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STUDY BY THE STAFF OF THE U.S

# General Accounting Office

## Northeastern Energy And Transportation Problems: A Regional Perspective

This study compares energy and transportation problems of Northeastern States with nationwide or regional statistics and studies Energy and transportation were selected because Federal Government policy and financing plays a leading role in these matters

The five problems most often mentioned by State officials in the Northeast were highway deterioration, high and rising mass transit operating deficits, financial and physical deterioration of freight railroads, increasing cost of energy relative to cost in other regions, and vulnerability to energy supply disruptions These problems are complicated by factors such as the age of the region's public resources and the shrinking tax base of its cities

There are many ways to alleviate regional concerns This study discusses some of them



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## PREFACE

Energy and transportation are areas where Federal Government policy and financing play leading roles. The major problems in energy and transportation in the Northeastern States are similar to and different from those in other parts of the Nation, and this study discusses why and to what extent. The concerns noted most frequently by officials in Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania are:

- deterioration of highways,
- high and rising mass transit operating deficits,
- financial and physical deterioration of freight railroads,
- high cost of energy relative to other regions, and
- vulnerability to disruptions in energy supplies.

Each chapter concludes by presenting several options which, if implemented, would help to mitigate Northeastern officials' concerns. The reader should keep in mind that these options are starting points for policy discussions. The options are intended to suggest different approaches rather than comprehensive solutions.

Although the Northeastern States might try to resolve their own problems, the Federal Government can also evaluate its energy and transportation policies as they relate to the Northeast and other regional needs. Recent events such as the Three Mile Island incident, oil price increases, and energy allocation problems further amplify the need to resolve Northeastern officials' concerns.

Various groups have advocated using regional impact statements to evaluate the long- and short-term regional effects resulting from proposed or changed Federal programs or policies. The use of such statements could become important over time, for if the Northeast's situation is typical of a maturing economy, other regions may benefit from their experience.

We appreciate the cooperation of officials from the Northeastern States, the Departments of Energy and Transportation, and the United States Railway Association. Their assistance was most helpful.

A handwritten signature in black ink, appearing to read "H. S. Havens". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Harry S. Havens  
Director  
Program Analysis Division

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#### ABBREVIATIONS

CONEG	Coalition of Northeastern Governors
Conrail	Consolidated Rail Corporation
DOE	Department of Energy
DOT	Department of Transportation
ENCONO	Energy Corporation of the Northeast
FHWA	Federal Highway Administration
GAO	General Accounting Office
ICC	Interstate Commerce Commission
UMTA	Urban Mass Transportation Administration
USRA	United States Railway Association
3R Act	Regional Rail Reorganization Act
4R Act	Rail Revitalization and Regulatory Reform Act

## CHAPTER 1

### INTRODUCTION

Since the mid-1970s, many problems and issues faced by State and local governments have been discussed in terms of their regional scope or implications. Much of this discussion has focused on the relative decline of the Northeast 1/ region compared to the growth in Southern and Southwestern States. Many articles address the extent to which Federal development funds and total Federal spending have fostered regional "growth imbalances." Some maintain Federal spending patterns have greatly disadvantaged the Northeast, 2/ while others note Federal spending cannot necessarily influence geographic patterns of economic growth. 3/

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1/The term "Northeast" refers to the New England and Middle Atlantic census regions, which encompass nine States. Maine, Vermont, New Hampshire, Rhode Island, Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania. In preparing this report, we interviewed officials from the last five States listed. See map of all census regions on page 4.

2/"Special Report: The Second War Between the States," Business Week, May 17, 1976, pp. 92-114.

Joel Havemann, Neal R. Pierce, and Rochelle L. Stanfield, "Federal Spending: The North's Loss is the Sunbelt's Gain," National Journal, Vol. 8, No. 26, June 26, 1976, pp. 878-91.

Havemann and Stanfield, "A Year Later, the Frostbelt Strikes Back," National Journal, Vol. 9, No. 27, July 2, 1977, pp. 1028-37.

3/U.S. General Accounting Office, "Changing Patterns of Federal Aid to State and Local Governments 1969-75," PAD-78-15, Dec. 20, 1977.

Congressional Research Service of the U.S. Library of Congress, Patterns of Regional Change, the Changes, the Federal Role, and the Federal Response, October 1977.

Jusenius and Ledebur, "A Myth in the Making. Economic Challenge and Northern Economic Decline," Economic Development Administration, U.S. Department of Commerce, November 1976.

Growing and declining areas both experience fiscal problems. Rapidly growing areas generally lack "front-end" monies needed to build roads, schools, sewer systems, and other capital projects. Declining areas simultaneously face decreased tax bases and increased demand for human/social services. Their generally older infrastructure requires maintenance which they may not be able to afford, leading to deterioration and decay.

These problems are not unique to large urban centers. Small towns and rural areas have had to deal with rapid growth fostered by energy resource development. Single-industry towns have had to face large amounts of unemployment when the industry closed or relocated. While growth issues are generally seen as Southern and Western concerns and decline issues as Northeastern or Midwestern problems, there are declining areas in the South and growing areas in the North.

Numerous groups have been formed to address problems and issues from a regional perspective. The Northeast-Midwest Economic Advancement Coalition, consisting of about 200 Members of Congress, represents these economically mature 1/regions' interests. The House of Representatives New England Congressional Caucus, with its Economic Research Office, concentrates on energy and transportation issues and others common to the six States. The Coalition of Northeastern Governors (CONEG) was formed in 1976 to address Northeastern problems and what the Governors judged to be regional inequities in Federal spending. CONEG is staffed by its Policy Research Center. The Steering Committee of Northeastern Legislative Leaders and the Domestic Outlays Working Group are two additional State-oriented groups which explore how State and Federal Governments, respectively, can better address the Northeast's economic problems.

The Western Governor's Conference has been actively working to develop regional energy policies. In 1975, it formed and staffed a Western Governors' Regional Energy Policy Office. In December 1976, this office was combined with other Western groups to form an Energy Resources Policy Office. The Governors have also issued policy statements on water, natural resources, human resources, energy, and agriculture.

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1/An "economically mature" region is one whose economic base and infrastructure are fully developed and declining and whose central cities and older suburbs have a declining middle- and upper-income population.



Since 1971, the Southern Growth Policies Board has provided research and information services designed to help its member States understand regional growth trends and develop appropriate growth policies for the future.

Forty-three States are served by Regional Development Commissions, formed under Title V of the 1965 Public Works and Economic Development Act (42 U.S.C. 3214). Proposals to establish development regions involving the remaining States and State areas have been completed or are under consideration. These Commissions were actively involved in accumulating States' recommendations on growth for the 1978 White House Conference on Balanced National Growth and Economic Development. The Conference addressed the issues of regional change, decline, conflict, and Federal policy responses. 1/

#### FOCUS OF REPORT

Given recent attention to the relative decline of the Northeastern economy, 2/ we undertook this review to compare selected problems presented by Northeastern State officials with nationwide or regional studies/statistics prepared by various governmental units or private organizations. By systematically comparing the data, this report presents information on the extent to which some Northeastern problems are unique to the region.

Energy and transportation problems were selected because reasonably priced and secure energy supplies and an adequate transportation network are essential ingredients for a region's economic health. Also, the Federal Government plays a leading public sector policy and funding role in these areas. In addition, a RAND study 3/ concluded that transportation and energy price regulations are two major Federal policies that

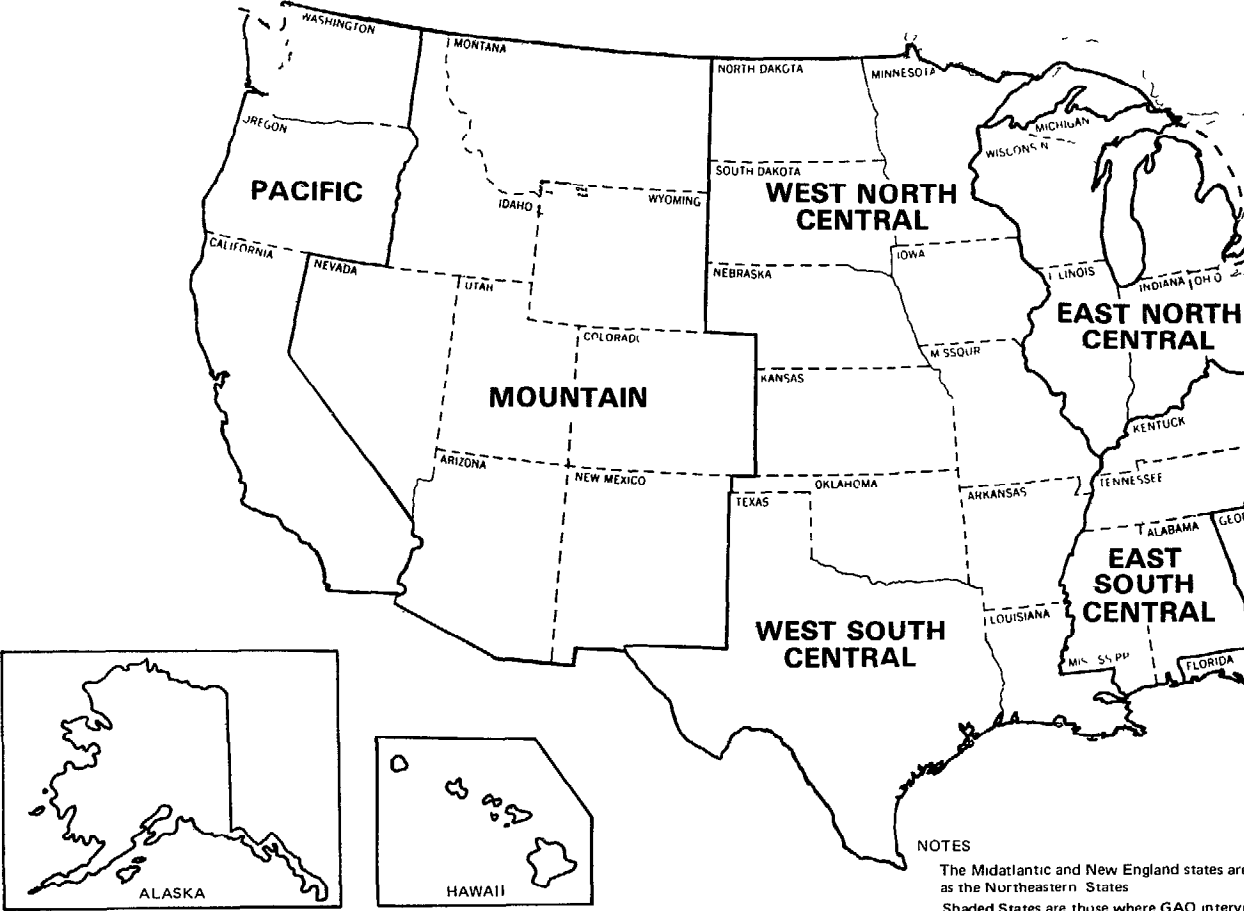
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1/Conference activities are presented in a two-volume "Summary of Conference Proceedings," available from the Superintendent of Documents, Wash., D. C., 20402. Stock Number 052-003-00542-5.

2/See particularly the Academy for Contemporary Problems, Revitalizing the Northeastern Economy, November 1977.

3/Vaughan, Roger J., The Urban Impacts of Federal Policies Vol. 2, Economic Development, June 1977, prepared at RAND Corporation under a grant from the Charles F. Kettering foundation.

# REGIONS OF THE UNITED STATES



SOURCE: Bureau of the Census

have exerted regional biases in the past and can now be used to assist in the Northeast's economic recovery. Because environmental issues are closely related to those in energy and transportation, State officials were also asked to comment on them when they related to energy or transportation problems.

