

# Environmental Benefits of Reducing Excess Air Transport Capacity

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In Fiscal Year 1973, the United States domestic scheduled airline industry achieved a system load factor of 52.2 percent.<sup>1</sup> This means our national domestic scheduled airline system, on an overall basis, operated almost half empty. The seats that were occupied generated more than 122.5 billion revenue passenger miles producing gross air transport revenues of nearly \$8 billion.<sup>2</sup> In an ideal air transport system, one in which capacity exactly fits traffic demand, aircraft miles and fuel could almost have been cut in half. This would have produced a saving of approximately one billion plane miles operated,<sup>3</sup> representing a saving of about \$4 billion in operating costs<sup>4</sup> and a saving of some 4 billion gallons of fuel.<sup>5</sup>

Naturally, in such an ideal world, the airlines could reduce their fleet size and related equipment to about half the present numbers, thereby reducing their investment by more than \$3 billion.<sup>6</sup> Airline profits would soar exponentially, because once break-even load

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1. Civil Aeronautics Board, Air Carrier Traffic Statistics, year ended June 30, 1973. These data relate to domestic scheduled Trunkline and Local Service Airliner operations. International, Supplemental and All-cargo carrier operations are not included in this study.

2. Civil Aeronautics Board, Air Carrier Financial Statistics, year ended June 30, 1973. Overall domestic scheduled operations including all-cargo service grossed \$9,129,615,000 while passenger revenues were \$7,965,265,000.

3. Total revenue aircraft miles operated in fiscal 1973 were 2,030,654,000, of which only 81,975,000 were all-cargo mileage. CAB Air Carrier Traffic Statistics, year ended June 30, 1973.

4. Total operating costs in fiscal 1973 were \$8,610,317,000, of which only \$70 million were incurred by all cargo operations. CAB Air Carrier Financial Statistics, year ended June 30, 1973.

5. Domestic Scheduled Air Carriers consumed 8 billion gallons of jet fuel in 1972. Air Transport Association Tabulation CAB Forms 41.

6. Total investment in operating property before depreciation was \$10,944,039,000; after depreciation, \$6,968,472,000. *Id.*

factor is reached, additional passenger revenue beyond that point is largely profit.

In terms of environmental consequences, the foregoing idealized scenario would produce a dramatically improved world: fleet noise levels and aircraft emissions would be cut in half, consumption of nonrenewable fuel resources would be halved, substantial quantities of strategic metals and sophisticated electronic equipment presently committed to supernumerary jet aircraft could be reallocated to other productive uses, and the resultant prosperity of the airlines would enable them to finance the research and development of quiet-engine, emission-free air transport technologies for the remainder of their flight operations significantly earlier than now appears to be feasible.

Of course no such utopian matching of air transport capacity with travel demand is feasible in the real world. Yet the fact remains that significant improvement in existing air transport capacity allocation is attainable. This has been conclusively demonstrated by the limited but significant capacity reduction agreements that have been authorized to date, and has led the Civil Aeronautics Board (CAB) to institute a broad gauge investigation, the *Capacity Reduction Agreement Case*, Docket 22908. It is the purpose of this study to consider what regulatory procedures can best achieve the maximum reduction of excess airline capacity and to assess the environmental consequences that would result.

Before considering the limitations and possibilities of the pending *Capacity Reduction Agreement Case*, it is necessary to understand the mechanics of a capacity limitation agreement. In any given domestic market, the CAB, by virtue of air carrier reported origin and destination (hereafter O & D) traffic data, is able to determine the volume of traffic carried in that market on a daily basis.<sup>7</sup> Similarly, the CAB has accurate and up-to-date information on the schedules and type of equipment operated in that market to carry the traffic. By virtue of Phase 6A of the *Domestic Passenger Fare Investigation*, Docket 21866 (DPFI), the CAB has "standardized" seating con-

7. These data are derived from reports filed by the scheduled air carriers pursuant to Section 407 of the Federal Aviation Act of 1958, 49 U.S.C. § 1377 (1970). Data as to traffic fluctuations by day of the week, and even by flight, as well as by direction by time of day, is required to be furnished in Docket 22908. Capacity Reduction Agreement Case, Docket 22908, Report of Prehearing Conference at 11 (October 19, 1973).

figurations by aircraft type for the purpose of computing load factors for rate-making purposes.<sup>8</sup> From these data it is possible to compute each air carrier's market share, each individual carrier's load factor in the market, individual flight load factors, and, of course, the overall composite segment load factor in the market.

When a capacity limitation agreement is negotiated, it is first necessary to identify the future period during which the agreement will prevail, to forecast the total traffic in the market for that period (using most recent historic traffic as a base and a statistically derived "growth factor") and to agree upon a "target" load factor, *i.e.*, the optimum load factor to be achieved, balancing carrier profitability against adequate capacity to serve the public in that market. What constitutes "adequate" capacity is both an intricate matter to determine, and also involves a measure of subjective judgment. Virtually all markets have periods of peak demand (both on a seasonal basis and on an ad hoc basis, *e.g.*, holidays) and some markets also have directional imbalances, that is, more traffic over time in one direction than in the other. The art of deriving a viable "target" load factor thus consists of selecting several "targets" for different parts of the future operating period which reflect these fluctuations in demand<sup>9</sup> and to key these various "targets" at a level which will at once be sufficiently low to assure adequate seats to the public, but sufficiently high to maximize carrier efficiency and profitability.<sup>10</sup>

8. CAB Docket 21866. Although the actual number of seats available on any given aircraft may vary in practice depending on individual carrier decisions as to number of seats abreast, pitch (*i.e.*, the fore-aft spacing of seats), size and number of lounges, and other considerations, the Board has established a "standardized" configuration to be used to compute load factors for rate-making purposes.

9. For example, in the New York/Newark-San Juan market the CAB approved a 75 percent load factor for the peak season and a 65 percent load factor for the off-peak season. Ad hoc fluctuations, primarily on holidays, are usually handled by scheduling "extra sections" which, if not advertised in advance, are acceptable frequency additions beyond the regular schedules authorized to be operated under the capacity agreement. Another device to cope with ad hoc holiday fluctuations is to permit substitution of wide-body jets for conventional jets or higher-density for lower-density jets. See CAB Order 73-8-59, at 2 (August 10, 1973).

10. What constitutes an optimum load factor has as yet not been definitively determined by the CAB. In Phase 6B of the *Domestic Passenger Fare Investigation* (DPFI) the CAB established for rate-making purposes a long-term load factor standard of 55 percent, but in CAB Order 73-4-98, at 5 (April 24, 1973), the CAB suggested that quarterly average load factors of 65 percent might be appropriate in capacity agreement situations. As stated, *supra* note 9, the Board has approved a

Once the "target" load factors are determined, it is possible to calculate, given the traffic forecast for the various peak and off-peak periods of the overall capacity agreement period, how much total capacity should be operated by the carriers in the market. This total capacity is thereupon allocated among the carriers usually on a basis related to historic scheduling performance.<sup>11</sup>

#### CAPACITY REDUCTION AGREEMENTS UNDER THE FEDERAL AVIATION ACT OF 1958

The Federal Aviation Act of 1958, and its predecessor, the Civil Aeronautics Act of 1938,<sup>12</sup> have consistently been interpreted by the CAB as establishing a regulatory scheme in which the certificated airlines should retain managerial control and discretion over such details of operations as the volume of services offered, the timing of such services, the choice of type of aircraft to be operated and the seating configuration in the aircraft.<sup>13</sup> In this connection the

"target" load factor of 75 percent in the New York/Newark-San Juan market and parties to a capacity agreement must report those flights experiencing load factors higher than 95 percent. In CAB Order 73-11-50, at 4 (November 13, 1973) the Board would preclude schedule cutbacks in markets experiencing load factors of 72 percent or more.

11. For example, in the New York/Newark-San Juan market the CAB approved a carrier capacity allocation permitting American to operate 35 percent, Eastern 37 percent and Pan American 28 percent of the total approved capacity to produce the "target" load factors of 65 percent in the off-peak and 75 percent in the peak period. CAB Order 73-8-59 (August 10, 1973). Because different carriers may operate different equipment, it is necessary to establish a record of "equivalent frequencies": for instance, it may be determined that one wide-body frequency equals two narrow-body jet frequencies.

12. The Federal Aviation Act of 1958, 49 U.S.C. §§ 1301-1542 (1970) superseded the Civil Aeronautics Act of 1938, 52 Stat. 973. Insofar as it pertains to this article, the Federal Aviation Act re-enacted the 1938 provisions.

13. There are certain partial exceptions to this proposition:

(a) Subsidized air carriers are required by § 406(b)(3) of the Federal Aviation Act, 49 U.S.C. § 1376(b)(3) (1970) to provide "honest, economical and efficient management," a provision used by the Civil Aeronautics Board to disallow subsidy compensation for operation of excess capacity. See *Trans-Pacific Airlines, Ltd. & Hawaiian Airlines, Ltd., Mail Rates*, 20 C.A.B. 668 (1955), as modified, 21 C.A.B. 933 (1955).

(b) The CAB has undertaken to regulate the adequacy of service available in a given market, through what are known as "adequacy cases." These adequacy cases have been recognized as ineffective to assure adequate service and were superseded by a negotiating procedure between air carriers and civic complainants presided over by the Director of the Office of Community Relations of the CAB.

CAB in its order authorizing the transcontinental capacity limitation agreement, the first notable exception to the historic laissez-faire regulatory approach to airline scheduling, stated:

It remains our conviction, as indicated on several recent occasions, [citing orders 70-11-35, 71-3-71 and 71-5-68], that the Federal Aviation Act contemplates a competitive air transportation system and that decisions regarding flight scheduling and increases or reductions in the capacity offered to the public "go to the very heart" of such a system. [Citing order 70-11-35 *supra*] A competitive system, we firmly believe, is inherently more efficient and more responsive to the needs of the public than is a system in which production is allocated by mutual agreement of the producers. Under the competitive system air carrier scheduling and capacity should be established by the competitive decision of individual carriers. Inter-carrier agreements relating to scheduling and capacity are inconsistent with the general competitive norm established by the Act and with the antitrust laws. [Citing the Act but noting the qualification to the competitive norm set forth in section 102(d) which refers to competition *to the extent necessary* to assure the sound development of the national air transportation system.] Hence the Board has in the past, except in highly unusual and limited circumstances, refused to permit the carriers to discuss multilateral action in these areas.

Instead, we urged the carriers to take unilateral action to bring their capacity more in line with actual demand.<sup>14</sup>

The Board was motivated to depart from its longstanding "hands off" policy toward airline scheduling by several factors which had developed during the period immediately preceding its landmark decision in August 1971:

— A national economic slow-down accompanied by actual declines in airline traffic as opposed to anticipated continued growth;

(c) The CAB in the *Domestic Passenger Fare Investigation, Phase 6 B—Load Factor*, Docket 21566, established load factor standards for rate-making purposes. Expenses related to operations producing lower load factors would not be recognized for rate-making purposes.

(d) Similarly, in *Phase 6 A* of that investigation the CAB established seating configuration standards.

(e) Other phases of this investigation, notably Phase 7 (Fare Level), Phase 8 (Rate of Return) and Phase 9 (Fare Structure) were based on the assumption that a standardized load factor based upon a consistent seating configuration was essential to the determination of a domestic fare system which precluded charging the public for excess capacity.

