BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

POSTAL RATE AND FEE CHANGES, 2000) Docket No. R2000-1

Rebuttal Testimony of

DR. JOHN HALDI

Concerning

PRIORITY MAIL

on Behalf of

ASSOCIATION OF PRIORITY MAIL USERS, INC.

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Priority Mail Users, Inc.

August ~~14,~~ 2000

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AUTOBIOGRAPHICAL SKETCH

For a copy of my autobiographical sketch, see APMU-T-1 in this docket.

I. PURPOSE OF TESTIMONY

The purpose of this testimony is to rebut certain testimony of United Parcel Service ("UPS") witnesses pertaining to Priority Mail, with particular focus upon statements made by witness Kevin Neels (UPS-T-3) and witness David E. M. Sappington (UPS-T-6).

II. THE COMMISSION SHOULD CONTINUE TO ATTRIBUTE NETWORK COSTS TO EXPRESS MAIL

The Postal Service operates two year-round air networks dedicated solely to transportation of mail. Both are hub-and-spoke networks. The Eagle Network is based in Indianapolis, Indiana, and the western network is based on the West Coast. The reason that these two networks exist is to enable the Postal Service to offer overnight Express Mail service to metropolitan centers throughout the country. The commercial air system does not have sufficient night-time flights to enable overnight delivery of mail collected up to 5:00 p.m. According to UPS witness Neels, the two networks enable the Postal Service "to achieve the greater

service reliability and quicker turnaround time that the dedicated air networks provide compared to the commercial air system." Tr. 32/15996.

It costs more to transport mail via these two networks than it would cost using the commercial air system. The extra costs are referred to as the "network premium." The network premium is attributed solely to Express Mail, because (i) the networks would not exist but for the overnight delivery requirement, and (ii) without the networks, the Postal Service could not offer Express Mail service.[1]

Witness Neels (UPS-T-3) contends that the network premium should be attributed to both Express and Priority Mail. His contention rests essentially on two arguments: (i) the volume of Priority Mail carried on the two networks exceeds the volume of Express Mail, and (ii) smaller aircraft could readily accommodate all Express Mail, even allowing for day-to-day variations in volume. His testimony cites the aircraft shown in Table 1 as having sufficient capacity (measured in terms of cubic feet) to meet network requirements for Express Mail.

[1] Witness Neels admits that in order to provide overnight service "between points sufficiently distant, an overnight air network would be needed." Tr. 32/16078.

Table 1

Aircraft Suggested as Appropriate for the Eagle and Western Air Networks by UPS Witness Neels

Aircraft Type	Make/ Model	Capacity (Cubic Feet)
Turboprop	Metro III	625
Turboprop	Beechcraft 1900	819
Jet	DC-9-15	2,808
Jet	727-100	4,850
Jet	727-200	6,735

Source: Tr. 32/16002-3.

Witness Neels rests his case on the somewhat general statement that:

> [s]maller aircraft are generally less expensive to operate than larger aircraft. This is consistent both with common sense and with economic rationality. It would be unreasonable for an operator to spend more for an aircraft that provides less useable cargo space. Tr. 22/16001.

A. Larger Aircraft Are Subject to Significant Economies of Scale, as well as Greater Range

Witness Neels' arguments for changing the method of attributing the network costs are seriously flawed in a number of important respects. First, he endeavors to underplay the fact that the overnight hub-and-spoke networks exist solely for the overnight product, Express

Mail. Second, he makes no effort to ascertain whether the turboprop aircraft shown in Table 1 have the speed or range necessary to achieve operational requirements.[2] Third, and most important, in his myopic focus on increasing the costs attributed to Priority Mail, he makes no effort to investigate whether larger size aircraft are economically rational, given the following facts:

- The networks must operate to meet the service standards of Express Mail.
- The incremental cost of additional capacity on larger aircraft can be quite low; *i.e.*, larger aircraft provide operators with substantial economies of scale.
- In the absence of the networks, class of mail other than Express Mail would utilize the commercial air system.
- Charges for usage of the commercial air system have no fixed component, no economies of scale, and are fully avoidable.
- Dedicated air networks provide greater service reliability.

