

Driving forces for carbon emission

CoP-11/MoP-1

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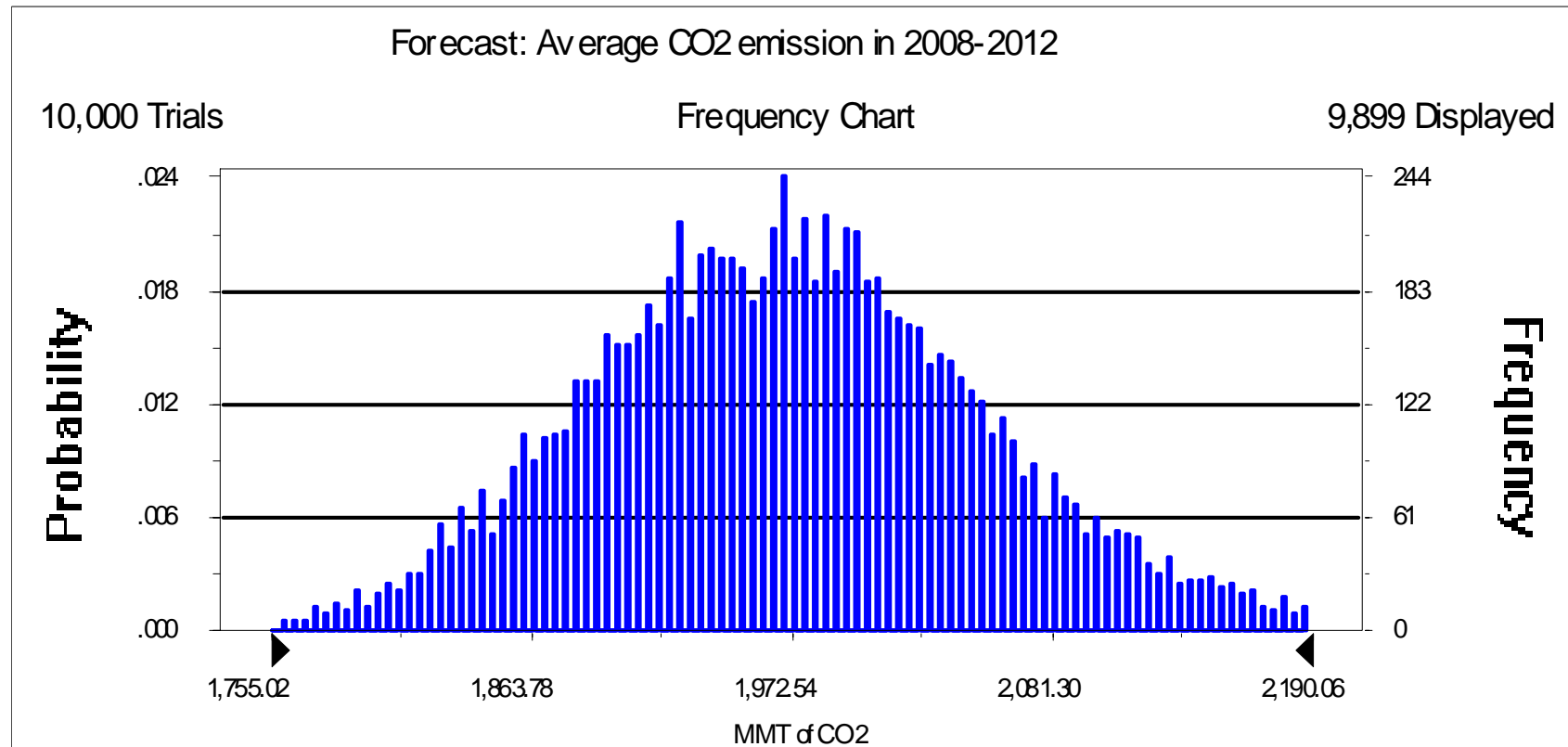
Senior economist

