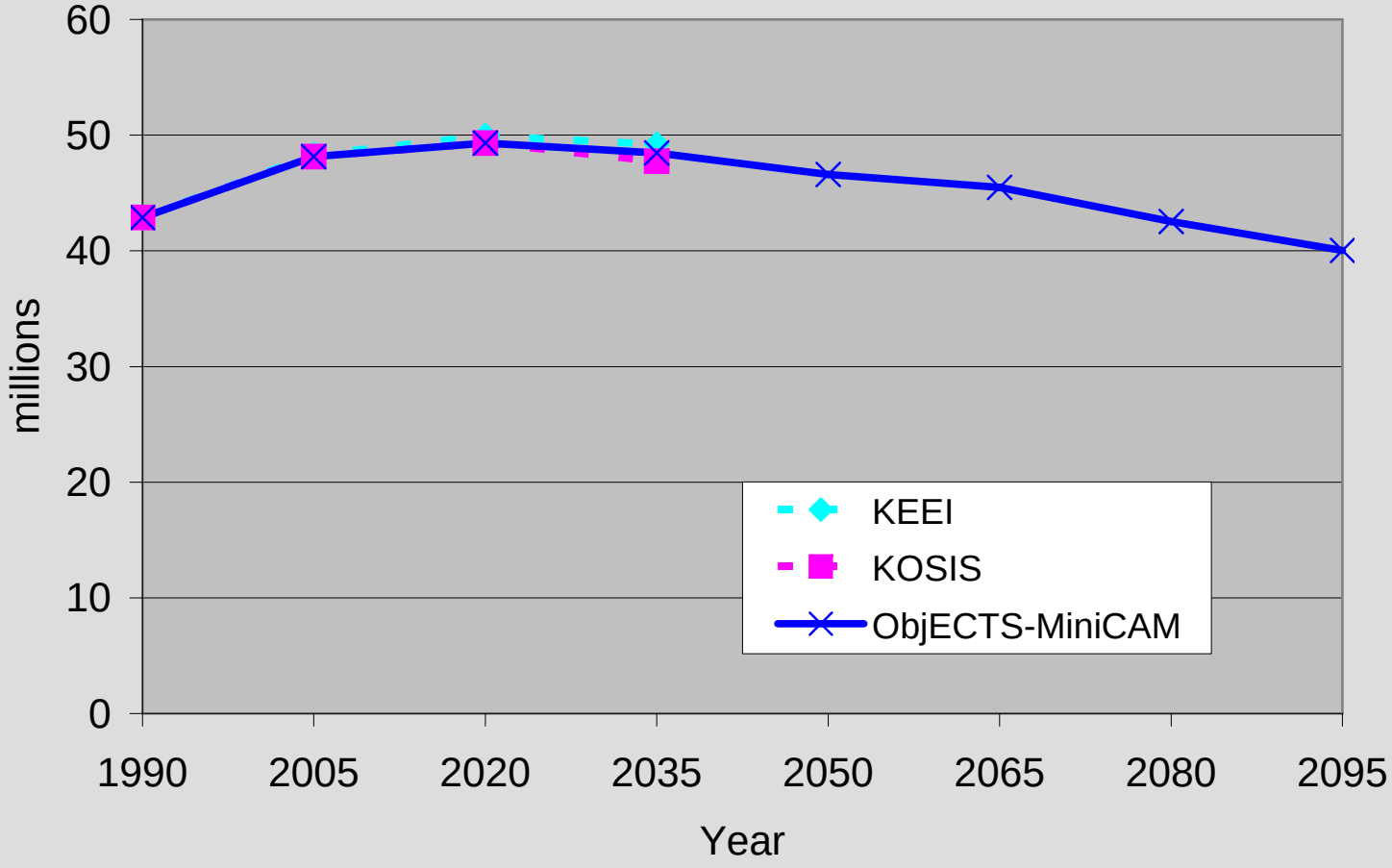
Energy and Climate Change Mitigation in Korea

