

AIR POLLUTION

Detroit Blues

by our Washington Correspondent

AUTOMOBILE manufacturers last week wrung another concession out of the Environmental Protection Agency. But, to judge by the volume of complaints from Detroit, the EPA's concession fell well short of capitulation. Mr Robert Fri, acting EPA Administrator, announced that he has granted the manufacturers their request for an extra year to meet stringent limits on the amount of oxides of nitrogen in car exhausts, but he also set interim limits which the manufacturers insist are still too tough.

The decision parallels an earlier, controversial decision taken by Mr Ruckelshaus when he was administrator of EPA, to allow the manufacturers an extra year to meet emissions standards for hydrocarbons and carbon monoxide (see *Nature*, 242, 491; 1973). The Clean Air Act specifies that all 1976 model cars sold in the US must emit no more than 0.4 g of oxides of nitrogen per mile—about 90 per cent less than 1971 models—but it also allows the EPA Administrator to delay imposing the standards by a year if he finds that it cannot be met on time. That, essentially, is what Mr Fri decided last week, but he also imposed a limit of 2 g per mile, a limit which the agency maintains can be achieved by recirculating some of the exhaust gases through the combustion chamber.

Last week's action was widely expected, and it did not stir up the controversy that Mr Ruckelshaus's earlier decision created, chiefly because few people expect the 0.4 g limit will ever be imposed. The EPA recently released a set of figures to show that the monitoring data which led to the limit being set are incorrect—in 1970, when the Clean Air Act was passed, some 47 urban areas were reckoned to have potentially hazardous levels of nitrogen oxides in their air, but only two cities are now accorded that dubious distinction. Accordingly, the EPA will soon recommend that Congress should amend the act to relax the standard.

One incentive for relaxing the standard is that the motor manufacturers are intending to meet it by installing a second catalyst to car exhausts. The dual catalyst system would carry a large fuel penalty, which is not a good asset with talk of the energy crisis rampant.

It is not yet clear what action Congress will take, but it is likely that a final limit close to the 2 g interim standard set by Mr Fri will emerge. Why is Detroit not happy with it? According to industry spokesmen, one problem they have is that engine conditions desirable for reducing hydrocarbon and

carbon monoxide emissions tend to maximize production of oxides of nitrogen, and so they are not certain that they can meet all the standards at the same time. But it should be remembered that when Mr Ruckelshaus set tough interim standards of hydrocarbons and carbon monoxide, the motor industry chorused that they were impossibly tough, but later decided that they would probably be attainable after all.

ENERGY

Canada's Policy

from a Correspondent

DURING June, the Hon. Donald S. Macdonald, Minister of Energy, Mines and Resources, tabled in the Canadian House of Commons a document entitled *An Energy Policy for Canada*. The government now hopes that the stage is set for a debate on an overall energy policy rather than a consideration of a number of fuel policies as was the case in the past.

Canada is in a unique position among the industrialized nations because its own resources are sufficient to meet current and projected needs. It is thus quite feasible to defer some of the resource development to serve the needs of future generations. There are, however, at least three pressures against this alternative. The first is the desire to increase the cash flow and thus to derive greater economic benefits for the present generation of Canadians. The second is geopolitical. Canada, if it chose this alternative, would be the first non-OPEC country to propose to leave its wealth in the ground. Although Canada now supplies about 22% of USA imports of energy, the rising demands of USA economy would have to be met by oil imports from North Africa and the Middle East, and Canada's relative importance would decrease. Third, there is a real fear that if Canada's oil is not sold now, future energy shortages will force development of alternate supplies (nuclear, solar, geothermal, for example) of energy, and the markets for northern oil will vanish. Irrational as this fear must be, it is based on a still fresh memory of the 1950s when Alberta oil could not be given away which led to the 1961 Energy Policy which prohibited cheap foreign crude oil being imported through eastern ports thus forcing industrialized Ontario to use Alberta oil and gas.

Recognizing the complexity of interlocking constraints, the energy studies document puts a strong emphasis on the requirement for a solid science base. "Priority considerations refer to what is generally defined as research and development. A major priority outside the limits of this specific activity is the im-

provement of our basic knowledge of the extent, accessibility and quality of the resource base. If this basic information is inaccurate or incomplete, all of our planning and policy development is of dubious value."

The document even goes as far as to give a list of priorities for different scientific activities—which is more than a majority of recent science policy studies were prepared to do. The present research effort appears to be lopsided. A preliminary review of federal research and development expenditure on energy in 1971 showed that 71% went into nuclear energy research, while only 11% was spent on oil and gas. As there is no national (state) petroleum company little petroleum research is done in Canada. The report argues at some length that the establishment of a fully integrated National Petroleum Company would automatically improve matters.

In view of the large predicted reserves of oil in Athabasca tar sands (almost twice as much as the total of all other predicted ultimate recoverable reserves of oil and gas in Canada) research on exploitation of this resource is highlighted as the top priority. The extraction at present is only slightly larger than a pilot plant operation and only 0.1% of Federal research and development funds were spent on this in 1971.

The second research priority is to do with techniques and equipment for exploration, production and transportation of hydrocarbons in the Arctic and offshore regions of the continental shelves.

The third priority is the energy resource inventory appraisal. The results of these investigations, however, are critically dependent both on methodology and initial assumptions. Appraisal is further complicated by the fact that inputs from geology, production engineering and market economics must be blended before meaningful estimates can be made.

In the long run the report recognizes the importance of nuclear energy and is reasonably satisfied with the successful design of the CANDU reactor which does not require enriched uranium, but needs heavy water.

The report, however, is conventional and old fashioned in outlook. With its emphasis on growth and continuing expansion of demand, it conveys an impression that the majority of studies were undertaken in the early 1960s, before all the debates generated by Limits to Growth.

At the same time, enough alternative options are raised to give all interested groups an opportunity to voice their opinions and objections. It is to be hoped that it is not just a naive wish that the due regard for the democratic process will give Canadians an energy policy of their choice.