Environmental Defense

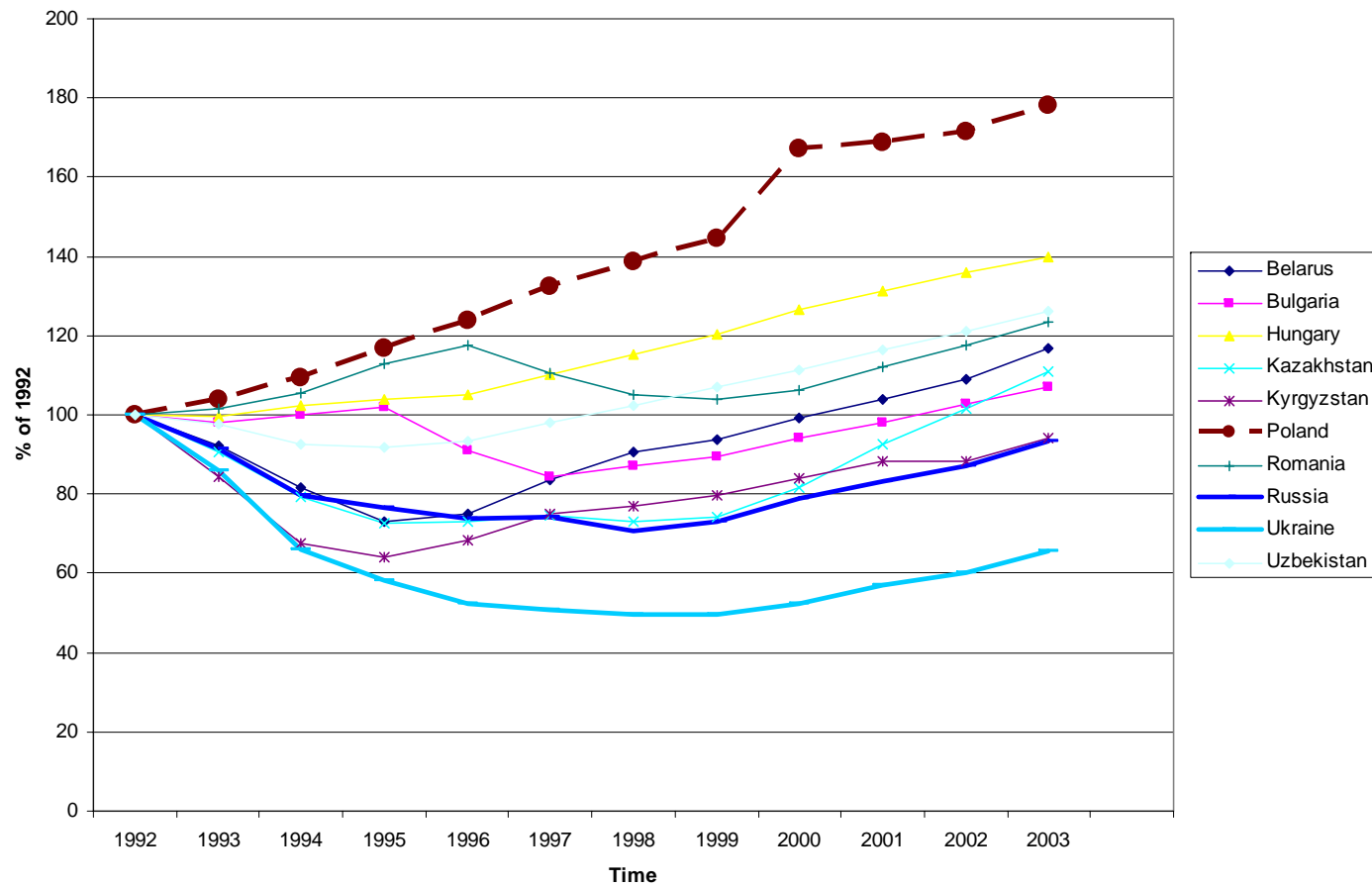
Major Issues

- Controversies of the Russian climate policy;
- Economic crisis and recovery growth;
- Driving forces for carbon emission:
 - Integration into the world economy;
 - Market incentives.
- Incentives for carbon emission reduction:
 - Market reforms in energy sector;
 - Kyoto protocol implementation;
- Future scenarios.