While the State officials surveyed identified numerous transportation and energy issues and problems, five problems were selected for in-depth analysis because they were common to all States surveyed. Although their severity fluctuated among States, State officials were consistently concerned over their resolution.

Transportation problems are discussed in chapters 2, 3, and 4 and energy problems in chapter 5. The five common problems identified are:

1. deterioration of highways,
2. high and rising mass transit operating deficits,
3. financial and physical deterioration of freight railroads,
4. high cost of energy relative to other regions, and
5. vulnerability to disruptions in energy supplies.

For each of these problems, the report presents the following information and analysis:

1. The States' perceptions of the severity and consequences of problems, and Federal, regional, and private sector viewpoints;
2. The extent of regional components of the problem;
3. Factors contributing to the problem, including Federal and State policies;
4. State policies, illustrating their efforts and priorities in resolving their own problems;
5. The role past and recent Federal policy has played regarding national and regional energy and transportation problems; and
6. Possible Federal options for resolving the Northeast's energy and transportation problems.

The options presented are a starting point and are not comprehensive. Obviously, any option would involve tradeoffs among such varying factors as land use, cost to consumers, environmental goals, and energy availability.

Although States and regions might pursue many actions to resolve their own problems, the Federal Government may want to evaluate its energy and transportation policies to determine whether it is flexible enough to help the Northeast, and other regions, meet their needs.

#### SCOPE

Northeastern energy and transportation information was accumulated by interviewing State and regional officials and examining numerous reports produced by the region's governments, universities, and consulting/research firms. Interviews with State officials were conducted in spring 1977. Comparative national data, used to verify State perceptions of the problems and examine regional differences, was largely obtained from reports and statistics of the Departments of Energy and Transportation. Additional regional and national data was obtained from reports prepared by the Congressional Research Service of the Library of Congress, the Office of Technology Assessment, and the Congressional Budget Office. We also obtained comments from the Departments of Energy and Transportation and the United States Railway Association on a draft of this report.

Information on State policies was obtained by interviewing State officials and by examining their budgets and many of their energy and transportation reports.

Information on Federal policies pertaining to State-identified problems was acquired by interviewing Federal agency officials and reviewing pertinent public laws and regulations. The ideas for problem resolution options were collected through interviews and by researching numerous Federal, State, regional, and privately-produced publications.

## CHAPTER 2

### HIGHWAY DETERIORATION

#### EXTENT OF NORTHEASTERN DETERIORATION

Deteriorating highways have become a growing topic of national concern. At the same time, some interest groups and articles have maintained that Northeastern roads are more deteriorated than those in other sections of the country due to their age and the snowy climate.

Northeastern officials interviewed said they were concerned with the deteriorating condition of many of their roads, but the amount of concern varied. New York, Pennsylvania, and New Jersey officials said deteriorating highways were a serious problem, while Massachusetts and Connecticut officials recognized the problem but were more concerned with bridge maintenance problems or railroad issues. Statistics developed by the New York State Department of Transportation indicated that an additional 1,000 miles of highways needing maintenance will be created over the next 5 years, given current maintenance budget proposals. A State-commissioned task force report to the Pennsylvania Secretary of Transportation estimated maintenance needs. It noted that deterioration is so rampant, the State may lose large parts of its highway investment.

#### REGIONAL AND NATIONAL ASPECTS OF DETERIORATION

Northeastern roads may not be as deteriorated as those in other parts of the country. However, this may be because the States spend a great deal more for maintenance and traffic expenditures than States in other regions.

Federal Highway Administration (FHWA) data provides some additional insight. In 1975, FHWA collected data, by functional classification, <sup>1/</sup> from 46 States on physical and operating conditions of some of their roads. Although States rated their roads in the same format (very poor to very good),

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<sup>1/</sup>Functional classification refers to type of roads--arterials (long distance travel, high speed, and volume), local roads, and collectors (which funnel traffic from local roads to arterials).

State methods for gathering the information on which to base this rating varied widely. For example, some used visual estimates and others used mechanical devices to evaluate pavement conditions. Thus, State data is not directly comparable. Nonetheless, it is unlikely the varying levels of deterioration among States and regions exist solely because of differences in measurement methods. Since it is the only nationally gathered data, it is discussed here. (See pp. 8-12 for discussion of other factors which influence road conditions.)

FHWA data showed that roads in all regions are deteriorated, but the level of deterioration varied (1) among regions, (2) among States within the regions, and (3) by type of road. According to this data, roads in the Mountain and East South Central regions were the most deteriorated, and those in the South Atlantic and Middle Atlantic are in the best condition. <sup>1/</sup> New England's level of deterioration was only slightly higher than the national average. Nearly equal percentages of Northeastern urban and rural roads were deteriorated. In other regions there were wider variations with no obvious explanation for the differences. In all regions, more rural than urban road miles were deteriorated, simply because there are more rural road miles.

While the above information may appear to indicate highway deterioration is a national problem which is less severe in the Northeast, other important factors need be considered. These have to do with the level of effort and expenditures applied to maintain Northeastern roads.

#### FACTORS CONTRIBUTING TO HIGHWAY DETERIORATION

##### State spending

A comparison of 1975 maintenance and traffic expenditure data (as submitted to FHWA) and State-administered road miles indicated that, on the average, States in the Middle Atlantic region spent from 28 percent to 371 percent more than States in other regions. New England's spending was exceeded only

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<sup>1/</sup>It should be noted that New York and Massachusetts data was from 1970; 1975 data was not submitted by these States. Other information indicates their roads may now be more deteriorated.

by the Pacific region's. Because States may include different expenses in the data they submit to FHWA, this information is not directly comparable. However, it does show trends in State spending.

Lacking first-hand information of nationwide maintenance practices, we cannot say absolutely that Northeastern States' spending is higher because they perform more maintenance than other States. Climate, age, and usage factors do, however, make this a plausible assumption.

#### Climate, age, and usage

The Coalition of Northeastern Governors believes the Northeast's older roads require more intensive maintenance than roads in other regions. It is apparent that snowy climate States do incur expenditures which warmer climate States do not. For example, Pennsylvania annually spends 25 percent of State gas tax revenues on snow removal and sanding (\$45 to \$50 million). A State which received little or no snow obviously would not have as large an expense. In addition, cold climate jurisdictions may have to apply a temporary patch to a pothole as many as 15 times during the winter season before applying a permanent patch in the spring. A permanent patch only lasts if applied to a dry street in warm weather. A warm climate State would probably have to patch a pothole only once. <sup>1/</sup> The Department of Transportation (DOT) noted that studded snow tires also contribute to increased highway expenditures in the Northeast. Several State officials with whom we spoke indicated their States had banned or were considering banning them.

A factor which may pertain more to the Northeast's roads is usage. While we did not review any figures correlating usage with maintenance needs and expenditures, it is safe to assume a road which carries more tonnage requires a greater level of maintenance. The Northeast has fewer road miles than regions which are geographically larger. However, roads in the Northeast are the Nation's most traveled--5 times more than those in the West North Central region and 4.4 times more than those in the Mountain region. New Jersey's roads are traveled more than all other States' roads, and New Jersey spends the most per road mile to maintain its roads.

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<sup>1/</sup>Based on information gathered by Public Technology, Inc., a local government public interest group which researches and funds research on highway deterioration.

In general, greater usage and larger gas tax revenues offset each other. States with the highest usage per mile have the largest amounts of gas tax revenues per mile of State-administered highway.

A maintenance-related usage problem faced by all States pertains to increasing weight limits allowed for trucks traveling on interstate highways. 1/ The 1974 Federal Aid Highway Amendments 2/ raised the legal gross weight limit from 73,280 to 80,000 pounds; however, Connecticut and Pennsylvania are 2 of the 10 States which have not yet implemented this provision. It should be noted that while gross weight limits may be lower, gross weight tends to cause more bridge deterioration. Axle weight affects road deterioration more, and most Northeastern States permit the highest axle weights allowed on their roads.

While at least one study 3/ maintains that uniform higher weight limits enhance trucker-operating efficiencies and that lowered costs could be passed on to consumers, some States see higher weight limits as increasing maintenance requirements. Studies in Oregon and Virginia indicate heavy trucks should pay a larger percentage of State motor vehicle user taxes, with the additional revenues used for maintenance.

Since trucks carry a larger percentage of freight shipped in the Northeast than in other regions, damage from trucks may be more extensive in this region. While the extent of damage to Appalachian roads from trucks hauling coal has been documented, 4/ we found no studies which generally compared truck traffic, by region, to maintenance needs.

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1/For additional information, see our report "Excessive Truck Weight: An Expensive Burden We Can No Longer Support," CED-79-94, July 16, 1979.

2/Public Law 93-643, Jan. 4, 1975, 88 Stat. 2281.

3/National Energy Transportation, Volume III - Issues and Problems, prepared by the Congressional Research Service for the Senate Committees on Energy and National Resources and Commerce, Science and Transportation, Publication No. 95-15, March 1978, pp. 11-21.

4/"An Assessment of the Effects of Coal Movement on the Highways in the Appalachian Region," prepared by the Appalachian Regional Commission, November 1977, pp. 7-44.



### Decreased spending and purchasing power

Although State officials interviewed thought their roads were deteriorating, maintenance spending in the five States was reduced or decreased in purchasing power between 1972 and 1975. New York's and Massachusetts' maintenance and traffic expenditures per mile of State-administered road decreased 8 percent, while those in Connecticut, New Jersey, and Pennsylvania increased 5, 15, and 18 percent, respectively. The rate of inflation during the same period was 27.2 percent. The average expenditure increase per road mile (not adjusted for inflation) was 8 percent in New England and 7 percent in the Middle Atlantic region. It ranged from 21 to 62 percent in other regions. However, the average per mile expenditure in the other regions was quite a bit lower than in the New England and Middle Atlantic regions in 1972. Thus, even with higher percentages of per mile expenditure increases in 1975, only the Pacific region's average spending per road mile was similar to the Northeast's, and its spending was lower.

Maintenance costs such as labor, equipment, and materials have increased substantially. For example, the price of asphalt has more than doubled in most regions. Pennsylvania Department of Transportation data shows some material costs tripled and quadrupled between 1973 and 1976. Given that a recent DOT report said roads in fair condition deteriorate faster than those in good condition, it is possible that reduced maintenance efforts will accelerate deterioration.

### Reasons for lowered spending or slower spending increases

Lowered spending or slow spending increases were caused in part by voter and State legislature rejection of revenue raising proposals and gas tax revenue decreases following the initial drop in gasoline consumption during the 1973 to 1974 oil crisis. (Tax revenues increase when gasoline usage increases, but these revenues have not kept pace with inflation.) In addition, some officials noted that transportation needs must compete with other State budget priorities and do not always win. Pennsylvania is unable to increase maintenance funding, due to legal limitations. In 1977, maintenance could be funded only from the State's Motor License Fund and only after payments for debt service, State police, and some Department

of Revenue activities. Therefore, as debt service payments continue to increase, maintenance funds will decrease. 1/

New York and Massachusetts officials also noted their States' reluctance to fund projects for which the Federal Government provides no matching funds. New York, wanting to fund projects which would stimulate the States' economy, consciously chose to spend most of its highway dollars to obtain Federal construction dollars.

### FEDERAL HIGHWAY POLICY

The Federal Government funds between 70 and 90 percent of highway construction projects and provides no funds for maintenance. In accepting Federal construction funds, States agree to provide necessary maintenance. 2/ They also agree not to place tolls on roads built with Federal funds.