GTSP Technical Review

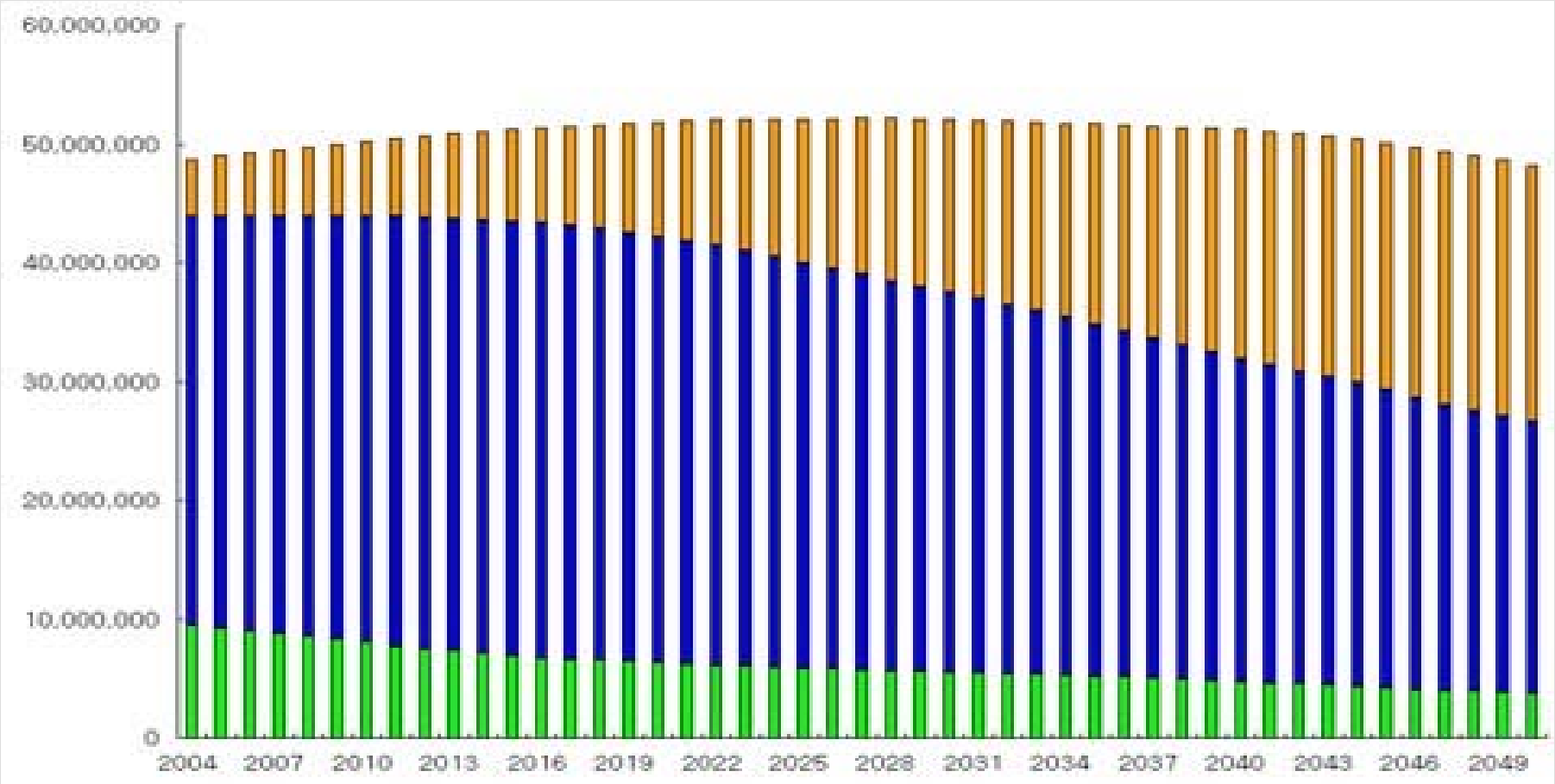
May 23, 2007

HOESUNG LEE

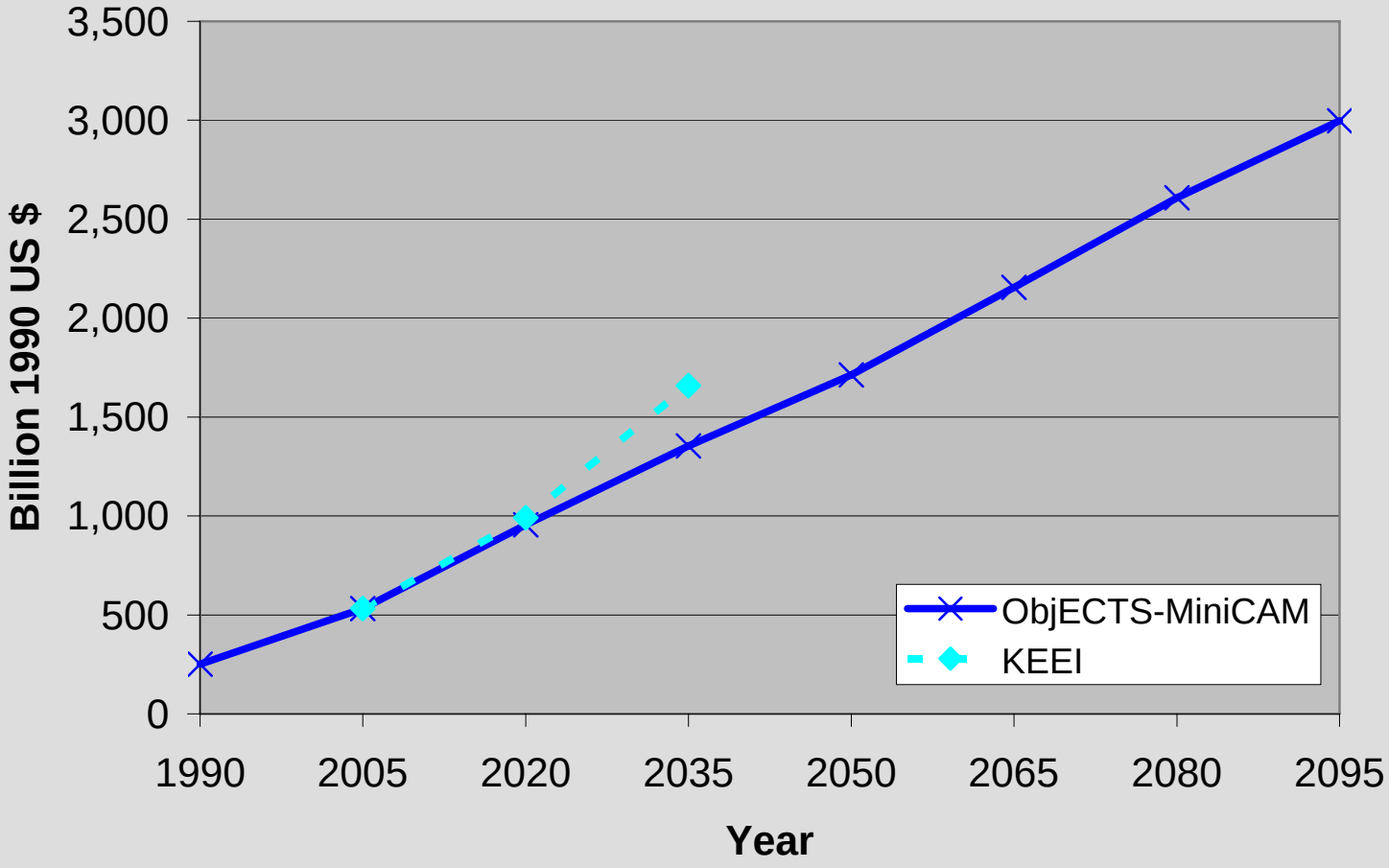
Population


60
50
40
30
20
10
0
millions
1990
2005
2020
2035
2050
2065
2080
2095
Year
KEEI
KOSIS
ObjECTS-MiniCAM

Age distribution: Top portion is over 65; middle portion is 15~64; bottom portion is below 14. Population peaks in 2020 at 49,956,093 and then declines at an annual rate of -0.1%.



GDP

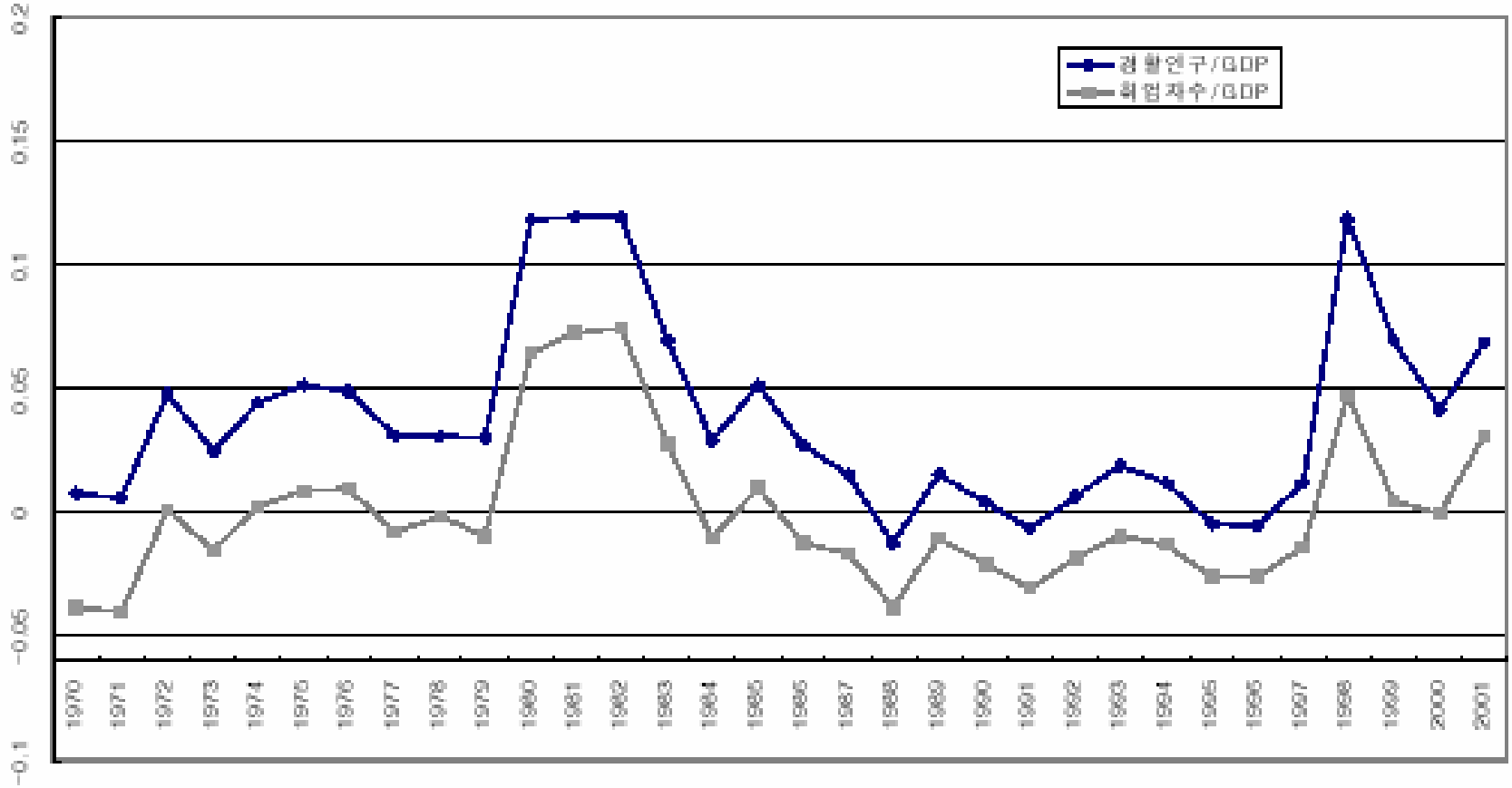

3,500
3,000
2,500
2,000
1,500
1,000
500
0
Billion 1990 US $
1990
2005
2020
2035
2050
2065
2080
2095
Year
ObjECTS-MiniCAM
KEEI

