

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

All parameters and variables highlighted in green are already currently requested under existing legislation (MIR, RES Directive, or Energy Efficiency Directive), see e.g. http://cdr.eionet.europa.eu/help/mmr/MMR_projections_templates_2018.zip
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

1. General parameters and variables	Unit	Statistics					Projections					Comments MS	Source statistics	modelling output or exogenous assumption?	Comments Commission	
		2005	2010	2015	2020	2025	2030	2035	2040							
1 Population	million	16.31	16.97	16.90	17.30	17.60	17.90	18.00	18.10			Statistics based on real prices	CBS	Assumption		
2 GDP	EUR million	598833	639187	690008	762868	844260	902253	972860					CBS	Assumption		
3 Sectoral gross value added	EUR million	491384	574280	620835	11888	12370	13508	14452	14574			Agriculture, forestry and fishing	CBS	Assumption		
Agriculture	EUR million	10235	11368	11898	12370	13508	14452	14574					CBS	Assumption		
Construction	EUR million	28702	30186	28394	37385	38816	38840	38346	38346			Trade, transportation, commercial services, government, educational	CBS	Assumption		
Services	EUR million	365346	437029	483452	598930	672031	725312	787975	787975				CBS	Assumption		
Energy Sector	EUR million	18211	28223	20388	23852	23639	23485	22347	22347			incl Refinery sector	CBS	Assumption		
Industry	EUR million	70900	70474	78705	90030	96246	101164	107849	107849			excl Refinery sector	CBS	Assumption		
4 Number of households	million	7.1	7.4	7.7	8.0	8.2	8.4	8.5					CBS	Assumption		
5 Households size	inhabitant/household	2.3	2.2	2.2	2.1	2.1	2.1	2.1					CBS	Assumption		
6 Disposable income of households (yearly)	EUR	182500	183500	186500												Please specify the definition applied
7 Number of passenger-kilometers	million pkm	22500	23000	23000												
Public road transport	million vehicle-km	91500	94500	97000	109481	116529	124278	123068								
Private cars	million pkm															
Motorcycles	million pkm	15200	17100	18500	20237	21418	22599									
Aviation	million pkm															
Inland navigation	million pkm															
8 Freight transport tonnes-kilometres	million tkm	122300	116600	126000	63592	65793	67995	70196								
Trucks	million tkm	58700	54100	57200	65792	65793	67995	70196								
Rail	million tkm	5900	5900	6500	7414	8551	9687	10824								
Inland navigation	million tkm	43100	46600	48500	55478	58048	60619	63189								
9 International Fuel prices	EUR/GJ or EUR/tonne															
Oil	EUR 2016/GJ			8.10	8.80	13.00	17.20	18.30								Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
Gas (NCV)	EUR 2016/GJ			6.60	5.40	7.60	9.90	10.40								Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
Coal	EUR 2016/GJ			2.40	2.10	2.40	2.70	2.70								Please specify if Commission's proposal or other source was applied and in the latter case specify methodology
10 Carbon price ETS sector	EUR 2016/tonne CO2		12.12	15.40	7.70	6.60	10.90	16.40	24.70	2.70						
11 Exchange rate to EUR and to US dollar	USD/Euro			1.11	1.16	1.11	1.11	1.11								
12 Heating degree days			3231	2686	2710	2681	2612	2592								
13 Cooling degree days				112	119	126	133	139								
14	Technology cost assumptions (see specific excel file circulated with technology cost assumptions as used in EU Reference Scenario 2018 for suggestions on what could be relevant to report)															

2. energy balances and indicators

2.1 energy supply

1 Production (incl. recovery of products)

Solids

Oil

Natural gas

Nuclear

Renewable energy sources

Other

Net Imports (ktoe)