With respect to whether it is economically rational for the Postal Service to operate larger aircraft, witness Neels was asked to provide data and make specific comparisons of the incremental cost and incremental capacity for the different aircraft types which he discusses in his testimony. Tr. 32/16064-5. In lieu of a direct response, he referred to

[2] Witness Neels admits that "[g]iven a sufficiently long haul and a sufficiently slow aircraft, it might not be possible for the aircraft to arrive in time for the next day's dispatch." Tr. 32/16082.

the data in UPS-LR-5, which were provided in response to a different interrogatory. He subsequently admitted that there is not enough information in UPS-LR-5 to allow one to come to very firm conclusions based only on the information contained in that library reference. Tr. 32/16103. Such little useful information as can be gleaned from UPS-LR-5 indicates that a 727-200, with a capacity of about 6,735 cubic feet, has a total cost per block hour of $2,927.30, while a smaller 727-100, with a capacity of about 4,850 cubic feet, has a total cost per block hour of $4,813.50. In this particular comparison, witness Neels' data show that the larger plane actually costs less. In terms of the cost for capacity, the difference is truly remarkable. The hourly cost for a cubic foot of capacity in the 727-200 is $0.435 and for the 727-100 it is $0.992. In this instance, the larger aircraft thus has a lower cost of capacity (about 56 percent lower) than the smaller aircraft. Inasmuch as data of this type are critical to an evaluation of Postal Service rationality and witness Neels' contention that the network should be downsized for Express Mail, I have obtained some additional data on the relevant costs of operating different size cargo aircraft.

The basic data are shown in Table 2. The approximate cargo capacity of each aircraft, in terms of pounds, is shown in column 1. The aircraft shown are listed from smallest to largest in terms of capacity,

measured in terms of weight.[3] Moving from one aircraft to the next, the incremental capacity is shown in column 2. The min-max range of ACMI per hour is shown in columns 3-4, where ACMI stands for Aircraft, Crew, Maintenance, and Insurance. ACMI is an all-inclusive cost, except for fuel, which is shown in columns 5-6. The total hourly cost is shown in columns 7-8. A min-max range is shown in each instance to allow for variation in factors such as weather, altitude, length of haul, etc., as discussed by witness Neels (Tr. 32/16002). From columns 7-8 it can be readily observed that, as witness Neels asserts, larger aircraft do indeed cost more to operate than smaller aircraft. The hourly cost of a 747, for example, is between six and seven times that of a Piper. This "common sense" observation is not surprising, nor does it represent an analysis of what constitutes economic rationality. By way of introduction to what follows, in Table 2 please note that the capacity of a 747 is about 100 times greater than that of a Piper.

[3] The capacity figures are approximate, for reasons cited by witness Neels. Because the maximum weight that an aircraft can carry varies with weather, altitude, length of haul, fuel requirements, and (in the cases of 727's) structural considerations, no single figure for maximum weight carried can be cited for any aircraft type, or even for any aircraft. Tr. 32/16002.

Table 2

Cost of Operating Aircraft of Different Sizes and Cargo Capacity

Aircraft	Cargo Capacity (lbs) (1)	Incremental Capacity (lbs) (2)	ACMI ($ per hour) (min) (3)	ACMI ($ per hour) (max) (4)	Fuel ($ per hour) (min) (5)	Fuel ($ per hour) (max) (6)	Total Cost ($ per hour) (min) (7)	Total Cost ($ per hour) (max) (8)
Piper	2,000	2,000	800	1,000	300	400	1,100	1,400
Beach 402	3,500	1,500	1,800	2,000	500	600	2,300	2,600
Short 330	5,000	1,500	3,000	3,200	1,000	1,300	4,000	4,500
Cessna 580	15,000	10,000	2,500	3,500	750	1,000	3,250	4,500
737 (100)	25,000	10,000	1,800	2,500	1,300	2,000	3,100	4,500
727 (200)	40,000	15,000	3,500	3,800	1,400	2,000	4,900	5,800
A300 (cargo)	80,000	40,000	3,000	2,800	1,600	2,100	4,800	4,900
L1011 (cargo)	125,000	45,000	4,500	5,000	2,000	2,600	6,500	7,600
747 (cargo)	200,000	75,000	5,000	6,500	2,000	2,500	7,000	9,000

Table 3 is designed to give some insight into the cost of **additional** capacity above that of the smaller aircraft shown. For convenience, the capacity data in columns 1 and 2 are reproduced from the corresponding columns in Table 2. The **average** hourly cost for a thousand pounds of capacity is shown in columns 3-4 of Table 3.[4] It can be observed readily from these two columns that the cost of capacity declines sharply as aircraft size increases, reflecting substantial economies of scale. The **incremental** cost per hour is shown in columns 5-6 of Table 3. Computation of incremental cost corresponds to the computation of