GDP (Potential) Growth Accounting %

	GDP	Labor	LP	K Human	K Physical	TFP
1980s	7.8	1.7	6.1	0.8	3.6	1.7
1990s 1st Half	6.8	1.3	5.5	0.6	4.0	0.8
1990s 2nd Half	5.7	1.0	4.7	0.6	2.4	1.6
2003~12	4.6	0.6	4.0	0.6	1.9	1.5
2020s	4.0					
2030s	3.5					

Labor force per GDP (Total, Employed)

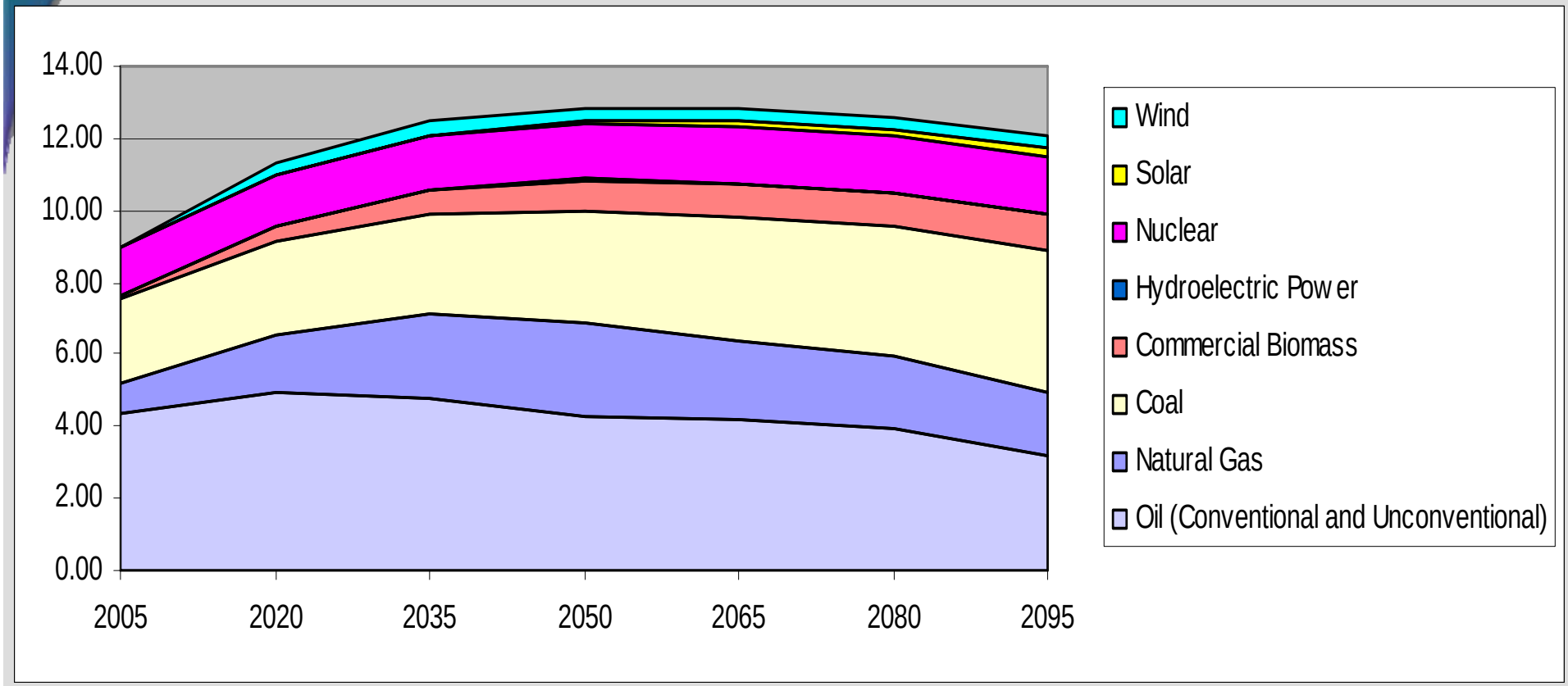
in log form



G7 Growth Accounting 1960~1990

	GDP	Labor	Capital	TFP
Canada	4.10	1.35	2.29	0.46
France	3.50	0.02	2.03	1.45
Germany	3.20	-0.25	1.88	1.58
Italy	4.10	0.11	2.02	1.97
Japan	6.81	0.97	3.87	1.96
UK	2.49	-0.10	1.31	1.30
US	3.10	1.29	1.40	0.41

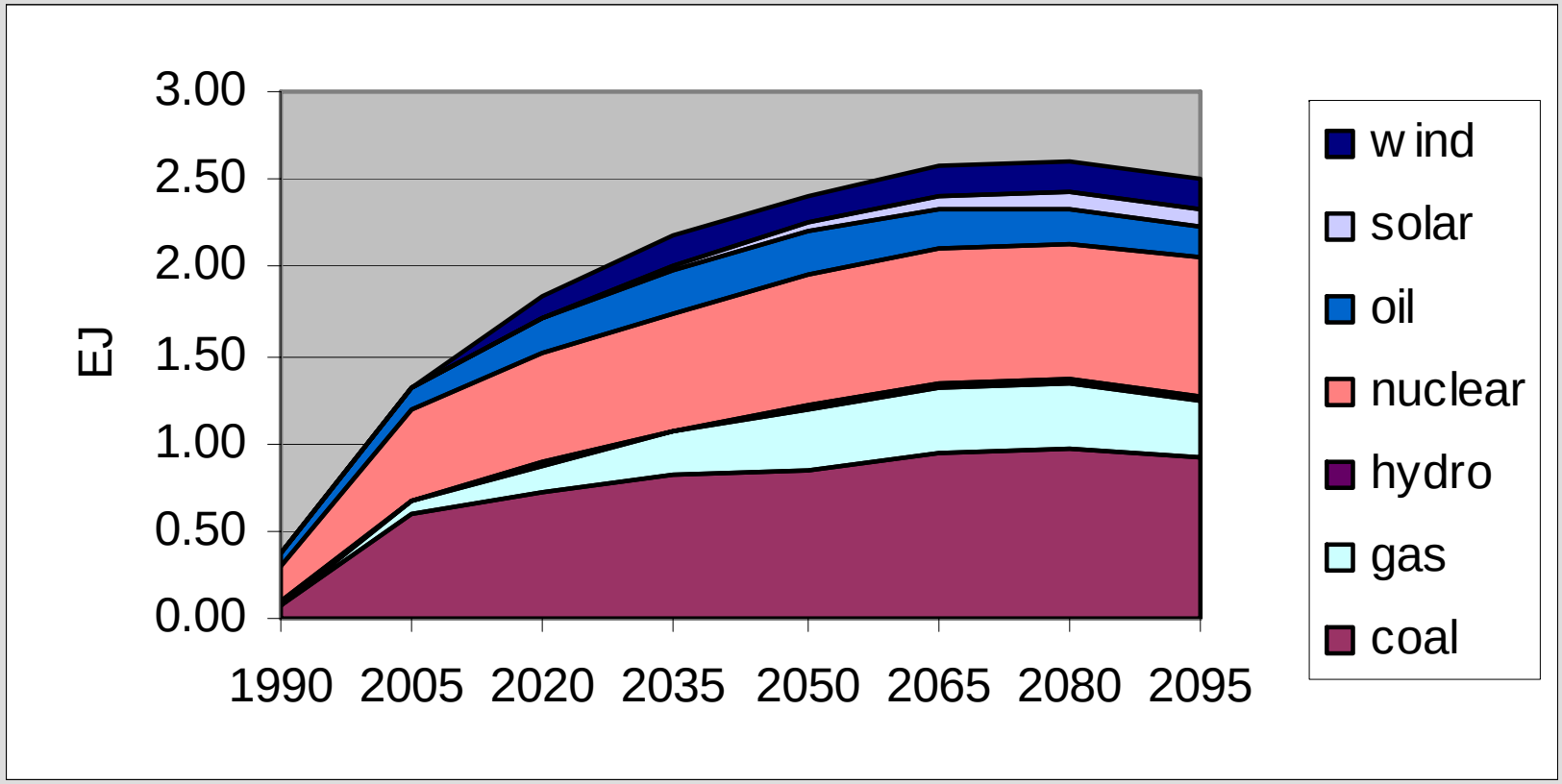
Primary Energy Consumption (EJ)