Solids

Oil

Natural gas

Electricity

Other

3 Import Dependency

4 Main import sources for energy carriers

1st main country (please specify here) of origin of Gas Purchases

2nd main country (please specify here) of origin of Gas Purchases

3rd main country (please specify here) of origin of Gas Purchases

5 Gross Inland Consumption

Solids

Production (incl. recovery of products)	62625	71338	48328	43234	33524	22745	19574			Eurostat (2019) definitions where used for most historical and projected values in section two. National statistics from CBS are mostly used for historical values (instead of Eurostat data), because CBS values already are largely in line with Eurostat (2019) definitions. Nevertheless, historical values must be considered as an approximation for the Eurostat (2019) definitions. Therefore, some inconsistencies may occur between statistical data and the projections (see our comments per indicator)						
Solids	0	0	0	0	0	0	0									
Oil	2580	1784	2380	1760	1160	907	624									
Natural gas	55186	64751	38524	32241	21733	12663	10735									
Nuclear	986	917	938	1049	1049	1047	0									
Renewable energy sources	1983	3052	4739	7217	8692	7239	7332									
Other	941	886	850	867	898	890	883									
Net Imports (ktoe)	39720	31623	45811	46428	56315	64776	66097									
Solids	8216	9148	10461	8453	9136	8507	7456									
Oil	50564	46336	46026	44451	45941	48967	48180									
Natural gas	-20947	-24219	-10485	-8128	-7499	-6122	-5132									
Electricity	1576	239	740	1313	-96	1519	1882									
Other	0	0	143	337	280	284	287									
3 Import Dependency	39%	31%	50%	52%	63%	74%	77%									
4 Main import sources for energy carriers																
1st main country (please specify here) of origin of Gas Purchases																
2nd main country (please specify here) of origin of Gas Purchases																
3rd main country (please specify here) of origin of Gas Purchases																
5 Gross Inland Consumption	81035	84508	74556	74893	74569	71763	69415									
Solids	8087	7548	11013	8453	9136	8907	7456									