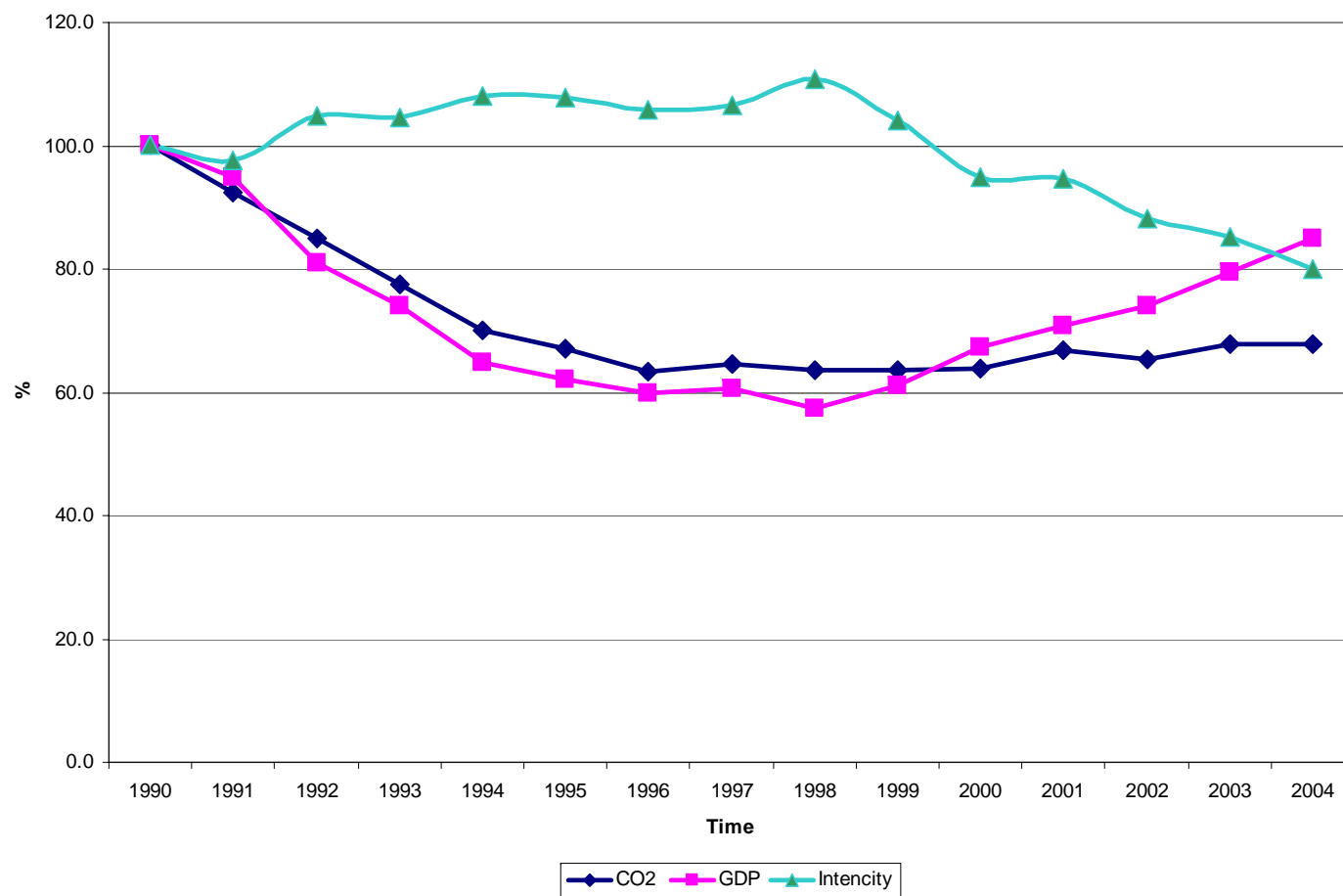
Simulation results