[4] Columns 3-4 in Table 3 result from dividing columns 7-8 in Table 2, respectively, by cargo capacity (in thousands of pounds) shown in column 1.

incremental weight.[5] The two final columns, 7-8, relate the incremental cost to the incremental capacity. What these two columns show is that with larger jet aircraft the hourly cost of incremental capacity is quite low, up to the largest aircraft available. In other words, a little extra money buys a lot of extra capacity. To illustrate, moving from a Cessna 580 to a 727-200 more than doubles capacity, from 15,000 to 40,000 pounds; for an extra capacity of 25,000 pounds (a 167 percent increase) the hourly cost goes up by only $1,650 (in the minimum column, an increase of 51 percent) to $1,300 per hour (in the maximum column, an increase of 29 percent).

What the data in Table 3 show, then, is that the Postal Service can obtain a considerable amount of extra network capacity for a comparatively small increase in cost; *i.e.*, the aircraft offer substantial economies of a scale. Moreover, as witness Neels admits, this network capacity has a "greater service reliability and quicker turnaround time ... compared to the commercial system." Tr. 32/15996.

[5] To illustrate, the estimated minimum total cost of an L1011 is $6,500 per hour, and the minimum total cost of a 747 is $7,000 per hour. The minimum incremental cost is thus $500 per hour.

Table 3

Analysis of the Cost of Cargo Capacity for Aircraft of Different Sizes

Aircraft	Cargo Capacity (lbs) (1)	Incremental Capacity (lbs) (2)	Cost/hour per M Lbs. Capacity (min) (3)	(max) (4)	Total Incremental Cost Per Hour (min) (5)	(max) (6)	Incremental Cost Per M Lbs Capacity Per Hour (min) (7)	(max) (8)
Piper	2,000	2,000	550	700	1,100	1,400	550	700
Beach 402	3,500	1,500	657	743	1,200	1,200	800	800
Short 330	5,000	1,500	800	900	1,700	1,900	1,133	1,267
Cessna 580	15,000	10,000	217	300	-750	0	-75	0
737 (100)	25,000	10,000	124	180	-150	0	-15	0
727 (200)	40,000	15,000	123	145	1,800	1,300	120	87
A300 (cargo)	80,000	40,000	58	61	-300	-900	-8	-23
L1011 (cargo)	125,000	45,000	52	61	1,900	2,700	42	60
747 (cargo)	200,000	75,000	35	45	500	1,400	7	19

B. The Networks Are Not "Sized" for Priority Mail Just Because the Postal Service Uses Larger Aircraft with a Low Incremental Cost for Incremental Capacity

Without imputing any extra value that the Postal Service obtains from the greater service reliability, the *incremental cost* of additional capacity may be less than the variable cost of using the commercial air system for the incremental volume. Under this condition, and given that the network must be operated for Express Mail, the economically rational decision is to procure larger aircraft, provided that the incremental capacity can be utilized by other classes of mail that would otherwise use the commercial air system (*e.g.*, Priority Mail and First-Class Mail). These other classes of mail that require air transport present the Postal

Service with economies of scope.[6] Since Express Mail preempts all other classes of mail, when utilization of larger aircraft does not increase the cost charged to Express Mail over what would be incurred with smaller aircraft, the availability of larger aircraft provides the Postal Service with additional reserve capacity to handle Express Mail on those days that happen to have large volumes and to permit future growth, and frequently to achieve more rapid transportation.

For economy, the key objective is each night to stuff the network aircraft as full as possible with mail than needs to be flown. By imputing to all this "filler" mail what would be the cost to transport it on commercial airlines, as is done presently, the net result can be to reduce the cost of the required network for Express Mail below what it otherwise would be if smaller aircraft with comparatively high costs for each unit of capacity were used. Under these conditions, one should expect to observe large amounts of First-Class Mail and Priority Mail on network aircraft. Such an observation does not, however, mean that the network was in any way "sized" for the filler mail. Witness Neels does make much ado about the fact that the volume of Priority Mail on the two dedicated air networks exceeds the volume of Express Mail. Tr. 32/15998-9. What

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[6] When economies of scale and scope are present, the economics are fundamentally different than implied by witness Neels, and contrary to witness Neels' assertion the inquiry does not naturally turn to consideration of the smallest aircraft that could be used to transport only Express Mail.

he overlooks, however, is that the volume of Priority Mail moving on the two networks is but a small portion of the total Priority Mail that moves by air. Were the networks to be truly sized for Priority Mail, many multiples of the current capacity would be required.[7]

The Commission made the correct decision in Docket No. R97-1. Witness Neels' proposal to revert to the pre-Docket No. R97-1 methodology for attributing network premium costs is an unconvincing argument without reasonable support.