If more countries to be reported please add rows

	Oil	Ktoe	32622	31638	28544	31527	31938	32246	32703	Oil and petroleum products	CBS	modelling output
	Natural gas	Ktoe	35325	40059	28526	24030	22882	20031	18903		CBS	modelling output
	Nuclear	Ktoe	986	917	936	1049	1047	1047	0	Nuclear heat	CBS	modelling output
	Electricity	Ktoe	1574	239	752	1313	-96	1520	1832	Renewables, including bio-waste and bioliquids	CBS	modelling output
	Renewable energy forms	Ktoe	2259	3215	3883	7555	8972	7923	7608	Renewables, including bio-waste and bioliquids	CBS	modelling output
	Other	Ktoe	891	836	915	867	889	890	893	Non-renewable waste	CBS	modelling output
2.2. Electricity and heat												
	1 Gross electricity generation	GWh/e	100769	116139	110087	99975	116139	95043	89744		CBS	modelling output
	2 By fuel	GWh/e										
	Nuclear energy	GWh/e	3997	3959	4078	4220	4220	4209	0		CBS	modelling output
	Solids	GWh/e	27957	26190	42473	27436	30031	25956	20562		CBS	modelling output
	Oil (including refinery gas)	GWh/e	332	48	96	0	0	0	0		CBS	modelling output
	Gas (including derived gases)	GWh/e	58208	73578	45881	30488	30139	19509	22443		CBS	modelling output
	Biomass waste	GWh/e	5272	7058	4930	13320	13511	6507	6320		CBS	modelling output
	Hydro (pumping excluded)	GWh/e	88	104	93	117	117	117	117		CBS	modelling output
	Wind	GWh/e	2067	3993	7590	19119	29558	26647	24689		CBS	modelling output
	Solar	GWh/e	34	59	1122	4975	8567	12089	15614		CBS	modelling output
	Geothermal and other renewables	GWh/e	0.00	0.00	0.00						CBS	modelling output
	Other fuels (hydrogen, methanol)	GWh/e	2809	3139	2864						CBS	modelling output
	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)	%	55%	52%	40%	34%	25%	24%	23%		CBS	modelling output
	4 Capacity electricity generation including retirements and new investments (note: split between retirements and new investments may not be straightforward to obtain with standard models. Complementary assumptions may need to be made)	GW	21.98	26.51	35.21	30.35	35.66	36.91	38.22		CBS	modelling output
	Nuclear energy	GW	0.45	0.51	0.51	0.48	0.48	0.48	0.00		CBS	modelling output
	Solids	GW	9.47	8.86	11.16	4.64	4.64	4.64	3.41		CBS	modelling output
	Oil (including refinery gas)	GW	10.68	14.41	14.55	12.25	11.04	9.62	9.57		CBS	modelling output
	Biomass waste	GW	0.04	0.04	0.04	0.04	0.04	0.04	0.04		CBS	modelling output
	Hydro (pumping excluded)	GW	1.22	2.24	3.39	6.19	8.51	7.28	6.51		CBS	modelling output
	Solar	GW	0.05	0.09	1.52	6.06	10.28	14.26	18.12		CBS	modelling output
	Geothermal and other renewables	GW									CBS	modelling output
	Other fuels (hydrogen, methanol)	GW									CBS	modelling output
	5 Heat generation from thermal power generation	GWh/e										
	6 Heat generation from combined heat and power plants including industrial waste heat	GWh/e										
	7 Cross-border interconnection capacities for electricity (the level of electricity interconnectivity in line with Article 4(4)(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)											
2.3. Transformation sector												
	1 Fuel inputs to Thermal Power Generation	Ktoe	19779	21915	19771	9334	9746	7317	6731	Total for the years 2005, 2010 and 2015 includes renewable energy	Eurostat	modelling output
	Solids	Ktoe	4998	4669	7942	5013	5493	4746	3668		Eurostat	modelling output
	Oil	Ktoe	545	386	354	203	202	212	212		Eurostat	modelling output
	Gas	Ktoe	12115	14182	8720	4719	4051	2359	2851		Eurostat	modelling output
	2 Fuel input to other conversion processes	Ktoe	65292	63965	65359	82146	59830	59314	57802		Eurostat	modelling output
2.4. Energy consumption												
	1 Primary energy consumption	Ktoe	81836	84508	74556	74893	74569	71763	69415	Includes non-energetic energy consumption	CBS	modelling output
	2 Final energy consumption	Ktoe	48684	50182	43026	42668	41755	40550	39062		CBS	modelling output
	3 by sector	Ktoe										
	Industry	Ktoe	15391	14085	12873	13017	12854	12329	11246		CBS	modelling output
	Residential	Ktoe	10746	12461	9556	8786	8450	8175	7842		CBS	modelling output
	Tertiary	Ktoe	6936	7753	6671	6072	5730	5561	5493	Commercial and public services	CBS	modelling output
	Transport	Ktoe	11379	11658	10385	10555	10528	10445	10638	Agriculture & forestry	CBS	modelling output
	Agriculture	Ktoe	3657	3891	3475	3877	3808	3623	3431	Mainly fishery	CBS	modelling output
	Other	Ktoe	375	334	285	361	386	398	413		CBS	modelling output
	By transport activity, when available	Ktoe										
	Passenger transport	Ktoe										
	Freight transport	Ktoe										
	3 by fuel	Ktoe										
	Solids	Ktoe	506	516	482	100	103	103	92		CBS	modelling output
	Oil	Ktoe	14684	15235	13883	13413	13567	13480	13877	Oil and petroleum products	CBS	modelling output
	Gas	Ktoe	16577	15054	15054	14931	14894	14644	12307	The years 2005, 2010 and 2015 excludes gas consumption for unit	CBS	modelling output
	Electricity	Ktoe	8978	9265	8921	8717	8697	8673	8607		CBS	modelling output
	Heat	Ktoe	5271	5178	4046	2249	1658	1402	1401	The years 2005, 2010 and 2015 includes unsold heat from CHP	CBS	modelling output
	Renewable energy forms	Ktoe	521	561	735	248	266	247	259	Renewables, including bio-waste and bioliquids	CBS	modelling output