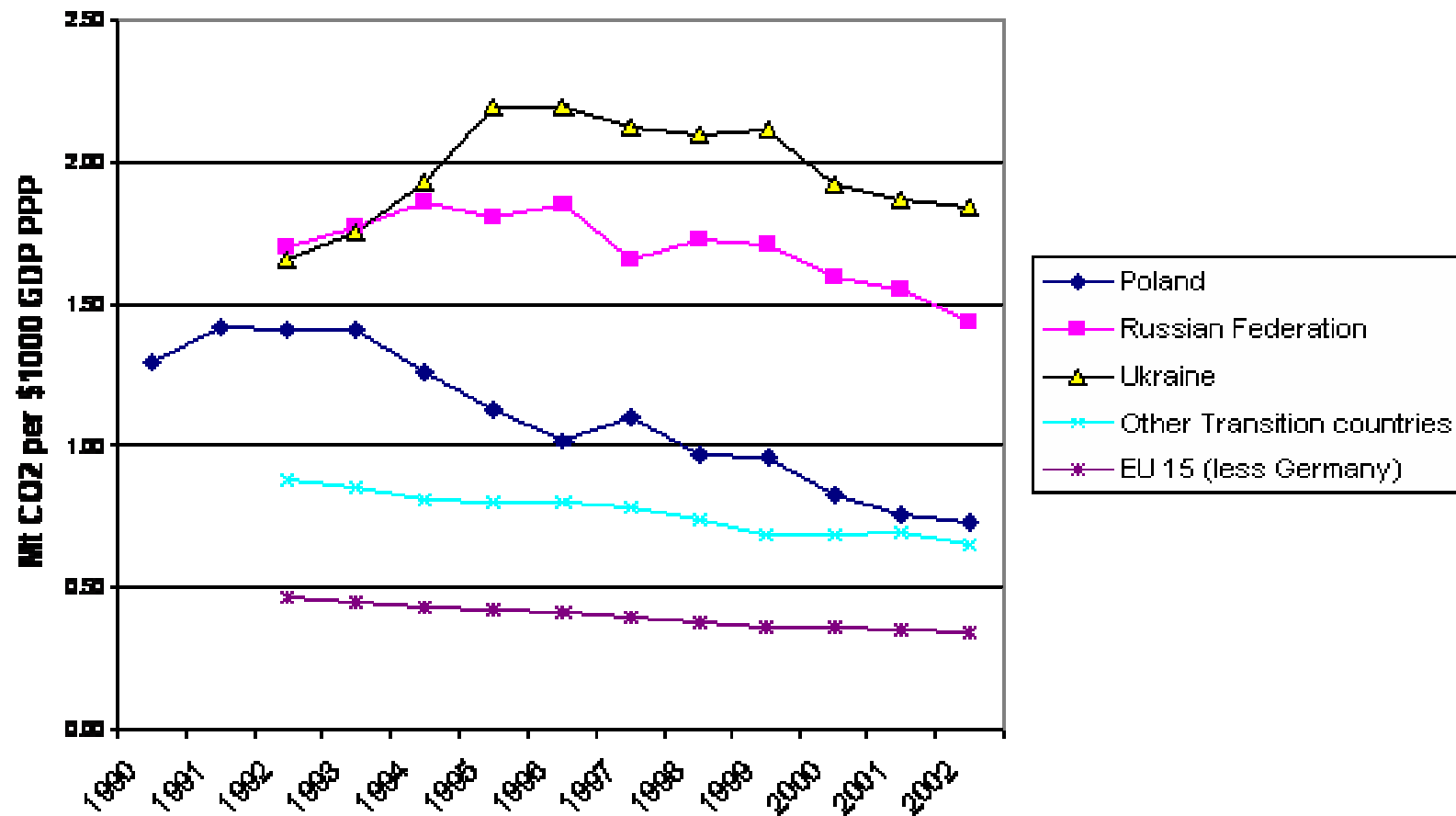
Recovery growth in transition countries