14. CAB Order 71-8-91, at 3 (August 19, 1971).

– The commitment of the airline industry to purchase substantial numbers of new jet aircraft such as the Boeing 747, the Lockheed 1011 and the DC-10, which offer greatly increased capacity compared to the prior generation of narrow-body jet aircraft;

– The insistence of airline managements to build up and maintain high levels of flight frequencies in major competitive markets to preserve their market shares vis-à-vis competitors;

– Steeply declining load factors resulting from the over-capacity and the scheduling practices resulting from the competitive impetus of airlines to maintain market shares, a combination which more than offset the seat-mile economies inherent in the large capacity jet aircraft, thereby producing staggering operating losses;

– And finally, the CAB's apprehension that the carriers would not or could not take effective unilateral action to tailor capacity to actual demand "quickly enough to avert lasting injury."<sup>15</sup>

The CAB concluded that continuation of these conditions would be harmful to the public interest:

In addition to the environmental impact of flights unjustified by public need, the public must also ultimately bear the burden of a prolongation of the carriers' operation of unneeded services [citing the short term inability of the standardized load factors established in the *Domestic Passenger Fare Investigation* to deter excess capacity) and the seriously high losses which the carriers are now experiencing. This unhealthy situation is of course the very antithesis of the statutory objectives of providing the public with adequate, economical and efficient service at reasonable charges and with developing and maintaining a financially sound competitive industry. [Citing sections 102(c) and (d), 49 U.S.C. 1302(c) and (d) (1970).]<sup>16</sup>

It should be emphasized that apart from the foregoing reference to "environmental impact," the primary concern that has motivated the CAB to permit multilateral capacity reduction discussions and to approve resulting capacity reduction agreements has until quite recently been predominantly economic:

In our judgment, a limited departure from our normal policy of leaving scheduling and capacity to the free play of com-

15. *Id.* at 3-4.

16. *Id.* at 4.

petitive forces is justified at this time as a means of affirming the very statutory objectives of economical, efficient service to the public and a financially sound air transportation system which that policy would in normal times and under normal circumstances be expected to achieve.<sup>17</sup>

The history and results of the various multilateral capacity reduction agreements approved by the CAB demonstrate that this regulatory technique, although sparingly used until the onset of the "energy crisis," can in fact provide a means by which far-reaching reductions in excess capacity can be achieved and thereby attain the beneficial environmental consequences described in Part II of this study.

On March 11, 1971, the CAB authorized TWA and other interested carriers to conduct the first preliminary discussions to identify markets in which multilateral reductions of capacity might be agreed upon.<sup>18</sup> These discussions were held and eighteen such city-pair markets were identified. Approval was thereupon sought to conduct capacity reduction negotiations with respect to these specific markets. The CAB in fact approved such discussions with respect to only thirteen city-pair markets, namely those that met the following criteria promulgated by the Board:

*First, the markets must be of substantial size.* In this connection, all but one of the authorized city-pair markets ranked in the top twelve domestic markets in the United States based on revenue passenger miles, and the other ranked 28th.

*Second, the markets must be experiencing low load factors which are projected to continue, i.e., a low percent of occupied, compared to total available, seats.* With two exceptions the city-pair markets experienced load factors between 37 and 51 percent. The two exceptions had load factors of 59 and 68 percent but were nevertheless included in the CAB's authorization because they were lower-yield markets, *i.e.,* markets which, because of low fare characteristics, were less profitable than many other lower load factor domestic markets.

*Third, the markets must be served by a minimum of three competitive air carriers.*

17. *Id.* at 5.

18. CAB Order 71-3-71.

*Fourth, there must be a showing that "there is room for capacity reduction."*<sup>19</sup>

Accordingly, the CAB authorized discussions subject to certain constraints intended to protect the interests of all affected parties. One such requirement was the mandatory presence of CAB staff observers and such other observers as any local, state or federal agency deems fit. Likewise, representatives of civic, trade or consumer associations, as well as representatives of opposing or non-participating air carriers, were authorized to observe but not participate in the discussions. A full transcript of the discussions was required to be made at carrier expense and subsequently to be filed with the Board within ten days. The procedure adopted by the CAB contemplated that any agreement reached as a result of the discussions be filed with the CAB within fifteen days for approval or disapproval under Section 412 of the Federal Aviation Act, which authorizes the Board to approve agreements among carriers "for controlling, regulating, preventing or otherwise eliminating destructive, oppressive or wasteful competition, or for regulating stops, schedules and charter service . . . ."<sup>20</sup> CAB approval of any such agreement would confer antitrust immunity by virtue of Section 414 of the Act.<sup>21</sup> Provision was made for the filing of objections to any such agreement and for replies thereto.

The discussions went forward pursuant to these guidelines and three carriers (American, TWA and United) filed an application requesting approval of an agreement to reduce scheduled capacity in four markets: New York/Newark-Los Angeles; New York/Newark-San Francisco; Chicago-San Francisco; and Washington/Baltimore-Los Angeles.

The agreement sought to curtail schedule frequency sufficient to raise load factors in the four markets from the first quarter 1971 range of 26 to 36 percent, to a uniform level of 50 percent during the 1971-1972 off-peak period (October-May) and to a level of 60 percent during the 1972 peak period (July-September), thereby producing an average load factor over the term of the agreement

19. CAB Order 71-5-68, at 2 (May 14, 1971).

20. 49 U.S.C. § 1382 (1970).

21. 49 U.S.C. § 1384 (1970). The Department of Justice has objected to authorization of discussions as to 4 of the 13 markets, but the Board has rejected this position. CAB Order 71-5-68, at 3 (May 14, 1971).



of 52.5 percent.<sup>22</sup> In order to achieve these "target" load factors the carriers proposed reductions of off-peak capacity in the (then) present level of weekly nonstop round trips that ranged between a low of 10.2 percent and a high of 38 percent, and somewhat more modest schedule reductions during the peak period that ranged between 6.1 percent and 15.7 percent, depending on the market.<sup>23</sup>

The CAB approved this agreement despite substantial opposition, and based its approval on four rather dramatic findings.

First, the three applicant carriers had incurred 1970 losses of \$131 million in aggregate, and first quarter 1971 losses alone aggregated \$94 million.<sup>24</sup>

Second, load factors in the subject markets had declined steeply between the first quarter of 1970 compared to the first quarter of 1971 (*e.g.*, 8.5 load factor percentage points in the New York-Los Angeles market, the largest of the four markets).<sup>25</sup>

Third, domestic trunkline traffic on an overall basis had declined .4 percent during the six months of 1971 compared to the corresponding period in 1970 and more specifically, traffic in the four sub-

22. CAB Order 71-8-91, at 1-2 (August 19, 1971). Phase 6 B of the *Domestic Passenger Fare Investigation* had established 52.5 percent as the reasonable interim standard load factor for rate-making purposes.

23.

*To May 31, 1972*

	<i>Present Level Weekly Nonstop Round Trips</i>	<i>Proposed Level</i>	<i>Percent of Reduction</i>
NY-LA	185	132	28.9
NY-SF	143	89	38.0
CHI-SF	147	105	28.6
WASH-LA	73	66	10.2

*June 1 to September 16, 1972*

	<i>Present Level Weekly Nonstop Round Trips</i>	<i>Proposed Level</i>	<i>Percent of Reduction</i>
NY-LA	185	157	15.4
NY-SF	143	121	15.7
CHI-SF	147	126	14.3
WASH-LA	73	69	6.1

CAB Order 71-8-91, at 2.

24. *Id.* at 5.

25. *Id.* at 6.

ject markets had declined 9 percent in the first quarter of 1971 versus the first quarter of 1970.<sup>26</sup>

Fourth, the applicants forecast savings of \$60 million during the one year term of the agreement whereas the Department of Transportation forecast savings ranging between \$45 million and \$151 million depending on whether carriers merely grounded freed aircraft or sold them.<sup>27</sup>

Apart from the question whether resulting frequency would be fully adequate to meet the demands of the traveling public, a matter which the CAB affirmed, opposition to the agreement focused on three primary issues.

*Issue One:* Whether freed capacity would not be eliminated but rather would be redirected to other non-agreement markets, thereby disrupting existing competitive relationships and service quanta in such markets. The CAB disposed of this issue by finding, "the applicant carriers have represented that there will not be any large-scale shifting of capacity; and the Board is relying upon those representations in approving the agreement." The CAB further noted that "any large-scale shifting of capacity to markets already adequately served would be wholly inconsistent with the purposes for which this agreement is approved . . . ."<sup>28</sup>

*Issue Two:* Whether remaining capacity in an agreement market should be structured to accomplish various purposes, *inter alia*: (a) to assure a sufficient spread in the timing of schedules and dis-

26. *Id.*

27. *See id.*

28. *Id.* at 7 n.21. The Board retained jurisdiction to monitor the execution of this agreement and provided for a reporting system whereby each participating carrier is required within 15 days after the end of each calendar month to submit a report, in a form prescribed by the Board in Appendix A to its order, showing the traffic performance of each flight in each affected market.

Subsequently, various non-agreement carriers alleged that authorization for the agreement should be rescinded because freed capacity was in fact being shifted to non-agreement markets, and that the above-noted reporting requirement is inadequate and must be supplemented by disclosure of the disposition of freed capacity if the integrity of the agreement is to be maintained. The Board dismissed the former notion on the ground that the shift of freed capacity was not "large-scale" or even "significant." As to the request for a reporting requirement to disclose ultimate disposition of freed equipment, this was denied for all practical purposes when the Board merely adopted a more detailed version of its original Appendix A. The carrier which had requested the disclosure requirement did not petition for reconsideration, presumably because it was in the final stages of concluding a capacity limitation agreement of its own. *See* CAB Order 72-4-63 (April 13, 1972).

persion of service between airports serving a common area; (b) to preclude operations between 2200 hours and 0700 to abate noise. The CAB emphatically rejected these suggestions and opted for an "aggregate reductions" approach rather than a "specific flight allocation" method. The CAB concluded that "[i]t would be both difficult and a departure from our prior practice to attempt to ordain in advance an appropriate pattern of operations in these and other markets . . ." but rather such matters should "be left to the managerial discretion of individual air carriers. Even when there has been a general agreement on total volume of service to be offered in a market, competitive forces should still operate to produce a pattern of schedules most appropriately related to the demand for air service."<sup>29</sup>

*Issue Three:* Whether a hearing was necessary before CAB approval of the agreement, to compile an evidentiary record both as to the sufficiency of labor protective provisions and as to the alleged anti-competitive aspects of the agreement. The CAB denied this motion which had been advanced by the labor parties.<sup>30</sup>

Thus the CAB, with two members dissenting, approved the first capacity limitation agreement for a period of one year.