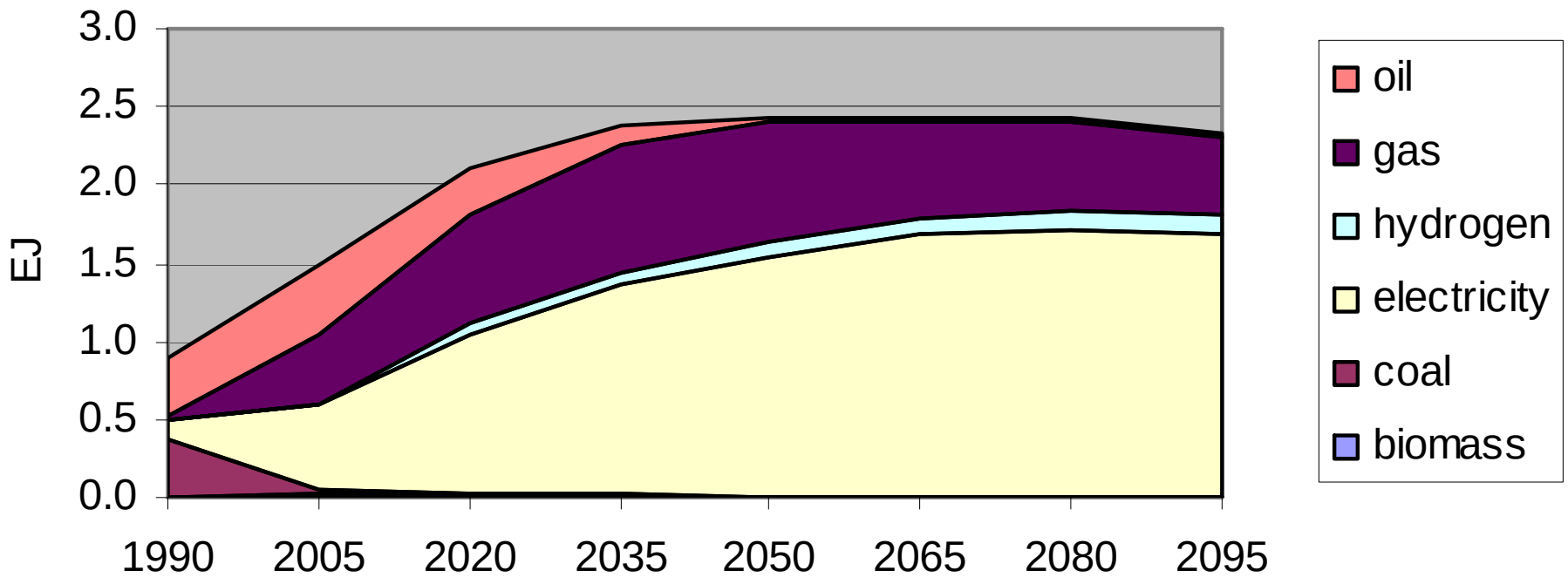
Energy and GDP Growth to 2030

	Primary Energy	GDP
ROK	2.2 %	3.9 %
EIA	2.2	3.6
PNL/ROK	1.1	?

