consumption in District Heating and Cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24
	Total renewables gross final energy consumption in District Heating and Cooling	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24
	Total waste heat in District Heating and Cooling (N.B. waste heat cannot be part of total gross final energy consumption indicator above)	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24
	Total renewable electricity in District Heating and Cooling (N.B. renewable electricity cannot be part of total gross final energy consumption indicator)	ktoe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24

		Unit	2005	2010	2015	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040	Comments MS	Comments Commission
	Renewables-share in District Heating and Cooling	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24
	Renewables-share in District Heating and Cooling including waste heat and/or renewable electricity	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24
	Renewables-share in District Heating and Cooling excluding waste heat and/or renewable electricity	%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		As per RED Article 24
2	Electricity and heat generation from renewable energy in buildings (as defined in Article 2(1) of Directive 2010/31/EU); this shall include, where available, disaggregated data on energy produced, consumed and injected into the grid by solar photovoltaic systems, solar thermal systems, biomass, heat pumps, geothermal systems, as well as all other decentralized renewables systems)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		Add additional rows if necessary
3	If applicable, other national trajectories, including long-term or sectorial ones (the share of food-based and advanced biofuels, the share of renewable energy in district heating, as well as the renewable energy produced by cities and energy communities as defined by Article 22 of [recast of Directive 2009/28/EC as proposed by COM(2016) 767])		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		Add additional rows if necessary
3. GHG emissions and removals related indicators																				
1	GHG emissions by policy sector (EU ETS, Effort Sharing Regulation and LULUCF)	tCO2eq																		
	ETS sector emissions (in ETS scope since 2013)	tCO2eq	NA	NA	NA	10.832.908	11.618.732	11.212.420	7.868.011	8.448.452	7.310.147	6.076.108	5.580.255	5.107.779	2.418.519	2.221.014	1.759.366	1.665.227		
	Effort Sharing sector GHG emissions (in scope since 2013)	tCO2eq	NA	NA	NA	31.665.580	31.867.653	30.724.787	30.048.215	28.310.672	27.120.320	26.106.803	24.967.303	24.055.618	23.268.230	22.404.075	19.245.694	16.501.566		
	LULUCF (accounted according to EU legislation requirements)	tCO2eq	NA	NA	NA	1.292.358	198.486	380.990	76.821	632.785	689.167	1.502.035	1.803.698	1.717.535	1.184.210	687.852	629.762	762.386		
2	GHG emissions by IPCC sector and by gas (where relevant split into EU ETS and Effort Sharing sectors).	tCO2eq	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
3	Carbon intensity of the overall economy	tCO2eq/GDP	NA	NA	NA	36,8	37,0	34,7	24,1	25,5	21,9	18,1	16,5	15,0	7,0	6,4	4,8	4,3		
4	CO2 emission related indicators																			
a	GHG intensity of domestic power and heat generation	tCO2eq/MWh	NA	NA	NA	NA	NA	NA	266,2	275,9	243,4	202,6	193,0	182,3	93,4	98,1	94,4	98,2		
b	GHG intensity of final energy consumption by sector	tCO2eq/toe																		
	Industry	tCO2eq/toe	0,00178	0,00162	0,00159	0,00147	0,00146	0,00139	0,00172	0,00163	0,00151	0,00138	0,00124	0,00113	0,00104	0,00099	0,00091	0,00084		
	Residential	tCO2eq/toe	0,00080	0,00072	0,00054	0,00043	0,00036	0,00033	0,00025	0,00021	0,00017	0,00012	0,00008	0,00006	0,00005	0,00004	0,00003	0,00002		
	Tertiary	tCO2eq/toe	0,00046	0,00038	0,00033	0,00029	0,00033	0,00028	0,00020	0,00016	0,00013	0,00009	0,00005	0,00004	0,00003	0,00002	0,00001	0,00001		
	Passenger transport	tCO2eq/toe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Freight transport	tCO2eq/toe	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
5	Non-CO2 GHG emission related parameters																			
a	Livestock																			
	dairy cattle	1000 heads	564	568	561	564	557	553	553	543	538	533	527	522	517	517	493	473		
	non-dairy cattle	1000 heads	1246	1224	1197	1109	1087	1075	1067	1059	1051	1043	1034	1026	1018	1018	983	948		
	pigs	1000 heads	25096	22735	20883	20058	21048	19634	16052	16135	16386	16538	16622	16676	16704	16706	16638	16447		
	sheep	1000 heads	126	111	84	80	78	76	76	76	76	76	76	76	76	76	76	76		
	poultry	1000 heads	132506	126830	122499	131246	129016	124696	134520	136569	138099	139203	139974	140471	140745	140825	139396	136304		
b	Nitrogen input from application of synthetic fertilizers	kt nitrogen	206	199	211	252	229	239	229	226	224	222	221	217	216	216	218	222		
c	Nitrogen input from application of manure	kt nitrogen	212	209	212	215	202	193	184	187	188	188	187	186	184	184	176	168		
d	Nitrogen fixed by N-fixing crops	kt nitrogen																		
e	Nitrogen in crop residues returned to soils	kt nitrogen	164	173	191	192	179	189	186	186	186	188	192	191	190	190	191	193		
f	Area of cultivated organic soils	hectares	188596	180436	153921	127408	122105	116802	113476	109499	105442	100363	93910	85133	78189	73021	59999	53593		

