

GasLoadForecaster[®]: Improving Forecast Accuracy to More Than 95 Percent at Fluxys



Challenge

Fluxys operates as an independent natural gas transport company in the heart of Europe. As a leader in the transport sector, Fluxys plays a key role in the expansion of competition within the European gas market. Driven by its first mover approach, the Fluxys network and the Zeebrugge Hub are the very heart of cross-border natural gas flows in Western Europe, with superior transport services that have made them a key player in the field of gas operations services.

Fluxys is committed to safe, reliable and flexible operation. To continue improving in these areas, and to plan the gas flows on the Fluxys' network, Fluxys needed a forecasting tool to effectively anticipate the requirements of gas demands on its network. By reducing forecast development time and improving accuracy, Fluxys operational staff can react more quickly to demand fluctuations or transport constraints as well as to additional shipper capacity requests.

To enhance system usability, Emerson (formerly Energy Solutions International) worked with Fluxys to develop new functionality. These additional modules, such as the Optimizer and Administrator, further enhanced the productivity of GasLoadForecaster by utilizing built-in intelligence and thus minimizing user intervention. Thanks to a new Within Day Forecast module, GasLoadForecaster can handle forecasting models customized to each supply point with new metering data coming in every hour.

Sophie Jehaes, a Project Leader with Fluxys, describes the problem: “Our daily forecast for flow planning was time-consuming and labor-intensive; it gave rather acceptable results on a daily basis but was far from the truth on an hourly basis. On one side, we needed to automate more of our forecast processes to maintain the performance standards that our stakeholders have come to expect. On the other side, we needed to get a system working in a standalone mode but authorizing the interconnection with our other equipment and software. Our main duty is not the consumption forecast but the gas network management. Therefore the forecast could not take all of our manpower.

Solution

To facilitate this need for better forecasting automation, Fluxys evaluated a number of products by reviewing forecasts based on historical data as well as the user interface and the software interoperability. Its managers found that Emerson’s GasLoadForecaster was ready to work and to adapt its product to meet all Fluxys’ requirements in key areas including usability, functionality, and performance.

Both Emerson’s industry experience and its technical expertise developing and delivering gas operations management tools and neural network technology, were essential to Fluxys’ selection of GasLoadForecaster.

“Fluxys chose Emerson because of the product’s accuracy and the robustness, comprehensive administrative functions and overall user-friendliness. As an IT team member, I was also interested in a solution that easily could be integrated but also work in standalone. We took the risk to work with a company new on the European forecast market because of the open attitude of ESI,” said Sophie.

GasLoadForecaster uses ESI’ J-Neural Net to forecast volume and energy targets at supply points along the pipeline network. This neural network model finds patterns in complex pipeline operations resulting from weather fluctuations and calendar information. Based on past activity, the network utilizes a training process, where it develops and adapts parameters used in the algorithms, which are employed when predicting future demand.

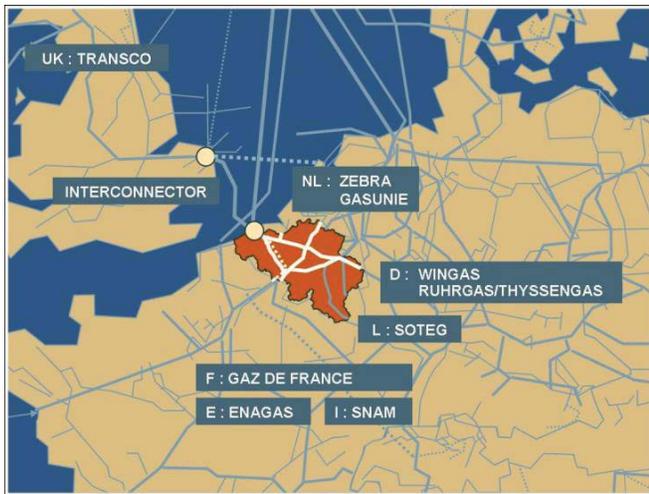


Figure 1. Fluxys Gas Transport Network

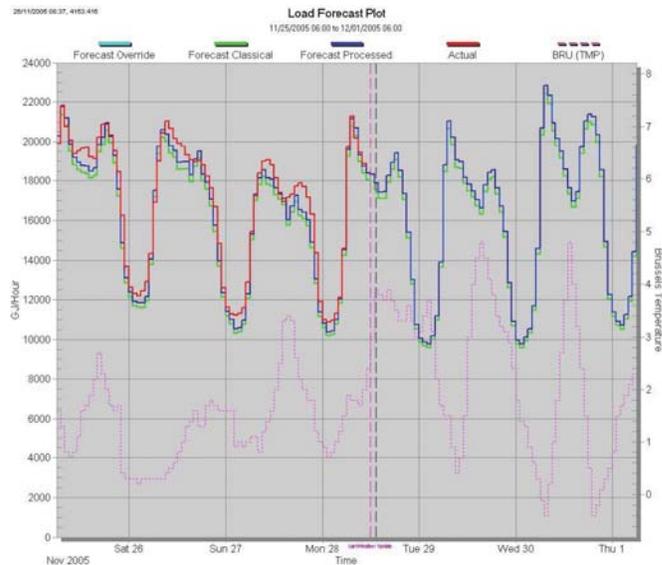


Figure 2. Load Forecast Plot

The GasLoadForecaster is periodically “re-trained” to provide the most precise demand forecast possible for every meter on a daily or hourly basis. Changes to weather predictions or other factor generate a new set of forecasts. With this technology, Fluxys can now have accurate, updated projections to use in balancing and planning operations far more quickly than before -- and their pipeline staffs are better prepared for changes in demand.

Sophie said, “The performance of the product, and the support we have received from ESI, fulfilled perfectly our expectations. We found the GasLoadForecaster to be very user-friendly, particularly in setting up and manipulating various databases”.

Wim Van Vaerenbergh, Gas Flow Planning Officer, added: “What I mostly appreciate is that when we identify a need or an issue, ESI is always ready to listen to us. The consequences are easy to imagine: open mind discussion and shared work to propose the best solution to an agreed deadline. By the way, if you couldn’t invest time, you could also let ESI directly deliver the solution.”

“We see the opportunity to work closely with high profile clients such as Fluxys as a terrific opportunity,” notes Fakher Raza of ESI. He continues: “It’s an opportunity to move the product forward and provide additional functionality beneficial to both parties. With valuable input from Fluxys we have taken our product to new levels of usability, functionality and profitability for our clients.”

Results

Fluxys went live with GasLoadForecaster with immediate, favorable results. Dirk Focroul, Senior Gas Flow Officer, attributes the increases in load forecasting efficiency to GasLoadForecaster. Dirk stated, “Achieving a good daily forecast was rather easy but the quality of the hourly forecast is really surprising. Now our biggest consumption forecast groups reach during the winter better than 95 percent forecast accuracy. Of course, it implied carefully studying the composition of the group, getting clean metering measurement and weather forecast. But at least taking care of one these three elements gives direct visible results. It motivates the team. The company’s anxiety about tightening up its forecast automation has been completely assuaged.”

ESI is pleased with the project’s results, noting: “GasLoadForecaster is a fast, highly flexible and user friendly tool -- users accept it straight away and implement it from Day One,” noted Julie Hatfield of ESI. “Our commitment to excellence means we are always keen to hear what clients like Fluxys really think about our tools. Though our product teams are comprised of the industry’s top talent, the success of our products isn’t built upon internal drivers – it is crafted around the needs of our clients. We apply their feedback to drive our products forward.”



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