UNITED STATES OF AMERICA
POSTAL RATE COMMISSION
WASHINGTON, DC 20268-0001

Evolutionary Network Development
Service Changes

Docket No. N2006-1

# PRESIDING OFFICER'S RULING SUPPLEMENTING PRESIDING OFFICER'S RULING NOS. N2006-1/24 and -1/32

(Issued September 19, 2006)

The End Optimization Report (Library Reference N20061/17), at page 11, says that the END optimization model helps answer three questions: (1) which 3-digit ZIP Codes should be assigned to plants for both origins and destinations; (2) what processing roles should be assigned to each facility; and (3) which facilities can be absorbed by surrounding facilities? The Commission has spent much of these proceedings trying to discover the decision rules by which the optimization model answers these questions and the sequence in which they are applied.[1]

Basic ambiguities remain; see the Attachment to this Ruling.

Question 11 of Presiding Officer's Information Request No. 5 was asked in order

[1] One obstacle to obtaining a clear understanding of the END optimization model is the Postal Service's continuing assertion that the model's recommendations are peripheral to the issues in this docket. See, e.g. Reply of the United States Postal Service to Presiding Officer's Ruling No. N2006-1/32 at 2. Presiding Officer's Ruling No. N2006-1/23, at pages 4-7, concludes that this view ignores the scope of this proceeding and the detailed testimony already submitted. Section 3661 focuses on both cost and service impacts and the trade off between them. The Postal Service expects network realignment to have a major impact costs, and an unavoidable impact on service that it has yet to estimate. The END model proposes specific facility role changes and consolidations, which are then implemented through Area Mail Processing (AMP) reviews. The END model results are essential to those reviews. Currently, virtually all AMP proposals are initiated by the recommendations of the END model, and none can go forward unless it is found consistent with those recommendations. The END model's recommendations would be peripheral to network realignment only if the large majority of the AMP "opportunities" that it initiates were ultimately rejected by management. Such an outcome appears unlikely.

to resolve ambiguities of the kind listed in the Attachment to this Ruling. It sought the computer code that the END optimization model uses to assign mail processing operations to particular facilities in the future network. Presiding Officer's Ruling No. N2006-1/24 proposed standard protective conditions in an effort to facilitate production of that code in time to provide a more informed basis for asking questions that would clear up such ambiguities during the appearance of the Postal Service's witnesses for oral cross-examination.

The Postal Service filed a motion on July 14, 2006, relaying a tentative proposal that it attributed to its software developer (LogicTools, Inc) to provide the requested computer code under protective conditions that would bar access to all but the Commission's staff.[2] That motion was denied because such unusually tight restrictions severely limit the usefulness of such information in on-the-record hearings, and are more restrictive than those in civil patent litigation even where direct competitors are involved. But, in an effort to mitigate the risk perceived by the Postal Service's software developer, the Commission sought to resolve the kind of ambiguities illustrated above by offering the Postal Service an opportunity to provide clarifying information in a much less sensitive form. Presiding Officer's Ruling No. N2006-1/32 allowed the Postal Service to provide a program flowchart comparable in its level of generality to the flowchart that the Postal Service has already publicly provided in Appendix B of Library Reference N2006-1/18. The flowchart requested is one that would include input/output, decision, and process objects, and would show how the 18 intermediate output tables publicly provided in Appendix B interact to provide the END model's optimized solution.

The Commission received the Postal Service's reply to Presiding Officer's Ruling No. N2006-1/32 on August 23, 2006.[3] In it, the Postal Service refers to its July 14 motion for a declaratory ruling that LogicTools could provide the requested source code *in camera,* suggesting that denial of that motion represents an opportunity lost. It

[2] Motion of the United States Postal Service in Reply to Presiding Officer's Ruling NO. N2006-1/24 (July 14, 2006).

[3] Reply of the United States Postal Service to Presiding Officer's Ruling No. N2006-1/32 (August 23, 2006) (Reply).

asserts that the Postal Service has no employee or contractor with the "knowledge or expertise" to develop a flowchart describing how the optimization model, at the general level described in Presiding Officer's Ruling No. N2006-1/32, produces an optimized network solution. It goes on to note that it does not have a contractual relationship with LogicTools obligating it to maintain the software that it has licensed to the Postal Service. Whereas the Postal Service shows some inclination to persuade LogicTools to voluntarily provide relevant source code under protective conditions of its choosing, the Postal Service shows little inclination to enlist the help of LogicTools to provide a much less commercially-sensitive flowchart that shows the general decision rules that lead to an optimized network solution.

It is quite unexpected that the Postal Service has spent roughly five years and several million dollars on a network optimization model, and given it a guiding role in realigning its network, without having obtained for itself a flowchart that is comparable to that contained in Appendix B of Library Reference 18 that shows how the model uses the intermediate output tables diagramed there to produce its optimized network solution. This is all the more surprising since the Postal Service has applied for a patent on the END optimization model, and hopes to market it to foreign postal administrations.[4] In the absence of such a flowchart, I have asked the Commission's technical staff to itemize the principal ambiguities that remain that need to be resolved in order to clarify at a basic level what the END optimization model does to produce an optimized network. That list of items is contained in the Attached to this Ruling.

The Postal Service is directed to provide a written statement, equivalent to a Presiding Officer's Information Request response, that resolves the ambiguities described in the Attachment to the best of its ability. That statement will be due on October 2, 2006.