The Federal-Aid Highway Act of 1976 (P.L. 94-280, May 5, 1976, 90 Stat. 25) changed the definition of construction to include some activities formerly defined as maintenance--resurfacing, restoration, and rehabilitation (the 3Rs). The fact that some Federal funds must be used exclusively for 3R use on the interstate system probably explains why 16 percent of Federal interstate funds were spent on 3R work in 1977, as opposed to 1 percent in 1970 when no Federal funds had to be spent specifically on this work.

Unreimbursable maintenance generally includes those activities undertaken to keep a road operational, such as patching potholes, repairing cracks, or caring for the shoulders and roadsides. This is still State and local governments' financial responsibility.

Thus, the intent of Federal policy has clearly been to construct roads, leaving maintenance responsibilities to State and local governments. Some would argue this discourages States from spending funds on maintenance. Federal policy-makers are aware of increasing road maintenance requirements.

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1/In 1978, the Pennsylvania legislature enacted a law requiring that new construction be funded from current revenues. This should prevent debt service payments from rising rapidly.

2/23 U.S.C. 116.

In a 1977 report to the Congress 1/ the Secretary of Transportation said within the next 6 to 10 years, increased pavement deterioration could conceivably require a significant shift from new construction to maintenance.

An earlier GAO report 2/ noted that the Nation's highways are deteriorating and recommended that FHWA encourage states to use Federal funds for highway 3R projects. It also recommended that FHWA develop highway maintenance standards and guides and criteria for engineers to use in appraising maintenance activities. 3/

Interestingly, while the 1976 legislation redefined some activities formerly considered maintenance as construction (thus making them eligible for Federal matching funds), it may provide a further disincentive for State funding of maintenance. If a State foregoes "routine" maintenance and allows a road to deteriorate to the point at which it requires 3R work, it qualifies for Federal funds. 4/ The Surface Transportation Assistance Act of 1978 (Public Law 95-599, 92 Stat. 2689) required that 20 percent or more of Federal aid funds apportioned for the primary and secondary systems be used for 3R work.

The 1978 act also authorized \$53.8 billion for transportation for fiscal years 1979 to 1982. The highway program

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1/"The Status of the Nation's Highways: Conditions & Performance - Report to the U.S. Congress," September 1977. Printed for the use of the House Committee on Public Works and Transportation (95-29), pp. 1-80.

2/"Improving and Maintaining Federal-Aid Roads - Department of Transportation Action Needed," CED-77-31, Feb. 2, 1977.

3/Section 116(b) of the Surface Transportation Assistance Act of 1978 requires that the Secretary of Transportation issue guidelines by Oct. 1, 1979, to ensure that the interstate system is maintained at the level required to achieve the purposes for which it was designed.

4/DOT commented that this situation is not indicated by State and local disbursements for traffic service. Between 1976 and 1978, they rose from \$7,735 to \$9,579 million. It should be noted that this \$1,844 million increase was not adjusted for inflation or other rising costs.

which received the most new money was the bridge replacement program. Funds will jump from \$180 to \$900 million in the first year, and peak at \$1.3 billion in the third year.

### Distribution of Federal highway funds

Some Northeastern policymakers maintain that distribution of Federal highway spending has disadvantaged their region. A RAND study <sup>1/</sup> maintains that the Highway Trust Fund, with its ability to raise revenues from a variety of sources and redistribute resources among regions, may have played a larger role in shaping regional growth patterns than any other Federal policy or program. It noted that for each dollar States paid into the Trust Fund between 1957 and 1972, Idaho received \$1.83 in apportionments; Louisiana, \$1.21; Montana, \$2.44; Nevada, \$1.98; New Mexico, \$1.52; and Wyoming, \$2.71. In contrast Massachusetts and Michigan received 77 cents per dollar contributed; New Jersey, 66 cents; New York, 80 cents; and Pennsylvania, 79 cents. Recent apportionments have been more evenly distributed.

These apportionment disparities were not intended to disadvantage the Northeast but occurred because most road building took place in regions which did not have an extensively developed network as the Northeast.

### POSSIBLE OPTIONS TO INCREASE FUNDS AVAILABLE TO MAINTAIN ROADS

Federal policymakers are considering the future direction and thrust of highway policy. As the federally aided interstate system nears completion, policymakers will have to determine whether the Federal role should include continued, but lessened, funding of construction or if it should evolve into more of a maintenance funding role. However, the interstate system is not scheduled for completion until the 1990s, and the Surface Transportation Act of 1978 (Public Law 95-599) extended the taxes which feed into the Highway Trust Fund until 1984. Nonetheless, the Congress may face proposals to use some fund revenues for highway maintenance.

Those who oppose Federal maintenance funding believe it should remain a State and local responsibility. They note that States now receive nearly all of the 4 cents per gallon Federal gasoline tax and could use additional State revenue-raising mechanisms to fund activities. They also maintain

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<sup>1/</sup>Vaughan, Roger J., op. cit., pp. viii, ix, 109-117.

Federal funding could promote increased operating costs if employees base wage increase demands on the availability of Federal maintenance funds.

Those who favor increased Federal maintenance funding believe the initial reasons for Federal highway involvement (commerce and national defense) still exist. They also maintain that since the Federal Government has invested nearly \$100 billion in the Nation's highways, it should protect its investment. Without assessing who should pay for maintenance, the Secretary of Transportation recently projected that increased pavement deterioration will require significant expenditure shifts from construction to maintenance in the next 6 to 10 years. 1/

Whoever pays the maintenance bill must recognize that improving roads would entail a level of investment unlikely to be achieved, since public revenues are in demand for other priority programs. Recognizing this, the FHWA highway needs assessments are now assessing pavement conditions rather than funds needed to bring roads to specific standards. It is becoming more apparent, however, that State and local revenues will not be sufficient to keep roads in or near optimal conditions. States obviously benefit from Federal funds and recent construction has probably been more extensive than it would have been without Federal funds.

Numerous options exist for providing funds to States for maintenance. Some involve direct Federal funding and others pertain to changes in present funding categories or regulations. Some funding options assume continuing the Highway Trust Fund in its present form; one option could be pursued only if the Fund's structure were changed. Aspects of these options could be combined with one another or others not discussed here.

#### Option 1 - Block grant

A block grant which combined most highway construction and maintenance programs would allow States to spend funds on those priorities which they consider most important. Should the block grant format entail fewer regulations and reporting requirements, it could also lower administrative costs. If, however, the Federal Government's purpose in providing most highway funds has been to alter State priorities, this degree of Federal control would be limited.

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1/House Committee on Public Works and Transportation, op. cit., p. 9.

Federal goals could still be inserted somewhat, for example, through different funding levels for different types of roads or introduction of maintenance standards.

#### Option 2 - Categorical grant

A categorical grant would provide funds for critical maintenance needs, while leaving more oversight with the Federal Government. It could entail more administrative costs than would ensue if maintenance were funded, with construction, through a block grant.

#### Option 3 - Federal repayment of State debt service

Since most Southern and Western roads were built with Federal funds, this option would largely benefit the Northeast and Midwest. In theory, if States were relieved of debt service burdens, they would have more funds for maintenance.

While Southern and Western States may allege inequitable treatment, many of them have benefited from past Highway Trust Fund expenditures at the expense of Middle Atlantic and some Mid-Western States.

The question remains, should the Federal Government retroactively pay for something which would have been built anyway? While there is no easy answer, the repayment would provide an incentive, rather than a penalty, for State initiative.

#### Option 4 - Elimination of toll road restrictions

An intention of Federal highway construction has been to ensure development of a tax, rather than toll, supported system. Tolls are generally thought to be a regressive funding device, although an across-the-board gasoline tax (source of much nontoll road funding) is as much a direct user tax as tolls, and thus as regressive.

Tolls have proven to be an effective revenue-raising device. As noted earlier, a Pennsylvania official said the State plans to expand toll revenue usage for nontoll road maintenance when the Pennsylvania Turnpike debt service is paid. Thus, it is possible tolls could fully fund maintenance on toll roads and perhaps others as well.

Some believe toll collection helps relieve air pollution. For example, in New York City, the U.S. Environmental Protection Agency ordered the city to collect tolls on the East and Harlem River bridges. It believes that this would reduce usage and, thus, improve air quality.

While tolls may have nonrevenue raising benefits, they may have some disadvantages. Toll collection can increase congestion and, thus, air pollution by creating backups at toll booths. In addition, policymakers must consider the cost of constructing and administering toll collection facilities.

Toll road proponents believe toll financing would be an effective complement to tax financing, one which will become more necessary as tax shortfalls increase. A complete cost/effectiveness analysis would provide the necessary information to consider toll financing as a maintenance funding alternative.

#### Option 5 - Incorporation of cost, usage, and productivity variables

It may seem that regions which pay more to maintain roads or whose roads are used more should receive larger allocations of maintenance funds. However, this concept requires close scrutiny. Usage is fairly easily measured but is, as noted, somewhat offset by fuel tax revenue.

Cost component data has not been routinely gathered. Thus, it is unclear whether higher expenditures in some regions reflect higher costs of doing business or operating inefficiencies. In addition, if costs were measured and grant formulas somehow accounted for them, the grants would have to include productivity goals of some sort. Without them, the grants would simply reinforce inefficient operations. Also, since labor costs are a large percent of maintenance costs, a policy incorporating cost factors would have to be structured to avoid becoming the primary reason for negotiated wage increases.

#### Option 6 - Return of Federal gasoline tax revenue to States

This option would require altering the present Highway Trust Fund structure. The Federal Government would retain a part of the revenues to fund construction while returning a portion to the States for maintenance. Advocates disagree

on how funds could be apportioned. Factors to consider include: a State's estimated contribution to the Fund; its maintenance needs; cost, usage, and productivity factors; or a combination of the above.

Such a distribution would increase expenditures available for maintenance. To lessen administrative costs, distribution could be handled as a form of revenue sharing. Federal control could be maintained somewhat through, for example, minimal reporting requirements or maintenance standards.

#### Option 7 - Raising Federal or State diesel fuel tax

Some States have considered raising their tax on diesel (truck) fuel and earmarking this revenue for highway maintenance. Proponents maintain that trucks, which weigh more than cars, can cause more damage to roads and should pay more than they do toward road maintenance. Opponents note that truckers now pay more highway user taxes than cars, and increased shipping costs would raise prices to consumers of goods shipped by truck.

#### Option 8 - Tying receipt of Federal construction funds to availability of State maintenance funds

In its comments on a draft of this report, the Department of Energy suggested that another way to fund maintenance would be to limit Federal construction funds to those projects for which States identify maintenance funding procedures. While we did not fully explore this option, the concept behind it is sound. It could involve designating a specific tax, since a sitting State legislature would probably not be able to designate general funds from future years' budgets.



## CHAPTER 3

### MASS TRANSIT OPERATING DEFICITS

Mass transit systems throughout the country face high and rising operating deficits. Increased automobile availability and Federal housing, tax, and road construction policies contributed to urban sprawl and the dispersal of employment centers. Sprawling residential and employment centers cannot be as efficiently served by mass transit as more compact urban centers. The resulting ridership decline contributed to revenue shortfalls, which in turn led to equipment deterioration and fare increases; this caused ridership to further decline. In the 1970s, costs, particularly labor costs, have soared.

#### NATIONAL AND REGIONAL ASPECTS OF OPERATING DEFICITS

Given that one-half of the Nation's 5.3 billion annual mass transit trips are taken in the Northeast, mass transit problems are of special concern to Northeastern officials. These problems are, however, common to nearly all urban areas served by mass transit. Northeastern cities generally have less efficient street patterns than cities in other regions, since many of their urban roads were built before large-scale auto use. Thus, if transit service deteriorates further, Northeastern residents may find their urban road networks less able to bear the added traffic than networks in other regions.