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Reporting of used parameters and variables included in Annex 1, part 2, of the Energy Union Governance as agreed in trilogue

WAM

All parameters and variables highlighted in green are already currently requested under existing legislation (e.g MMR, RED Directive, or Energy Efficiency Directive), see e.g. [http://cdr.eionet.europa.eu/help/mmr/MMR\\_projections\\_templates\\_2018.zip](http://cdr.eionet.europa.eu/help/mmr/MMR_projections_templates_2018.zip)  
All energy related parameters and variables highlighted in red might require to rely on complementary tools than standard energy system models, covering new requirements from the revised legislation  
All variables highligned in orange correspond to indicators to be computed on the basis of parameters and variables already available elsewhere in the excel file

		Unit	2005	2010	2015	2020	2025	2030	2035	2040	Comments MS	Comments Commission
1. General parameters and variables												
1	Population	million										
2	GDP	EUR million										
3	Sectorial gross value added	EUR million										
	Agriculture	EUR million										
	Construction	EUR million										
	Services	EUR million										
	Energy Sector	EUR million										
	Industry	EUR million										
4	Number of households	million										
5	Households size	inhabitants/household										
6	Disposable income of households (yearly)	EUR										Please specify the definition applied
7	Number of passenger-kilometers	million pkm										
	Public road transport	million pkm										
	Private cars	million pkm										
	Motorcycles	million pkm										
	Rail	million pkm										
	Aviation	million pkm										
	Inland navigation	million pkm										
8	Freight transport tonnes-kilometres	million tkm										
	Trucks	million tkm										
	Rail	million tkm										
	Inland navigation	million tkm										
9	International Fuel prices	EUR/GJ or EUR/toe										Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
	Oil	EUR/GJ or EUR/toe										Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
	Gas (NCV)	EUR/GJ or EUR/toe										Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
	Coal	EUR/GJ or EUR/toe										Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
10	Carbon price ETS sectors	EUR/ ton CO2										Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
11	Exchange rate to EUR and to US dollar	EUR/currency and/or USD/currency										
12	Heating degree days											Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
13	Cooling degree days											Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
14	Technology cost assumptions (see <a href="https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2040-climate-target_en">https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2040-climate-target_en</a> for technology cost assumptions as used in 2040 Climate Target Plan for suggestions on what could be relevant to report											Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
2. energy balances and indicators												
2.1 energy supply												
1	Production (incl.recovery of products)	ktoe										
	Solids	ktoe										
	Oil	ktoe										
	Natural gas	ktoe										
	Nuclear	ktoe										
	Renewable energy sources	ktoe										
	Biogases	ktoe										please, indicate what is the projection to produce biogas (primary production), regardless on its end-use
	- out of which, injected in the natural gas grid	bcm										indicate quantity of biomethane injected in grid as in Energy Balances [TI_BNG_E] Transformation input - for blending with natural gas - energy use; 1 ktoe ≈ 1.15 million m3
2	Net Imports (ktoe)	ktoe										
	Solids	ktoe										
	Oil	ktoe										
	Natural gas	ktoe										
	Electricity	ktoe										
3	Import Dependency	%										
4	Main import sources for energy carriers											
	Main country (please specify here) of origin of Electricity Purchases	% of total imports										
	1st main country (please specify here) of origin of Gas Purchases	% of total imports										
	2nd main country (please specify here) of origin of Gas Purchases	% of total imports										
	3rd main country (please specify here) of origin of Gas Purchases	% of total imports										If more countries to be reported please add rows





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