4	Final non energy consumption	ktce	148	88	103	576	483	381	379		CBS	modelling output	
5	Primary energy intensity of the economy	Ktoe/million euro	15140	16283	13507	13453	13819	14106	14408	Primary energy consumption divided by GDP	CBS	modelling output	calculation
6	Final energy intensity by sector	Ktoe/million euro of value added	0.15	0.13	0.11	0.10	0.09	0.08	0.07			calculation	
	Industry	toe/euro of value added	0.22	0.20	0.18	0.14	0.13	0.12	0.10			calculation	
	Road/air	toe/euro of value added											
	Freight transport	toe/million km											

2.5. Prices													
1 Electricity prices by type of using sector (residential, industry, tertiary)													
	residential	eur/MWh	178	174	184	170	195	199	212	222	Euro's 2015, total price including taxes	modelling output	modelling output
	industry	eur/MWh	95	92	78	73	91	91	101	111	Euro's 2015, total price including taxes. Average of 13 industrial sites	modelling output	modelling output
	tertiary	eur/ktce	1679954	1714843	1626165	1638958	1074755	1904412	2023039	2136140	Euro's 2015, total price including taxes. Average of commercial/retail	modelling output	modelling output
2 National retail fuel prices (including taxes, per source and sector)													
	Diesel oil	eur/ktce											
	Industry	eur/ktce											
	Households	eur/ktce											
	Transport private	eur/ktce											
	Transport public	eur/ktce											
	Gasoline	eur/ktce											
	Transport private	eur/ktce											
	Transport public	eur/ktce											
	Natural gas	eur/ktce											
	Industry	eur/ktce	394085	380256	416024	332060	496341	601568	628381	654075	Euro's 2015, total price including taxes. Average of 13 industrial sites	modelling output	Assumption
	Households	eur/ktce	803892	755211	808522	913556	1058904	1207227	1244531	1277735	Euro's 2015, total price including taxes	modelling output	Assumption

2.6. Investments													
Energy-related investment costs for overall economy													
		% of GDP	1.0%	1.5%	2.0%								
Energy-related investment costs for industry													
		% of value added											

2.7. Renewables														
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	%	2.5%	3.9%	5.8%	12%	15%	15%	15%	15%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	In line with RED recast
	RES H&C share	%	2.4%	3.1%	5.5%	9%	10%	10%	10%	10%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	In line with RED recast
	RES E share	%	6.3%	9.6%	11.1%	29%	44%	38%	39%	39%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	In line with RED recast
	RES T share	%	0.4%	3.3%	5.3%	8%	18%	19%	18%	18%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	In line with RED recast (as per Art 25 (1))
	Wind offshore	%	0.0%	3.0%	3.1%	0%	1%	1%	1%	1%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Wind onshore	%	12.7%	14.5%	17.8%	15%	15%	15%	12%	12%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Solar photovoltaic systems	%	0.2%	0.2%	3.4%	7%	10%	15%	20%	20%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Solar heat systems	%	1.2%	1.1%	1.0%	1%	1%	1%	1%	1%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Biomass	%	84.0%	77.5%	67.7%	60%	48%	37%	33%	33%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Geothermal systems	%	0.0%	0.3%	2.1%	4%	3%	4%	4%	4%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Heat pumps	%	1.2%	2.9%	4.7%	5%	6%	9%	12%	12%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	
	Hydro + orrose	%	0.6%	0.4%	0.3%	0%	0%	0%	0%	0%	Share of RES technology in gross final energy consumption of RES	SHARES	modelling output	In line with RED recast (as per Art 7 (4))