In the five interview States officials said subsidy efforts to compensate for operating deficits are straining their budgets, prospects for any change in this trend are remote, and subsidy levels are beginning to fall short of needs. The New York City Metropolitan Transit Authority had a \$845 million deficit in fiscal year 1976, Philadelphia's was \$14.9 million, and Boston's was \$138 million. New Jersey's bus system had a \$50.0 million deficit, while their commuter rail service deficit reached about \$55.4 million. Connecticut's bus system accumulated a \$6.2 million deficit in 1976.

Although New York City's, Philadelphia's, and Boston's deficits were the Nation's highest, those of cities in other regions were also high--Los Angeles' was \$128 million, and Chicago and San Francisco's deficits were each \$114 million. The Northeast systems' deficits per revenue passenger were also among the highest in the Nation.

DOT said that transit problems should also be discussed in terms of maintenance needs. They noted that facilities in New York, New Jersey, Philadelphia, and Boston are disintegrating. State officials with whom we spoke did not concentrate on maintenance, probably because as State officials, their concern would be centered more with the deficit issue.

#### FACTORS CONTRIBUTING TO DEFICITS

Long-term ridership decline and rising costs are merely symptoms of the extensive problems facing the mass transit industry. The causes of these symptoms must be recognized to consider effective solutions. Basically, as labor costs rise, transit authorities have been reluctant to raise fares, an action they believe will cause more ridership decline or penalize low-income users. Thus, transit authorities prefer increased subsidies to increased fares.

While most fares doubled between 1958 and 1970, since then they have generally been stable. Congressional Budget Office, Department of Transportation, and our studies note decisions of transit authorities to avoid raising fares whenever possible. The 1974 report of the Secretary of Transportation to the Congress 1/ found that States' projected transit fare increases would just keep up with inflation between 1972 and 1990. Clearly, the problem of operating deficits will not be solved with farebox revenues. Some have not raised fares in years, such as Boston, whose 25-cent rapid transit fare has not been raised since 1968, even though it had the second highest deficit per revenue passenger in 1976. Most transit operators contacted during a recent GAO review 2/ said they used Federal operating assistance to stabilize fares and continue some services.

However, a 1974 report prepared for FHWA 3/ noted fare increases would reduce patronage but increase net revenues.

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1/"A Study of Urban Mass Transportation Needs and Financing," report of the Secretary of Transportation to the Congress, pursuant to Public Law 93-87, July 1974, pp. I-9 and V-18.

2/Letter report to the Secretary of Transportation, CED-78-100, Apr. 25, 1978.

3/"A Review of Reports Relating to the Effect of Fare and Service Changes in Metropolitan Public Transportation Systems," prepared for FHWA by Dempster K. Holland, June 1974, p. 3.

A 1977 Congressional Budget Office report also noted that most transit studies have shown transit demand to be somewhat inelastic with respect to fare increases. 1/ Speed, comfort, convenience, and wide choice of destination were found to be as, or more, important than fare in attracting persons whose incomes allow alternate transportation choices. The 1974 DOT report to the Congress noted that American and European experiences demonstrated that service improvements attract more transit riders than fare reductions.

### Labor issues

Transit worker wage and benefit increases contribute to many cost increases. For instance, in 1969, a New York City transit worker's wage (not including benefits) was 15 percent above the general wage level in the private sector; in 1975, it was 40 percent above that level. The Regional Plan Association found 82 percent of the transit cost increase per passenger between 1960 and 1975 (in constant dollars) was due to increased labor costs. Fuel and power increased 12.1 percent and materials and miscellaneous non-labor items rose 5.6 percent. The Association concluded that public subsidies are essentially paying for transit worker wage and benefit gains above the general inflation rate. 2/

It is possible that Federal policy promotes wage increases or labor-related inefficiencies in the transit industry. Section 13(c) of the 1964 Urban Mass Transportation Act (49 U.S.C. 1601, as amended) requires the Secretary of Labor to insure that fair and equitable arrangements have been made to protect transit employees affected by Urban Mass Transportation Administration (UMTA) grants. The act also requires that transit workers receive the same protections provided railroad workers under Section 5(2)(f) of the Interstate Commerce Act (49 U.S.C. 5(2)(f)), which embodies the basic provisions of the Washington Job Protection Agreement of May 21, 1936. 3/ Thus, UMTA-funded transit agencies

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1/"Urban Mass Transportation: Options for Federal Assistance," Congressional Budget Office, February 1977.

2/The Regional Plan Association believes one-fourth of the 1974 cost per passenger represented transit employee wage and benefit increases above the rate of inflation for the preceding 15 years.

3/Railway Labor Executives' Association vs. United States, 339 U.S. 142, 146-50 (1950). New Orleans Union Passenger Terminal Case, 282 I.C.C. 271, 280-81 (1952).

generally pay "dismissal or displacement allowances" for up to 6 years to employees who are laid off or have their pay decreased. Given this, UMTA-funded transit agencies have little incentive to develop more efficient operating methods, if these would require staff reductions. Also, authorities receiving Federal operating assistance need not exhibit any particular efficiency levels.

Public officials are generally anxious to avoid transit strikes, since many businesses and individuals are affected by them. Public pressure to resume transit service can be intense, giving transit union officials an advantage in contract negotiation.

Finally, many labor contracts guarantee transit personnel 40 hours of pay per week, prohibit hiring part-time workers, and require that 8-hour workdays not be spread over more than a certain number of hours. This generally prevents transit authorities from using the same person during the morning and evening peak times without paying premium pay and precludes hiring two part-time workers to each work one peak time. At times, transit employees are paid for 40 hours but work fewer hours.

## FEDERAL ROLE IN MASS TRANSPORTATION

### Program description

The Urban Mass Transportation Act of 1964, as amended (49 U.S.C. 1601, et. seq.), provides the basic authority for Federal transit programs which are administered by UMTA in the U.S. Department of Transportation. The UMTA capital grant (Section 3) program pays 80 percent of the cost of new transit system construction, rail modernization, and bus purchases. About 70 percent of these funds are for rail transit; the remaining 30 percent are for buses.

The 1974 amendments to the Urban Mass Transportation Act created a formula grant program (the "Section 5" program), whose funds can be applied to capital or operating expenses. If used for the latter, UMTA pays up to 50 percent of an operating deficit--if the allocation is sufficient--as opposed to the 80 percent it funds for capital projects. The almost \$4 billion in Section 5 funds are to be allocated over a 6-year period (fiscal years 1975-81) to urban areas with populations of 50,000 or more, on the basis of a formula which gives equal weight to population and population density factors. To qualify for the funds, the transit system must provide off peak, half fares for the elderly and handicapped.

Section 5(d)(2) of the act authorizes the Secretary of Transportation to issue regulations requiring efficiency improvements in transit services. UMTA officials believe the transportation system management element of an urban area's transportation plan and the programing for its implementation supports the requirement to improve transit service efficiency, pursuant to Section 5(d)(2). Thus, specific transit efficiency regulations have not been issued.

A total of \$540 million in Section 5 funds was allocated for approved projects in fiscal years 1975 and 1976. Large urban areas (over 1,000,000 people) used about 94 percent of these grants to offset operating deficits, while smaller urban areas used 76 percent. The rest was largely used for capital projects. An additional \$700 million was approved for fiscal year 1977 and \$742 million for fiscal year 1978. The 1979 budget estimate was substantially larger--\$1.4 billion.

States and transit authorities can also use Federal capital funds for operating expenses. Up to one-half of these Section 3 capital grants may be borrowed to cover operating expenses, if provision is made for their repayment by the end of the year after it was borrowed. <sup>1/</sup> Although other cities have applied, UMTA has thus far only allowed New York City to use this provision. New York City borrowed over \$200 million to subsidize transit operations during fiscal years 1975 and 1976.

#### Analysis of present Federal policy

Because State transportation officials interviewed for this study were primarily concerned with operating deficits, this discussion concentrates on some of the ramifications of the formula grant ("Section 5") program. Most of the grant has been used for operating assistance.

While there is a large demand for operating assistance, Northeastern officials decry the present formula, which considers population and population density rather than system usage. As a result, New York State transit systems account for about 40 percent of the Nation's transit riders but receive only 16 percent of the subsidy funds. (New York's

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<sup>1/</sup>This provision was eliminated by Section 302 of the Surface Transportation Assistance Act of 1978, Public Law 95-599, Nov. 6, 1978, 92 Stat. 2689.

was, however, in fiscal years 1975 and 1976, the largest single allocation.) UMTA data showed that, on a per rider basis, in fiscal years 1975 and 1976, New York City received 3 cents per rider, while Boston and Philadelphia received 6 cents. In contrast, Los Angeles received 20 cents per rider, and the smaller systems of Oklahoma City, Oklahoma; Youngstown, Ohio; and Melbourne, Florida; received \$1.11, \$0.96, and \$3.99 per rider, respectively.

In addition, some urban areas, such as smaller Massachusetts cities, have been unable to use all the Section 5 funds they were allocated because of their inability to meet Federal matching requirements or the maintenance-of-effort requirement. <sup>1/</sup> A New Jersey official said they are subsidizing a bus system they would like to abandon; however, if they abandon it, they would lose their Section 5 funds.

In deliberating the Surface Transportation Assistance Act of 1978 (Public Law 95-599), the Senate considered a provision which would have increased the operating subsidy primarily for a few cities, such as Boston, New York, and San Francisco. The provision was opposed by the administration and was deleted on the Senate floor.

Since there are no performance requirements attached to Section 5 funds, there is concern that Federal operating assistance may reduce local incentives to perform efficiently. At a New York State workshop on public transit financing, several private operators noted that Federal fund recipients could use these funds to sustain low fares, thus increasing their deficits and resulting in future subsidy needs. As mentioned earlier, labor costs may be allowed to rise to high levels because operating subsidies are available to fund wage increases.

Federal operating subsidies have not existed long enough to measure their impact. However, even the 55 State, local,

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<sup>1/</sup>49 U.S.C. 1604(f) required formula funds not to be used to replace State or local government funds or other transit revenues spent on transit service in the two fiscal years preceding the one in which formula funds were used. However, Section 304 of the Surface Transportation Assistance Act of 1978 (92 Stat. 2689) amended 49 U.S.C. 1604(f) so that Federal assistance would not be reduced if State or local funding reductions were offset by an increase in operating revenues through a change in fare structure.

and university officials who attended New York's transit financing workshop generally agreed that reform was needed. They believed operating subsidies should eventually be tied to transit operators' efficiency or their ability to maintain ridership while generating more of their own revenues or reducing costs.

#### OPTIONS FOR RESOLVING OPERATING DEFICIT PROBLEMS

Given that local public authorities usually control transit operations, they are responsible for addressing the operating deficit problem. Since Federal, State, and local governments generally subsidize operations, local public authorities could require that a certain price structure or level of operating efficiency be attained.

The following options thus pertain not only to how to fund subsidies, but also how to improve transit operations or increase transit usage, which would minimize subsidy needs. Most options address the need to simultaneously increase transit and decrease auto use.

##### Option 1 - Raise fares

As noted, transit officials dislike raising fares because ridership declines and low-income users are penalized. If a parking tax or street parking ban were initiated at the same time fares were raised, this could limit ridership reductions somewhat. While lower fares aid low-income riders, lower fares prevent the transit authority from collecting higher fares from those willing to pay them. Rather than use the entire transit fare structure as a means of income redistribution, transit authorities could consider raising fares and issuing discount coupons or transit stamps to certain riders. While this could be unwieldy or costly, it could make fare increases more equitable. The individual transit authorities would make most decisions in these areas, although Federal programs could offer incentives to implement them.