[7] The fact that the dedicated air networks have not been sized for Priority Mail may be part of the explanation why Priority Mail's two-day performance and three-day performance are so spotty. In this regard, see my direct testimony, APMU-T-1, Tr. 25/11496-584.

III. THE INCREASE IN PRIORITY MAIL RATES RECOMMENDED BY WITNESS SAPPINGTON WILL REDUCE PRIORITY MAIL VOLUME AND MARKET SHARE AND, OVER THE LONGER TERM, COULD REDUCE ITS CONTRIBUTION TO INSTITUTIONAL COST

A. UPS Rate Proposals Would Have Priority Mail Lose Volume and Market Share

UPS witness Sappington proposes an unprecedented 40.3 percent rate increase for Priority Mail. By UPS's own reckoning, a rate increase of this magnitude would result in 2001 TYAR Priority Mail volume falling to 1,070 million pieces. Tr. 31/15326. That volume would be 104 million pieces below actual BY 1998 volume, and 287 million below estimated TYBR volume. Since the market for expedited 2-day delivery of packages is projected to continue growing, an absolute decline in the volume of Priority Mail would mean an even greater decline in market share.

The UPS extrapolates its projected volume for Priority Mail using ratios based on witness Musgrave's volume forecasts, which are, in turn, based on the elasticities estimated by USPS witness Musgrave, who develops his econometric models using historic data that have never reflected anything even remotely close to a 40.3 percent increase in rates. Considerable uncertainty therefore exists concerning applicability of the estimated elasticity to such a rate increase, because it is so far removed from historical experience. Consequently, it is quite possible that even

UPS's order of magnitude estimates seriously underestimate the decline in Priority Mail volume that would result from a 40.3 percent increase in rates.

B. A Marked Decline in Market Share Could Seriously Undermine the Ability of Priority Mail to Make Significant Contributions to Institutional Cost

A marked decline in volume and market share would have serious long-term implications. The immediate impact, obviously, would be to erode the market position of Priority Mail. In turn, that likely also could erode the ability of Priority Mail to continue making substantial annual contributions to the Postal Service's institutional cost (as occurred with Express Mail). This is a matter which deserves serious consideration by the Commission. Even witness Sappington agrees. When asked whether the Commission should set rates sufficiently high so as to deliberately reduce the total contribution which Priority Mail makes to institutional cost, his response was an unequivocal "No." Tr. 31/15212-3.

C. The Sharp Increase in Unit Cost Warrants Mitigation of Any Rate Increase

As a result of the PMPC contract with Emery, Priority Mail has experienced unusually large increases in unit cost that are disproportionately high in relation to (i) the other subclasses of mail, and (ii) cost increases experienced by Priority Mail in prior years. Witness Sappington agrees that:

> [a]n average annual increase of 11.5% [in unit cost] represents a larger percentage increase than an average annual increase of 8.1%. The 11.5% annual increase also represents a larger nominal increase in the present context, since unit attributable costs were higher in R97-1 than in R94-1. [Tr. 31/15342.]

The network for handling Priority Mail is in the process of evolution and significant change, as the Postal Service seeks to find a way to provide higher quality service at reasonable cost. The contract could be terminated at any time. Under the circumstances, the cost increases due to the Emery contract should be mitigated by the Commission, as it has done in the past, so as not to impose a disproportionate rate increase on Priority Mail. Witness Sappington concurs:

> I agree that it can be appropriate to mitigate some portion of substantial cost increases, particularly if those cost increases are thought to represent temporary deviations from historic and future cost growth rates. [Tr. 31/15317.]

D. Priority Mail Rates Are Increasing Faster than Competitors' Rates

Major competitors such as FedEx and UPS are known to have negotiated rates with many shippers, especially those who generate significant volumes. They will not divulge the rates themselves, and the contracts are said to require that their customers not divulge the rates either.[8] The assiduous effort by the few major private sector providers to keep their negotiated prices secret is indicative of oligopolistic

[8] PSA-T-1, p. 11, Tr. 29/14133.

competition. It is not a hallmark of open, competitive markets. In consequence of this situation, Postal Service witnesses responsible for developing forecasts and estimates of elasticity do not have reliable data on what many major shippers are actually paying for delivery service. The Commission, likewise, must deal with highly imperfect information regarding the rates actually charged by competitors.