[4] See United States Postal Service Objections to Office of the Consumer Advocate Interrogatory OCA/USPS-34(b), filed June 23, 2006. It not clear how the Postal Service could effectively prosecute a patent application for the END optimization model, or market it to other postal administrations, without any employee or contractor with enough expertise to diagram or explain the sequence of decision rules that the END model uses to produce an optimized solution from the customized inputs that the Postal Service has developed.

RULING

The Postal Service is directed to file with the Commission responses to the questions contained in the Attachment to this Ruling on or before October 2, 2006.

Dawn A. Tisdale
Presiding Officer

**Listed below are significant remaining ambiguities that the Postal Service is asked to resolve concerning the manner in which the END optimization model arrives at an optimized network solution**

1. How does the model determine which facilities will become Regional Distribution Centers (RDC), e.g., is the decision based on physical features of specific facilities, geographic features such as proximity to highways and airports, or physical location? Is the initial decision made within or outside of the model?

2. Is the ZIP Code assignment problem solved before, after, or simultaneously with the processing role problem?

3. How does the model assign turnaround mail, and is turnaround mail the only mail that has an overnight service standard under the RDC concept?

4. Does the model allow additional transportation costs to be incurred, such as substituting air for highway transportation, if this would make it feasible to consolidate additional processing operations without violating service standards?

5. What criteria are used to assign ZIP Codes to facilities after the initial run? What aspect of this task is performed outside the model, and why is it performed outside of the model?[1]

6. With respect to Question No. 5, please answer the following more specific questions.

   Library Reference N2006-1/17, at page 18, describes the steps followed by the optimization model. Steps 2 and 3 assume that each facility is "large" for

[1] Tr. 2/334.

purposes of determining its processing cost characteristics.[2] Library Reference N2006-1/17, however, does not indicate how the model would assign ZIP Code workload to plants under a variety of circumstances.

a. For example, what decision rules would the model apply to implement Steps 2 and 3 where sufficient processing capacity is available at several different plants? To illustrate, the model might encounter situations in which all of a particular 3-digit ZIP Code/product workload could be processed by any of three facilities — one small, one medium, and one large.

   (1) In Steps 2 and 3, would the model choose the facility that best matches workload to capacity (the small facility) without regard to the cost characteristics that are assumed to accompany its size?

   (2) In Steps 4 through 6, does the model "re-size" this facility to match its assigned volume, thereby recognizing that it has the cost characteristics of a small facility/operation? Consequently, would estimated costs increase as the model moves from Steps 2 and 3 to Steps 4 through 6, even though the documentation asserts that costs move further toward the minimum with each iteration?

b. Where processing capacity is a constraint, it is not clear what decision rules the model would apply to implement Steps 2 and 3. For example, the model could encounter circumstances in which there are three plants eligible to process a particular 3-digit ZIP Code/product workload. The workload would fit exactly into two eligible small plants, but would occupy only half of the processing capacity of an eligible large plant (perhaps enough to fit a medium facility).

[2] A further ambiguity arises from the documentation repeatedly referring to "facilities" and the costs saved by "closing" them, although the Postal Service has also said that the END model recommends closing operations, but not facilities.

(1) What decision rules would the model apply to select one of these options? In selecting operations to consolidate, would the model's choice assume that the operation-specific and the facility-specific fixed costs at both of the small facilities would be saved by consolidating them to the large plant?

(2) In Steps 4 through 6, under the circumstance just described, would the model

(i) choose the large facility, assuming that its variable costs would convert to those of a medium facility, but that it would continue to operate at half capacity, and continue to incur the fixed costs of a large facility/operation;

(ii) choose the large facility, assuming that its variable costs would convert to those of a medium facility, but the plant would be reconfigured to match its new "medium" workload;

(iii) choose a small facility on the assumption that it would be reconfigured to handle its new "medium" workload, with a corresponding change in its "core" fixed and variable costs;

(iv) allocate the workload to the two small facility/operations, rather than operate one large facility/operation at half capacity?

c. What the "core" fixed cost of an operation, and the fixed cost of a facility represent is unclear.

(1) If the cost of fuel, rents, and other facility specific costs are included in the "core" fixed costs of an operation, would the model consider them reduced to zero if the operation is consolidated into another facility? Wouldn't these costs actually remain at the donating facility?

(2) If the model treats such costs as facility-specific, would the "core" fixed costs of an operation then consist primarily of the set-up and take-down labor costs for that operation?

(i) When an operation is consolidated into another plant, would there be any need to set-up or tear-down the operation at the donating plant?

(ii) Would this imply that such costs are not actually fixed?

(iii) If the donated operation still requires a separate sort scheme when performed at the receiving plant, would the same set-up and tear-down costs be incurred before and after consolidation?

(iv) Under these circumstances, would the model count the "core" fixed costs of the consolidated operation as "saved?"

7. According to witness Shah, a primary goal of the END model is to identify an optimized solution that reduces the complexities and the redundancies of the postal transportation network illustrated by Figure 2 of USPS-T-1, without substantially degrading service. The Postal Service, in response to Presiding Officer's Information Request No. 4, Question 6, says that potentially all subclasses will be processed and transported together in the Future Network, unless it degrades service standards. It is not clear to what extent the END model's optimized solution would achieve this goal. As general indications, please provide:

a. A comparison of the number of miles required to transport mail between processing facilities in the current network with the number that would be required in the Future Network, as evidenced by the iteration of the END model against which an AMP would currently be evaluated.

b. Please provide the proportion of those miles that directly connect processing facilities without going through a hub, in the current network, and in the Future Network referenced in part a.

c. Please provide the number of transportation runs that are dedicated to preferential classes of mail in the current network and in the Future Network referenced in part a.