EXERCISE 2: INTRODUCTION TO ENERGY STATISTICS - ANSWERS

Electricity plants	Fuel input (tonnes)	Output (MWh)	
Fossil fuels	n.a.	300,000	
Hydropower	n.a.	80,000	
Concentrated Solar Power	n.a.	100,000	
Renewable waste	20,000	10,000	
Landfill gas	n.a.	10,000	
TOTAL		500,000	

Heat plants	Fuel input (tonnes)	Output (TJ)	
Fossil fuels	n.a.	50	
Woodfuel	6,000	50	
TOTAL	100		

1,000 MWh = 3.6 TJ Power plant efficiency = 33%

COMMODITY BALANCE

Supply and	Total electricity	Total heat TJ	
consumption 2014	MWh		
Production	500,000	100	
Imports	120,000		
Exports	20,000		
Stock changes			
International bunkers			
Domestic supply	600,000	100	
Statistical differences			
Power plants			
CHP plants			
Heat plants			
Charcoal prod.			
Pellet + briquettes			
Other transformation			
Energy + own use	30,000		
Distribution losses	30,000	50	
Final consumption	540,000	50	
Industry sector	100,000		
Transport sector			
Commercial + services	70,000		
Residential	340,000		
Other	30,000		
NCV (MJ/t)*			

Solar thermal	Renewable waste	Woodfuel	Charcoal	Landfill gas TJ	
LΤ	tonnes	tonnes	tonnes		
1,200	20,000	24,000	1,000	108	
		11,000	3,000		
		1,000			
		-4,000	_		
1,200	20,000	30,000	4,000	108	
		-2,000			
1,080	20,000			108	
		6,000			
		6,000			
120	0	20,000	4,000	(
20			1,000		
100		20,000	3,000		
	5,000	15,000	30,000		

*Note NCV is usually measured in MJ/t. One TJ = 1,000,000 MJ, so divide MJ by 1,000,000 to convert tonnes into energy units.

RENEWABLE ENERGY BALANCE

Supply and consumption 2014	Ren. electricity TJ	Ren. heat TJ	Hydro TJ	Solar thermal TJ	Renewable waste TJ	Woodfuel TJ	Charcoal TJ	Landfill gas TJ	TOTAL TJ
Imports	+173					+165	+90		+428
Exports	-29					-15			-44
Stock changes	1					-60			-60
International bunkers									
Primary supply	144	0	288	1,200	100	450	90	108	2,380
Statistical differences						+30			+30
Power plants	+720		-288	-1080	-100			-108	-856
CHP plants									
Heat plants		+50				-90			-40
Charcoal prod.						-90	+30		-60
Pellet + briquettes									
Other transformation									
Energy + own use	-43								-43
Distribution losses	-43	-25						5. 22	-68
Final consumption	778	25	0	120	0	300	120	0	1,343
Industry sector	144								144
Transport sector									
Commercial + services	101			20			30		151
Residential	490			100		300	90		980
Other	43								43