##### Option 2 - Raise auto use taxes

Most options for raising mass transit funds relate to automobiles, and the intent is generally not only to raise revenue for transit but to compensate for cost imbalances between transit and autos. Proponents maintain cars do not pay their full social costs, which include those associated with environmental damage, congestion delays, road maintenance, and highway police. Auto sales and excise taxes are

generally already used for other expenditures, leaving increased auto registration fees, parking charges, tolls, and gasoline taxes as possible sources for transit revenues.

If operating deficits in New York City were funded from auto registration fees, the Regional Plan Association estimates these fees would have to average \$50 per car to generate sufficient revenue. The Regional Plan Association suggests this be part of a gasoline conservation program and that there be a graduated scale; for example, \$10 for small cars to \$100 for larger ones. Thus, automobile owners could reduce their tax burden by buying smaller cars.

One study <sup>1/</sup> suggested that for every 10 percent increase in parking charges there is a 3 percent reduction in all-day parking. To be more equitable the tax could be applied only to parking lots in areas served by mass transit. Tolls were discussed in chapter 2 as a source of revenue for highway maintenance expenditures. If applied to the major roads leading to a city, one-way toll collection could be implemented. Since minor routes leading to the business district could handle only a fraction of those attempting to avoid the toll, drivers could not use alternate routes to avoid them. One-way toll collection would reduce toll-road-related congestion and costs to construct and operate toll facilities.

Gasoline tax increases could be implemented for all areas or only in metropolitan areas served by transit systems. The latter would be more equitable, although if a Federal tax, it would raise questions about imposing a Federal tax in only certain areas. A 1-to-3-cent/gallon nationwide urban area gasoline tax would generate from \$501 million to \$1.5 billion annually. It would be a difficult tax for most urban residents to avoid, since they would spend more money driving to outlying gas stations than they would save.

Assuming tax revenues were placed in the Highway Trust Fund, the Fund's administrative costs would increase somewhat. Those of local distributors, who would have to monitor urban/rural gas sale distribution, could increase enough that they would pass this cost to retailers, who would raise fuel pump prices accordingly.

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<sup>1/</sup>"Financing Public Transportation," Regional Plan News, No. 98, March 1976.



Option 3 - Require evidence of increased operating efficiency

The funding organization's role here would be primarily a regulatory one, requiring evidence of certain efficient operating practices in exchange for funds. Most of the examples presented below are in use in various metropolitan areas.

- Allocate certain lanes for buses and carpools only. Bus costs per vehicle hour are largely fixed by hourly wage rates. Given equal ridership, costs per vehicle mile decrease as bus speed increases. For example, New York Transit Authority buses on Staten Island cost half as much to operate per vehicle mile as in Manhattan because they operate at twice the speed.
- Encourage increased fares during peak usage hours.
- Reduce labor-related inefficiencies.

Since some labor contract clauses (for example, those guaranteeing pay for minimum hours per week or preventing hiring part-time operators) cause transit operational inefficiencies, efforts to improve efficiency will have to address these issues. Transit authorities negotiate individual contracts with their labor unions. Seattle Metro (a bus and trolley system) recently negotiated a contract which would permit them to hire 700 part-time bus drivers. The Metro Council believes this would allow them to expand service without increasing fares or subsidies. Certainly most transit authorities will not meet with Seattle's negotiating success. In fact, Seattle Metro had to agree to an attractive benefits package, and union officials predict a strike if part-time employees want full-time benefits.

Care would have to be taken in implementing this option to avoid developing rigid efficiency standards which would be difficult to adapt to the various transit systems.

## CHAPTER 4

### NORTHEASTERN RAILROADS

#### EXTENT OF NORTHEASTERN PROBLEM

The Congress recognized the serious plight of Northeastern railroads in 1973 when it formed the United States Railway Association (USRA) to restructure the region's freight rail system. USRA's Final System Plan recommended that the Congress create the Consolidated Rail Corporation (Conrail) to acquire, operate, and rehabilitate the lines of defunct Northeast and Midwest railroads 1/ which operated on nearly 50 percent of the rail mileage in the region. (Over 70 percent of that mileage belonged to Penn Central.) The Congress created Conrail in April 1976. Although USRA projected that Conrail would operate profitably by 1978, recent evidence showed Conrail did not reach that goal and may require, among other things, additional Federal funds.

State officials' concern with freight rail problems varied. They identified line abandonment, service deterioration (for example, increased transit time and decreased reliability), and physical plant deterioration as major rail freight problems. Massachusetts and Pennsylvania officials believed abandoning service on some of their States' lines would cause job losses and limit the potential for industrial growth. New York and New Jersey officials expressed less concern with line abandonments to date but indicated they would face problems if certain additional lines were abandoned.

State officials said railroad plant deterioration, 2/ the result of deferred maintenance, took the form of poor track and roadbed conditions, and speed limitations (called

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1/These railroads are Penn Central, Erie Lackawanna, Reading, Central of New Jersey, Lehigh Valley, and Lehigh and Hudson. Although other railroads went bankrupt, Conrail is composed of these only.

2/Railroad physical plant includes freight cars, mechanical handling facilities, yards, signals, bridges and tunnels, servicing plants, shops, buildings, communication facilities, mainline trackage, and roadbed.

"slow orders"). 1/ One-third of Connecticut's freight track and 8,000 miles of Pennsylvania track are in such bad condition that the railroads have imposed speed limitations. Regional plant deterioration is not confined to the Conrail system. 2/ The New England Regional Commission reported that \$100 million of the \$400 to \$500 million required to rehabilitate New England's rail system is needed to upgrade tracks of non-Conrail carriers.

In examining State officials' perceptions of railroad problems and comparing them to Federal policies and independent studies, it became apparent that line abandonment, service, and physical plant deterioration were symptoms of the financial decline of Northeastern railroads. State officials' concern with symptoms rather than this major issue is logical; the three problems they described are those which most affect their States' businesses and residents.

Financial decline is the result of a larger set of problems plaguing the rail industry, primarily resulting from railroads' lack of competitiveness with other transportation modes. While our intent is not to comprehensively discuss intermodal freight shipment competition, these issues are alluded to as the Northeastern railroads' financial situation is compared to other regions' rails.

#### REGIONAL AND NATIONAL ASPECTS OF RAIL FREIGHT INDUSTRY DECLINE

For Interstate Commerce Commission (ICC) reporting purposes, the United States is divided into three railroad districts--the Eastern, Southern, and Western districts. The Eastern district (which includes the Northeast) has faced deficits for 4 years between 1970 and 1976. Yet in 1976,

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1/A slow order is a speed limitation imposed by railroads based on the Federal Railroad Administration Office of Safety's standards of acceptable speed associated with track conditions. Slow orders cannot be removed until the track is repaired.

2/Conrail used \$232.9 million received between April and December 1976 to rehabilitate 727 miles of rail and 4 million cross ties. Conrail plans to spend \$1.87 billion on rehabilitation and \$2.45 billion on fixed asset maintenance between 1978 and 1982 and expects to reduce slow orders by 75 percent by 1982 according to its Feb. 15, 1978, Business Plan.

Southern and Western district railroads had their highest operating incomes since 1929. As a result, Eastern railroads have difficulty attracting private funds for capital improvement, and their rate of return is substantially below that of Southern and Western railroads. The Eastern district rate of return has been less than 1.5 percent every year since 1968. It was a deficit figure in 1976, while the Southern and Western districts had rates of return of 4.62 and 3.57 percent, respectively.

Eastern district financial problems are not limited to Conrail carriers. In 1975, all New England Class I railroads and six other non-Conrail Eastern Class I carriers had deficit operating incomes. The two financially strong non-Conrail railroads in the Eastern district (Norfolk and Western, and the Chessie System) are coal-hauling railroads.

#### FACTORS CONTRIBUTING TO REGIONAL DIFFERENCES

Regional variations in profitability and rates of return are caused by differences in operating costs, excess capacity, and shipping demand (and, thus, revenues), as discussed below.

##### Operating cost differences

The Eastern district's extensive urbanization requires more car reclassification (regrouping) and switching freight. This congestion combines with the age of the Eastern rail plant and the climate (which necessitates snow and ice removal) to cause increases in transit time and costs. Data from 1974 shows Eastern district terminal and line haul costs were higher than those in Southern and Western districts.

Higher labor expenditures associated with enlarged employment levels appear to contribute to Conrail's high operating costs. Conrail employs 30 percent more workers per ton mile than the neighboring Chessie System, and twice as many as the Southern Railway.

An Office of Technology Assessment study <sup>1/</sup> noted that while work rules, pay structures, and craft distinctions were considered obstacles to better productivity, Conrail proposed no changes in these areas. Thus, labor productivity is

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<sup>1/</sup>Office of Technology Assessment, "The Financial Viability of Conrail," September 1977, pp. 34-35.

expected to increase only incidentally through other system modifications. The Office notes that Conrail could trade labor protection for labor productivity improvements through work rule changes. However, the Office recognizes that labor is a long standing industry problem.

#### Differences in excess capacity

The entire rail industry has substantial excess capacity; however, it is more prevalent in the Eastern and Granger States. <sup>1/</sup> It is most extensive in the East because the demand for and construction of most Eastern railroad trackage occurred earlier (in the mid to late 1880s) than that in other regions. Construction costs were then relatively low, and there were essentially no other transportation modes with which to compete. In addition, ICC was not given statutory authority to limit entry to the railroad industry until the Transportation Act of 1920. Thus, the lower cost, lack of intermodal competition, and lack of regulation encouraged the construction of duplicative Eastern lines, while Western and Southern line development was somewhat constrained by relatively higher costs, truck competition, and ICC regulation.

By the time this excess capacity developed, Federal regulations prevented railroads from abandoning many lines the railroads considered unprofitable or from adopting tariff schedules that might have allowed some of these lines to break even. Thus, the railroads were forced to retain their excess capacity, subsidizing it with revenues from profitable lines ("cross subsidization"). The 1973 Regional Rail Reorganization Act (3R Act) required that USRA analyze the region's rail lines and recommend which unprofitable lines should be abandoned or subsidized under the act's provisions. The 1976 Rail Revitalization and Regulatory Reform Act (4R Act) expedited overall line abandonment procedures for the entire railroad industry. Thus, abandoning lines is now somewhat easier.

#### Differences in shipping demand

Some aspects of the rail shipping decline are national. Between 1947 and 1975, railroads' share of ton miles carried declined by 28.5 percent, while trucks' share increased by 11.3 percent. (Trucks' modal share increase accrued primarily between 1947 and 1960.) Increased truck competition has been

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<sup>1/</sup>The Granger States are Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, and Wisconsin.

aided by (1) the availability of relatively cheap petroleum, (2) large-scale, publicly funded interstate highway construction, (3) public maintenance of highways, (4) State taxation of rail properties, (5) lack of State enforcement of weight limits on trucks, and (6) less constraining Federal regulation of the trucking industry.

However, between 1929 and 1974, tonnage shipped on Eastern railroads declined 25 percent, while that shipped on Southern and Western lines increased by 122 and 33 percent respectively. This was due primarily to shifts in the location and mix of economic activity. Also, shorter hauls required in the Northeast (a highly urbanized region) and the Eastern shift toward production of higher value/low bulk goods gave trucks greater advantage over rail transportation in the East than in other regions.

FEDERAL RAIL POLICY:  
DESCRIPTION AND ANALYSIS

Although railroads are private enterprises, the Federal Government provided assistance when they lacked working capital to continue essential operations or to rehabilitate or improve rail plants. When the financial position of railroads began to deteriorate during the 1930s and again in the early 1950s, the Federal Government provided loans or guarantees to railroads for capital investment in roads and equipment for maintenance work. <sup>1/</sup> Finally, with plant deterioration and the financial plight of Eastern railroads in the 1960s and 1970s, the Congress enacted the 3R Act and the 4R Act.

