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Engineering Research Laboratory
Research Triangle Park NC 27711

Research and Development

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Project Summary

User's Manual for the Personal Computer Version of the Process Model Projection Technique (Version 3.0)

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The Process Model Projection Technique (PROMPT) is one of four stationary source emission and control cost forecasting models developed by the EPA for the National Acid Precipitation Assessment Program (NAPAP). PROMPT projects air pollution emissions (sulfur dioxide, sulfates and nitrogen oxides) and costs for industrial combustion and industrial processes (i.e., process heaters, furnaces, dryers, kilns, engines, turbines and wood-fired boilers). PROMPT excludes the combustion of natural gas, distillate or residual fuel oil and coal in industrial boilers. The outputs are provided for 1980 (baseline), 1985 (forecasted, not actual), 1990,1995, 2000, 2010, 2020 and 2030.

This document is a user's manual for Version 3.0 of PROMPT. It includes procedures and options for model operation on an IBM-AT or compatible personal computer. The model's operation is menu driven and relatively easy to use.

This Project Summary was developed by EPA's Air and Energy Engineering Research Laboratory, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Purpose of PROMPT

The Process Model Projection Technique (PROMPT) has been developed by Energy and Environmental Analysis, Inc. for the U.S. Environmental Protection Agency (EPA) in cooperation with the National Acid Precipitation Assessment Program (NAPAP). By design, it is a simple, low cost model which will provide an initial assessment of the role and magnitude of industrial process emissions in the control of acid deposition SO_2, sulfate, and NO_x precursors.

PROMPT is designed to estimate future air emissions from industrial fuel combustion and industrial processes (i.e., process heaters, furnaces, dryers, kilns, engines, turbines and wood-fired boilers). PROMPT excludes the combustion of natural gas, distillate or residual fuel oil and coal in industrial boilers. PROMPT produces regional and state-level air emission projections (SO_2, primary sulfates, and NO_x) and incremental air pollution control costs. The outputs are provided for 1980 (baseline), 1985 (forecasted, not actual), 1990, 1995, 2000, 2010, 2020, and 2030.

Overview of User Options

PROMPT produces industrial air pollutant emissions forecasts from energy use projections generated by model runs of Version 2 of the Industrial Sector Technology Use Model (ISTUM-2).

PROMPT will operate on one of the four fuel demand scenarios specified by the model operator. Three alternative scenarios are based on 1985 test cases produced by Argonne National Labora-

tory for NAPAP. These three available cases are:

- NAPAP Low Fuel Price/Economic Growth Rate
- NAPAP 1985 Reference (Moderate) Fuel Price/Economic Growth Rate, and
- NAPAP 1985 High Fuel Price/ Economic Growth Rate.

The fourth case is based on the 1986 EEA middle oil price case and the NAPAP 1985 Low Economic Growth Rate scenario. The user may also edit these energy demand files.

The emissions and control cost module estimates controlled NO_x and SO_2 emissions and allows the user to select alternative air pollution control strategies. The user may edit the emission rates and/or pollution control costs.

PROMPT will determine a least-cost solution for compliance with a selected air pollution control strategy and compute the resulting emissions reduction and incremental costs. When specifying a control strategy, the user is asked to choose:

- The type of control strategy (which can differ for new and existing sources), and
- The year of implementation (which can also differ for new and existing sources)

The control strategy alternatives in PROMPT that can be applied to either NO_x or SO_2 emissions are:

- A flat emissions limit (all sources meet a specified limit in lb/10^6 Btu),
- A uniform percent reduction (each emission source has to reduce uncontrolled emissions by a specified percentage),
- A specified cost-effectiveness (all control technologies having a cost-effectiveness of control less than a given cost-effectiveness ratio, $/lb, are adopted), and
- An aggregate emissions reduction (total uncontrolled emissions are reduced by a specified amount per year or percentage, beginning with the most cost-effective, until the total reduction is reached).

PROMPT will forecast SO_2 and sulfate emissions or it will forecast NO_x emissions. It will not forecast emissions for all three pollutants in the same run. The NO_x emissions forecasts in PROMPT are not a function of sulfur emissions control strategies. Similarly, SO_2 and sulfate emissions forecasts in PROMPT are not a function of NO_x emissions control strategies.

Organization of the Report

This report presents: (1) Installation instructions to load PROMPT in a personal computer, (2) input and output tables, (3) user options, and (4) sample outputs.

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***Larry G. Jones** is the EPA Project Officer (see below)*
The complete report consists of paper copy and software, entitled, "User's Manual for the Personal Computer Version of the Process Model Projection Technique (Version 3.0),"
Paper Copy (Order No. PB 89-151 351/AS; Cost: $15.95)
Software (Order No. PB 89-151 344/AS; Cost: $65.00, price of software includes paper copy)
The above items will be available only from: (subject to change)
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: 703-487-4650
The EPA Project Officer can be contacted at:
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