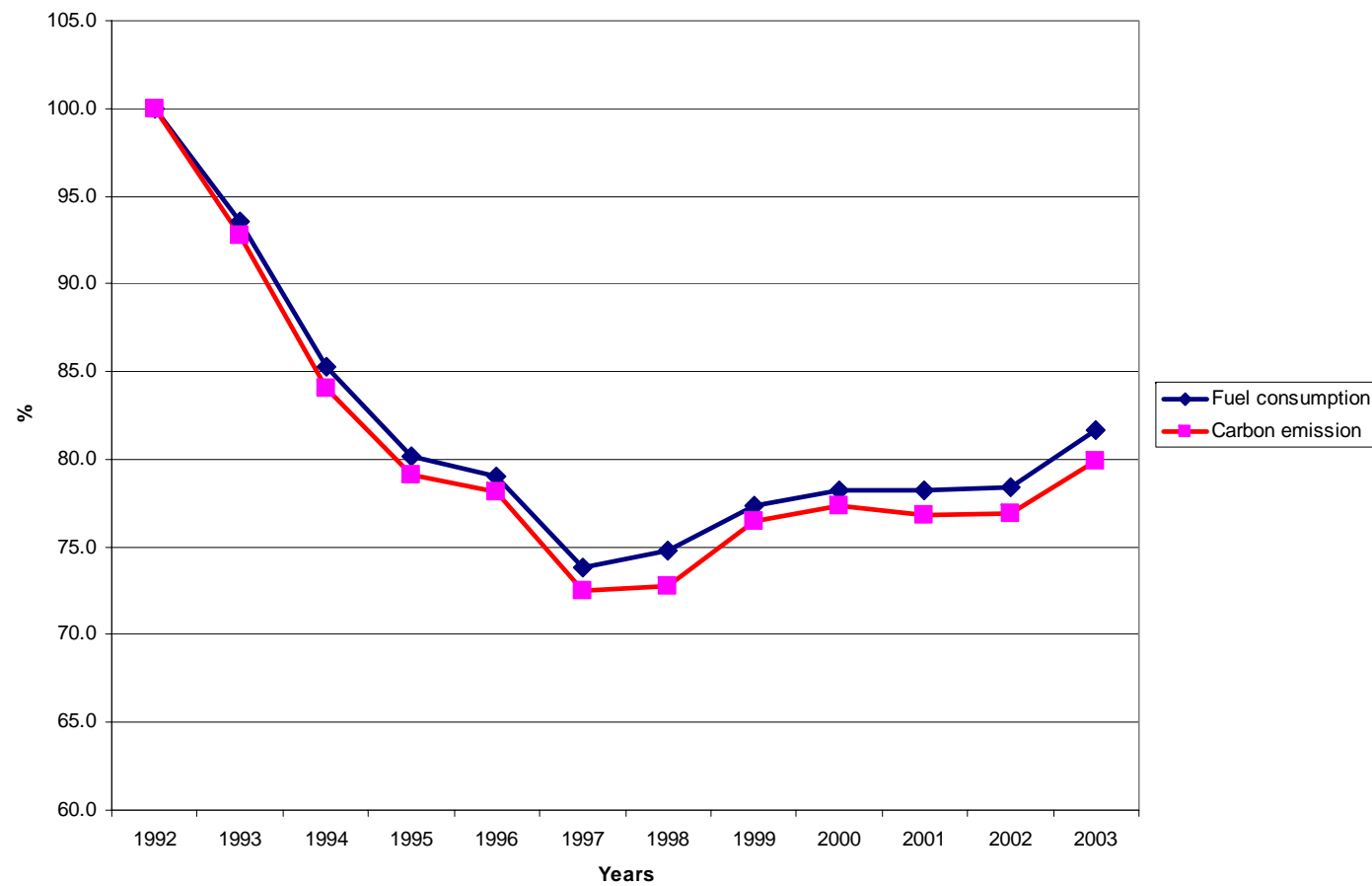
Carbon emission vs. GDP