In addition to the discussions which led to the above-described capacity agreement, American, Eastern and Pan American undertook, pursuant to the authorization of Order 71-5-68, to negotiate an agreement affecting the New York/Newark-San Juan market. However, no agreement was reached within the 90 days allowed by the discussion authorization order, but subsequently Pan American requested and received (two members of the Board dissenting)

29. CAB Order 71-8-91, at 7-8 (August 19, 1971).

30. *Id.* at 9-10. One of the labor parties, the Airline Pilots Association International (ALPA), challenged this decision in the United States Court of Appeals for the District of Columbia. The Court held that the Board was not required to hold a hearing on the anti-competitive aspects of the agreement but remanded the case to the Board on the ground that "we are unable to determine the basis on which the Board denied a hearing on the impact of the agreement on carrier employees . . ." *Airline Pilots Ass'n Int'l v. Civil Aeronautics Board*, 475 F.2d 900, 902 (D.C. Cir. 1973). Thereafter, the Board pursuant to the terms of the remand invited ALPA to comment "as to the impact the agreement has had, and will be expected to have, on carrier employees." CAB Order 73-2-60, at 2 (February 14, 1973). On April 3, 1973, the Board, noting that ALPA had conceded that "no significant injury has actually occurred, at least within the classes and crafts represented by ALPA, which is fairly attributable to the capacity agreement," terminated the proceedings on remand. CAB Order 73-4-13, at 1, 3 (April 3, 1973).

on January 25, 1972, permission to resume discussions subject to the further constraint not originally contained in Order 71-5-68, that any agreement contemplated must terminate on or before October 28, 1972.<sup>31</sup> Subsequently, on June 16, 1972, the CAB (with two members dissenting) approved a capacity reduction agreement in the New York/Newark-San Juan market designed to achieve a 75 percent load factor during the peak period (August 1-September 9, 1972) and a 65 percent load factor in the off-peak period (September 10-October 28, 1972, at which time the agreement was to terminate).<sup>32</sup> The CAB relied on essentially the same findings that formed the basis for approval of the earlier transcontinental agreement: submarginal load factors, the forthcoming introduction of more high capacity, wide-body jet aircraft, unsatisfactory operating results, the fact that public service would remain unimpaired, and finally, the unusually low yield characteristic of the market due to the low fare level that prevailed in this market.<sup>33</sup>

The CAB likewise rejected the arguments of carriers seeking to impose reporting requirements as to the disposition of freed capacity, and the related argument that participants in a capacity limitation agreement should be barred from increasing schedule frequency in any other non-agreement market it is authorized to serve during the pendency of the capacity limitation agreement. The CAB reiterated its position that a hearing was not required either as to anti-competitive issues or the need for labor protective provisions.<sup>34</sup>

Subsequently, the participants in both of these approved capacity limitation agreements thereafter requested authority to conduct further discussions with a view to extending the duration of the agreements and the CAB grudgingly granted permission.<sup>35</sup> In the case of the transcontinental agreement, the CAB noted that although when it authorized this initial agreement it had stated that it would not

31. CAB Order 72-1-86 (January 25, 1972). The subject carriers were unable to reach agreement within the allotted 90 day discussion period, but subsequently received a further 30 days in which to discuss an agreement. CAB Order 72-4-127 (April 24, 1972).

32. CAB Order 72-6-70.

33. *Id.* at 2-3.

34. *Id.* at 4.

35. CAB Order 72-8-42 (August 9, 1972) (Transcontinental Agreement); CAB Order 72-9-13 (September 5, 1972) (San Juan Agreement).

countenance agreements exceeding one year, it now tentatively appeared necessary to grant a "transition period to facilitate a return to unilateral scheduling in the four markets" and that "a further agreement of no more than six months may be justifiable," especially because the transition would take place during "the forthcoming off-peak winter season."<sup>36</sup> However, the CAB reiterated its determination not "to approve any subsequent request for discussions or extensions of any agreements in these markets beyond the six-month period."<sup>37</sup>

The CAB further noted that operations under the first agreement had been "reasonably satisfactory" and although traffic growth was showing signs of resuming "at a healthy and fairly steady rate," the "upward trend has been underway for less than ten months" and the carriers "are starting back from a very deep trough of losses indeed."<sup>38</sup> The CAB once again denied a request for a hearing which had been advanced this time by the Aviation Consumer Action Project.<sup>39</sup> All of the original procedural machinery established by the CAB for conducting the earlier discussions was established for the new discussions.<sup>40</sup>

As to the renewal of permission to conduct further San Juan discussions, the CAB found that the prevailing agreement would have operated only thirteen weeks before expiration, that Pan American had forecast an operating loss of \$7 million in 1973 absent further capacity limitations in the San Juan market, that American and Eastern had economic problems as well, and that consideration of an extension was necessary to determine whether extended capacity limitations are required to avoid fare increases in this unique market.<sup>41</sup> The CAB imposed the now customary procedural format on the ensuing discussions.<sup>42</sup>

On November 2, 1972, the CAB, having earlier tentatively noted the need for a "transition" period to phase back to unilateral scheduling in the four transcontinental markets, predictably approved extension of an "amendatory agreement" that would extend the orig-

36. CAB Order 72-8-42, at 2 & n.5 (August 9, 1972) (two members dissented).

37. *Id.* at 2.

38. *Id.* at 2-3.

39. *Id.* at 5.

40. *Id.* at 5-6.

41. CAB Order 72-9-13, at 1-4 (September 5, 1972) (two members dissented).

42. *Id.* at 4-5.

inal agreement at the same level of capacity in the four subject markets until April 28, 1973, the autumn-winter period ending on the date when spring-summer schedules become effective.<sup>43</sup> The main CAB order (as distinguished from Member Timm's concurring opinion) reiterated its "extreme reluctance to approve such agreements in view of the Federal Aviation Act's insistence on a competitive air carrier system, and because over the long run that system will operate most efficiently if carriers are required to make capacity decisions unilaterally."<sup>44</sup> Pursuing its grudging policy of authorizing such agreements only because of the existence of putatively temporary, exceptional circumstances, the CAB concluded there existed "a need for a short additional period of agreed-upon restraint lest a return to unilateral scheduling for the autumn and winter months of 1972-73, traditionally months of substantially lesser demand, results in the operation by the applicants of levels of capacity out of line with demand."<sup>45</sup> To underscore the need for this short period of continued restraint, the opinion cited Big-Three losses, after taxes, of \$142 million during the period January 1970 through June 1972, the possibility of further "serious losses" in the forthcoming off-peak season, the evident success of the prior agreement in increasing load factors on the subject routes, and the substantial savings achieved by the agreement carriers.<sup>46</sup> Similarly, the opinion rejected the now customary requests for reporting use of freed capacity and for more detailed regulation of schedules to assure more appropriate scheduling of retained services.<sup>47</sup>

The truly remarkable aspect of the CAB's decision was the special concurring opinion written by the then newly installed member (now Chairman) Robert D. Timm. Contrary to this and prior majority views, Member Timm demonstrated that excess capacity was not a recent phenomenon nor an unusual circumstance, but rather a "problem that has recurringly plagued the air transportation industry," and moreover, a problem which "[i]n 34 years neither the industry nor the CAB has been able to solve . . ."<sup>48</sup> Member Timm

43. CAB Order 72-11-6 (two members dissenting, one member filing a special concurring opinion).

44. *Id.* at 2.

45. *Id.*

46. *Id.* at 3-4.

47. *Id.* at 5-6.

48. *Id.* Concurring Opinion at 1.

convincingly demonstrated what has been well known to airline marketing executives for years but never publicly acknowledged, that in competitive markets a given carrier's market share "is directly related to frequency of service and capacity in a given market."<sup>49</sup> Moreover, Member Timm adduced data demonstrating that "the carrier with the most frequencies and greatest capacity in a given market *will normally carry a percentage of the traffic in excess of its percentage of the frequencies and percentage of capacity.*"<sup>50</sup> Conversely, Member Timm established that "normally when a carrier unilaterally cuts back its service the traffic which would have been carried on these flights is *largely lost to the competing services.*"<sup>51</sup> Thus in one stroke the futility of relying upon unilateral carrier scheduling restraint to confine capacity to traffic demand in competitive markets was made luminously clear. As Member Timm succinctly put it, "[t]he problem is that no carrier management can individually cure this industry problem."<sup>52</sup> This proposition was demonstrated by a tabular analysis that demonstrated that despite widespread industry recognition that serious excess capacity would result if wide-body jets were scheduled into service to replace narrow-body jets on a one-for-one basis, that nonetheless in the 34 leading markets in which this transition was made, the transition was made on a one-for-one basis in no fewer than 28 of the 34 markets.<sup>53</sup>

Member Timm emphasized that the overcapacity dilemma can be solved if it is recognized that overcapacity "is basically an *industry* problem and as such can only be effectively dealt with on an *industry* level" and that "[s]o long as we rely upon unilateral restraint the overcapacity dilemma shall forever plague this industry."<sup>54</sup>

In another tabular analysis Member Timm demonstrated that by virtue of the transcontinental capacity agreement, TWA had improved its load factor by 16.7 percentage points, while other car-

49. *Id.* at 2.

50. *Id.* (emphasis added).

51. *Id.* (emphasis added).

52. *Id.* at 5.

53. *Id.* at 6-6a.

54. *Id.* at 7. Member Timm noted that while the load-factor standard established in the *Domestic Passenger Fare Investigation* is a step in the right direction, "this step does nothing to alter the consequences of the capacity dilemma." *Id.*

riers in comparable non-agreement markets during the same period had, despite the pressures of immense operating losses, improved load factors by unilateral restraint a mere 3.3 percentage points.<sup>55</sup> Translated into terms of operating results, TWA had lost \$18 million in the agreement markets during the 6 months ending March 1971 (prior to the capacity limitation agreement), but had earned a profit of \$4.8 million in these markets during the corresponding 6 months when the agreement was in effect.<sup>56</sup> As to cost savings alone, both TWA and American each saved from \$12 to \$12.5 million and United reported an increase in operating profits of \$4 million during the first 6 months of the agreement.<sup>57</sup>

Of equal significance to his recognition that unilateral action to contain excess capacity is futile, Member Timm first squarely recognized the beneficial environmental implications of eliminating excess capacity.

Increases in on-board load factors and resultant profits have not been the only benefits of the capacity agreement in the four markets here at issue. In the first 6 months of the agreement compared with the same period a year earlier on these routes the carriers:

Flew 17,000,000 fewer plane miles;

Flew 3,200,000,000 fewer empty seat miles;

Subjected busy airports at New York, Chicago, Los Angeles, San Francisco, Washington and Baltimore to 7,250 fewer aircraft movements. The dramatic reduction in the number of flights at these major hubs means a lessening in airport congestion, a lessening in exposure to aircraft noise, and a lessening in exposure of all passengers at these airports to delays in flight due to congestion.<sup>58</sup>

Thereafter, the CAB on November 2, 1972, predictably also approved renewal of the New York/Newark-San Juan agreement for

55. *Id.* at 9.

56. *Id.* at 9-10.

57. *Id.* at 10.

58. *Id.* While this enumeration of environmental benefits resulting from elimination of excess capacity is by no means complete, as will be shown in Part II, *infra*, this was the first detailed recognition of possible environmental benefits, as distinguished from cursory references in prior Board decisions to largely unspecified environmental benefits that might accrue from capacity limitation agreements. *See, e.g.*, CAB Order 71-8-91, at 4 (August 19, 1971). *See also* the majority opinion in the instant case. CAB Order 72-11-6, at 2.



the period ending April 28, 1973, largely on the grounds relied upon in approving the original 13-week agreement.<sup>59</sup>

The final episode in this history, which began when the participants in the two capacity reduction agreements sought permission to discuss a third round of agreements, reveals an almost total reversal of prior CAB attitudes toward such agreements and closely reflects the views expressed by Chairman Timm. The CAB almost perfunctorily granted the application of Eastern Airlines requesting authority to engage in renewed capacity reduction discussions with American and Pan American looking toward a continuation of the multilateral capacity agreement in the New York/Newark-San Juan market.<sup>60</sup> However, the CAB, in response to the application of United seeking permission for a third round of transcontinental discussions, issued a detailed opinion granting that permission relying on grounds that constituted a major regulatory change of policy. The CAB no longer viewed overcapacity as an unusual crisis brought on by essentially nonrecurring phenomena, but rather recognized the "*chronic and persistent* industry-wide tendency to operate excessive capacity . . ." <sup>61</sup> Moreover, the CAB acknowledged that its expressed "concerns" about the regulatory use of capacity agreements "may have been misplaced."<sup>62</sup> In fact the CAB noted that "[u]pon further examination based upon the actual operation of the agreements . . . we have tentatively concluded that capacity agreements constitute *a useful and successful regulatory device* that can be employed pragmatically in order to help achieve, particularly, the rate of return found required by the Board in Phase 8 of the recently concluded Domestic Passenger Fare Investigation (DPFI), Docket 21866."<sup>63</sup>

The CAB also expressed doubts that mere imposition of a long-term standard load factor (55 percent) in Phase 6B of the DPFI would preclude excess capacity, noting that post-1972 data indicate a leveling off, and in some markets, an actual decline in load factors.<sup>64</sup> In fact, the CAB recognized that if the necessary arithmetic adjustments to translate "standard" seating configuration criteria

59. CAB Order 72-11-7.

60. CAB Order 73-3-30 (March 9, 1973) (one member dissented).

61. CAB Order 73-4-98, at 2 (April 24, 1973) (emphasis added).

62. *Id.*

63. *Id.* at 3 (emphasis added).