Under the 3R Act, as amended, USRA monitors Conrail's operations and issues loans and loan guarantees. The 4R Act offers programs for Conrail and the rest of the rail industry.

Conrail and USRA have their critics, ranging from Penn Central's creditors (who are challenging the Federal expropriation of Penn Central Railroad properties) to States who

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<sup>1/</sup>There have been numerous other Federal Government attempts to maintain railroad service. The Government has seized railroads during labor disputes and nationalized the industry during World War I. The Emergency Rail Restoration Act of 1972 provided funds to repair damage to Eastern railroads.

dislike provisions that facilitate line abandonments. Other concerns pertain to the lack of incentives for competitive Northeastern rail services, more efficient labor practices, and more effective technology utilization.

#### Line abandonment

As noted earlier, some State officials believed their States' economies would suffer if some light density lines were abandoned. A Massachusetts official questioned whether branch line abandonment would substantially improve profits since costs now charged to branch line overhead would be charged elsewhere and shipment revenues would be lost. A Pennsylvania official suggested few resources would be released for main line maintenance, since branch lines are maintained at such a low level.

However, an empirical study, which estimated potential savings from the reduction of excess capacity in the rail industry, concluded that track abandonments could improve the financial health of the carriers substantially. 1/

#### Lack of competition

Northeast State officials maintain that the Federal Government is not acting to assure competitive Northeastern rail service and that non-Conrail carriers are disadvantaged by having to compete with the federally funded Conrail.

A Pennsylvania official believes some weaker Northeastern railroads' profits would be enhanced if they were given access to major shipping markets. He recognizes that this could detract from Conrail profitability but maintains this would help stabilize the Northeastern system over time, particularly if Conrail fails. USRA has opposed track acquisition by financially weak railroads, asserting that this would entail additional Federal funding (due to decreased Conrail efficiency) and a greater Federal risk while not necessarily improving the Northeast rail system's stability. USRA has indicated it would consider track acquisition proposals from financially viable, private rail carriers.

Differences in Federal and State viewpoints on the importance of competitive rail service in the Northeast may

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1/Keeler, Theodore B., "Railroad Costs, Returns to Scale and Excess Capacity," The Review of Economics and Statistics, May 1974 (56.201-206).

reflect the different Federal and State emphases. The Federal Government is most concerned with enhancing Conrail's revenue situation, while State officials want local shippers to have the advantage of the lower shipping costs which they believe would accompany competition.

#### Labor and technology inefficiencies

An American Enterprise Institute study <sup>1/</sup> maintains that the Conrail solution will not be fully effective because it preserves existing technology and labor practices. The study argues that by upgrading present technology rather than encouraging use of new technologies (for example, containerized shipping and integral trains), the 3R Act would restore a technology which is not competitive with the trucking industry.

The study makes the controversial point that existing technology is inefficient because it is labor intensive. The study also maintains the act will strengthen the position of unions (for example, by increasing benefits for displaced employees).

#### An expensive solution

In addition to Federal funding for rail property purchase, labor protection, branch line subsidies, and Conrail's capital improvements, Conrail recently requested an additional \$1.3 billion of Federal financing for the 5-year period ending December 31, 1982. Conrail will also seek \$959 million in private sector financing during this period. Its 5-year Business Plan suggests that it may seek guarantees or other forms of Federal support to acquire these private funds.

Conrail is a costly Federal solution to maintaining the region's rail service. If shipping demand continues to shrink, Conrail may never be able to exist as a for-profit, unsubsidized entity. However, if Conrail does succeed as a solvent, private railroad, it will be a far less costly solution to U.S. taxpayers than nationalizing Eastern railroads.

#### STATE RAIL POLICY: DESCRIPTION AND ANALYSIS

Until about 1870, State and local governments purchased bonds, floated loans, made land grants, and granted tax-exempt

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<sup>1/</sup>Hilton, George, The Northeastern Railroad Problem, 1975, published by the American Enterprise Institute, pp. 23-27 and pp. 47-48.



privileges to railroads to encourage them to locate in their towns. As private railroads encountered financial difficulties, some States subsidized and later acquired primarily commuter-passenger railroad lines. When rail ownership created financial difficulties for States, many sold their holdings. In fact, provisions were inserted in some State constitutions forbidding them to further invest in railroads.

#### State contributions to railroad problems

Conrail officials expressed concern about States' discriminatory property taxes levied against railroads. While other transportation modes do not pay property taxes, railroads do and often receive higher rates or assessments than other commercial and industrial property. However, most of the Northeastern States surveyed have exempted "main stem" rights-of-way from property taxes. Recognizing the inequity of the situation, the Congress provided in the 4R Act that railroads could not be taxed at a different rate than surrounding industrial property.

#### Recent State policy developments

States provided little assistance to freight railroads before USRA's restructuring of the region's rail service and the inception of the federally funded Local Rail Service Assistance Program. In response to the line abandonments proposed by USRA and non-Conrail carriers, the Northeastern States began subsidizing the operation and rehabilitation of freight lines. The degree to which they do so varies with the States' priorities, the importance of rail service to their economies, and the severity of economic impact on individual businesses.

#### FEDERAL POLICY OPTIONS TO REVITALIZE RAILROADS

Federal policymakers will have to decide in the near future whether to expand Federal involvement with railroads. They may have to decide whether to provide additional assistance to only Conrail, all Eastern railroads, or all railroads.

Because of continued deficits in Eastern freight railroad operations, further public intervention may be necessary. A lack of public assistance could result in further deterioration of the rail network, more bankruptcies, and, perhaps, nationalization of much of the Nation's rail industry. Taxpayers would thus incur even greater costs.

Those who advocate Federal intervention note that a good national freight transportation system is important for defense and energy purposes. Since much of the interstate freight shipped interchanges with Eastern carriers, a disruption in Eastern rail shipments would result in lost revenues for Southern shipments and Western carriers and shippers. Solvent railroads are worried about maintaining acceptance (at reasonable cost) in the bond market if railroads continue to file for bankruptcy. Given the magnitude of funds needed, State and local governments are unable to provide sole assistance.

The major expenses facing most railroads are rehabilitation and physical plant maintenance. The options discussed below pertain to these expenses. The options could be applied nationally or regionally.

#### Option 1 - Railroad trust fund

A railroad trust fund could provide funds for plant rehabilitation without draining carriers' budgets. Railroads would pay a surcharge or fuel tax into a Federal trust fund. Initial outlays from the trust fund could be funded by issuing Government-backed obligations. Railroads could receive outlays according to their contributions, plant conditions, or their "revenue needs."

A railroad trust fund could provide a reliable source of funds without draining the Federal budget. As with any trust fund, collections could not be easily adjusted to meet increased or decreased needs.

A variation of this option would entail funding the trust fund through a diesel fuel tax, thus sharing the burden with trucks. This could encourage using the more energy efficient rails and reduce railroads' competitive disadvantage to trucks.

#### Option 2 - Public takeover of rights-of-way and other facilities

Bills proposing this option were introduced in the 94th and 95th Congresses. 1/ A congressionally mandated 2/ capital

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1/H.R. 1007 (94th Congress) and S. 1554 (95th Congress).

2/Required by Sec. 504(b) of the 4R Act (45 U.S.C. 824). A preliminary draft was released in Summer 1978. A final version is scheduled for release in Summer 1979.

needs study will contain a cost-benefit analysis of public ownership of rights-of-way.

Under this option, the Federal Government would designate a national or subnational interstate railroad system and would acquire, rehabilitate, maintain, modernize, and restructure the rail network. The States would be responsible for maintaining lines excluded from this system. They would establish rights to access by rail carriers to rail lines they do not own. Transfer of rights-of-way could be voluntary (compensatory or noncompensatory) or involuntary (compensatory). Track-age rights could be leased back to operators for a user charge.

Public takeovers of rights-of-way would allow the Federal Government (or a regional body) to centrally plan and restructure the rail system. In addition, since rail rights-of-way would become Federal property, they would become exempt from State and local property taxation. State and local officials would undoubtedly complain, possibly enough that Federal legislation would be forced to include funds to offset lost State and local revenue.

Acquiring railroad property would be costly and probably require continued Federal subsidy. Acquisitions could result in lengthy proceedings, as with Conrail. User charges to the operating companies would either be insufficient to fully reimburse the Federal Government or, if sufficient, would strain the financial health of these private companies.

Opening rights-of-way access to competing railroads could also result in the financial decline of all railroads involved. Finally, the separation of operations from the ownership and maintenance of roadbed may create many practical operating problems for railroads.

### Option 3 - Additional grants, loans or guarantees for capital improvements

Compared to public assumption of rights-of-way, grants, loans, or guarantees appear relatively short term and perhaps more easily altered. Loans and loan guarantees may be preferable to grants because they minimize cost to the Federal Government (except in the event of default) and avoid political objections to direct Federal subsidy of private industry. However, if plant deterioration is a result of inadequate earnings, this option will do little to resolve that problem. Since loans are made available only to railroads that can repay them, those with the greatest need for assistance would

be excluded from the program. Also, loans and guarantees create uncertainty about the amount and timing of the Government's liability.

Finally, while grants may be more useful to financially weak railroads, they involve considerable public expense and provide only temporary improvements in plant conditions, unless plant improvements lead to increased revenues.

#### Option 4 - Federal priorities for rehabilitation

By selectively providing rehabilitation assistance, the Federal Government could avoid funding duplicate facilities. This would reduce excess capacity in the industry, thereby releasing more resources for the rehabilitation of core facilities. To more fully accomplish this, Federal regulations which now prevent railroads from jointly using facilities could be altered. The public takeover of rights-of-way and nationalization options would also give the Federal Government express authority to consolidate rail facilities.

There probably would be objections to the Government's deciding which routes and facilities would be rehabilitated. Those who object to Government control may argue that regulatory reform should allow private market forces to determine which routes and facilities are the most viable. However, without Federal encouragement, the industry may not move toward consolidating and sharing facilities. The corporate structure of the railroad industry is fragmented and individual railroads have no incentive to minimize total industry, shipper, and taxpayer expenditures on physical plant unless doing so would minimize their own costs.

#### Option 5 - Nationalization of the railroad industry

Nationalization may be less expensive than Federal funding of duplicative lines and facilities and could lead to more operational efficiency. However, the sheer size of a national public railroad could reduce management efficiency. Some may object to nationalization saying it would politicize railroads, that the Federal Government would be assisting private industries (shippers), or that it would increase taxpayer costs. H.R. 8485 was introduced in the 95th Congress proposing appointing a Presidential Commission to study the feasibility of nationalizing all or part of the Nation's rail industry. It was not approved by the House Subcommittee on Transportation and Commerce.

Finally, nationalization of the railroad industry may be premature. It is possible that as railroads are deregulated, the financial health of the railroad industry will improve. Nationalization of the industry may be considered acceptable only if the industry continues to decline despite other Federal revitalization efforts.

## CHAPTER 5

### ENERGY PROBLEMS

#### EXTENT OF NORTHEASTERN ENERGY PROBLEMS

In our interviews, Northeastern officials were concerned about high energy prices and the potential for disruptions of energy supplies. They believed their energy problems contributed to regional economic problems and made the Northeast less attractive to industry than regions with cheaper, more dependable fuel supplies.

An Academy for Contemporary Problems study 1/ concluded industry was not fleeing the Northeast for the Sunbelt but that firms in both regions were contracting or closing at the same rate and more new firms were opening in the South and West. The study theorized that energy supply availability, which is more certain in the South, is a more crucial factor in location decisions than price and might lead firms to locate in the South rather than in the Northeast.