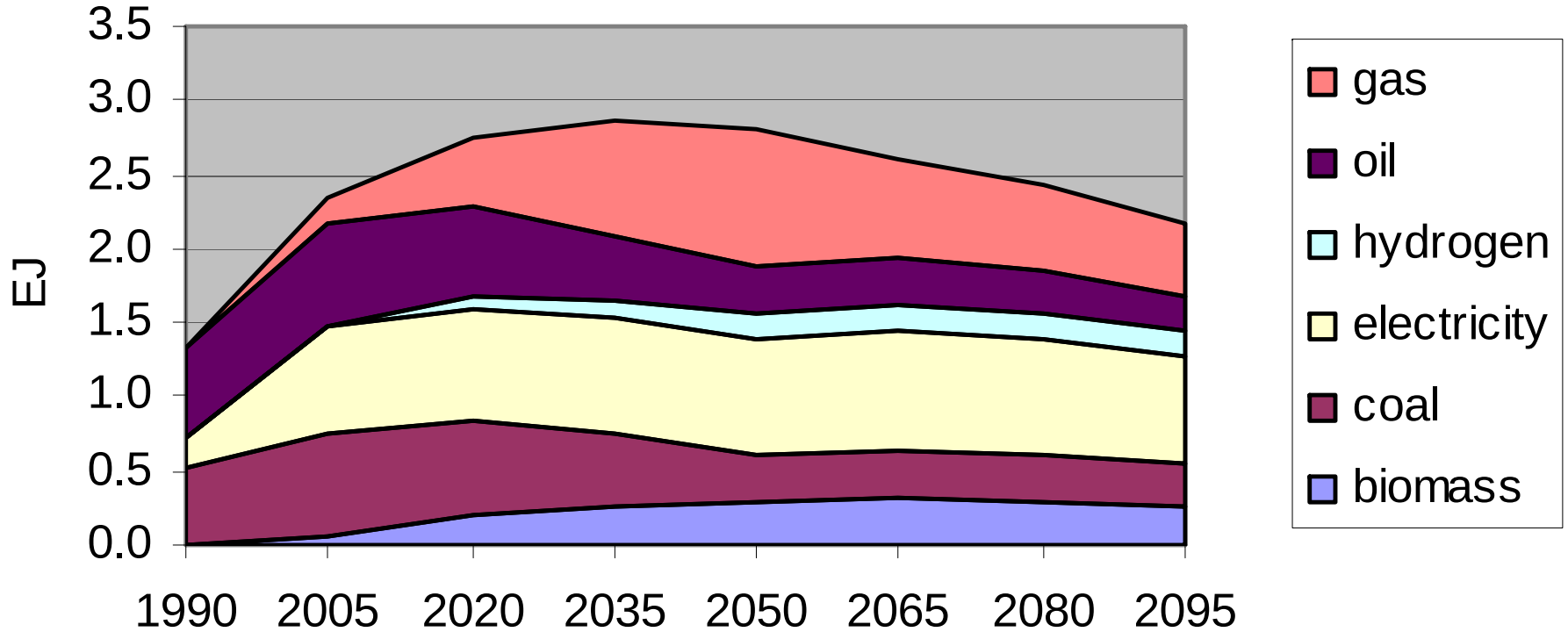
Electricity Generation



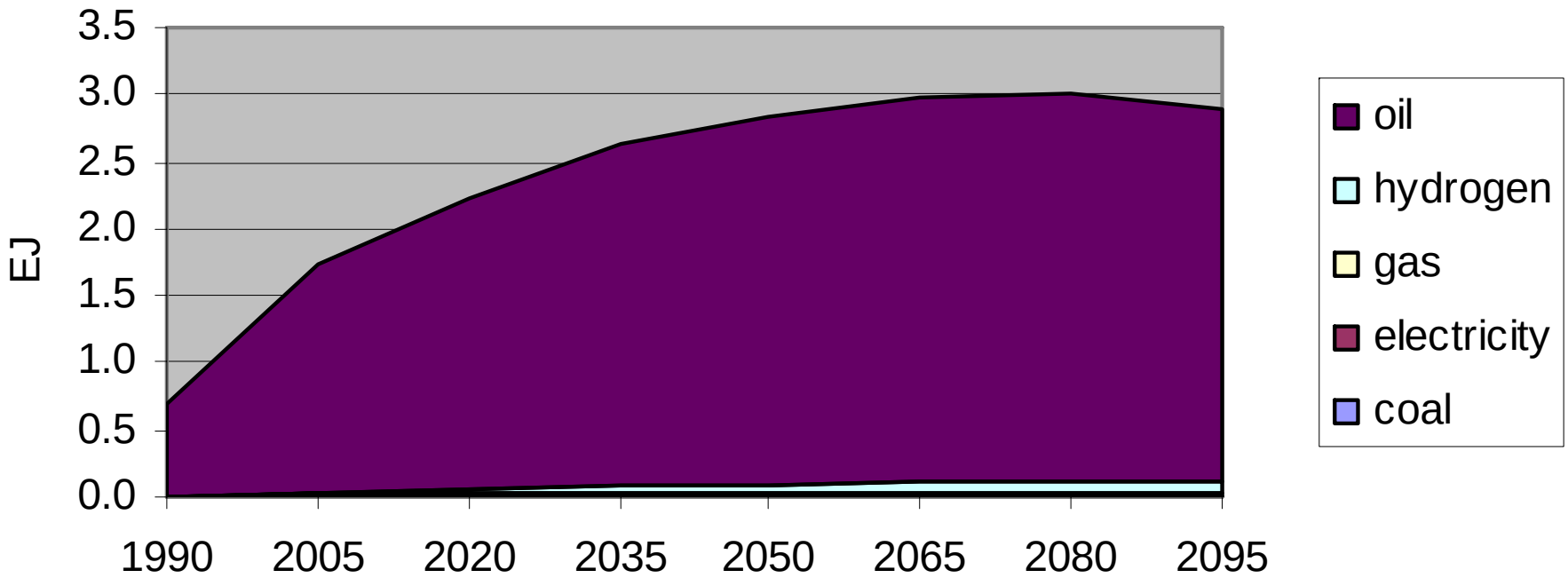
Final Energy Buildings



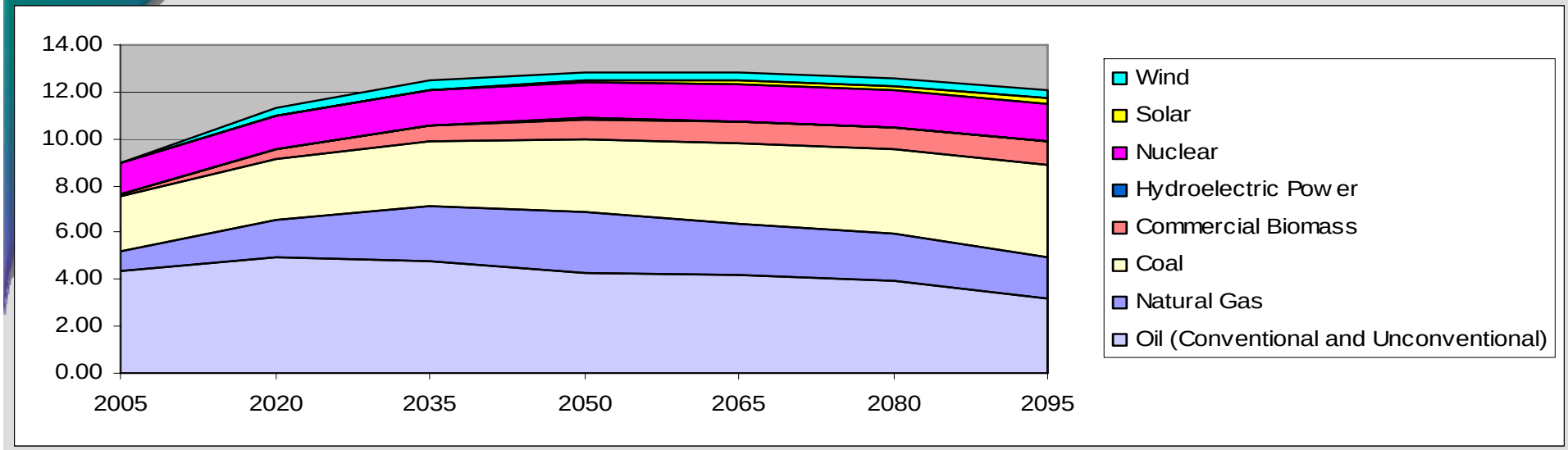