64. *Id.*

(established in Phase 6A of the DPFI) into *actual* seating configurations are made, that “the domestic system experience of the industry has failed to reach even the relatively low interim load factor standards [52.5 percent].”<sup>65</sup>

Based on these factors, the CAB took issue with the Department of Justice view “that fare policy should be allowed to perform its function of bringing capacity into balance with demand” and noted that “we are concerned that this process is *too slow* to bring the industry back to economic health *within a reasonable time frame*.”<sup>66</sup> In this connection, the CAB clearly reasserted its authority to confer antitrust immunity not only as to the renewed transcontinental agreement, but as to “a series of co-existing capacity limitation agreements,” provided that a serious transportation need were found to exist.<sup>67</sup>

The CAB’s new attitude toward capacity agreements is best summarized in its declaration:

To deal with overcapacity in city-pair markets, we will employ a number of regulatory tools, and *we will make use of segment load factor data to identify such situations*. Because capacity agreements can *immediately correct* overcapacity in individual competitive markets . . . it is the Board’s tentative view that, *contrary to our earlier determinations . . .* such agreements properly constitute a *useful regulatory tool* that should not be discarded for *theoretical reasons*. In light of this revised position of the Board, carriers may wish to file applications for permission to discuss capacity agreements in other markets. *If the carriers do not come forward with additional applications for capacity discussions*, the Board may, in the discharge of its regulatory responsibilities, *suggest those markets where capacity agreements would be warranted*.<sup>68</sup>

To facilitate carrier initiative in coming forward with more proposed capacity reduction agreements, the CAB delineated “specific regulatory guidelines” that the CAB “is considering utilizing when passing upon proposed capacity limitation agreements.”<sup>69</sup> First, al-

65. *Id.*

66. *Id.* at 4 (emphasis added).

67. *Id.* at 6 n.12.

68. *Id.* at 4 (emphasis added).

69. *Id.*

though service must meet passenger requirements, the DPFI Phase 6B 55 percent load factor standard “is not necessarily appropriate for use in a capacity limitation agreement, and that in that latter context, *higher load factors*—say a quarterly average of 65 percent, by way of example—might well be in the public interest . . . .”<sup>70</sup> Moreover, the CAB appears to have abandoned its “aggregate reductions” approach to capacity agreements and notes that “capacity agreements should provide for both a reasonable schedule spread and flights properly timed to accommodate the needs of the markets concerned.”<sup>71</sup> Second, as to freed capacity, “the Board would not permit a carrier benefiting from an agreement to pursue a corporate policy of using released capacity (or the financial benefits resulting from agreement markets) in unduly adding capacity in other, nonagreement markets.”<sup>72</sup> Enforcement of this policy would be achieved by revocation or non-renewal of agreements. Third, the CAB abandoned both its “large market” requirement and its three carrier competitive standard.<sup>73</sup> It would now appear that any competitive market which, on the basis of segment load factor data, appears to be “experiencing unduly low load factors on a persistent basis” would be eligible for capacity agreement consideration.<sup>74</sup> Fourth, the CAB expressly contemplates agreements of two-year duration.<sup>75</sup>

Doubtless one of the primary reasons for this regulatory *volte face* is the fuel shortage emergency. The CAB’s decision notes that the first year of the transcontinental agreement eliminated 9,900 flights in the coast-to-coast markets, and 2,700 flights in the Chicago-San Francisco market, producing a saving of 120 million gallons of fuel or more than 1.5 percent of total domestic trunk consumption for 1971.<sup>76</sup> Reduction of airport congestion with reduced delay would likewise conserve fuel on flights being operated to and from these cities. The CAB concluded that “[g]iven the critical importance that energy conservation represents for our economy, we believe

70. *Id.* at 5 (emphasis added).

71. *Id.*

72. *Id.*

73. *Id.* n.11.

74. *Id.* at 5.

75. *Id.*

76. *Id.* at 2.

that failure to consider these factors would be inconsistent with our public interest mandate."<sup>77</sup>

Thereafter, on April 28, 1973, both capacity reduction agreements expired by their terms. On July 27, 1973, the CAB, however, instituted an investigation and ordered a hearing to determine whether capacity agreements should have a role in future regulation of air transportation.<sup>78</sup>

[T]he time is now ripe for such a proceeding. The Board has embarked upon a comprehensive program to encourage and develop an economically sound air transportation system which can assure high quality service to the consumer at the lowest reasonable fares. During most of the last 15 years, the airline industry's financial results have been generally disappointing, with cyclical periods of large losses, investor disenchantment, and fare increases. Recognizing the interdependence of rate and route matters, the Board hopes to create a milieu in which responsible airline management can stabilize economic conditions, avoid wasteful practices, and pass along to ratepayers the benefits of new technology. The question is whether our policy towards capacity reduction agreements should be reevaluated to determine whether such agreements can or should play a part in the Board's overall program.<sup>79</sup>

In addition to these economic considerations the CAB noted that "it has become increasingly apparent that all practicable steps must be taken to conserve the nation's energy resources. It appears that capacity limitation agreements such as the one here at issue can effect significant fuel savings."<sup>80</sup> The CAB also recognized the need

77. *Id.* The perennial dissenters concurred in the result because of the possibility of acute fuel shortage. Member Minetti, in a special concurring statement to which member Murphy subscribed, noted "the growing signs that a severe fuel shortage may be impending" and that it would not be "a responsible act to refuse to permit carriers . . . to devise and present to the Board any type of plan—including but not restricted to capacity limitation agreements—which might prove effective in dealing with an acute fuel shortage if one should develop. I am willing to be shown that capacity limitation agreements would be an effective tool in this regard; that no alternative plan or combination of plans would be equally effective; and that the beneficial results of such agreements in the circumstances of a severe fuel shortage would outweigh the many and varied evils which in my view such agreements otherwise involve." CAB Order 73-4-98, concurring Opinion, at 1 (April 24, 1973).

78. CAB Order 73-7-147.

79. *Id.* at 3.

80. *Id.* at 4.

to make "a searching analysis of the agreement's environmental impact,"<sup>81</sup> and acknowledged that despite its accumulation of "considerable data on the workings of capacity limitation agreements . . . factual gaps remain, particularly in the environmental area."<sup>82</sup> Accordingly, the CAB authorized interim approval of the transcontinental agreement for six months, instituted an expedited hearing, and directed the Bureau of Operating Rights to prepare a draft environmental impact statement to be available for consideration and comment by the parties, other environmentally concerned federal agencies and other interested persons at least 15 days prior to hearing.<sup>83</sup> In the event this proceeding was not concluded prior to expiration of the six months interim authority, a likely event, the CAB indicated it would consider further extension based on data available at that point in time.<sup>84</sup>

On August 10, 1973, the CAB granted interim authority for the New York/Newark-San Juan capacity agreement for six months or until the conclusion of the above noted hearing, whichever occurs first, and consolidated this agreement for hearing with the transcontinental agreement.<sup>85</sup> Thereafter a prehearing conference was held on October 4 and 5, 1973, and a Report of Prehearing Conference issued on October 19, 1973, in which hearings were scheduled for March 19, 1974.<sup>86</sup>

Sixteen basic issues and some twenty-four sub-issues are to be determined in the CAB's *Capacity Reduction Agreement Case*.<sup>87</sup> All but one basic issue is concerned with the two specific agreements under consideration.<sup>88</sup> Only Issue Sixteen appears to raise the broad question of what policies should be adopted "with respect to agreements between carriers limiting, apportioning, or controlling the capacity or the quantity or quality of service to be provided in domestic or overseas markets."<sup>89</sup> This emphasis reflects the CAB's

81. *Id.*

82. *Id.* at 17.

83. *Id.* at 15, 18.

84. *Id.* at 18.

85. CAB Order 73-8-59.

86. *Capacity Reduction Agreement Case*, Report of Prehearing Conference, CAB Docket 22908.

87. *Id.* at 2-8.

88. The Transcontinental Agreement No. 23703 and the San Juan Agreement No. 23672. *Id.* at 5.

89. *Id.* at 8.

assumption that capacity agreements must under existing law be voluntary, that the CAB may at most "suggest" markets where capacity agreements would be warranted, and that the CAB's regulatory role is confined to reacting to carrier applications for approval of specific agreements, subject to general policy guidelines to be formulated in Docket 22908.<sup>90</sup>

However, circumstances subsequent to the institution of this proceeding raise serious questions as to the adequacy of the system of voluntary agreements. Aviation fuel shortages have now become, and promise to continue to be, acute. On October 12, 1973, the Energy Policy Office, acting pursuant to the Economic Stabilization Act of 1970, as amended,<sup>91</sup> adopted a mandatory fuel allocation plan which imposes controls on consumption of "middle distillate fuels," *i.e.*, airline turbine fuel. The CAB, on its own motion, promptly authorized the airline industry to conduct such discussions as become necessary "to consider adjustment of schedules to the extent necessary to accommodate the President's fuel allocation program with the least possible reduction of service to the public."<sup>92</sup>

Shortly thereafter the CAB approved capacity reduction agreements in no fewer than twenty major markets served by the Big Three—American, TWA, and United.<sup>93</sup> The CAB expressed misgivings that "fuel-shortage-caused service reductions," if managed on a unilateral basis, might not be carried out on an orderly and fair basis.<sup>94</sup> Specifically, the CAB was concerned that carriers might allocate fuel to dense, competitive markets to the detriment of service in sparse, monopoly markets, and also that schedule bunching at competitive prime-times might result.<sup>95</sup> The CAB was likewise concerned that the "sudden press of world events aggravating the fuel crisis" has compelled the CAB to take action without "a full opportunity to answer all of the questions posed by the agreements," and accordingly retained jurisdiction over the agreements in order to "be in a position to order changes in the agreements, or require that they be terminated, as new information becomes available."<sup>96</sup>

90. See note 61 *supra*.

91. Pub. L. No. 93-28 (April 30, 1973).

92. CAB Order 73-10-50, at 1 (October 12, 1973).

93. CAB Order 73-10-110 (October 31, 1973).

94. *Id.* at 2.

95. *Id.*

96. *Id.* at 3, 4.

Subsequently, the CAB announced "The furtherance of this program for rational and equitable schedule adjustments to accommodate the fuel emergency will . . . best be facilitated if provision is made for relaxation in appropriate circumstances of unnecessary restrictions on air carrier consultations looking toward an industry-wide plan for carriers' operations under the fuel allocation program."<sup>97</sup> The CAB established an industry-coordinating body to conduct discussions, to provide a central source for necessary information, to discharge the reporting obligations imposed by the CAB, and to perform other administrative details related to filing of agreements for approval.<sup>98</sup> Thereafter, extensive schedule cut-backs were made and further capacity reduction agreements proposed.<sup>99</sup> The CAB was obviously concerned that the exigencies of the fuel crisis may have produced precipitate action but consoled itself by quoting the United States Supreme Court, "The best . . . [can become] an enemy of the good, and waiting for the perfect . . . plan . . . [can lead to] defeating or postponing less ambitious but more attainable . . . improvements."<sup>100</sup>

However, as the more frenetic aspects of the fuel shortage crisis become normalized, it becomes clear that the CAB in its pending

97. CAB Order 73-11-50, at 2 (November 13, 1973).

98. *Id.* at 3.

