

Module								
			Energy					
Submodule			CO₂ from Energy Sources (Reference Approach)					
Worksheet			1_1					
Sheet			1 of 5					
			STEP 1					
			A	B	C	D	E	F
			Production	Imports	Exports	International Bunkers	Stock change	Apparent Consumption
FUEL TYPES				(10 ³ T)				A+B-C-D-E
Liquid Fossil	Primary Fuels	Crude Oil	NO	NO				
		Orimulsion	NO	NO				
		Natural Gas Liquids	NO	NO				
	Secondary	Gasoline	NO	1243.182				1243.182
		Jet Kerosene	NO	145.91		144		1.91
		Other Kerosene	NO	0.1				0.1
		Shale Oil	NO	NO				
		Gas / Diesel Oil	NO	818.123				818.123
		Residual fuel Oil	NO	1411.014				1411.014
		LPG	NO	146				146
		Ethane	NO	NO				
		Naphtha	NO	NO				
		Bitumen	NO	66				66
		Lubricants	NO	0.299				0.299
		Petroleum Coke	NO	NO				
Refinery Feedstocks	NO	NO						
Other oil	NO	NO						
Liquid Fossil Totals			NO	3830.628				3830.628
Solid Fossil	Primary Fuels	Anthracite	NO	NO				
		Coking Coal	NO	180				180
		Other Bit. Coal	NO	NO				
		Sub-bit. Coal	NO	NO				
		Lignite	NO	NO				
		Oil Shale	NO	NO				
	Peat	NO	NO					
	Secondary	BKB & Patent Fuel	NO	NO				
Coke Oven & Gas Coke		NO	NO					
Solid Fossil Totals			NO	180				180
Gaseous Fossil		Natural Gas (Dry)	NO	NO				
Total			NO	4010.628				4010.628
Biomass Total			NO	NO				
		Solid Biomass	160	1.56				161.56
		Liquid Biomass	NO	NO				
		Gas Biomass	NO	NO				

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		STEP 2		STEP 3			
		G	H	I	J	K	
		Conversion	Apparent	Carbon Emiss	Carbon	Carbon	
		Factor	Consumption	factor	Content	Content	
		Tj/10 ³ T	(Tj)	t C/Tj	(tC)	(Gg C)	
FUEL TYPES			FXG		H*I	J*10 ⁻³	
Liquid Fossil	Primary Fuels	Crude Oil					
		Orimulsion					
		Natural Gas Liquids					
	Secondary	Gasoline	44.8	55694.5536	18.9	1052627.063	1052.627063
		Jet Kerosene	44.59	85.1669	19.5	1660.75455	1.66075455
		Other Kerosene	44.75	4.475	19.6	87.71	0.08771
		Shale Oil	36	0		0	0
		Gas / Diesel Oil	43.33	35449.26959	20.2	716075.2457	716.0752457
		Residual fuel Oil	40.19	56708.65266	21.1	1196552.571	1196.552571
		LPG	47.31	6907.26	17.2	118804.872	118.804872
		Ethane	47.49	0	16.8	0	0
		Naphtha	45.01	0	20	0	0
		Bitumen	40.19	2652.54	22	58355.88	58.35588
		Lubricants	40.19	12.01681	20	240.3362	0.2403362
		Petroleum Coke	31	0	27.5	0	0
Refinery Feedstocks	44.8	0	20	0	0		
Other oil		0		0	0		
Liquid Fossil Totals							
Solid Fossil	Primary Fuels	Anthracite		0	26.8	0	0
		Coking Coal	28	5040	25.8	130032	130.032
		Other Bit. Coal	28	0	25.8	0	0
		Sub-bit. Coal	28	0	26.2	0	0
		Lignite		0	29.6	0	0
		Oil Shale	9.4	0	29.1	0	0
		Peat		0	28.9	0	0
	Secondary	BKB & Patent Fuel		0	25.8	0	0
		Coke Oven & Gas Coke		0	29.5	0	0
Solid Fossil Totals							
Gaseous Fossil	Natural Gas (Dry)		0	15.3	0	0	
Total			162553.9346			3274.436433	
Biomass Total							
	Solid Biomass	15	2423.4	29.9	72459.66	72.45966	
	Liquid Biomass		0	20	0	0	
	Gas Biomass		0	30.6	0	0	

