

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

EVOLUTIONARY NETWORK DEVELOPMENT
SERVICE CHANGES, 2006

Docket No. N2006-1

REVISED RESPONSES OF UNITED STATES POSTAL SERVICE WITNESS SHAH
TO VALPAK INTERROGATORIES (VP/USPS-T1-20 THROUGH 22)
(July 7, 2006) [ERRATA]

The United States Postal Service hereby files corrected copies of the responses of witness Shah to the following interrogatories of Valpak: VP/USPS-T1-20 through 22. The original responses were filed on June 30th; however, the proper captions did not appear at the top of each page. That oversight has been corrected on the revised copies of the responses, which are attached. There are no changes in the substance of the responses.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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**RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS SHAH
TO INTERROGATORY OF VALPAK**

Revised: July 7, 2006

VP/USPS-T1-20.

Please refer to your response to VP/USPS-T1-1(b), where you state that “service standards are used as constraints within the model.”

- a. Could service standards, or service performance, be used as an objective function in any of your optimization models? If not, please explain why not.
- b. Could either the optimization model or the simulation model be used to investigate alternate (i.e., WHAT-IF) ways to improve service, or service quality? If not, please explain why not. If so, please indicate whether it has been considered, and in general terms how it might be done.
- c. Please explain whether improvement to service performance is
 - (i) an objective or goal of the Evolutionary Network Development (“END”) program,
 - (ii) a result that reasonably can be expected from the END program, or
 - (iii) a result that, should it occur, is entirely incidental to the END program.

RESPONSE:

- a. Service standards or performance could not be used as an objective function within the current optimization model utilized by END. This model was designed as a least cost optimization.
- b. Yes, the models can be used to test alternate ways to improve service through designing a new distribution concept.
- c. Improvement to service performance is both a goal of END and something that should be expected as an outcome. As previously stated, it is our goal to reduce cost while improving the consistency of service provided.

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VP/USPS-T1-21. Please refer to your response to VP/USPS-T1-5(a).

a. Do the structural equations take account of plant-specific labor productivity or unit costs? If not, please explain what plant-specific effects are taken into account.

b. For small, medium and large plants, is the marginal cost solution that is input into the optimization model an average marginal cost for all plants within each size category, or is a marginal cost solution developed for each specific plant based on data from that plant? Please describe in more detail both the basis and the applicability of the marginal cost solution mentioned in your response to VP/USPS-T1-5(a).

RESPONSE:

- a. The structural equations are at the operation, not the facility level, and productivities are derived from site specific productivities.
- b. The cost functions are designed at the operation, not facility level. The marginal cost at the operation level is based off of the structural cost equations of the United States Postal Service. The marginal cost solution is the cost of adding an additional piece of mail to an operation. The linear functions are designed to reflect the underlying structural equation, and mimic the economies of scale inherent within the structural equations. For further information concerning the basis and applicability of the marginal cost solution, see Docket No. R2005-1, USPS-T-12, on which END linear cost functions are based.

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VP/USPS-T1-22. Please refer to USPS Library Reference N2006-1/7, the “Highlights” page (unnumbered) of the GAO Report in USPS-LR-N2006-1/7, which indicates that within each plant size category the productivity varied widely, and ranged from:

- (i) 1,013 to 2,854 pieces per hour in small plants;
- (ii) 519 to 2,544 pieces per hour in medium plants; and
- (iii) 727 to 2,572 pieces per hour in large plants.

Within each size category, the ratio of highest to lowest productivity was 2.8 for small plants, 4.9 for medium plants, and 3.5 for large plants. In your response to VP/USPS-T1-5(b), you state that “[t]he cost functions [in the END model] are designed to represent the fixed and variable cost of specific mail processing operations in three size categories of small, medium and large.”

- a. In your model, are the cost functions for each specific mail processing operation based only on some kind on systemwide average cost for small, medium and large? If systemwide averages are not used, please explain in more detail the type of cost data that are used in the model for mail processing operations in each size category.
- b. Is the model capable of somehow reflecting or dealing with the wide disparity of costs found by GAO? If so, please explain how this is done.
- c. Using the extreme productivity figures from the GAO Report, would you agree that it might be possible to consolidate mail from the small facility that handled, say, 2,500 pieces per hour into a medium facility that handled only, say, 800 pieces per hour? If you do not consider this even a remote possibility, please explain why, and how either the optimizing model or the simulation model helps to preclude such an outcome.
- d. Would you agree that it might be possible to consolidate mail from a small facility that handled between 2,000 and 2,100 pieces per hour into a medium or large facility that handled only 1,400 to 1,600 pieces per hour? If you do not consider this a possibility, please explain why.
- e. When the optimizing model is used to evaluate a proposed consolidation of mail processing operations from one facility into a larger facility, please explain what effort is made, if any, to base the evaluation on actual productivity and cost data from each of the two facilities being studied.
- f. If your optimization models do not incorporate actual costs and productivities for individual facilities being considered for consolidation, please explain:
 - (i) How you can be confident that the result will be to consolidate mail in the more efficient facilities, and away from the less efficient facilities; and
 - (ii) What is being optimized under circumstances where you use “averages” that may be totally inapplicable to either or both of the two facilities in question.

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RESPONSE to VP/USPS-T1-22:

- a. The cost functions for each specific mail processing operation are based on the matching of the linear approximations to the productivities implied by the Postal Services 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."
- b. See the response to POIR No. 3, Question 10. The Postal Service's models separate the effects of processing volumes (piece handlings) from possibly correlated non-volume factors, and demonstrate that the facility-specific shift factors that affect relative productivities are in fact due to non-volume effects. Shifting volumes to certain plants would not, in itself, be expected to eliminate the effects of non-volume cost-causing factors on operations' costs. Depending on the nature of the shifts, some such factors would be expected to change (e.g., the geographic extent of the plant's service territory) while others would not (e.g., single-level plants would not become multi-story facilities). This type of analysis should be done on a site by site basis and is thus not incorporated into an overall optimization model.
- c. Yes, it might be possible.
- d. Yes, it might be possible.
- e. The AMP process looks at the actual data for all affected facilities.
- f. (i) By utilization of the AMP process.

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RESPONSE to VP/USPS-T1-22 (continued):

(ii) With a logistics network as complex as the United States Postal Service, it is impossible to model every facet of every facility and have an optimization solve in a reasonable period of time; therefore, simplifying assumptions need to be made. That being said, once the optimization model creates an optimal solution, complexity can be added through the simulation model, as well as the AMP process. The simulation model uses more facility specific data to test feasibility. The refinement of model results through Area and Headquarters operational review is based on more facility specific information. In addition, where applicable, the AMP process will also utilize site specific data.