Final Energy Industry

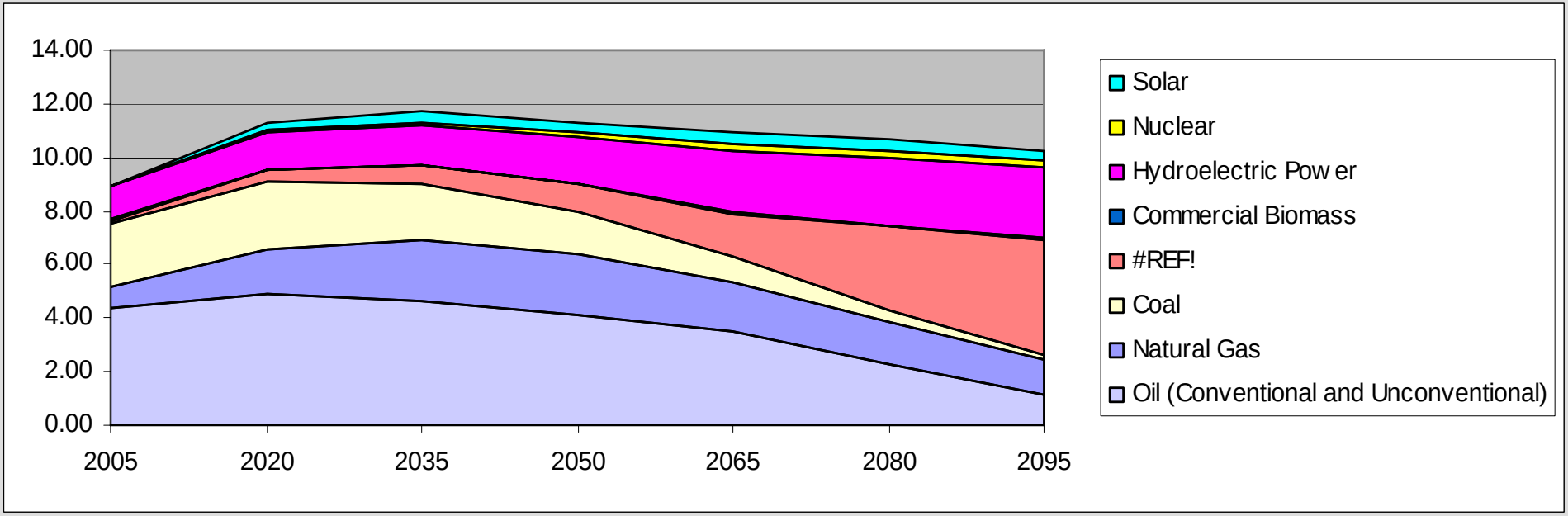


Final Energy Transportation



Primary Energy Consumption
Reference and Stabilization