With respect to this secretiveness by Priority Mail competitors, witness Sappington observes that "[i]f competing suppliers disagree with the assessments offered by Postal Service witnesses, they can supply any evidence they may have to support their points of view." Tr. 31/15310. No such evidence has been forthcoming.

Limited information can be gleaned from interrogatory responses by UPS in this docket. Revenue and volume data for UPS deferred service are shown here in Table 4. According to UPS, "[t]he 'Deferred' category includes UPS Second-Day Air and Three-Day Select volumes and revenues, a portion of which moves by ground transportation." Tr. ___/_____. PSA/UPS-8.

Table 4

UPS Deferred Delivery Service
Revenues and Volumes
1995 - 1999

Year	(1) Revenue ($, mill.)	(2) Volume (000)	(3) Revenue Per Piece	(4) Revenue Per Piece Percentage Increase
1995	2,041	181,148	11.27	n.a.
1996	2,207	193,802	11.39	1.1%
1997	2,314	195,063	11.86	4.1%
1998	2,464	198,882	12.39	4.5%
1999	2,694	216,408	12.45	0.5%

Source: Response to PSA/UPS-8. Tr. ___/____.

The average UPS revenue per piece for each year has been computed and is shown in column 3 of Table 4. The year-to-year increase in the average revenue per piece is shown in column 4. Over the years shown, the average revenue per piece increased by a total of 10.5 percent, which reflects a compound annual increase of 2.5 percent. During the same period, volume increased by a total of 19.5 percent, which reflects a compound annual growth of 4.5 percent. The average revenue per piece reflects (i) rates charged, (ii) average weight, and (iii) the mix of packages using Second-Day Air and Three-Day Select Service. Consequently, changes in the average revenue per piece can reflect

changes in factors other than the rates actually charged for a particular service, and the data in Table 4 must be interpreted with this caveat in mind.

In Docket No. R97-1, the Commission recommended a 5.6 percent increase in rates for Priority Mail, and now in this docket the Postal Service has requested an increase that averages 15 percent. USPS-T-34, pp. 6-8. The current rates are expected to remain in effect for another two years. If the Commission were to recommend the Postal Service's proposed rates, and assuming that those the rates also remain in effect for two years, Priority Mail would suffer a total increase over the four years of about 21 percent. This represents a 4.9 percent compound rate of increase, which is far greater than the 2.5 percent compound increase in the average revenue per piece for UPS Deferred Service. Thus, even under the Postal Service's proposal, the competitiveness of Priority Mail rates is gradually but surely being eroded. It would erode much further and faster under the UPS proposed rates.

E. Priority Mail Service Is Less Reliable Than First-Class Mail

Witness Sappington agrees that reliability is an important component of value of service. Mailers want speed and reliability, especially when they pay a premium (*e.g.*, as do those who chose to use Priority Mail for pieces that weigh less than 13 ounces). As explained by witness Sappington:

> the term "reliability" of a mail service refers to the variation in delivery time between a given origin and a given destination. Formally, reliability might be measured as the inverse of the variance in delivery times.... [footnote omitted.] A more reliable service, then, would be one that exhibits a lower variance in delivery times.
>
> Customers might value a small variance in delivery times because of the greater certainty it provides as to when a piece of mail is likely to arrive at its destination. Such greater certainty can be valuable for planning purposes. [Tr. 31/15334-5.]

Performance data that would enable a formal computation of the variance in delivery times of First-Class Mail and Priority Mail unfortunately are not available. However, ODIS data report the volume of Priority Mail with a one-day service standard to be approximately 190 million pieces, or roughly 21.5 percent of total Priority Mail volume. Tr. 21/8564. Priority Mail and First-Class Mail have the same number of ZIP code pairs with an overnight delivery standard, and Priority Mail fails to meet its overnight delivery standard more often than does First-Class Mail. This portion of Priority Mail almost surely has a higher variance in delivery times than First-Class Mail. And since Priority Mail fails to meet its two- and three-day standard more often than does First-Class Mail, it seems likely that such Priority Mail also has a higher variance in delivery times — *i.e.*, is less reliable than First-Class Mail.

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served this document upon all participants of record in this proceeding in accordance with Section 12 of the Rules of Practice.

John S. Miles

August 14, 2000