

Appendix A

Table A1.

- Energy: Lignite ST, Current Technology

1) Range of unit size and project size [MW]	Current 1050			
2) Nominal efficiency				
<i>i) For electricity generation only [%]</i>	44.5			
<i>ii) For combined heat and power [%]</i>				
3) Efficiency at partial load				
4) Flexibility towards fuel, fuel resource availability, plant siting and infrastructures (e.g. cooling water needs, high voltage, grid gas pipes, etc.)				
5) Flexibility towards exploitation:				
<i>i) Cold start [minutes from 0% to 90% of nominal power]</i>				
<i>ii) Warm/lukewarm start [minutes from 0% to 90% of nominal power]</i>				
<i>iii) Uncontrollable variation in load [% from nominal power]</i>				
Total energetic score				

- Ecology and resource use:

1) Exhaust, direct for operation [kg/kWh] / indirect				
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for construction and dismantling [kg/kW]:				
i) CO_2 [kg/kWh _{electricity}] / [kg/kW]	0.901514 /			
ii) SO_2 [kg/kWh _{electricity}]	0.001135 0.000651 /			
iii) NO_x [kg/kWh _{electricity}]	0.000004 0.000674 /			
iv) PM_{10} [kg/kWh _{electricity}]	0.000005 0.000097 /			
v) $NM VOC$ [kg/kWh _{electricity}]	0.000004 0.000018 /			
vi) $Methane$ [kg/kWh _{electricity}]	0.000001 0.000016 /			
vii) N_2O [kg/kWh _{electricity}]	0.000004 0.000028 /			
viii) C_{14} [kg/kWh _{electricity}]	0.000000 0.000012 /			
ix) <i>Heavy metals [most important ones, g/kWh_{electricity}]</i>	0.000011			
2) Thermal exhaust [TJ/GWh _{electricity}]				
i) <i>Into air</i>	0.353498			
ii) <i>Into water source</i>	1.5383702			
3) Liquid waste, direct for operation [kg/kWh] / indirect for construction and dismantling [kg/kW]:				
i) <i>Total liquid waste [kg/kWh_{electricity}]</i>				
ii) <i>Total nitrogen into water source</i>	0.000000			

	<i>[kg/kWh_{electricity}]</i>	/		
	iii) <i>Total phosphor into water source</i>	0.000000		
	<i>[kg/kWh_{electricity}]</i>			
	iv) <i>Total chlorides into water source</i>	0.000046		
	<i>[kg/kWh_{electricity}]</i>	/		
	v) <i>Total sulfates into water source</i>	0.000010		
	<i>[kg/kWh_{electricity}]</i>	0.007326		
	vi) <i>Others (KMnO₄, iron, organic materials, solid materials)[Separately]</i>	/		
		0.000006		
		Iron:		
		0.001450		
		/		
		0.000001		
4)	Solid waste [tons/MWh _{electricity}]			
	i) <i>Flue dust</i>			
	ii) <i>Slurry</i>	0.0575840		
	iii) <i>Hazardous waste</i>	Waste Oil:		
		0.0000151		
	iv) <i>Radioactive waste</i>			
	v) <i>Other solid waste</i>	Total:	Total:	Total:
5)	Safety and health impacts			
	i) <i>Population affected by worst perceived accident during operation [nr of persons]</i>			
	ii) <i>Number of deaths over the fuel cycle [persons/MWh_{electricity}]</i>			
	iii) <i>Other effects</i>			
6)	Visual impact and noise			
7)	Footprint and use of resources			
	i) <i>Primary material moved for construction [kg/kW_p of nominal power]</i>			
	ii) <i>Secondary material moved for construction [kg/kW_p of nominal power]</i>			

<p>iii) <i>Main materials uses for construction (five)</i> <i>[kg/kW_p of nominal power]</i></p> <p>iv) <i>Primarily material moved for usage e.g. fuel</i> <i>[tons/ MWh_{electricity}]</i></p> <p>v) <i>Secondary material moved for usage e.g. fuel</i> <i>[tons/ MWh_{electricity}]</i></p> <p>vi) <i>Critical materials in construction and usage</i> <i>(materials that may become a limiting factor</i> <i>for the technology) [kg/kW_p of nominal</i> <i>power]</i></p> <p>Total ecological score</p>	<p>Iron: 137935 Aluminum: 3081 Concrete: 481917 Copper: 993</p>			
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- Economy (without subsidies, price level for 2003):

<p>1) Investment cost [euro/MW]</p> <p>2) Availability [hours per year]</p> <p>3) Operational time [hours of nominal power/year]</p> <p>4) Reliability [%]</p> <p>5) Technical life span [years]</p> <p>6) Construction time [years]</p> <p>7) Fuel cost [euro/MJ]</p> <p>8) Operation and Maintenance (O&M) cost [euro/MWh_{electricity}]</p> <p>9) Waste handling and dismantling [euro/ MWh_{electricity}]</p> <p>Total economic score</p>	<p>1176.0</p> <p>7500</p> <p>35</p> <p>4</p> <p>5.2</p> <p>0.1</p>			
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