CO_2 Emissions Profile for Korea - 2005

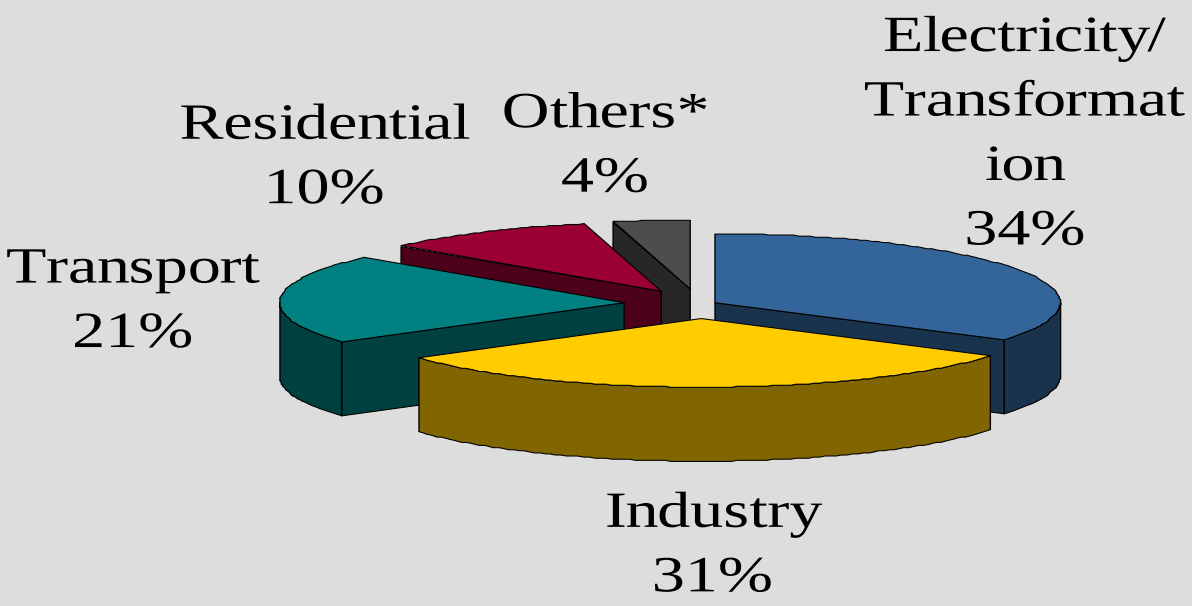
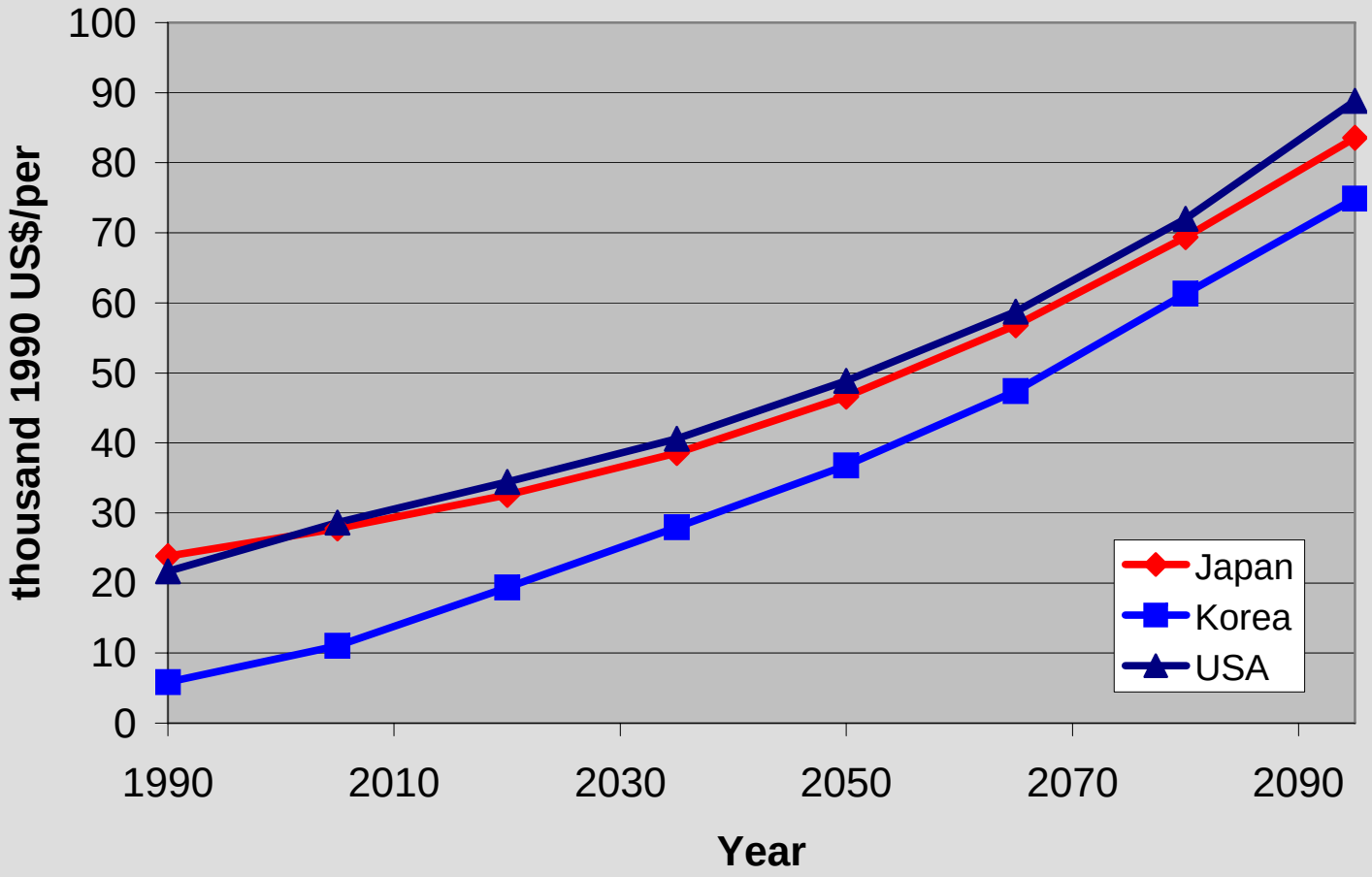
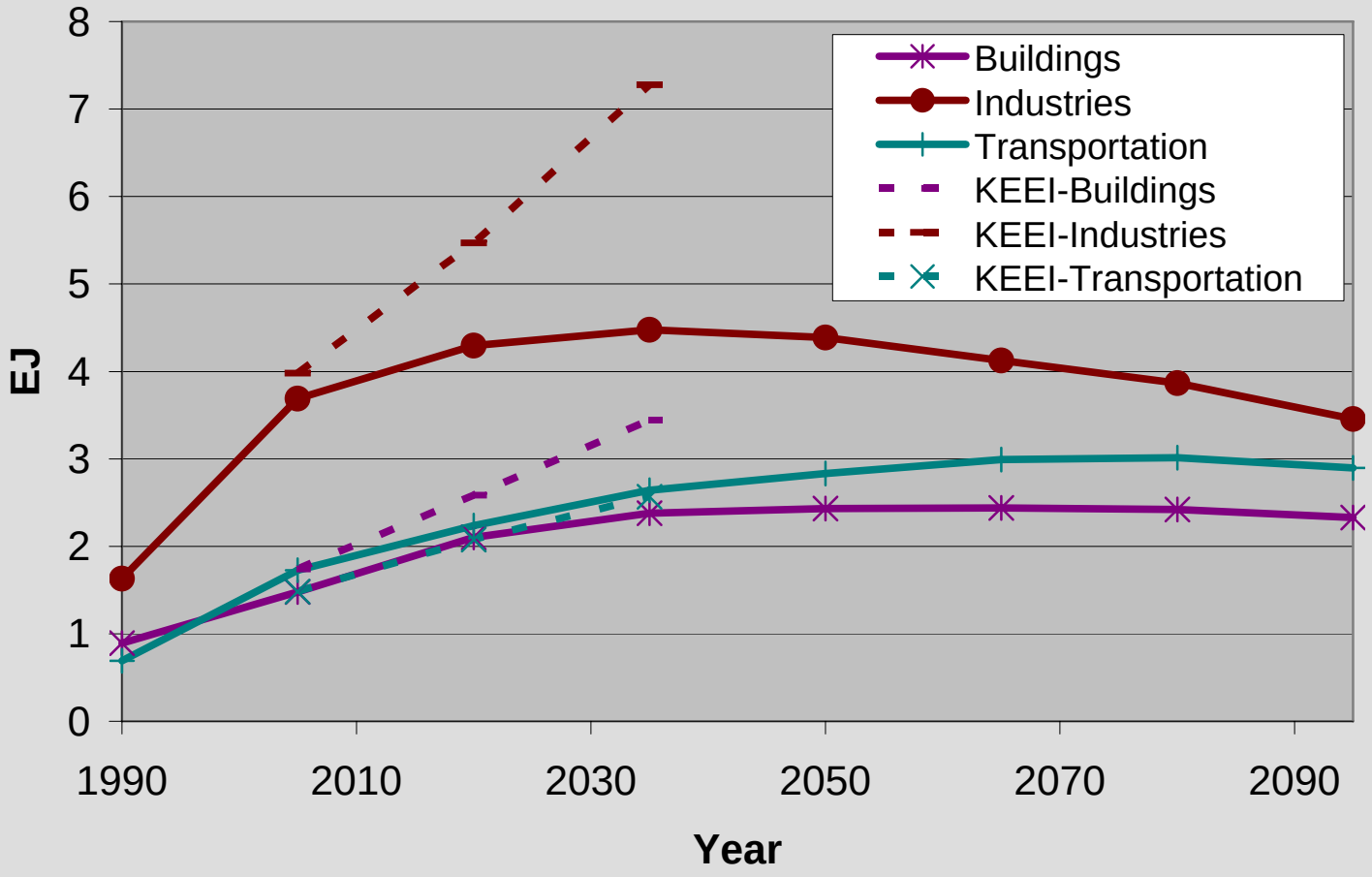