99. See THE TRAVEL AGENT, November 12, 1973, for an extensive listing of unilateral schedule cuts. At least five further applications for approval of capacity reduction agreements are pending as of December 15, 1973:

<i>CAB Docket</i>	<i>Carrier</i>	<i>Markets</i>
25990	TWA-United-Western	San Francisco: Denver, Seattle, Portland
26057	Pan Am-TWA-BOAC	London: Philadelphia, Boston, Chicago
25990	Eastern-Pan Am	Miami-San Juan-Virgin Islands
25990	Frontier-TWA	Denver-St. Louis Albuquerque-Las Vegas
25990	Pan Am-American-Eastern	New York/Newark-San Juan, further reductions and extension of duration.

The Board has even explicitly approved discussion of the possibility of complete temporary withdrawal and bilateral allocation of markets by competing air carriers. CAB Order 73-11-50, at 3 n.4 (November 13, 1973). One such "bilateral allocation" has in fact occurred, *i.e.*, United withdrew from the Washington-San Diego market, leaving it to American, in return for American's withdrawal from Hartford-Los Angeles. New York Times, November 1, 1973.

100. Schwabacker v. U.S., 334 U.S. 182, 193 (1948).

investigation in Docket 22908 has a regulatory obligation to formulate a considered program of capacity control procedures which over the long term will assure a rational relationship between available capacity and consumer use. It has now become apparent that no nation can any longer afford the luxury of running its air transport system virtually half empty. The large volume of unused excess capacity was originally viewed as economically intolerable. While the economic waste continues to be an important consideration, the more recent dual constraints imposed by the fuel shortage and the need for environmental reform lend the greatest importance to what the CAB wants to accomplish in Docket 22908. As noted hereafter, it may well be necessary for Congress to grant the CAB additional authority to prescribe and require capacity reductions in order to achieve optimal matching of capacity with demand.

#### ENVIRONMENTAL AND ENERGY FACTORS REQUIRE MORE EFFECTIVE REGULATION TO CORRELATE AIRLINE CAPACITY WITH USER DEMAND

It is imperative that the airline industry and its regulators recognize that the present fuel shortage is not an ephemeral condition. A new regulatory era has dawned, in this country and throughout the world, which must assure that past waste in airline operations will not recur.

The history of air carrier operations shows that despite blatant diseconomics, the airline industry has persisted for more than two decades in operating increased discounts of excess capacity. In 1950 the load factor for the total domestic operations of the certificated route air carriers was 61.2 percent; by 1960 it had declined to 58.5 percent; and by 1970 to 48.9 percent.<sup>101</sup> Total airline capacity, expressed in overall available ton miles operated by domestic scheduled carriers, has increased substantially during this period:

#### *Billions of Ton Miles Operated:*

1950	1.86
1960	7.24
1970	32.54 <sup>102</sup>

101. CIVIL AERONAUTICS BOARD, HANDBOOK OF AIRLINE STATISTICS 26 (1971 ed.). The corresponding data for the *entire* airline industry, *i.e.*, certificated route carriers plus supplemental air carriers, are strikingly similar: 1950 60.8%  
1960 59.3  
1970 49.7

102. *Id.* at 10.



As the meteoric increase experienced between 1960 and 1970 suggests, the *rate* of increase was itself increasing. In fact, the annual rate of growth of overall available ton miles operated by scheduled domestic carriers was 10.4 percent per year in 1960, but had increased to a rate of 26.2 percent before the near calamitous events of the 1970-1973 period produced virtually no-growth conditions.<sup>103</sup> Fuel consumption kept pace with these increased operations. In 1951, the first year that reported industry fuel consumption was tabulated by the CAB, total domestic operations consumed slightly over one half billion gallons of aviation fuel compared to slightly more than eight billion gallons twenty years later.<sup>104</sup>

The financial consequences of these operations can only be characterized as unsatisfactory. From an operating profit for total domestic services of \$64.4 million in 1950, the industry declined to \$37.3 million in 1960, and to a loss of \$.8 million in 1970.<sup>105</sup> In terms of rate of return on investment, total domestic airline operations garnered a positive return of 11.43 percent in 1950, which declined to 2.92 percent in 1960 and 0.28 percent in 1970.<sup>106</sup>

This financial and operational history of air transportation since 1950 confirms Chairman Timm's view that economic forces cannot be relied upon to produce an optimum matching of airline capacity with actual demand. Despite the economic decline chronicled by the foregoing statistics, as recently as mid-1973 only two capacity reduction schemes (involving a mere five markets) had been actually implemented. Until the onset of the fuel shortage crisis, the majority of a divided CAB had made it clear that capacity limitation was a temporary expedient to help the industry through what was thought to be nonrecurring economic doldrums. The two dissenting members had invariably castigated the authorization of even these limited capacity agreements; even after the fuel crisis, they only grudgingly acquiesced in its use as an expedient made temporarily necessary by world conditions.<sup>107</sup>

It must now be recognized that the present fuel shortage crisis

103. *Id.* at 11.

104. *Id.* at 65. The total for all certificated route air carrier operations during the same period increased from slightly more than 683 million gallons to over 10.1 billion gallons. *Id.*

105. *Id.* at 72.

106. *Id.* at 76, 393. (The 1970 return on investment includes the effect of investment tax credits.)

107. CAB Order 73-4-98 (concurring opinion of member Minetti).

is not a temporary phenomenon which, once overcome, will permit a return to a regulatory climate of "business as usual." At least four major environmental and resource factors demonstrate a long-term and continuing need to regulate airline scheduling to coordinate available capacity as closely as possible to user demand.

### *Limited Non-renewable Fuel Sources*

The available evidence suggests that significant limitations in jet fuel consumption will be necessary for at least the remainder of this century. The current jet fuel shortage is but a limited part of the larger national and world petroleum shortage. The Department of Interior forecast of United States supply and demand for the remainder of the century supports this view:

	1971	1975	1980	1985	2000
Domestic Supply	22,569	22,130	23,770	23,600	21,220
Percent of Total	74.0	63.1	56.3	46.6	29.7
Supplemental Supplies	7,923	12,960	18,420	27,100	50,160
Percent of Total	26.0	36.9	43.7	53.4	70.3
Total	30,492	35,090	42,190	50,700	71,380

(Trillions of BTU)<sup>108</sup>

Regardless of the precise accuracy of such forecasts, it is clear that—even assuming major conservation efforts, resort to alternative and new energy sources, universal exploration and production of

108. U.S. DEPT OF INTERIOR, UNITED STATES ENERGY THROUGH THE YEAR 2000, at 10 (1972) [hereinafter cited as INTERIOR REPORT]. More recent forecasts are no more encouraging. The General Energy Development Division of Applied Technology for the Atomic Energy Commission forecast in April 1973,

Between 1970 and 1985 our use of energy may nearly double. From an examination of the various sources of our future energy, three significant trends emerge. The sum of our domestic gas and oil production is expected to decrease, even though significant supplies from the North Slope in Alaska are expected. Both domestic coal and nuclear energy use will expand significantly. In spite of this expansion, and as a direct result of our shrinking domestic oil and gas production, oil and gas imports will expand greatly. Imported oil may quadruple and represent nearly one fourth of the national energy supply. Some estimates suggest a \$25 billion oil import bill by 1985 and a staggering trade deficit.

J.C. Bresee, *Fuel Supplies and Non-Nuclear Energy 2* (hereinafter cited as AEC REPORT). (An unpublished study presented to the Southern Industrial Nuclear Board Symposium, April, 1973.) The study is based in part on a 1972 National Petroleum Council Study. *Id.* It must be noted that since this estimate the posted price of crude oil has quadrupled.

petroleum and increased refinery capacity—there will be a significant shortfall in the supply of petroleum and petroleum products. To be sure, the President in various Energy Messages has announced a national commitment to “Project Independence,” an all-out program to achieve national energy self-sufficiency at the earliest possible date.<sup>109</sup> The “Project Independence” Study contained a mixture of good news and bad news. On the one hand it concluded that “The United States has the resources and technology for self-sufficiency. A properly directed, sustained national commitment can attain that goal.”<sup>110</sup> However, it was recognized that at best “1985 is the earliest date by which self-sufficiency can reasonably be expected with this program” and at best U.S. dependence on oil imports can only be cut in half (to 6 million barrels per day) by 1980.<sup>111</sup> The Study recognizes that these objectives can be attained only if the *total* recommended “Project Independence” program is adopted *now* in time for Fiscal Year 1975 budgeting and is *sustained* over the next decade and beyond.<sup>112</sup>

Significantly, five “tasks” are “required to regain and sustain self-sufficiency, and simultaneous effort is required on all five.”<sup>113</sup> The first task is to “conserve energy by reducing consumption and conserve energy resources by increasing the technical efficiency of conversion processes.” Some 22 percent of total program effort is allocated to the conservation measures, involving a 215 percent increase in budget in this area between Fiscal 1973 and 1975.<sup>114</sup> In

109. See Address by the President on the Energy Emergency, November 7, 1973, p. 1. “In the long run, it means that we must develop new sources of energy which will give us the capacity to meet our needs without relying on any foreign nation.” In his June 29, 1973, Energy Message the President directed the Chairman of the Atomic Energy Commission to develop by December 1, 1973, a program to achieve self-sufficiency by the earliest possible date.

110. AEC, *THE NATION'S ENERGY FUTURE*, A Report Submitted to Richard M. Nixon, President of the United States by D.L. Ray, Chairman U.S. Atomic Energy Commission, at vii (1973) [hereinafter cited as *ENERGY FUTURE REPORT*].

111. *Id.* at viii.

112. See *id.* at viii and 75-79.

113. *Id.* at vii.

114. See *id.* at vii, 7, and 13. The other tasks are:

Task 2. Increase domestic production of oil and natural gas as rapidly as possible.

Task 3. Increase the use of coal, first to supplement and later to replace oil and natural gas.

Task 4. Expand the production of nuclear energy as rapidly as possible, first to supplement and later to replace fossil energy.

the case of airlines, the Report makes it clear that reduced consumption, not increased technical efficiency in the conversion process, is the most promising option.<sup>115</sup> Thus, under the most recent and most optimistic assessment of the energy situation, it appears that conservation through reduced consumption is the number one task, that continued dependence on imported supply will continue at least until 1980 and that many of the other necessary tasks may be difficult of attainment or impossible within the projected time-frame, thereby creating even greater pressure for reduced consumption until such tasks are accomplished.

Moreover, it is evident that given world energy conditions other factors not considered by the "Project Independence" Report will bear on availability of jet fuel. One such factor involves international competition for the world's limited petroleum resources. The AEC Report forecasts that, "Japan oil imports will equal ours by 1985 while Western Europe may require nearly as much as both countries."<sup>116</sup> The economic result of this competition for scarce resources is already evident in the rapidly escalating price of crude

Task 5. Promote, to the maximum extent feasible, the use of renewable energy sources (hydro, geothermal, solar) and pursue the promise of fusion and central station solar power.

ENERGY FUTURE REPORT at vii.

Attainment of some of these tasks are, to put it mildly, problematical. Any significant increase in domestic production of oil and natural gas will necessitate exploitation of reserves on the Continental shelf (where at least half of the nation's reserves are located), thereby raising severe environmental problems. Expansion of nuclear capacity, especially the Liquid Metal Fast Breeder Reactor, on the scale assumed in the Report and within the time frame contemplated, is highly problematical in view of recent judicial decisions. *See, e.g.,* Scientists' Institute For Public Information, Inc. v. AEC, 481 F.2d 1079 (Cir. 1973). Expanded use of coal likewise faces severe constraints imposed by the Clean Air Amendments of 1970, 42 U.S.C. 1857-58a (1970), and of course the ability to make operational any of the renewable energy sources, which is not feasible under the current state of the arts, is conjectural. The need for substantially expanded refinery capacity, a factor severely affecting the available supply of jet fuel, is not even listed as a "task" to be accomplished in the Report. Thus to the extent there is a shortfall or delay in accomplishing any of these tasks, more need will arise for conservation of available supplies.