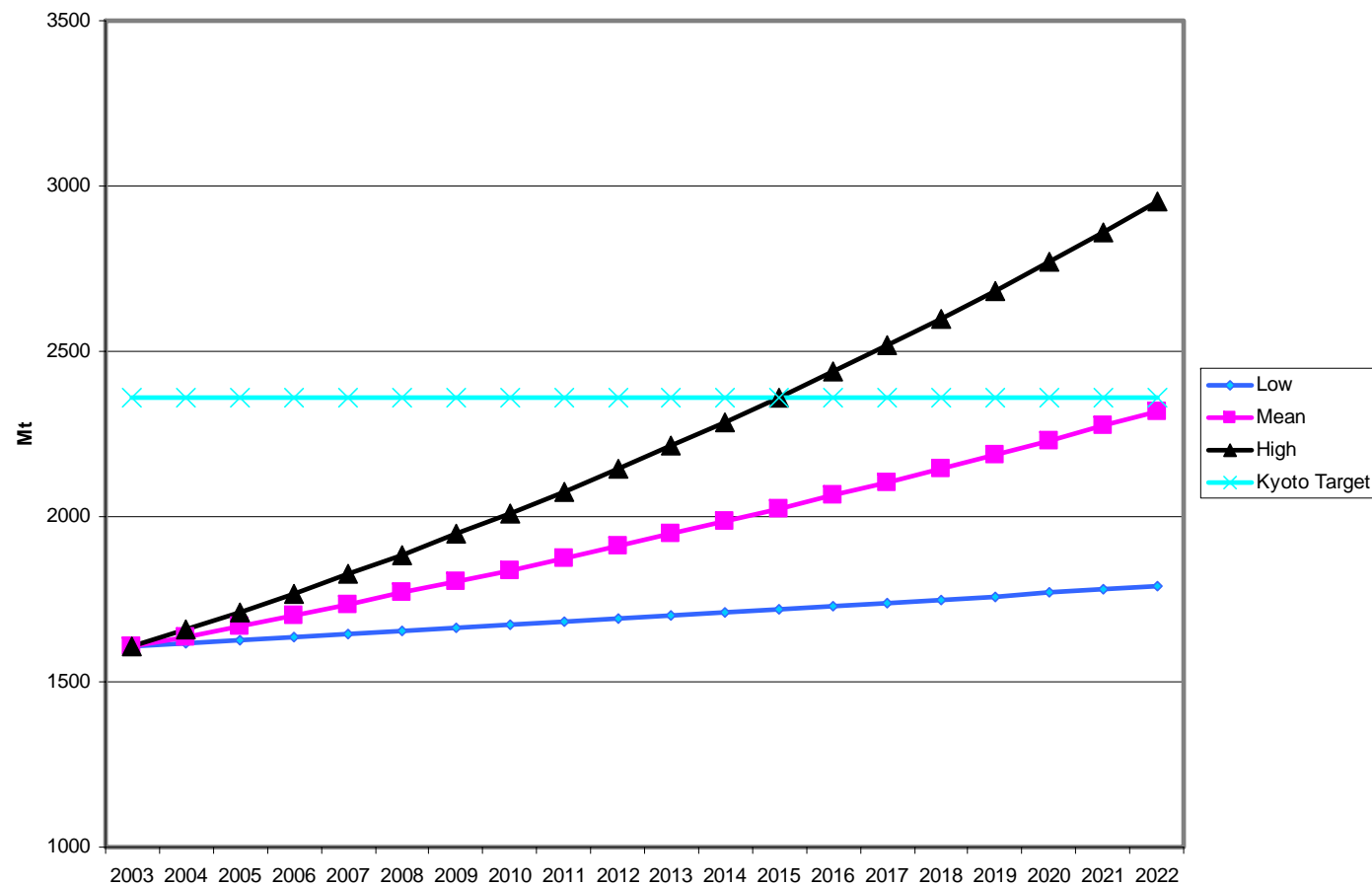
Carbon intensity in comparison with other countries