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			STEP 4		STEP 5		STEP 6
			L	M	N	O	P
			Carbon Stored (Gg C)	Net Carbon Emissions (Gg C)	Fraction of Carbon Oxidised	Actual Carbon Emissions (Gg C)	Actual CO ₂ Emissions (Gg CO ₂)
FUEL TYPES				M = (K-L)		O = (M*N)	P=(O*[44/12])
Liquid Fossil	Primary Fuels	Crude Oil		0		0	0
		Orimulsion		0		0	0
		Natural Gas Liquids		0		0	0
	Secondary	Gasoline		1052.627063	0.99	1042.100792	3821.036239
		Jet Kerosene		1.66075455	0.99	1.644147005	6.028539016
		Other Kerosene		0.08771	0.99	0.0868329	0.3183873
		Shale Oil					
		Gas / Diesel Oil		716.0752457	0.99	708.9144933	2599.353142
		Residual fuel Oil		1196.552571	0.99	1184.587045	4343.485833
		LPG		118.804872	0.99	117.6168233	431.2616854
		Ethane		0		0	0
		Naphtha		0		0	0
		Bitumen	58.35588	0	0.99	0	0
		Lubricants	0.1201	0.1202362	0.99	0.119033838	0.436
		Petroleum Coke		0		0	0
		Refinery Feedstocks		0		0	0
Other oil		0	0.995	0	0		
Liquid Fossil Totals							11201.91983
Solid Fossil	Primary Fuels	Anthracite		0		0	0
		Coking Coal	0	130.032	0.98	127.43136	467.24832
		Other Bit. Coal		0		0	0
		Sub-bit. Coal		0		0	0
		Lignite		0		0	0
		Oil Shale		0		0	0
		Peat		0		0	0
	Secondary	BKB & Patent Fuel		0		0	0
		Coke Oven & Gas Coke		0		0	0
Solid Fossil Totals							467.24832
Gaseous Fossil		Natural Gas (Dry)		0		0	0
Total							11669.16815
Biomass Total							
	Solid Biomass			72.45966	0.98	71.0104668	260.3717116
	Liquid Biomass			0		0	0
	Gas Biomass			0		0	0

Module		Energy					
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		(TRANSPOR					
		STEP1		STEP 2		STEP3	
		A	B	C	D	E	F
		Quantities Delivered	Conversion Factor	Quantities Delivered	Carbon Factor	Carbon Content	Carbon Content
		10^3	(Tj/ 10^3)	(Tj)	(t C/Tj)	(t C)	(gG C)

FUEL TYPES					C = (A*B)			E = (C*D)	E*10 ⁻³
Solid Fossil	Other Bituminou				0			0	0
	Sub-Bituminous Coal				0			0	0
Liquid Fossil	Gasoline				0			0	0
	Jet Kerosene	144	44.59		6420.96	19.5		125208.72	125.20872
	Gas / Diesel Oil				0			0	0
	Residual fuel Oil				0			0	0
	Lubricants				0			0	0
Total					6420.96				

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		Sheet	5 of 5 Emissions From International Bunkers (International Marine and Air					
			(TRANSPORT)					
			STEP 2		STEP 3		STEP 4	
			G	H	I	J	K	L
			Fraction of Carbon Stored	Carbon Stored (Gg C)	Net Carbon Emissions (Gg C)	Fraction of Carbon Oxidized	Actual Carbon Emissions (Gg C)	Actual CO₂ Emissions (Gg CO₂)
FUEL TYPES				H = (F*G)	I = (F-H)		K = (I*J)	L=(K*44/12)
Solid Fossil	Other Bituminou		0	0	0		0	0
	Sub-Bituminous Coal		0	0	0		0	0
Liquid Fossil	Gasoline		0	0	0		0	0
	Jet Kerosene		0	0	125.20872	0.99	123.9566328	454.5076536
	Gas / Diesel Oil		0	0	0		0	0
	Residual fuel Oil		0	0	0		0	0
	Lubricants		0.5		0		0	0
Total								454.5076536