115. The Report shows that of the 7.7 million barrels per day oil equivalent actually consumed in 1970 by the transportation industry 5.8 or over 75 percent was lost energy; by 1980 the corresponding figures are 12 million barrels equivalent per day consumed but 9 million lost, again a 75 percent conversion loss. This condition is a function of the fact that no change in transport technology is projected which would produce increased conversion efficiencies. *See* ENERGY FUTURE REPORT at 42-43.

116. AEC REPORT, at 2.

oil in the world market. Thus, quite apart from the political decision to seek petroleum self-sufficiency for national security reasons, this nation's economic capacity to import quantities sufficient to meet the predicted shortfall is doubtful. A further complication results from the increasing sophistication of Mideast oil suppliers manifested by their realization that it is in their national interest to curtail production thereby prolonging the life of their reserves and optimizing their profits. There is likewise increasing awareness that accumulation of vast deposits of foreign currency during a long-term period of world inflation and corresponding currency deflation is counter-productive. The problem of accessibility to adequate supplies of Mideast oil thus transcends the present political imbroglio arising from the Mideast War.

Still a further factor that will tend to increase domestic (as well as world) consumption of all energy sources including petroleum is the substantial forecast increase in conversion losses, *i.e.*, the loss that results from converting basic fossil fuel into its ultimate form for consumption. The Department of Interior forecasts the 1971 level of conversion loss (some 17.3 percent of total gross energy inputs) will increase to 27 percent by the year 2000, an increase in absolute terms from 11,936 trillion BTU per year to 51,830 trillion BTU per year.<sup>117</sup> As heretofore noted, the transportation industry ranks conspicuously high in conversion losses with no forecast prospect of improvement.

Finally, at least during the initial months of the energy crisis the airline industry, compared to other consumers of petroleum and petroleum products, was among those most adversely affected. This acute impact arose from a variety of circumstances which include, *inter alia*: distillates were hardest hit by virtue of the shortage of refinery capacity; in the scale of national priorities other categories of consumers (notably the Department of Defense, home heating oil, and others) ranked higher than airlines; and other consumers (such as the electric utilities) had the option to convert to coal or other non-petroleum fuel sources. The Energy Policy Office initially imposed on the trunkline industry a 15 percent reduction in available fuel based on 1972 levels, and a 10 percent reduction for Local Service Carriers, which in 1974 would produce a 25 percent and 20 percent shortfall respectively, inasmuch as 1974 con-

117. INTERIOR REPORT, at 2.

sumption based on proposed scheduling increases would have been 10 percent higher than 1972.<sup>118</sup> These factors strongly suggest the need for long-term and continuing regulation to match as closely as possible airline capacity to consumer demand.

### *Abatement of Jet Aircraft Noise*

As of August 1973 there were approximately 2000 large jet aircraft operating in the U.S. fleet, serving some 500 individual major terminals and carrying approximately 190 million passengers.<sup>119</sup> Despite a substantial investment in aviation noise control research and development in both the federal and private sectors, jet noise affects approximately 16 million persons in the United States and

in spite of the introduction of quieter new aircraft, the number will continue to be of major proportion until the mid 1980's unless aggressive action is taken. The adverse effects of this noise range from annoyance to the possibility of hearing damage. These effects have resulted in numerous law suits and, in some cases, have prevented expansion of existing airports or construction of new ones.<sup>120</sup>

The Noise Control Act of 1972<sup>121</sup> authorized the Administrator of the Environmental Protection Agency (EPA) to coordinate federal noise control activities, federal research and development related to noise, and to provide technical assistance at the state level to formulate codes and laws compatible with federal noise regulation.<sup>122</sup> The evident intent of Congress was to coordinate the ac-

118. See Demkovich, *Transportation Report / Higher Fuel Costs Could Offset Airlines' Gains from Flight Cutbacks*, 5 NAT'L JOUR. REP. 1944 (1973); I. Corrigan, *Energy Report / Federal Energy Office Fuel Priorities Spell Trouble for American Motorists*, 5 NAT'L JOUR. REP. 1950-51 (1973).

119. EPA, REPORT ON AIRCRAFT-AIRPORT NOISE 4 (1973) [hereinafter cited as EPA NOISE REPORT]. This study is to determine "the (1) adequacy of Federal Aviation Administration flight and operational noise controls; (2) adequacy of noise emission standards on new and existing aircraft, together with recommendations on the retrofitting and phaseout of existing aircraft; (3) implications of identifying and achieving levels of cumulative noise exposure around airports; and (4) additional measures available to airport operators and local governments to control aircraft noise." See Noise Control Act of 1972, Pub. L. No. 92-574, § 7(a), 86 Stat. 1239 (Oct. 27, 1972).

120. EPA NOISE REPORT at 6-7.

121. Pub. L. No. 92-574, 86 Stat. 1239 (Oct. 27, 1972).

122. EPA NOISE REPORT at 7.

tivities of EPA under the Noise Control Act with those of FAA under the Federal Aviation Act and other agencies such as NASA to produce a coherent program of noise abatement. Section 7(a) of the Noise Control Act directed EPA to produce a report for submission to Congress evaluating the effectiveness of existing federal regulatory efforts to control jet noise within acceptable standards.<sup>123</sup> In addition, Section 5 of the Noise Control Act directs EPA to prepare both a Criteria Document and an Environmental Noise Effects Document to assure that health and welfare objectives of the Act will be realized by the overall federal regulatory noise control system.<sup>124</sup>

The EPA Noise Report found "that existing FAA flight and operational controls do not adequately protect the public health and welfare from aircraft noise."<sup>125</sup> EPA notes that, as of August 1973, FAA had adopted only two Federal Aviation Regulations and two Advisory Circulars related to flight and operational noise controls.<sup>126</sup> Apart from these regulatory efforts, which EPA characterizes as inadequate, FAA "in its fifteen years of existence, has devoted substantial effort to the technological, economic, and legal background necessary to propose seven noise emission regulations capable of effecting significant noise reduction in a safe and economically reasonable manner."<sup>127</sup> However, only two of the seven regulations have been issued and they "did not utilize public health and welfare considerations as a basic constraint in their development, since this was not required by the Federal Aviation Act of 1958, until its amendment by the Noise Control Act of 1972."<sup>128</sup> EPA expressed

123. Pub. L. No. 92-574, § 7(a), 86 Stat. 1239 (Oct. 27, 1972). EPA has completed this study.

124. As of this writing, only the Criteria Document has been completed.

125. EPA NOISE REPORT at 14 (footnote omitted).

126. *Id.* The Circulars are not binding on aircraft operators. The Regulations were FAR 91.55, which prohibits flight at speeds in excess of Mach 1 to preclude sonic booms, and FAR 91.87, which pertains to operations at airports with operating control towers. EPA concludes these regulations are inadequate. *Id.* at 14 *et passim*.

127. *Id.* at 32.

128. *Id.* at 30. Of the two operative FAR's only Part 36 is germane to this analysis (FAR 91.55 relates to Civil Aircraft Sonic Boom, *i.e.*, supersonic aircraft operations). FAR Part 36 propounded three appendices: Appendix A prescribes conditions under which noise type certification tests for aircraft must be conducted and what noise measurement procedures must be used; Appendix B prescribes the computational procedures to be used to determine the noise evaluation quantity, *i.e.*, the effective perceived noise level (EPNL); Appendix C prescribes noise level criteria,

the view that the Regulations in question "do not provide adequately for such needs." For all practical purposes, Regulation 36—which prescribes noise standards for the issuance of type certificates for subsonic transport category aircraft and subsonic turbojet aircraft regardless of category—constitutes the primary operative noise control provision presently available to control jet aircraft operations. Five other regulatory proposals are under consideration as of this writing.<sup>129</sup> Of these, the proposal for Fleet Noise Level Requirements is the most important. On January 24, 1973, the FAA had issued an Advanced Notice of Proposed Rulemaking which would establish operating practices that would prevent escalation of existing fleet noise levels produced by domestic airline operations, would require a substantial reduction in fleet noise levels on or before July 1, 1976, and would thereafter require aircraft to comply with FAR 36 noise standards on and after July 1, 1978.<sup>130</sup> The FAA Advanced Notice explains the significance of fleet noise levels:

The FNL concept is based on the principle that the noise level of any given fleet is a function of the jet-engine noise of each airplane in that fleet and the total number of takeoffs and landings of each airplane in that fleet. The major elements of the FNL concept are: (1) determining the noise levels for each airplane in the fleet, (2) determining the total number of opera-

noise measuring points and aircraft flight test conditions for which compliance must be shown at noise levels determined in accordance with Appendices A and B. See 14 C.F.R. § 36-422-46 (1973).

129. "[T]he FAA has issued two Notices of Proposed Rule Making (NPRM) and three Advanced Notices of Proposed Rule Making (ANPRM) that have not yet resulted in regulations as proposed. The notices, the general titles, and the dates of issue are: 1. ANPRM 70-33; Civil Supersonic Aircraft Noise Type Certification Standards, 4 August 1970. 2. ANPRM 70-44; Civil Airplane Noise Reduction Retrofit Requirements, 30 October 1970. 3. NPRM 71-26; Noise Type Certification and Acoustical Change Approvals, 13 September 1971. 4. NPRM 72-19; Newly Produced Airplanes of Older Type Design; Proposed Application of Noise Standards, 7 July 1972. 5. ANPRM 73-3; Civil Airplane Fleet Noise (FNL) Requirements, 24 January 1973." EPA NOISE REPORT at 33.

130. Proposed FAA Reg. §§ 121.801-11, 38 Fed. Reg. 2769 (1973). The proposed regulations would apply to all aircraft operated in interstate commerce (but not in foreign or overseas air commerce) under Part 121 of the Federal Aviation Regulations (14 CFR § 121) by carriers operating turbo jet aircraft having maximum weights of 75,000 pounds or greater. *Id.* Part 36 sets maximum perceived noise output to be attained by all aircraft type-certificated after December 1, 1969. *Id.*, n.1. The interim 1976 phased reduction in fleet noise levels would require that 50 percent of the ultimate 1978 reduction be achieved by July 1, 1976. *Id.* at 2770.



tions (takeoffs and landings), for each airplane type for a representative 90-day period, (3) calculating a fleet noise level based on a mean logarithmic equation, and (4) establishing a precise limit on fleet noise levels.<sup>131</sup>

EPA expressed qualified approval of the FAA proposed FNL approach but noted no fewer than five major weaknesses for which it prescribed remedial provisions.<sup>132</sup>

Currently, EPA is preparing detailed, comprehensive noise abatement and control regulations to be submitted to FAA for publication and adoption. Under Section 611(c) of the Federal Aviation Act, as amended by the Noise Control Act, FAA must consider these regulations, and within thirty days publish them as a notice of proposed rulemaking. Thereafter, within sixty days of publication, FAA must conduct public hearings and thereafter either: (1) adopt the regulations; (2) adopt modifications thereof; or (3) reject the regulations, in which event it must publish "a detailed explanation providing reasons for the decision not to prescribe such regulations." EPA may, in the latter event, request FAA reconsideration. FAA must then give such reconsideration and act within ninety days, supporting whatever action it takes with a written report. The report must, among other things, be supported by detailed findings and reasons. Thereafter, EPA can trigger still further review procedures.<sup>133</sup>

