

# Renewable Resources

World Power Plants Capacity GW	Existing (2000)	Potential (2100)
Coal	947.1	na
Gas	748.9	na
Oil	198.2	na
Biomass	54.4	(*)
Geothermal	8.7	1341.9
Hydro	632.5	3901.9
Solar	0.4	review
Tide	0.2	0.2
Wind	11.9	9837.6
Nuclear	352.2	na
<b>Total</b>	<b>2954.3</b>	<b>na</b>

(\*) Total resources = 171 EJ in 2100

## Geothermal

- Shallow, deep and very deep

## Hydro

- 100% of the WEC technical potential + 25% of the WEC theoretical potential

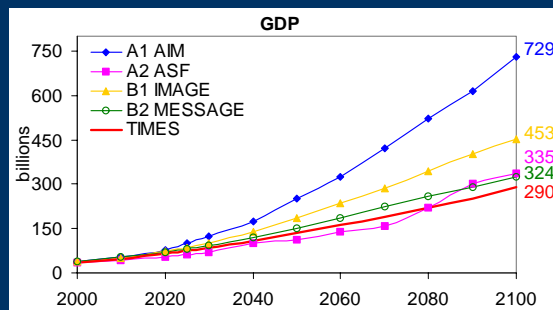
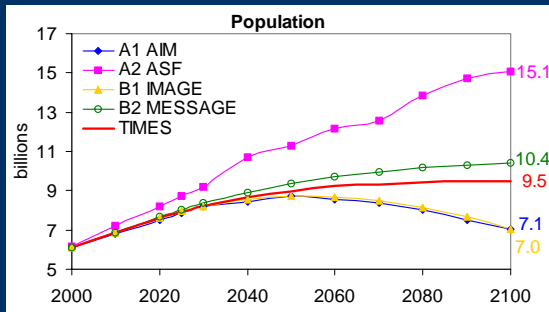
## Wind

- Four types of plants (different costs)
- Equivalent to 10% of the potential provided by IPCC-TAR ~ WEC assuming 4% of the land area

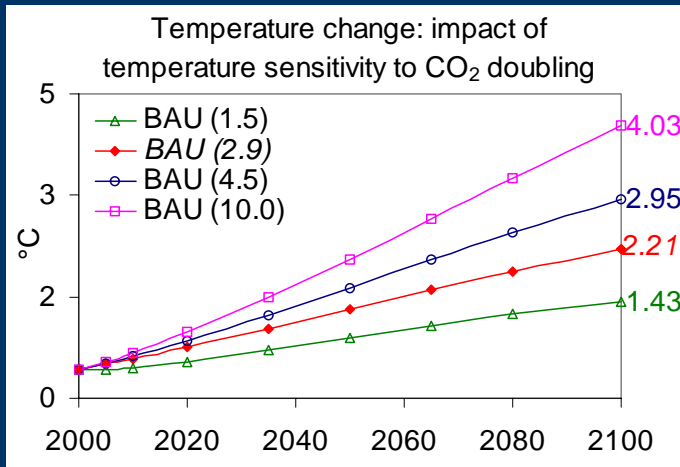
## Biomass

- Includes: solid, liquids, landfill gas, energy crops, industrial and municipal wastes
- World resource potential in TIMES: 171 EJ in 2100. Being reviewed
- Trudel (2004): 286 EJ, IPCC-TAR: 441 EJ
- Practical and technical constraints (distance of a biomass production site from demand centres, land-use conflicts)

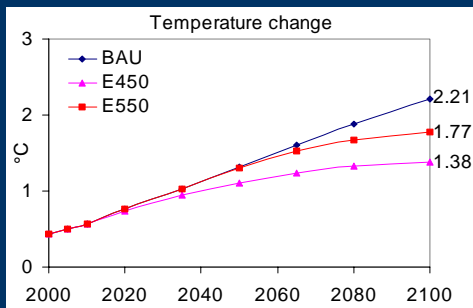
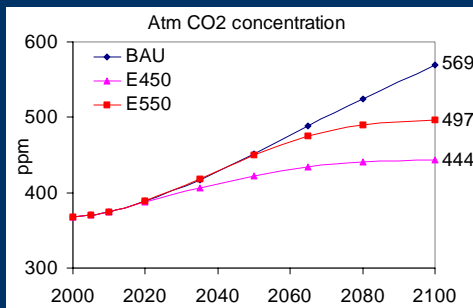
# Future population and economic growth



## Uncertain temperature sensitivity



## Climate results

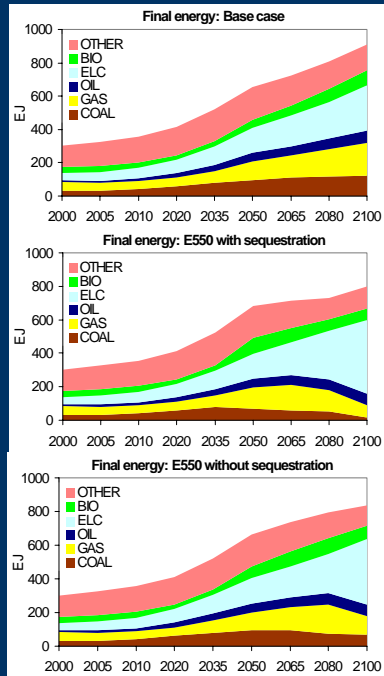


E550 = Emissions limited from 2005 to 2100. Exogenous path\*.

E450 = Emissions limited from 2005 to 2100. Exogenous path\*.

\* From IMCP  
Emission path to reach the long-term stabilization of atm concentration at 550 / 450 ppm

## Mitigation options: final energy



## Regional implications of climate policies (E550)