State officials generally defined their problem in terms of "oil dependence," and elaborated upon the impact of this. New Jersey and Pennsylvania expressed the most concern about natural gas supply curtailments, which led to job layoffs and school closings in the winter of 1976 to 1977. Pennsylvania officials, whose State has large coal resources, said they do not have a "petroleum problem." Their major concerns pertain to difficulties in increasing their (and other) States' coal usage.

Some of those who reviewed this report commented that current events (the nuclear controversy and the apparent gasoline allocation problems) may have altered the viewpoints of State officials. However, we believe that recent events amplify the concerns expressed by State officials.

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1/Academy for Contemporary Problems, "Revitalizing the Northeastern Economy: A Survey for Action," November 1977, pp. 4 and 194.

REGIONAL AND NATIONAL  
ASPECTS OF ENERGY PROBLEMS

Department of Commerce data 1/ showed that in 1975 energy consumers in the New England and Middle Atlantic regions paid two or three times as much for fuel and electricity as did some other regions. Price variations occur because of the fuel mix and price of fuels. The fuel mix causes the greatest problem, as New England is 81 percent and the Middle Atlantic region 55 percent dependent upon petroleum--the most costly fossil fuel. No other region pays as much for its prime fuel source as the Northeast.

State officials also complained that they could not get enough natural gas to meet consumer demand. 2/ Gas producers, of course, sold only what they were required to sell in the interstate market. Since the price of gas sold in the intra-state market is unregulated, it can be sold for higher prices. 3/

In its descriptive analysis of 1976 to 1977 natural gas curtailments, the Department of Energy (DOE) found that all regions had a portion of their natural gas allocations curtailed. Many of the Northeast States experienced less than the national average of curtailments for firm customers (usually small businesses with less fuel substitutability). However, the curtailment of interruptible customers (those who pay less and can use alternative fuels) was significantly higher in most Northeastern States than the national average. However, interruptible customers use only small percentages of the region's natural gas. The DOE analysis noted that a major impact of curtailments is the additional costs to customers for alternate fuels or emergency natural gas supplies. Substitution prices in New England were noted to be particularly high, since expensive supplemental gas fuels were used.

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1/U.S. Department of Commerce, Annual Survey of Manufacturers, 1975, "Fuels and Electric Energy Consumed," 1976.

2/By 1979, sufficient supplies were available.

3/This was changed by passage of the Natural Gas Policy Act of 1978, Public Law 95-621, Nov. 9, 1978, 92 Stat. 3350, 3363.

FACTORS CONTRIBUTING TO  
NORTHEASTERN ENERGY PROBLEMS

A primary reason for Northeastern energy problems is the region's lack of indigenous resources. However, as the Nation's most densely populated region, the Northeast is also reluctant to develop its energy resources or refining capabilities to the fullest potential. 1/ Regional residents appear to be more sensitive to environmental issues than residents in some other regions, perhaps because of the denser land use patterns. New York's, Massachusetts', and Connecticut's air quality standards, for example, are more stringent than Federal standards.

The Middle Atlantic Title V 2/ application noted public resistance to energy facility siting (especially nuclear siting) has greatly reduced the region's bargaining power in the national energy "debate." It added that it is difficult to ask for cheap energy and resulting benefits from other States, while being unwilling to accept the costs of locating facilities in their own States.

Ironically, before the 1960s, most of the region's electricity was produced from coal. The switch to other sources, largely petroleum, was caused by several factors, including the following occurrences:

- Coal costs (of the substance itself and those related to handling it) rose faster than oil costs.
- Import quotas, which had been placed on residual oil in 1959, were lifted in 1965.
- More stringent Federal environmental standards created an incentive for utilities and industries to convert to oil, since the capital expenditures required to comply with air pollution requirements for burning high sulfur coal were prohibitive.

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1/This is not true for Pennsylvania, which has developed its coal resources.

2/Under the Public Works and Economic Development Act, (Public Law 94-188), a group of States can apply for a Regional Action Planning Commission status and thereby qualify for Federal planning funds and low interest Federal loans.



While the Northeast's energy problems might have been less severe had users not switched from coal to petroleum, the substitution appeared appropriate as it occurred.

#### Refinery siting

The bulk of the region's refining capacity (86 percent) is concentrated in Northern and Southern New Jersey and Eastern Pennsylvania. Crude oil refinery construction has not occurred on the East Coast in more than 15 years. While U.S. refinery capacity has increased by about 75 percent in the last 20 years, capacity in the Northeast has increased only about 16 percent. The Northeast's share of total refining capacity has fallen fairly steadily from almost 14 percent in 1955 to just over 9 percent in 1975. The capacity increase that has occurred has been through adding to existing refineries rather than through constructing new ones.

Refined petroleum products are more expensive to transport than crude oil, and the farther refined products must travel, the more expensive they become. Lack of refining capability thus increases Northeastern petroleum prices somewhat.

It should be noted that favorable tax structures in Canada and the Virgin Islands have encouraged oil companies to construct refineries there. Federal policies have affected the mix of refineries by making some types more profitable. It is thus unclear how much the unfavorable tax structure and/or citizen opposition have affected refinery siting.

#### Resource development within the region

While the region's only substantial energy natural resource is Pennsylvania coal and New England hydropower, State officials recognize the potential of nuclear and solar generated power. In addition, they hope to someday use petroleum and natural gas from outer continental shelf explorations, if available. There is also some potential for wind, peat, and tidal power.

Only Pennsylvania has an active policy to promote coal usage. The other four States offer verbal endorsement, but will not encourage increased coal utilization until it can be burned more cleanly and economically. A Pennsylvania energy official said New England wants Pennsylvania to mine coal, generate electricity at the mine, and ship it to New England via wire. Pennsylvania said it will not bear New England's

environmental costs. Only a limited amount of electricity can be generated at Pennsylvania mine mouths, and the official believed New England officials were unrealistic to expect Pennsylvania to generate New England's electricity.

The Northeast uses more nuclear-generated electricity than other regions. Of the nine States in the Northeast, only New Hampshire and Rhode Island do not have operating nuclear plants, and New Hampshire is constructing them. No State officials with whom we spoke opposed additional development, although some citizens have opposed nuclear development. State officials believed nuclear plant development should proceed cautiously and were very concerned about waste disposal problems. A Pennsylvania energy official believes 1977 Clean Air Act Amendments 1/ will increase nuclear and decrease coal plant development.

All States favor solar energy development. For example, Connecticut and Massachusetts offer tax incentives through property tax exemptions for solar development, and New York's State Energy Research and Development Authority funds this, and other, technology developments.

The coastal States support outer continental shelf exploration but want it to be done under strict environmental procedures. They fear the consequences of an oil rig or ship leak, since their economies heavily depend on the tourist and fishing industries. A Pennsylvania official noted that if outer continental shelf oil has a high sulfur content, it will have to be burned elsewhere.

#### Federal policy as a factor contributing to regional energy problems

At times, Federal policies appear to have contributed to Northeastern energy problems. Federal depletion allowances and development deductions provided tax incentives for energy resource exploration and production; yet, price regulations simultaneously discouraged it and encouraged consumers to use more than they might have at higher, freemarket prices. At the same time, State officials maintain that the lack of a comprehensive national energy plan has inhibited their own and energy producers' efforts. For example, utilities will not enter long-term coal contracts until they are sure environmental policies will be adjusted to permit increased coal burning. Coal producers will not increase production without

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1/Public Law 95-95, Aug. 7, 1977.

contracts. As noted earlier, environmental requirements encouraged the Northeast's shift from primarily domestic-produced coal to foreign oil.

#### STATE EFFORTS TO RESOLVE ENERGY PROBLEMS

State officials believed overall energy policy and direction is a Federal responsibility, with implementation being primarily a function of private enterprise. However, they did maintain that their conservation efforts could have an impact on the energy problem.

All of the States visited had energy offices, departments, or councils to develop and coordinate energy-related programs. Each had programs to promote energy conservation, and several had programs designed to secure a more dependable supply of safe, economical energy for the State. Research projects were being funded to accelerate the development of renewable energy resources. While most of the States' programs were similar, funding levels varied greatly. Massachusetts was the one State which relied solely on Federal funds. The other States' funding in 1977 ranged from \$250,000 in New Jersey to \$6.75 million in New York.

#### State opinions on regional initiatives

Officials in the five States in which we interviewed favored regional coordination and cooperation to address energy problems, but their degree of enthusiasm varied. New York State officials have actively promoted the concept of a Regional Energy Development Corporation, and New York, Pennsylvania, and New Jersey have supported designation of the Mid-Atlantic Region as a Title V Regional Action Planning Commission. (See last footnote on p. 42.)

While the Governor of New Jersey and others supported regional energy initiatives, the State legislature believed that New Jersey had little (perhaps only Pennsylvania coal) to gain from them. The State will bear many environmental risks and burdens through outer continental shelf drilling and resource refining. Legislature officials were unsure whether New Jersey should assume these risks and then export energy to States unwilling to do the same.

#### PRESENT FEDERAL ENERGY POLICY: DESCRIPTION AND ANALYSIS

While national energy legislation had not yet been enacted at the time of our study, most energy functions had

been consolidated in DOE, and a comprehensive energy proposal had been submitted to the Congress in April 1977. 1/ Then-existing policies regulated oil and natural gas prices, allocated scarce supplies, and promoted conservation.

The 1975 Energy Policy and Conservation Act 2/ and the 1976 Energy Conservation and Production Act 3/ reflected the Federal Government's intent to reduce petroleum use through conservation.

The 1975 Act was intended to reduce energy demand by authorizing procedures/guidelines under which State energy conservation programs could be implemented, and providing Federal financial and technical assistance necessary to do so. To be eligible for Federal funds, State conservation plans had to include 5 provisions, among them right turn at a red light after stopping. The major provisions of the Energy Conservation and Production Act included mandatory energy performance standards for new residential and commercial buildings and a grant program to enable State regulatory commissions to conduct demonstrations of alternative utility rate reforms.

The National Energy Act, 4/ enacted as a result of the 1977 proposal, emphasized conservation as the means to reduce U.S. reliance on petroleum. Among the measures, it requires that State utility commissions and other regulatory agencies consider such energy-saving practices as lowering electricity prices in off-peak hours and eliminating discounts for large-volume users. It also stipulates that utilities must give customers information about energy conservation devices and provides \$900 million over the next 3 years to schools and hospitals to install energy-saving equipment. The act also makes available Government-backed loans to low-income families for home conservation investments. Homeowners and businesses can also receive tax credits for installing energy-saving devices in their buildings. In addition, the act requires

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1/See our report, "An Evaluation of the National Energy Plan," EMD-77-48, July 25, 1977, for an analysis of the plan.

2/Public Law 94-163, Dec. 22, 1975, 89 Stat. 871.

3/Public Law 94-385, Aug. 14, 1976, 90 Stat. 1125.

4/Public Laws 95-617 through 95-621, Nov. 9, 1978, 92 Stat. 3174.

increasing sales taxes on new cars which do not meet certain minimum established fuel-efficiency standards.

The most controversial aspect of the new legislation pertains to natural gas pricing. Prices of newly discovered natural gas will be permitted to rise around 10 percent a year until 1985, when price controls will be lifted. Initially, industrial users will bear the brunt of the higher prices. For the first time, some price controls will apply to natural gas sold within the State in which it is produced.

The act also encourages increased use of coal by requiring new industrial or utility plants to use a fuel other than oil or gas. Existing utility plants must convert to some other fuel by 1990, and the Secretary of Energy can order, on a case-by-case basis, that some industries switch fuels. However, the Secretary can also exempt utilities or industries from this mandate (for new or existing facilities) on the grounds that the use of coal or an alternate fuel is precluded by environmental regulations, cost, site limitations, or other reasons.