131. Proposed FAA Reg. §§ 121.801-11, 38 Fed. Reg. 2770 (1973).

132. EPA NOISE REPORT at 41-42.

133. Section 611(c), Pub. L. No. 92-574, 86 Stat. 1240 (October 27, 1972) provides: "Not earlier than the date of submission of the report required by section 7(a) of the Noise Control Act of 1972, EPA shall submit to the FAA proposed regulations to provide such control and abatement of aircraft noise and sonic boom (including control and abatement through the exercise of any of the FAA's regulatory authority over air commerce or transportation or over aircraft or airport operations) as EPA determines is necessary to protect the public health and welfare. The FAA shall consider such proposed regulations submitted by EPA under this paragraph and shall, within thirty days of the date of its submission to the FAA, publish the proposed regulations in a notice of proposed rulemaking. Within sixty days after such publication, the FAA shall commence a hearing at which interested persons shall be afforded an opportunity for oral (as well as written) presentations of data, views, and arguments. Within a reasonable time after the conclusion of such hearing and after consultation with EPA, the FAA shall—

(A) in accordance with subsection (b), prescribe regulations (i) substantially as they were submitted by EPA, or (ii) which are a modification of the proposed regulations submitted by EPA, or

(B) publish in the Federal Register a notice that it is not prescribing

Thus Congress has structured a complex collaborative inter-agency regulating scheme to carry out its objective of reducing aircraft noise to levels compatible with the public health and welfare. In view of EPA's outspoken criticism of FAA handling of the aircraft noise problem, it is predictable that serious inter-agency differences will arise over the substance of the forthcoming EPA-authored noise abatement regulations. Even if this collaborative regulatory apparatus ultimately proves workable—a matter subject to some doubt—it is evident that under the most optimistic assumptions, compliance with necessary statutory procedural requirements may well produce significant delay in achieving acceptable noise levels.<sup>134</sup> Even after noise abatement regulations are finally established, a reasonable additional period of time would be necessary to enable the

any regulation in response to EPA's submission of proposed regulations, together with a detailed explanation providing reasons for the decision not to prescribe such regulations.

"If EPA has reason to believe that the FAA's action with respect to a regulation proposed by EPA under paragraph (1)(A)(ii) or (1)(B) of this subsection does not protect the public health and welfare from aircraft noise or sonic boom, consistent with the considerations listed in subsection (d) of this section, EPA shall consult with the FAA and may request the FAA to review, and report to EPA on, the advisability of prescribing the regulation originally proposed by EPA. Any such request shall be published in the Federal Register and shall include a detailed statement of the information on which it is based. The FAA shall complete the review requested and shall report to EPA within such time as EPA specifies in the request, but such time specified may not be less than ninety days from the date the request was made. The FAA's report shall be accompanied by a detailed statement of the FAA's findings and the reasons for the FAA's conclusions; shall identify any statement filed pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969 with respect to such action of the FAA under paragraph (1) of this subsection; and shall specify whether (and where) such statements are available for public inspection. The FAA's report shall be published in the Federal Register, except in a case in which EPA's request proposed specific action to be taken by the FAA, and the FAA's report indicates such action will be taken."

134. Nor can any significant relief from existing aircraft noise impact be expected from establishment of local regulations. The Supreme Court has recently upheld federal preemption of all regulatory action which would affect interstate airline operations. *Lockheed v. Burbank*, 93 Sup. Ct. 1854 (1973). The EPA Report notes,

It is quite evident that the actual ability of airport proprietors and State and local governmental agencies to control aircraft noise at existing airports is relatively limited.

Taking all of the above, together with the *Burbank* decision, it would appear that the states, local governments and airport proprietors are severely limited in ability to act and that there is an implication that the full burden of controlling aircraft noise rests on the federal government. EPA NOISE REPORT at 105.

air carriers to implement equipment and operational changes made necessary by these regulations. As shown hereafter, there is reason to doubt that industry compliance will be feasible within the reasonably near future. Consequently, CAB capacity reduction measures offer a potentially faster and more effective means of reducing fleet noise levels by the simple expedient of discontinuing superfluous flights.

### *Reduction of Aircraft Emissions and Other Pollutants*

As early as the Air Quality Act of 1967, Congress had specifically identified aircraft engine exhaust emissions as a subject of national concern and had directed the Department of Health, Education and Welfare (HEW) to conduct a study to determine the extent of this problem and to recommend strategies to produce relief.<sup>135</sup> The Study concluded that reduction of particulate emissions from jet aircraft is both desirable and feasible, that although there were no laws or regulations in force at that time to compel the industry to take steps to reduce emissions, HEW anticipated industry cooperation, but intended to recommend congressional action in the event industry failed to take meaningful steps. A key facet of the HEW report was recognition of the need for extensive research and development both as to control techniques as well as monitoring and measuring procedures. In March 1970, the Secretaries of HEW and Transportation met with representatives of 31 airlines and agreed on a schedule for retrofitting all JT8D engines with reduced smoke combusters by the end of 1972. As of July 1973, this program was 85 percent completed. Apart from this program, little else of a tangible nature was accomplished under the 1967 Act.<sup>136</sup> The Clean Air Amendments of 1970 not only required EPA study of the aircraft emissions problem but directed the Administrator of the EPA to

establish standards applicable to emissions of any air pollutant from any class or classes of aircraft engines which in his judg-

135. HEW, NATURE AND CONTROL OF AIRCRAFT ENGINE EMISSIONS—REPORT TO THE UNITED STATES CONGRESS (1968).

136. Details of this history are set forth in the introduction to EPA, AIRCRAFT EMISSIONS: IMPACT ON AIR QUALITY AND FEASIBILITY OF CONTROL (1972) [hereinafter cited as EPA EMISSIONS STUDY].

ment cause or contribute to or are likely to cause or contribute to air pollution which endangers the public health or welfare.<sup>137</sup>

Moreover, the Secretary of Transportation is directed to issue regulations ensuring compliance with these standards.<sup>138</sup>

The EPA Emissions Study reached several important conclusions. First, aircraft operations cause or contribute to air pollution which endangers the public health and welfare. Second, aircraft emissions are significant contributors to the regional burden of pollution in comparison to other sources which will have to be controlled to meet National Ambient Air Quality Standards. Third, airports in many regions exert localized impact on air quality by producing pollution in excess of acceptable standards, even though relief is otherwise provided in the region by controlling automobiles and stationary sources; in other words, control of non-aircraft sources in and around such airports will not be adequate by themselves to meet national standards absent control of aircraft emissions. The Study recognizes the need for modification of airline ground procedures, improved maintenance of engines, development and use of new combustion technologies and retrofit of existing engines with such improved technology.<sup>139</sup>

On the same day that EPA released its Emissions Study, it published its proposed standards for control of air pollution from aircraft and aircraft engines.<sup>140</sup> Thereafter, on July 17, 1973, EPA published regulations governing Emission Standards and Test Procedures for Aircraft.<sup>141</sup> These regulations deal with three kinds of pollution: fuel venting, smoke and gaseous emissions. Fuel venting is prohibited as of January 1, 1974 on all turbojet/turbofan engines possessing 8,000 pounds of thrust or greater and prohibit as of January 1, 1975 fuel venting as to such engines having under 8,000 pounds thrust and also as to turboprops. By January 1, 1974, all JT8D engines cannot exceed a smoke number of 30 (which is achieved by the existing smoke burner can); by January 1, 1978, all JT3D engines cannot exceed a smoke number of 25; by January 1, 1976, all engines having 29,000 pounds or more thrust (the JT9D,

137. § 231(a)(2), 42 U.S.C. § 1857f - 9(a)(2) (1970).

138. Clean Air Act, *as amended*, § 231(b), 42 U.S.C. § 1857f - 9(b) (1970).

139. EPA EMISSIONS STUDY at 5-6.

140. Proposed EPA Reg., 37 Fed. Reg. 26488 (1972).

141. 38 Fed. Reg. 19088 (1973).

CF-6 and RB-211 engines) cannot exceed a smoke number that ranges between 22 at 29,000 pounds thrust to 18 at 59,000 pounds. By January 1, 1979, all turbojet/turbofan/turboprop engines manufactured must meet new and strict gaseous emissions standards based on design goals of the planned and current NASA/Air Force research and development programs. These standards apply to hydrocarbons, carbon monoxide, oxides of nitrogen and smoke, and they must continue to be met throughout the life of the engine. All turbojet/turbofan engines over 8 000 pounds thrust that are type certificated after January 1, 1981, must meet the foregoing standards. The regulations also contain other comprehensive provisions related to test procedures, foreign aircraft using U.S. airports and other matters not germane to this discussion.

At this writing it appears fair to conclude that, although the fuel venting situation and the JT8D smoke problems appear to be adequately dealt with, important smoke problems and gaseous emissions goals will not be adequately met until late in this decade and early in the 1980's, even under the most optimistic assumption that the mandated target dates will be met. Thus, as in the case of aircraft noise, it appears that, to the extent that the CAB can curtail a significant volume of unnecessary jet aircraft operations by implementing capacity reductions, it can contribute significantly to reduction of smoke and gaseous emissions from aircraft and thereby assist in the attainment of National Ambient Air Quality Standards in the major metropolitan areas.<sup>142</sup>

### *Economic Aspects of Capacity Reduction and Noise and Emissions Control*

One of the most potent obstacles to achieving early reduction of aircraft noise and emissions to acceptable levels is the great cost involved. This problem is aggravated by the economic weakness of most of the airline industry. The Air Transport Association, the trade

142. Airline operations also contribute significantly to other kinds of pollution, notably water quality. Most such problems occur at major maintenance and overhaul bases where various toxic chemicals are employed in certain technical processes related to aircraft and engine maintenance and overhaul. To the extent capacity reductions result in phasing out or deactivation of superfluous aircraft the volume of these maintenance and overhaul procedures, and the resulting pollution will thereby be reduced.

and service organization representing virtually all of the scheduled, certificated airlines in the United States, outlined the dimensions of this problem in testimony before the Senate Aviation Subcommittee on Aircraft Noise.<sup>143</sup>

The ATA Statement forthrightly proclaims that if all new 727, 737, DC-9 and 747 aircraft delivered *after* 1972 meet the standards prescribed in FAR-36, "the nearest thing we have to a national standard," that the airline industry "would still exceed Part 36 noise levels in 1982."<sup>144</sup> The largest "noise gaps" would occur primarily, but not exclusively, in the approach, rather than the take-off, regime. The ATA Statement examines four options available to close or narrow these "noise gaps":

*Option 1.* If all 707, 727 and DC-8 aircraft remaining in the industry fleet in 1977 or 1982 are replaced on a 2 for 3 basis by the new, quiet wide-body jets (L-1011, DC-10), there would still be a "noise gap" in the approach regime. The cost of executing this option would be \$5.3 billion if accomplished by 1977, or \$3.8 billion if accomplished by 1982.<sup>145</sup>

*Option 2.* If all state-of-the-art FAA retrofit equipment were installed on all JT3D engines there would still be "noise gaps" in 1977 and 1982 on approach regimes. The cost of executing this retrofit would be in the range of \$327-467 million for 1977 and \$246-352 million for 1982 not counting labor, aircraft downtime or higher operating costs, all of which would be substantial.<sup>146</sup>

*Option 3.* If the NASA new front fans were installed on all aircraft using JT3D engines, a gap would still exist between the noise level required by Part 36 and the actual noise level on the critical approach regime. The cost of refanning by 1977 would be between \$766-934 million and by 1982 between \$580-704 million.<sup>147</sup> These figures again reflect only the cost of hardware.

*Option 4.* Retrofit of the JT8D fleet to meet Part 36 requirements, including refanning. Again a "noise gap" in terms of actual fleet noise levels would occur on the approach regime and the cost would

143. Statement of Clifton F. von Kann, Senior Vice-President—Operations and Airports, Air Transport Association of America, before the Senate Aviation Subcommittee on Aircraft Noise, Los Angeles, March 30, 1973.

