

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

EVOLUTIONARY NETWORK DEVELOPMENT
SERVICE CHANGES, 2006

Docket No. N2006-1

RESPONSES OF UNITED STATES POSTAL SERVICE WITNESS SHAH
TO VALPAK INTERROGATORIES (VP/USPS-T1-17 THROUGH 19)
(June 23, 2006)

The United States Postal Service hereby submits the responses of witness Shah to the following interrogatories of Valpak, filed on June 9, 2006: VP/USPS-T1-17 through 19. The interrogatories are stated verbatim and followed by the responses.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux
Chief Counsel, Ratemaking

Michael T. Tidwell

475 L'Enfant Plaza West, S.W.
Washington, D.C. 20260-1137
(202) 268-2998; Fax -5402
michael.t.tidwell@usps.gov

**RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS SHAH
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VP/USPS-T1-17.

Please refer to your response to VP/USPS-T1-5(b), where you state that “[t]he cost functions are designed to represent the fixed and variable cost of specific mail processing operations in three size categories small, medium and large.” Also, please refer to USPS Library Reference N2006-1/7 (GAO Report), “Highlights” page (unnumbered), the chart “Total Pieces Handled per Person per Hour in Processing Plants for Fiscal Year 2004,” which shows that the average hourly pieces handled per person in “small” plants was 1,970 pieces, in “medium” plants it was 1,700 pieces, and in “large” plants it was only 1,495 pieces. In other words, the GAO found that, on average, total pieces handled per person per hour in medium 3 plants is about 14 percent less than in small plants, and in large plants the total pieces handled per person per hour is about 12 percent less than in medium plants and 24 percent less than in small plants.

- a. Do you have any reason to disagree with or otherwise dispute the productivity data shown in the GAO report? If so, please explain fully.
- b. Are the small, medium and large size plant categories in the GAO report comparable with the small, medium and large size plant categories in the cost functions in your model? If not, please explain.
- c. Does your optimization model contain productivity data for plants in the small, medium and large size categories referred to in your response to VP/USPS-T1-5(b)? If so, are the differences in productivity for each size category similar to those in the GAO Report? If not, please explain:
 - (i) How they differ; and
 - (ii) Why not.
- d. In terms of pieces handled per hour, higher productivity is generally correlated with lower unit cost. Do the unit cost data in your optimization model reflect productivity data that are similar to the productivity data in the GAO Report, *i.e.*, unit cost increasing with size of facility? If not, please explain the source of such productivity data that underlie the unit costs in your model, and how the differences in unit cost differ from what might be expected from the productivity data in the GAO Report.

RESPONSE

- a. The GAO correctly acknowledged on page 29 and 30 that, as seen in figure 10, there are also large gaps in productivity among the plants within each size classification. They go on to describe factors that can lead to the variation in productivity, including: complexity of the operation, size of the workforce, physical layout of the facility, and lack of standardization. The network redesign is focused on achieving economies of scale through the

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RESPONSE to VP/USPS-T1-17 (continued):

consolidation of operations under a standardized distribution concept and as much as possible, a standardization of the physical layout of the facility. How unit costs respond to the addition of volume to an operation depends on the operation's volume-variability factor. The Postal Service's models show less than 100% variability (except for the AFSM operation), which implies that unit costs decline as volumes are added to facilities, other things equal. The comparison of average productivities by group does not represent the effect of adding volume to facilities; it is fundamentally an inter-facility comparison -- sites which have always been large vs. sites which have always been small, etc. The comparison of productivities by facility size group also fails to control for features of facilities receiving volume that will not change due to consolidation. See also the response to POIR No. 3, Question 10(a). The cited figure in the GAO report also shows that there is sufficient within-group productivity variation that there are "large" facilities with higher productivity operations than most "small" facilities. Note also that the ultimate goal of the optimization model is not to characterize the facilities the Postal Service currently has, but rather to answer questions relating to: if the Postal Service could optimally configure its operations, then what would the network look like. Individual plant productivities are taken into consideration as inputs as capacity functions are developed.