The act did not contain proposed tax penalties, such as the taxes on industrial oil and gas use or domestically produced crude oil. Also eliminated was the authority to add a 5 cent per gallon tax on gasoline if annual gasoline usage exceeded certain levels. Nonetheless, the administration projects the act's programs and policies would save between 2.4 and 3 million barrels of oil equivalent per day.

In addition to energy policies, those in other areas can affect energy prices and suppliers. As noted, present Federal environmental policy limits much coal burning. Absence of a comprehensive energy policy meant coal producers were unwilling to increase production. They feared that they would increase production but regulations would prevent an accompanying increase in demand.

If the DOE Organization Act (Public Law 95-91) is an indication, the Carter administration is anxious to enlist intergovernmental participation in energy policy. The act established Regional Energy Advisory Boards composed of members appointed by State Governors. The Boards may make recommendations relating to Federal energy programs which directly affect their regions. If their recommendations are not adopted, the Secretary of Energy must notify the Board, in writing, of the reasons for not adopting them.

## Discussions of need for a Federal role in energy problem resolution

Most options for addressing Northeastern energy problems are so extensive that Federal participation, through policy guidance or direct action, is essential. State officials said they were awaiting passage of a National Energy Policy to provide direction for State energy policies. Lack of a policy had affected decisions at all levels. Producers were unsure if they should begin mining more coal, and homeowners delayed adding solar units to see whether tax credits would be approved. 1/

State governments, while important implementors of an energy policy, do not have the legal authority or financial resources to institute many of the needed policies or programs. In addition, the Federal Government can assess nationwide energy needs and develop programs to meet national as well as State and regional goals. In assessing the National Energy Plan the then-Federal Energy Administration assessed the plan's impact on regional energy prices. It found that the Northeast's prices for each sector would decrease by 1985, 2/ while the West and Southwest could expect 4 and 13 percent increases, respectively, in industrial energy prices. 3/

### REGIONAL ENERGY OPTIONS

The numerous proposals to address the Nation's energy problems are complex, and many have been analyzed in other GAO reports. (See app. I.) Rather than discuss a group of proposals, this report concentrates on options which could be addressed on a regional basis.

No specific number of States or strict definition of a "region" is necessary to undertake these options and most

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1/Tax credits for residential solar energy equipment were included in the 1978 act.

2/Except Pennsylvania transportation costs, which would increase 1 percent. The price assessment compared projected energy prices with and without implementation of the National Energy Plan.

3/DOE admitted problems with these analyses and never had one released which was unanimously agreed upon.

require more cooperative efforts than financial commitment. These include: joint research and information sharing on solar use, as it pertains to a region's cloud cover; comprehensive evaluation of the regional potential for nuclear expansion, with emphasis on plant siting problems; formation of consistent tax incentive packages for business development or homeowner conservation; and joint purchase or rental of regional energy storage facilities.

These and other projects could be pursued separately or coordinated through a group such as the CONEG-proposed Energy Corporation of the Northeast (ENCONO). While we do not specifically endorse the ENCONO proposal, 1/ we single it out because it addresses energy problems from a regional perspective. Also, while it is geared to the Northeast, such a federally chartered corporation could operate in any region.

#### Energy Corporation of the Northeast

The ENCONO proposal provides for establishing a quasi-public corporation with board members appointed by the President, State Governors, and private sector shareholders. Member States would contribute \$1 per capita for initial financing (nearly \$50 million, given population in CONEG-member States), and private industry and financial institutions in the region could subscribe to capital stock. The corporation would be able to secure bonds or notes, with a Federal guarantee, up to 15 times the amount of capital contributions.

These funds would be used to finance (through loans, guarantees, and equity investments) projects with a regional impact on energy supply, cost, and efficient use. ENCONO supporters believe its Federal-State-private sector combination will allow it to facilitate project development by cutting through delay-causing red tape. It would not be a regional government, but would be authorized, along with member States, to exchange personnel and services.

Essentially, ENCONO would expedite energy project development by bringing decisionmakers together and providing capital (up to 50 percent of project costs) for these typically long lead-time, high risk undertakings. It would probably be able to do this more effectively than a regional planning group, since it would have funds to distribute.

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1/S. 2161 contained the ENCONO proposal but it was not passed by the 95th Congress.

From a regional standpoint, such a corporation could give control of at least \$750 million (15 times \$50 million) to a group well versed in regional needs and priorities. By prompting private energy investment, the corporation's funding could stimulate this and other sectors of the region's sagging economy.

Supporters do not promote ENCONO as a cure for regional energy problems. Given the financing requirements of some energy projects (for example, from \$26 to \$43 million to install sulfur dioxide removal equipment to enable oil burning facilities to burn coal), ENCONO's resources would aid only a fraction of potential projects. However, financing available from ENCONO or other sources cannot be used most efficiently if there are licensing or other procedural delays. Perhaps in a role as Federal, State, and private sector project coordinator, a regional energy corporation could be most effective.



## CHAPTER 6

### SUMMARY COMMENTS

#### REGIONAL CONCERNS

State, local, and congressional officials have become increasingly aware of regional problems and interests. Some groups, such as CONEG, maintain that certain problems are unique to their region, and require special Federal attention. At the White House Conference on Balanced National Growth, it was the consensus that purely sectional or regional arguments should be rejected. The belief was that the problems confronting particular geographical areas in the Nation should be viewed as the concerns of all Americans rather than sectional concerns.

Conference participants enunciated a number of general principles which they thought might provide an overall framework for considering regional issues.

- Regional independence should be recognized, and regional parochialism should not dominate.
- Problems of a particular area should be viewed in national terms rather than in a parochial framework.
- The Nation is characterized by geographical diversity.
- The Nation needs some system of regional organizations to address regional problems.
- Public policy should not attempt to reverse dominant economic and demographic trends.

This study indicated that those energy and transportation problems analyzed are generally found throughout the Nation, but vary in scope and intensity from region to region. Similar problems may also have varying causes, thus they may require different approaches for resolution.

The Northeast generally pays more to sustain its transportation network or acquire its energy. In addition, declining use of, and thus revenues for, freight rail and transit systems has created excesses in the region's transportation network and fostered rising operating deficits. As a result, the region's transportation system will require increasing

public subsidies. However, the Northeast also faces a shrinking tax base, while the tax base in Southern and Western regions is growing.

While the problems may be more severe or complicated by the shrinking tax base, Northeastern States can take actions to limit their severity and perhaps could do more than they now do to reduce them. For example, many States have resisted natural gas price deregulation or refinery and deepwater port development. Also, although transit deficits and maintenance needs are increasing, authorities prefer not to raise transit fares or subsidies (as do transit authorities in most regions) and tend to reduce or not greatly increase highway maintenance funds.

The relationship between energy and transportation problems and issues is an important topic that is not often referred to by State officials. The fate of mass transit systems and railroads will greatly affect energy use. If these two modes deteriorate even further, transportation may ultimately comprise even more than 50 percent of petroleum energy.

#### FEDERAL ROLE IN ADDRESSING REGIONAL CONCERNS

There are many ways the Federal Government could address regional concerns, including: making Federal spending requirements flexible enough that States within regions can use them for their highest priorities, considering cost, usage, and productivity factors in awarding Federal funds, providing special or additional assistance for particular regions, based on special needs; and assessing the impact of proposed/present programs on the various regions.

Increased flexibility would probably come in the form of block grants. While this would allow State or local officials to devote funds to their top priorities, it would limit Federal control over these funds. This might be acceptable for some programs; however, if a program's intent is to encourage spending in a particular area or stimulate innovation, some Federal control might be appropriate.

A cost-of-living, usage, or other price equalization factor would provide more funds if these factors exceeded a certain level. This would benefit the Northeast, where cost and usage levels are generally higher than those in many other regions. Any such provision would have to include a

productivity factor to discourage waste or other inefficiencies that might arise if the Federal Government appeared willing to fund any price level. A major stumbling block to applying this concept is the lack of reliable cost data on which to base program formulas or allocations.

Merely considering a proposed program's long- and short-term impact on regions--perhaps through a "regional impact statement"--may raise issues that otherwise might not have surfaced. This would not necessarily mean the proposed program's components would change, as there may be sufficient benefits in some regions to justify adverse effects in others. However, the Federal Government would have the opportunity to alter programs or take other actions to counteract the negative impact in regions where they occur. This concept was put forth by the White House Conference on Balanced Growth and is reflected in President Carter's executive order that agencies prepare urban impact statements for Government policies.

#### FUTURE CONSIDERATIONS

The Federal Government has traditionally funded development and innovation, such as interstate highways and mass transit facilities for the handicapped. As our economy matures, proposals to combat economic decline issues or increase funding for services/operations rather than construction, should be considered by policymakers.

Additional studies are needed to provide answers to the many questions we have raised. Questions which should be addressed include: what types of public programs help slow regional decline or enable a region to rechannel its resources as its economy improves? What roles might the different levels of government undertake to achieve this? These are important questions. The Northeast needs answers now, and if its current situation is typical of a maturing economy, other regions may eventually benefit from these answers.

SOME ENERGY-RELATED GAO REPORTS

<u>Title</u>	<u>Report number</u>	<u>Issue date</u>
U.S. Refining Capacity: How Much is Enough?	EMD-78-77	01/15/79
Evaluation of Four Energy Conservation Programs--Fiscal Year 1978	EMD-78-81	11/21/78
Federal Regulation of Propane and Naphtha: Is It Needed?	EMD-78-73	10/24/78
Improved Energy Contingency Planning is Needed to Manage Future Energy Shortages More Effectively	EMD-78-106	10/10/78
Liquefied Energy Gases Safety	EMD-78-28	07/31/78
The Federal Government Should Establish and Meet Energy Conservation Goals	EMD-78-38	06/30/78
Opportunities to Resolve Some Basic Conflicts Over Outer Continental Shelf Leasing and Development	EMD-78-39	03/16/78
Better Planning Needed to Deal With Shifting Regional Energy Demand	EMD-78-35	02/22/78
The Magnitude of the Federal Solar Energy Program and the Effects of Different Levels of Funding	EMD-78-27	02/02/78
Emergency National Gas Purchases: Actions Needed to Correct Program Abuses and Consumer Inequities	EMD-78-10	01/06/78
More Attention Should be Paid to Making the U.S. Less Vulnerable to Foreign Oil Price and Supply Decisions	EMD-78-24	01/03/78
U.S. Coal Development--Promises, Uncertainties	EMD-77-43	09/22/77

SOME ENERGY-RELATED GAO REPORTS (cont.)

<u>Title</u>	<u>Report number</u>	<u>Issue date</u>
Nuclear Energy's Dilemma: Disposing of Hazardous Radio- active Waste Safely	EMD-77-41	09/09/77
An Evaluation of the National Energy Plan	EMD-77-48	07/25/77
Rocky Mountain Energy Resource Development: Status, Potential and Socio-economic Issues	EMD-77-23	07/13/77
Energy: Issues Facing the 95th Congress	EMD-77-34	04/28/77
Energy Policy Decision Making, Organization and National Energy Goals	EMD-77-31	03/24/77
Reducing Nuclear Power Plant Lead Times: Many Obstacles Remain	EMD-77-15	03/02/77
National Energy Policy: An Agenda for Analysis	EMD-77-16	01/27/77
An Evaluation of Proposed Federal Assistance for Financing Commercialization of Emerging Energy Technologies	EMD-76-10	08/24/76
Status and Obstacles to Commercialization of Coal Liquefaction and Gasification	RED-76-81	05/03/76
Survey of the Federal Energy Administration's Assistance to State and Local Governments in Developing and Administering Energy Programs	OSP-76-20	04/23/76
Implications of Deregulating the Price of Natural Gas	OSP-76-11	01/14/76

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