Appendix 1

EMISSIONS SCENARIOS FROM THE RESPONSE STRATEGIES WORKING GROUP OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

The Steering Group of the Response Strategies Working Group (Working Group III) requested the USA and The Netherlands to develop emissions scenarios for evaluation by the IPCC Working Group I The scenarios cover the emissions of carbon dioxide (CO_2) methane (CH_4), nitrous oxide (N_2O), chlorofluorocarbons (CFCs), carbon monoxide (CO) and nitrogen oxides (NO_x) from present up to the year 2100 Growth of the economy and population was taken as common for all scenarios Population was assumed to approach 10 5 billion in the second half of the next century Economic growth was assumed to be 2-3% annually in the coming decade in the OECD countries and 3-5 % in the Eastern European and developing countries The economic growth levels were assumed to decrease thereafter In order to reach the required targets, levels of technological development and environmental controls were varied

In the **Business-as-Usual Scenario** (Scenario A) the energy supply is coal intensive and on the demand side only modest efficiency increases are achieved Carbon monoxide controls are modest, deforestation continues until the tropical forests are depleted and agricultural emissions of methane and nitrous oxide are uncontrolled For CFCs the Montreal Protocol is implemented albeit with only partial participation Note that the aggregation of national projections by IPCC Working Group III gives higher emissions (10-20%) of carbon dioxide and methane by 2025

In **Scenario B** the energy supply mix shifts towards lower carbon fuels, notably natural gas Large efficiency increases are achieved Carbon monoxide controls are stringent, deforestation is reversed and the Montreal Protocol implemented with full participation

In **Scenario C** a shift towards renewables and nuclear energy takes place in the second half of next century CFCs are now phased out and agricultural emissions limited

For **Scenario D** a shift to renewables and nuclear in the first half of the next century reduces the emissions of carbon dioxide initially more or less stabilizing emissions in the industrialized countries The scenario shows that stringent controls in industrialized countries combined with moderated growth of emissions in developing countries could stabilize atmospheric concentrations Carbon dioxide emissions are reduced to 50% of 1985 levels by the middle of the next century