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Ms. Faust:

Ventyx

With approximately 1,200 employees in more than 20 locations worldwide, Ventyx personnel solve complex technical challenges with innovative solutions and deep industry-specific domain expertise. We offer a broad range of solutions to address our customer's most critical needs, including asset management, mobile workforce management, customer care, energy trading and risk management, energy operations and energy analytics.

SENDOUT

SENDOUT is the standard in gas planning software, and is accepted as such by many regulatory bodies in North America. It has been continually developed and updated over the past 23 years. It is currently used on behalf of more than 100 gas utilities, gas marketers, electric generators, and capacity managers in the USA and Canada.

Gas Planning Software Market

SENDOUT's largest competitor is the homegrown system based on Excel spreadsheets. There are few other competitors in North America for SENDOUT, which enjoys a dominant share of the gas planning software market. There are very few gas utilities of any substantial size that do not use SENDOUT.

By any measure, SENDOUT is the most reliable tool for the natural gas supply planning process. It should remain as such for the foreseeable future, as upgrades are not only being made right now, but the planned future improvements should keep SENDOUT ahead of the game for many years.

Questar & SENDOUT

Questar is committed to the gas supply planning process and has been for a number of years. Questar has been a SENDOUT client since 1992. As an active SENDOUT client, Questar receives version upgrades regularly, as well as training and consulting services from Ventyx.

Questar is using Version 12.1.1 of SENDOUT, which includes the latest in Monte Carlo analysis. Version 12.5.5 was recently released and will be delivered to Questar shortly. The new version includes new functionality regarding Units – Gas volume, gas energy and currency units. It greatly expands the ability of the user to mix and match units in

SENDOUT. The other functionality improves the modeling of optional market demand and revenue.

The next version, scheduled for release later this year, includes an upgrade of the database from Access to SQL Server, as well as the ability to enter cross-facility, or joint flow, constraints for Transport segments.

Constraints in SENDOUT

Constraints are an integral and necessary part of the Linear Programming (LP) method. The function of the LP in SENDOUT is to find the minimum cost decision based on given requirements and limitations. Constraints are limits on different aspects of the physical movement of gas, facilities and contracts. For example, a constraint would be the maximum capacity of a storage reservoir. In that sense the constraint cannot be removed because a reservoir of infinite size does not exist. In the same sense transportation capacity is a constraint. Without constraints the LP fails to return a solution let alone an optimal solution. Constraints don't need to be thought of as negative -- rather they are necessary to optimize a real world problem.

In SENDOUT it is possible to include an excessive number of constraints in the model. I have seen this on several occasions and have attempted to guide those users away from this course of action. I have evaluated Questar's data on several occasions, and it is my opinion that Questar is using SENDOUT reasonably, and I see no evidence that the Questar model is unduly constrained.

Questar's SENDOUT Model

Questar's system is one of the more complex systems currently being modeled in SENDOUT. Company owned production is a relatively unusual item in the SENDOUT world. Only a few companies model any company production at all, let alone the very large volume that Questar models. The 21 year time horizon also adds to the model's complexity. Only a handful of SENDOUT models go beyond ten years.

Please let me know if I can provide any additional information.

Regards,

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