Carbon intensity of GDP vs. energy intensity



Carbon dioxide emission under high coal consumption scenario



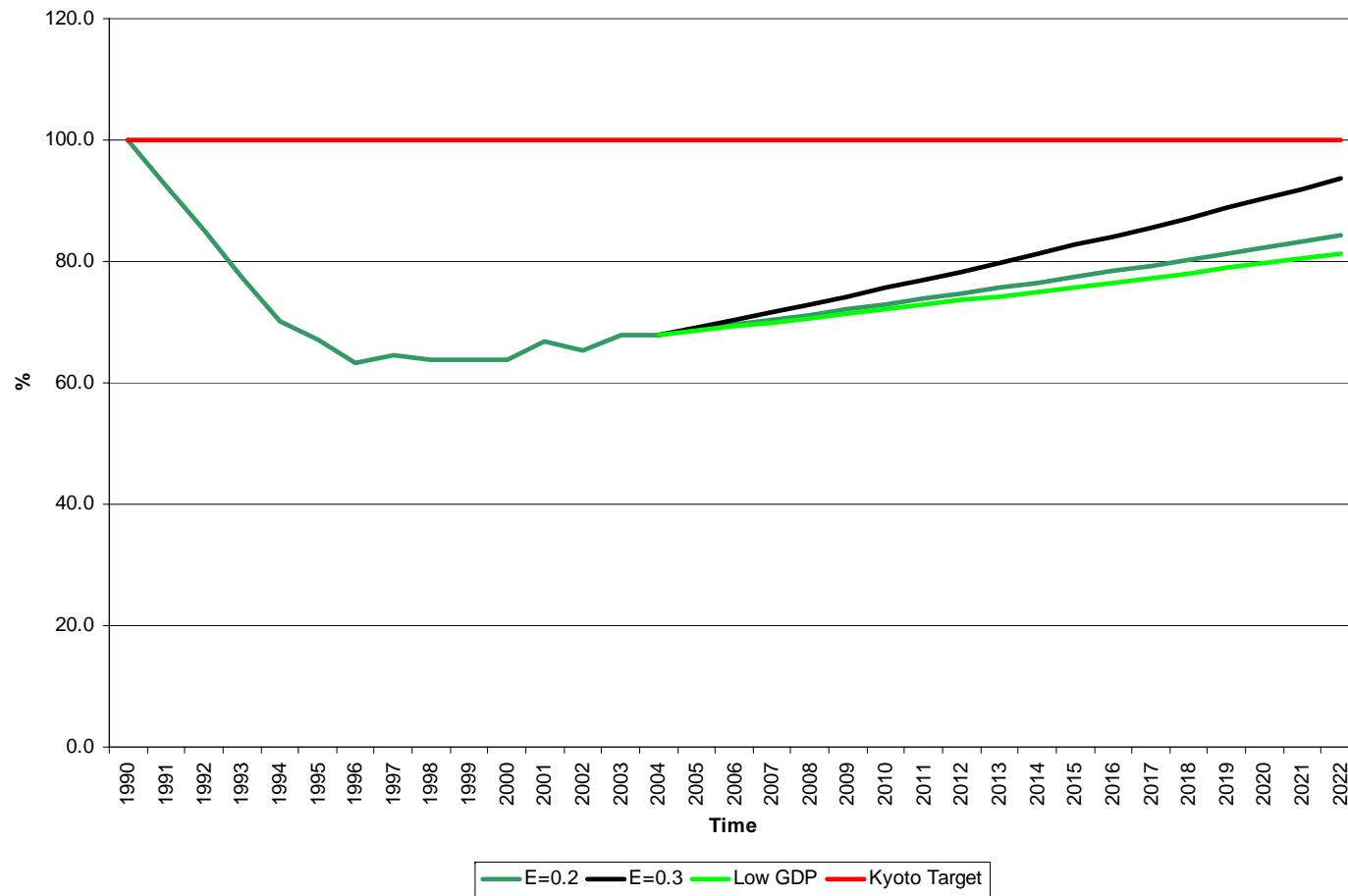
Driving forces for carbon emission

- There were no specific factors driving carbon emissions;
- CO2 intensity closely follows energy intensity; therefore a reduction potential should be in place and could be driven by incentives that specifically target carbon emissions;
- Structural changes in GDP driven by liberalization of international trade:
 - Cumulative FDI;
 - Cumulative import;

Factors determining GHG dynamics

	Past	Future
GDP growth	Decline	Increase
GDP structure	Decline	Decline
Fuel mix	Decline	Increase?
New technologies	Moderate decline	Decline – leading factor
Energy price elasticity	Moderate decline	Decline – important factor

Carbon dioxide emission as % of 1990 emission



Incentives

- Price response
 - Corresponding investments are needed
- Emission trading
 - Two \$10M JI projects are not enough
- Domestic GHG management
 - Not in place yet
- Domestic environmental policy
 - Weak since environmental protection committee was abolished in 2000.
- External incentives are needed to curb Russian GHG emission;
- Russia serves as a compliance reserve for the EU, Japan and Canada.

AAU Shortfall: Business-as-usual vs. Kyoto emissions target

	EU	Japan	Canada
AAU Shortfall (million metric tons CO ₂ -equivalent)	2000	1000	240
Source	European Environment Agency (2004)	Study by Professor Mitsutsune Yamaguchi (2003)	Climate Action Network Canada (2003)

Call option alternative to other instruments at carbon market

- Future demand is uncertain;
- Future price is unearned;
- Call option creates “safety net” for countries with potential shortfall;
- Call option creates incentives for Russia to reduce carbon emissions;
- Call option generates some revenue that could be used for collateral investments or to purchase bank guaranties etc.