


The Environment & Sustainable Development

The Environment & Sustainable Development

Comparison of Different Energy Sources

	Non-renewable			Renewable			
	Coal	Gas	Nuclear	Solar	Wind	Hydro-electric	Geothermal
Efficiency	2 - 3 kWh/kg	4 - 5 kWh/kg	45 - 50 000 kWh/kg	comparative figures not available	comparative figures not available	comparative figures not available	comparative figures not available
Cost (US cents/kWh)	2.5 – 4.5	2.3 – 4.7	2.5 – 4.1	12-20	5	comparative figures not available	comparative figures not available
OECD 1998 (exc.Japan)							
Cost effective	yes	yes	yes	comparative figures not available	intermittent, cannot meet base load	yes	in a few localities
Ability to meet base load demand	yes	yes	yes	no	no	yes	no
Source reliability and availability	good	good	good	variable daily & weather dependent	variable & weather dependent	seasonal dependence	not many suitable sites
Back-up power	not needed	not needed	not needed	needed	needed	needed	needed
Export dollars for Australia (end of 2000)	\$8.7 billion	\$1.9 billion	\$.367 billion	some from sale of technology	some from sale of technology	some from sale of technology	unknown
Greenhouse gas emission	1kg of CO ₂ /kWh	0.5kg of CO ₂ /kWh	none	none	none	none	none
Emissions to environment	NO _x , SO ₂	NO _x , SO ₂	steam	nil	nil	nil	nil
Other wastes	ash, flyash		4 milligrams of radioactive spent fuel/kWh	toxic waste from production of solar panels	nil	nil	nil
Other environmental impacts	extensive mining, major transportation, acid rain	production facilities, pipelines, acid rain	limited mining and associated tailings storage facilities	on roofs	can be unsightly, noisy, birds fly into rotors	changes in ecosystems through dams flooding large areas	