Figure generated from KEEI 2006 data
* “Others” include Commercial, Government, Military, etc.

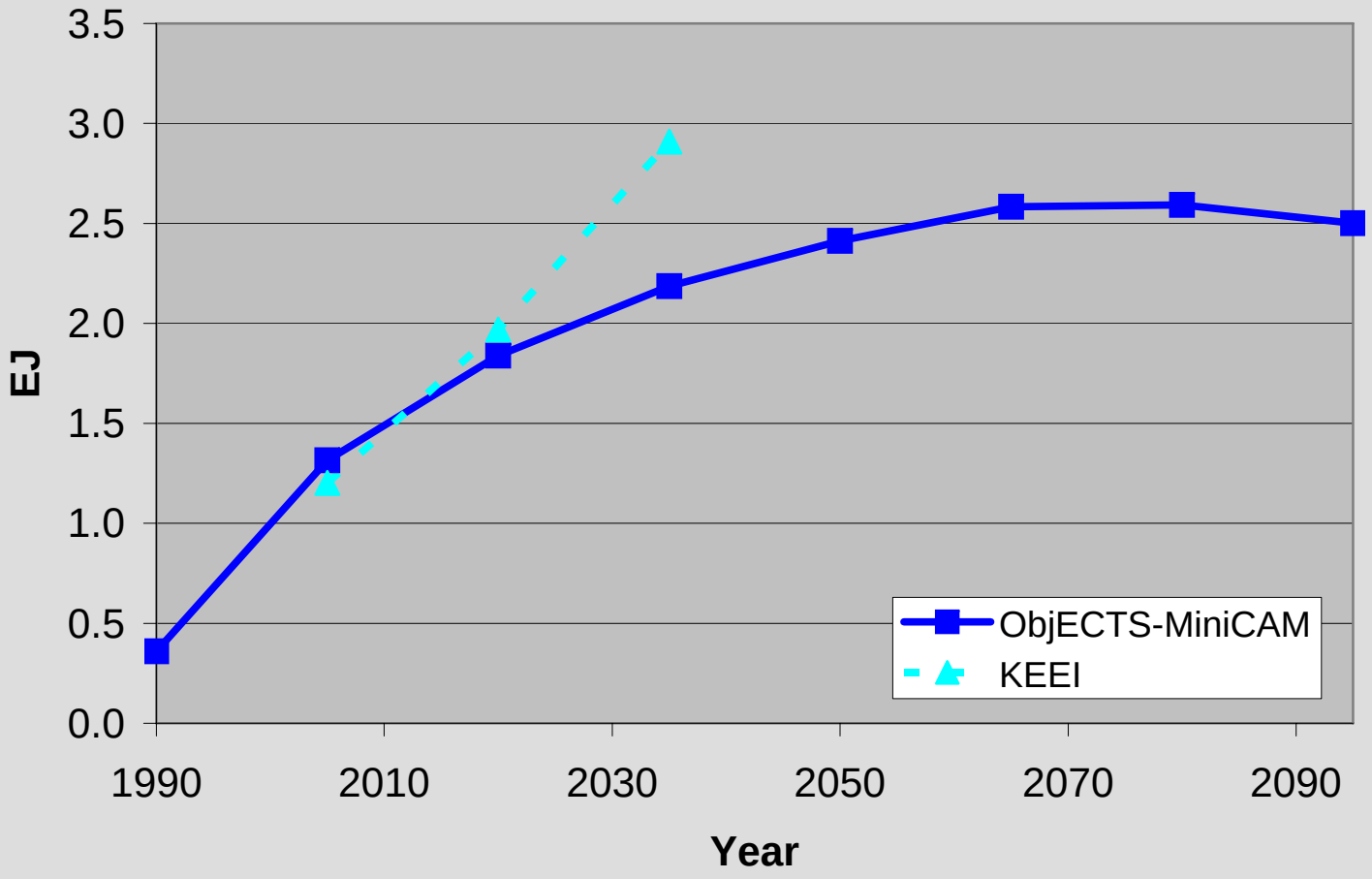
GDP per Capita Comparison



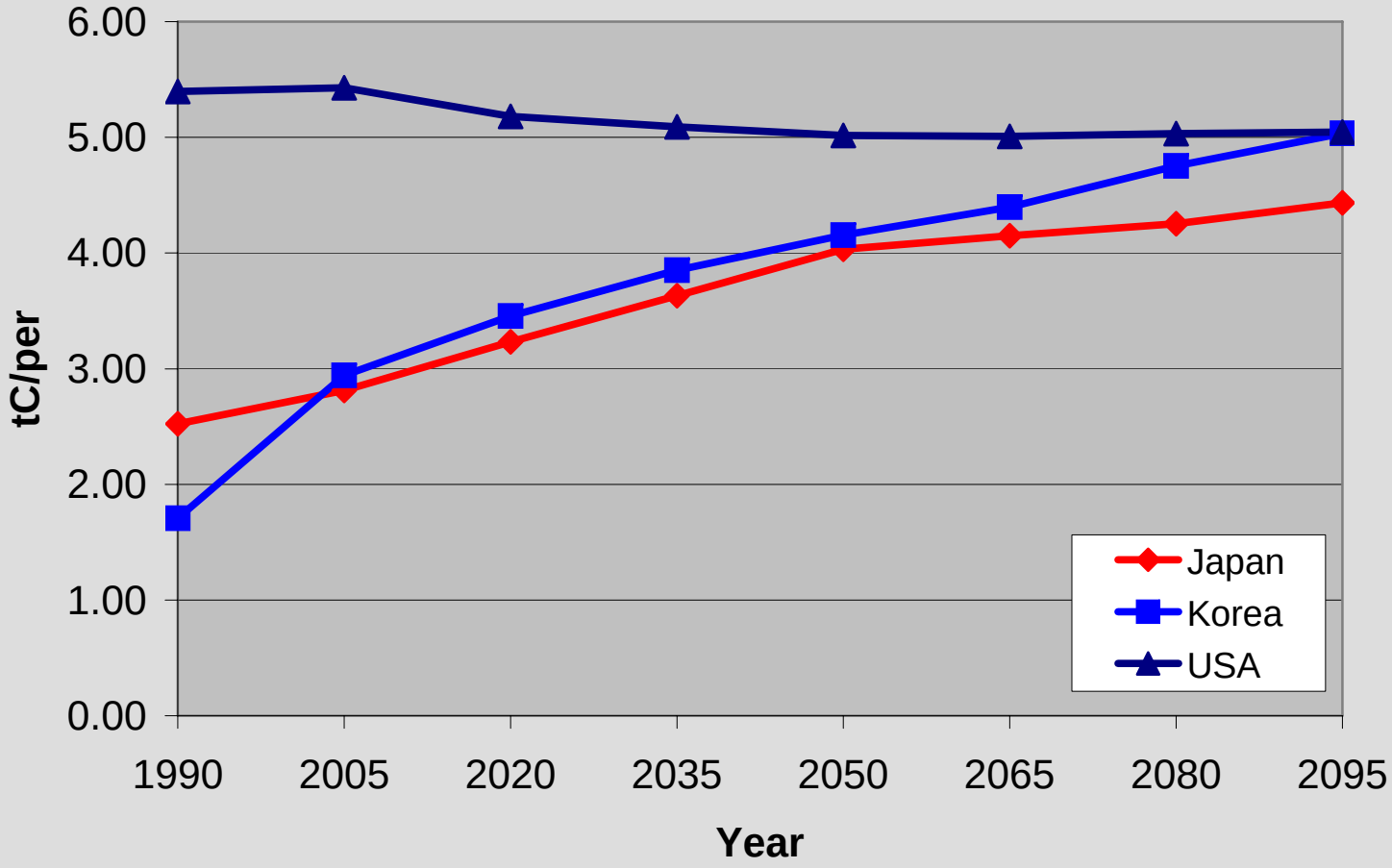
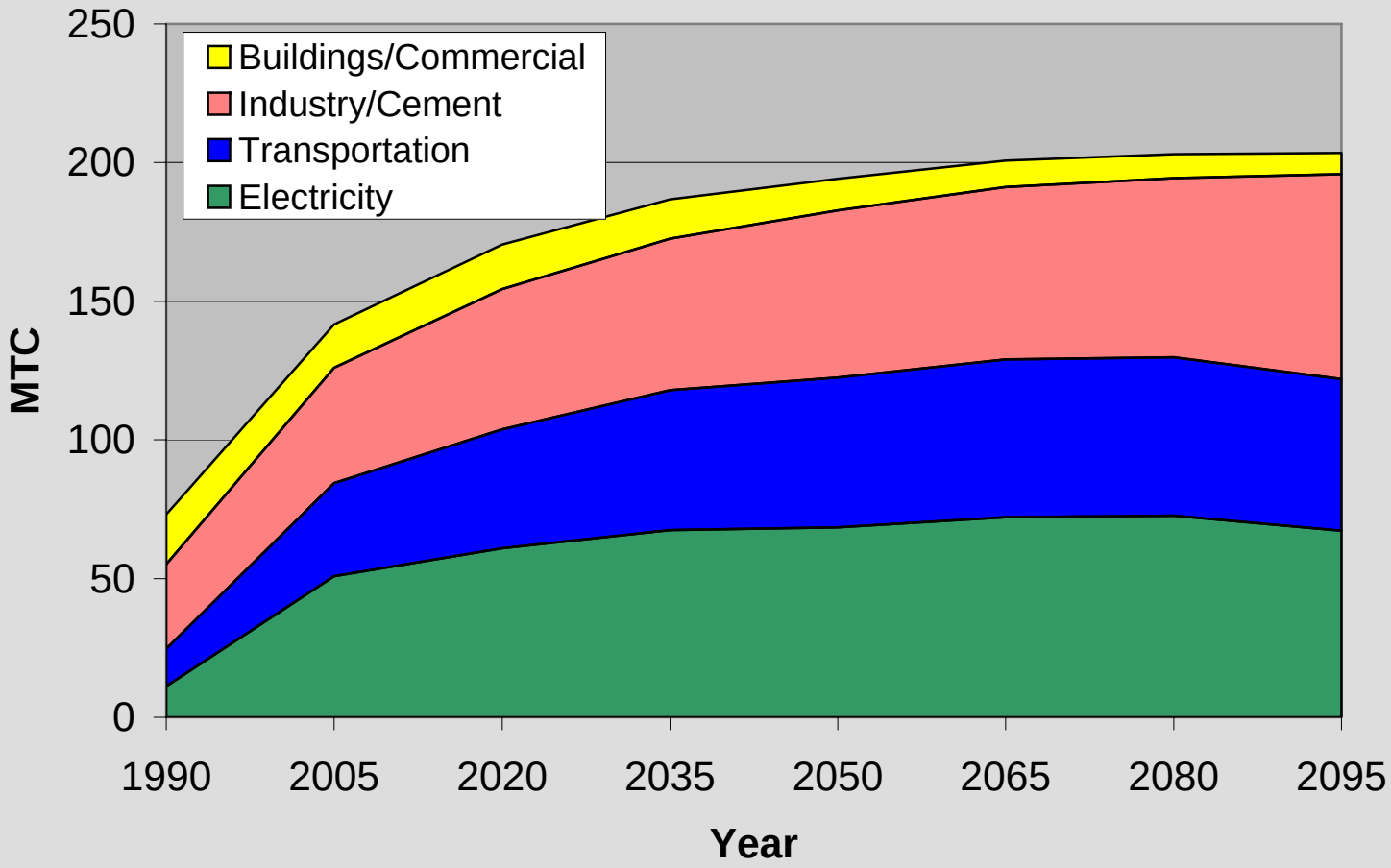
Final Energy Consumption by Sector



Electricity Generation (total)



CO_2 Emissions Per Capita Comparison



CO_2 Emissions by Sector