144. *Id.* at 6.

145. *Id.* at 7.

146. *Id.*

147. *Id.* at 8.

be \$1.699 billion by 1977 and \$1.681 for the 1982 fleet. A variation on this option involves retrofit of both the JT3D and JT8D fleets with acoustically treated nacelles, an expedient that would eliminate the "noise gap"; but this would be achieved at a cost of as much as \$663 million, increased operating costs, increased fuel consumption on the order of 100-150 million gallons per year and increased engine emissions.<sup>148</sup> The ATA Statement concludes that it would be imprudent to spend the substantial sums described above and "by 1980 the public could be just as unhappy with us and with the government as it is today."<sup>149</sup> Instead the ATA advocates major research and development programs to produce better equipment and a better appreciation of "psycho-acoustical" phenomena, *i.e.*, the subjective human reaction to various quantities and qualities of noise.

The merits of the ATA thesis aside, it is quite clear that whether the government insists on industry action to meet the Part 36 FNL goals or permits the industry to invest instead in research and development, or opts for some combination of these alternatives, two facts appear inescapable: (1) acceptable noise levels will not be achieved at forecast fleet operating levels by either 1977 or 1982; (2) either option—retrofitting/refanning or research and development—will involve substantial cost.

Again, the CAB by capacity reductions can contribute to the resolution of these difficult problems. As heretofore noted, significant capacity reductions would directly reduce cumulative fleet noise levels by simply reducing the volume of flights operated. Whether such capacity reduction would suffice to eliminate the apparently inevitable "noise gaps" is not demonstrable from available data. The CAB could, as a part of its investigation in Docket 22908, establish an evidentiary record on the basis of which it would be possible to determine the extent capacity reductions could obviate the "noise gaps" in the industry's fleet noise level by 1977 and 1982.

As to the second problem, the great cost of coping with noise abatement, the economic experience derived from the limited capacity agreements that have already been tested demonstrates that major cost savings and corresponding increased profits can be realized by the airline industry. If a single carrier (TWA), by im-

148. *Id.* at 8-9.

149. *Id.* at 12.

proving load factors by 16.7 percentage points in only four markets, was able to convert a six month loss of \$18 million into a profit of \$4.8 million (a net gain of some \$22.8 million) in the subsequent corresponding six months by use of capacity agreements, it is evident that an overall increase in *industry* load factors in every market over, for example, 100 O & D passengers per day, would produce enormous profits despite the escalating operating costs experienced during this inflationary period.<sup>150</sup> Again, the CAB could, as a part of its investigation in Docket 22908, establish an evidentiary record that would quantify the resulting increase in industry profit that would result from achieving various target load factors. Similarly, the CAB under its vote-making powers could assure that such profit increases would not be a lucrative windfall to the industry, by imposing conditions requiring that either portions of the profit be employed in noise and emission abatement projects or that fare decreases be imposed to pass the savings on to the consumer.

#### CONCLUSION

The CAB appears to recognize the imperative need to establish a regulatory device that will assure optimal coordination of airline capacity with consumer demand. It has acknowledged that excess-capacity operation is a chronic and persistent industry-wide tendency, that economic self-interest does not produce unilateral scheduling restraint by carrier management, and that both the fuel shortage and environmental considerations require regulatory intervention in carrier scheduling practices. The CAB has likewise recognized that it cannot provide this needed regulation by means of its power over airline fares, but rather that long-term capacity agreements are immediately necessary on an extensive scale to cope effectively with this problem. It has discarded virtually all of the constraints it had imposed in the early capacity agreements, including the three-carrier competitive standard, the "large market" standard, the short duration of agreements limitation and the "aggregative reductions" approach.

However, the CAB clearly believes that, under existing law, it may only react passively to voluntary agreement proposals submitted by carriers, or that, at most, it may only suggest those markets

150. See note 57 and accompanying text.



where capacity agreements would be warranted. Assuming the correctness of this view, two matters require consideration. First, under existing law as interpreted by the CAB, what can it accomplish in the pending *Capacity Reduction Agreement Case* to further its ultimate regulatory objective? Second, is additional legislation necessary to enable the CAB to achieve adequate capacity controls in the airline industry?

*Suggested Goals for the Capacity Reduction Agreement Case.* As a minimum the Board should undertake to make three important kinds of determinations in this proceeding:

- (1) Establish appropriate "target" load factors, *i.e.*, determine the maximum capacity reductions that can be achieved consistent with maintaining service that adequately meets the needs of the public, the postal service and the national defense;
- (2) Identify all markets above a certain size in which excess capacity exists;
- (3) Quantify the various environmental benefits and resource savings which could be achieved by achievement of the established "target" load factors in all markets having a minimum of 100 passengers per day.

*Appropriate "Target" Load Factors.* As heretofore noted, the Board has not adopted a definitive position on what constitutes an optimum load factor, *i.e.*, one which reconciles the conflicting concerns of maximizing load factors and offers adequate service to the public. Most recently, the CAB has regarded 72 percent as a ceiling.<sup>151</sup> Yet the CAB has approved a peak period target load factor of 75 percent in the New York/Newark-San Juan market, and there is presently pending before the CAB an application to make further schedule reductions in that market, *i.e.*, elimination of 16 additional weekly round trip schedules which would undoubtedly produce even higher load factors.<sup>152</sup> In the past, the CAB, when it has considered load factor levels in the context of service adequacy, has generally had available rather gross traffic data. Today, however,

151. See note 10 *supra*.

152. See note 99 *supra*. The load factor consequences of further schedule reductions are not specified but almost certainly they would produce load factors higher than 75 percent.

with the expanded reporting requirements and given the detailed information requests set forth in the Report of Prehearing Conference in Docket 22908, the CAB will be able to employ sophisticated computer techniques to determine segment demand fluctuations on a day-of-week, by-direction, by-flight basis. Accordingly, finely tuned service responses can be structured to achieve a far closer matching of capacity to demand than has heretofore been possible. At least during the fuel emergency period the Board should be disposed to err on the high side in setting "target" load factors. Skillful use of extra sections and substitution of equipment having various seating capacities offers considerable flexibility to responsive schedule planning.

Once appropriate "target" load factors are identified by the CAB, the problem remains as to how to induce carriers to schedule flights accordingly. Historically, CAB power to establish load factor goals has been manifested through its powers over airline rates. In Phase 6B of the *Domestic Passenger Fare Investigation* the Board established a long range 55 percent load factor standard for rate-making purposes. To revise this upward to whatever "target" the CAB found feasible in the pending investigation, would entail reopening and reprocessing this complex and protracted rate proceeding. Moreover, even if this task were accomplished within some reasonable time frame, there would be no assurance that the air carriers would in fact adjust scheduling to attain the specified standard load factor established in that proceeding. It has heretofore been noted that the industry has not attained even the modest 55 percent standard load factor set in Phase 6B.

Thus it would appear that under existing law the most the CAB could do with regard to establishing optional "target" load factors, would be to reach a carefully documented factual conclusion as to what the target should be in given markets and rely on informal "regulatory suasion" to encourage carriers to adopt schedules calculated to achieve these goals.

*Scope of markets to be Regulated.* During the early stages of the CAB's consideration of capacity agreements, it had confined capacity reduction agreements to only those very large markets served by at least three competitors in which unduly low load factors were being incurred. Subsequently, the Board abandoned both the large market aspect and the three carrier requirement. The Board's present

standard appears to focus on whether the carriers serving a market appear to be experiencing "unduly low load factors on a persistent basis." A more precise formulation is required. The Board has established a standard that it would consider or place in issue the question of whether a market warranted competition when its traffic reached 100 total passengers per day in both directions. A kind of rebuttable presumption grew up that the presence of 100 passengers travelling in a given market warranted competitive service. In subsequent years, during the recent economic hard times of the airline industry, this "competitive standard" has been much criticized as being responsible, in part, for authorization of excess competitive authority in the industry and resulting uneconomical overcapacity. The Board, therefore, might well consider it appropriate to use this 100 daily passenger standard as the bench mark from which to measure in effecting a rollback to eliminate excess capacity. Thus the Board might well undertake, as its starting point, to establish "target" load factors of 80 percent in every competitive market in the United States having 100 daily total passengers. Again, the CAB would have recourse only to "regulatory suasion" to induce carriers to tailor capacity in such identified markets to the "target" load factors found appropriate in Docket 22908.

*Quantification of Environmental Benefits and Resource Savings.*

The CAB could make an invaluable contribution toward attainment of an acceptable solution of the excess capacity problem if it developed in Docket 22908 a detailed, probative record that, as a minimum, quantified the following:

1. The amount of reduction in fleet noise level that would result, by individual carrier, by airport and by industry, if the "target" load factors formulated by the CAB were achieved in all markets having 100 or more daily passengers. This determination should be made for a near term future year (*e.g.*, 1975) and selected, more distant years (*e.g.*, 1980 and 1982).

2. The amount of reduction in aircraft emissions of smoke and gaseous vapors that would result at major U.S. airports if capacity were cut back in such a manner. In this connection, the record should develop the extent such reductions would contribute to achieving National Ambient Air Quality Standards in the region in which each major airport is located.

3. The overall cost savings and forecast net economic benefit

the airline industry would derive from implementation of the above capacity reduction program.

4. The savings in jet fuel that would result from implementation of the above plan.

5. The reduction in investment for flight equipment, maintenance and overhaul facilities and other capital items that could be achieved by implementation of above plan.

The foregoing findings would probably prove valuable by providing long-term incentives to the airline industry to reform its scheduling practices. More importantly, however, they would provide Congress with uniquely valuable and relevant data on which to base its decision whether overriding environmental and resource considerations require granting the CAB expanded authority to regulate airline scheduling. The Senate, as a part of the emergency energy legislation, enacted S.2589, which would empower the CAB to regulate airline schedules in considerable detail:

(b) (1) The Interstate Commerce Commission, with respect to carriers subject to regulation under sections 1 (1) and 304(a)(1) of title 49, United States Code [49 U.S.C. 1(1), 304(1)(a)], the Civil Aeronautics Board, and the Federal Maritime Commission, with respect to carriers operating in the domestic trades of the United States including its territories and possessions, for the duration of the energy emergency, in addition to their existing powers, shall have the authority on their own motion or by motion of any interested party, to review and make reasonable and necessary adjustments to the operating authority of carriers within their respective jurisdictions in order to conserve fuel while providing for the public convenience and necessity. Such adjustments may include but need not be limited to adjusting and rationalizing the operations of such carriers with regard to frequency of service, points served, scheduling to prevent duplication of service and reviewing or adjusting rate schedules to reflect such adjustment and rationalization.<sup>153</sup>

If Congress enacts temporary emergency legislation along the lines of S.2589, the record compiled by the CAB in Docket 22908 would be useful in a subsequent determination by Congress whether to ex-

153. S.2589, 93d Cong., 1st Sess. (1973). The corresponding legislation in the House, H.R. 11450, 93d Cong., 1st Sess. (1973) does not contain such sweeping powers. The Senate version, which passed the House December 15, 1973, was vetoed by President Nixon on March 6, 1974.

tend the effectiveness of this new regulatory power. If Congress does not at this time grant this regulatory power, the record compiled by the CAB in Docket 22908 might well adduce material that enables Congress to determine whether it would consider and grant the CAB expanded power of airline scheduling. Whatever ultimate use such data may be put to, it is quite clear that Docket 22908 presents the CAB with a unique opportunity as to develop an evidentiary record that can profoundly influence the course this nation will pursue in harmonizing the regulation of airline capacity with environmental law.