(final consumption of renewable energy in transport as contribution to overall target)													
(Contribution of biofuels and biogas produced from feedstock listed in part B of Annex IX and consumed in transport)													
(Contribution of biofuels and biogas produced from feedstock listed in part B of Annex IX and consumed in transport)													
(Contribution from biofuels and biogas produced from feedstock listed in part B of Annex IX from food or feed crops)													
(Contribution of other biofuels and consumed in transport)													
	Gross final consumption of RES for heating and cooling	ktce	733	972	1419	2198	2436	2308	2339		SHARES	modelling output	
	Gross final consumption of electricity from RES	ktce	620	982	1094	2039	4355	3887	3810		SHARES	modelling output	
	Gross final consumption of energy from RES in transport	ktce	20	294	334	894	737	721	733		SHARES	modelling output	
	Total Gross final consumption of RES	ktce	1373	2208	2847	5931	7528	6716	6883		SHARES	modelling output	
Gross final consumption of waste heat and cold for heating and cooling													
	Waste heat and cold share in gross final consumption for heating and cooling	ktce											
RES share from domestic heating and cooling in gross final consumption for heating and cooling													
	Gross final consumption of waste heat and cold from district heating and cooling	ktce											
Waste heat and cold share from district heating and cooling in gross final consumption for heating and cooling													
		%											

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)														
2 solar photovoltaic systems - produced														
		ktce	3	6	86	307	546	849	1152			modelling output	modelling output	Add additional rows if necessary
2 solar thermal systems - produced														
		ktce	20	27	27	56	50	57	50			modelling output	modelling output	
biomass - produced														
		ktce	379	403	439	448	448	448	448			modelling output	modelling output	
heat pumps - produced														
		ktce	21	68	140	305	462	611	893			modelling output	modelling output	
geothermal systems - produced														
		ktce	0	2	52	210	254	254	254			modelling output	modelling output	

Code	Description	2010												2011												2012												2013												2014												2015												2016												2017												2018												2019												2020											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																								
1.1	1.1.1	1.1.1.1	1.1.1.2	1.1.1.3	1.1.1.4	1.1.1.5	1.1.1.6	1.1.1.7	1.1.1.8	1.1.1.9	1.1.1.10	1.1.1.11	1.1.1.12	1.1.1.13	1.1.1.14	1.1.1.15	1.1.1.16	1.1.1.17	1.1.1.18	1.1.1.19	1.1.1.20	1.1.1.21	1.1.1.22	1.1.1.23	1.1.1.24	1.1.1.25	1.1.1.26	1.1.1.27	1.1.1.28	1.1.1.29	1.1.1.30	1.1.1.31	1.1.1.32	1.1.1.33	1.1.1.34	1.1.1.35	1.1.1.36	1.1.1.37	1.1.1.38	1.1.1.39	1.1.1.40	1.1.1.41	1.1.1.42	1.1.1.43	1.1.1.44	1.1.1.45	1.1.1.46	1.1.1.47	1.1.1.48	1.1.1.49	1.1.1.50	1.1.1.51	1.1.1.52	1.1.1.53	1.1.1.54	1.1.1.55	1.1.1.56	1.1.1.57	1.1.1.58	1.1.1.59	1.1.1.60	1.1.1.61	1.1.1.62	1.1.1.63	1.1.1.64	1.1.1.65	1.1.1.66	1.1.1.67	1.1.1.68	1.1.1.69	1.1.1.70	1.1.1.71	1.1.1.72	1.1.1.73	1.1.1.74	1.1.1.75	1.1.1.76	1.1.1.77	1.1.1.78	1.1.1.79	1.1.1.80	1.1.1.81	1.1.1.82	1.1.1.83	1.1.1.84	1.1.1.85	1.1.1.86	1.1.1.87	1.1.1.88	1.1.1.89	1.1.1.90	1.1.1.91	1.1.1.92	1.1.1.93	1.1.1.94	1.1.1.95	1.1.1.96	1.1.1.97	1.1.1.98	1.1.1.99	1.1.1.100																																

Guidance for the template on reporting of used parameters and variables included in Annex 1, part 2, of the provisionally agreed 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
- All energy related parameters and variables highlighted in red might require to rely on complementary tools than standard energy system models
- 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 2016 prices.
- 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)