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RESPONSE to VP/USPS-T1-17 (continued):

- b. No, the sizes and facilities within each are not comparable. The GAO looks at overall plant productivities, as opposed to productivity by operation that the END models look at. The optimization model contains productivity data by operation for small, medium and large. The small, medium and large size categories refer to the fact that the linear approximations match the productivities implied by the Postal Service's cost equations for small, medium, and large operations. It does not mean that they match average productivities from three subsets of offices called "small," "medium," and "large."
- c. See the response to b.
- d. See the response to a. See also the Direct Testimony of A. Thomas Bozzo on behalf of the United States Postal Service (R2005-1 USPS-T-12) in which the END linear cost functions are based.

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VP/USPS-T1-18.

Please refer to your response to VP/USPS-T1-5(b).

- a. Please define the term “economies of scale” as you use it in your response.
- b. Does the Postal Service have any study or studies that show how unit costs or productivity of mail processing operations varies as plant size increases, either for the plant as a whole, or for shape-specific or product-specific mail processing operations? If so, please provide copies of each such study.
- c. Please assume that mail at a P&DF is processed on equipment that has run rates and throughput rates similar to equipment at a nearby P&DC. Please assume further that consolidating mail from the P&DF to the nearby P&DC idles as much capacity at the P&DF as it utilizes at the P&DC. Under these circumstances, please explain how consolidation: (i) maximizes utilization of available capacity; and (ii) achieves economies of scale.
- d. Please define the term “incremental cost” as you use it in your response to VP/USPS-T1-5(b).
- e. Please provide all studies, analyses, or other evidence on which you rely to support your statement that “the incremental cost of adding volume to a large operation is less than a small and medium operation.”
- f. Please define the terms “small operation,” “medium operation,” and “large operation” as you use those them in your response to VP/USPS-T1-5(b).

RESPONSE:

- a. The term economies of scale is the declining marginal cost of processing a piece of mail as one increases the amount of mail being processed at a given facility. See the Direct Testimony of A. Thomas Bozzo on behalf of the United States Postal Service (R2005-1 USPS-T-12) in which the linear cost functions are based.
- b. See the Direct Testimony of A. Thomas Bozzo on behalf of the United States Postal Service (R2005-1 USPS-T-12) in which the linear cost functions are based.
- c. If mail is transferred from one facility to another, the facility that is migrating workload would have its capacity (machines) reduced such that its machines are running at an optimal capacity, and the gaining site would

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RESPONSE to VP/USPS-T1-18 (continued):

- have its capacity increased such that is running at an optimal capacity. It is assumed that processing these volumes together will yield economies of scale.
- d. The marginal (or additional) cost of adding an additional piece of mail to an operation
 - e. See the Direct Testimony of A. Thomas Bozzo on behalf of the United States Postal Service (R2005-1 USPS-T-12) in which the volume variability cost assumptions are based.
 - f. The terms “Small operation”, “medium operation”, and “large operation” refer to the point on the marginal cost curve an operation falls.

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VP/USPS-T1-19.

- a. Please refer to the response to POIR No. 1, Question 3b. With respect to the excess mail processing capacity that the END initiative seeks to eliminate, please define the term “excess mail processing ... capacity”:
(i) As used in that response, making explicit whether it refers to excess labor capacity, or excess equipment capacity, or excess space capacity; and
(ii) As used in the optimization and simulation models.
- b. Is the definition of “excess mail processing ... capacity” based on the amount of labor, equipment, or space capacity that is not used during a day, a week, a month, or a year? Please explain the rationale for your response.
- c. In light of fluctuations in mail volume that occur at certain times of the year, including various peak periods (e.g., Christmas, April 15, end of each month), are there periods when excess capacity does not exist at either the losing facility or the gaining facility?
- d. How does the END optimization model handle the peak load problem?
- e. If the gaining facility does not have sufficient capacity to process all mail in a manner so as to meet service standards, does the model allow service to slip for some percentage of the mail? If that is the case, what percentage of mail is allowed by the model to fail to meet service standards?

RESPONSE:

- a. The response refers to all three.
- b. The END models look at capacity requirements in terms of a day. The END models use average daily volume plus a peak factor to represent approximately the 14th busiest day of the year.
- c. Yes.
- d. See response to subpart b.
- e. Service is not adjusted, the Simulation model will report the performance against a given service standard.