



CASE STUDY

SENSINET® IMPROVES EFFICIENCY IN COMPRESSED AIR SYSTEMS WHILE REDUCING OPERATING COSTS IN MANUFACTURING FACILITIES

SUMMARY

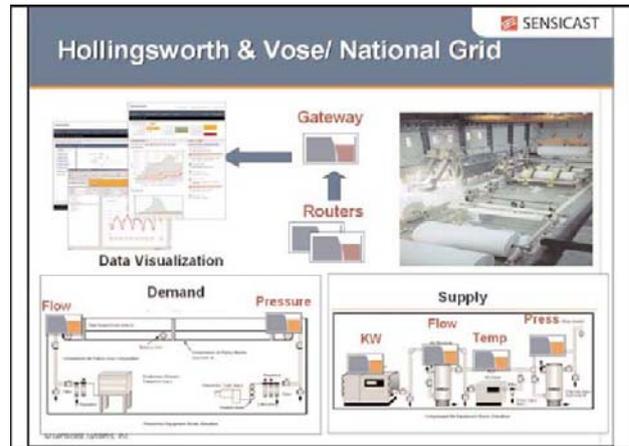
Hollingsworth & Vose Company, with its advanced R&D and pilot manufacturing facilities, drives value in our customers' products by inventing next-generation materials with superior performance. H&V's products are found in applications such as engine filtration, high-efficiency air and liquid filtration, battery separators, gasket materials, and specialty and industrial non-wovens.

National Grid's core business is the delivery of electricity and natural gas. In addition, their subsidiary, National Grid Wireless*, provides telecommunications infrastructure and services.

BACKGROUND

The Hollingsworth & Vose paper mill in Ayer, Massachusetts uses compressed air to power equipment in their manufacturing facility.

According to the US Department of Energy, over \$1.5 billion per year is spent by US industry on electricity used to compress air. The average compressed air system runs at 30 to 50% inefficiency resulting in higher than needed operating costs.



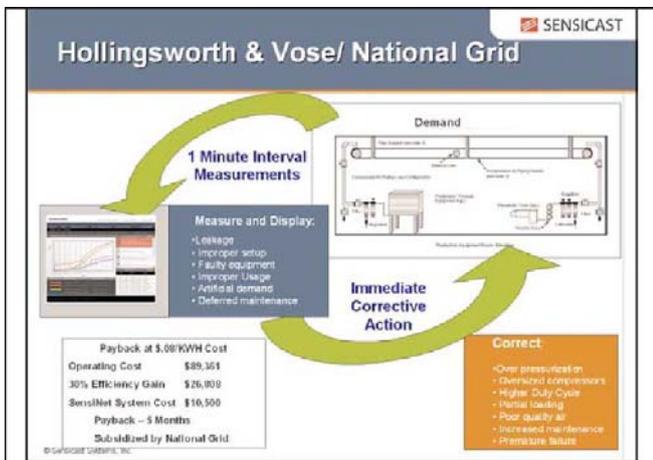
National Grid services the Hollingsworth and Vose facility in Ayer, and is interested in containing and lowering electric usage in this service area through joint programs with customers focused on conserving electricity.

PROBLEM TO SOLVE

Improve the efficiency of the paper mill's compressed air system, lower the electricity expense component of manufacturing cost in this commodity industry, and conserve energy leading to lowered greenhouse gas emissions.

Compressed air systems degrade over time and become leaky and inefficient. To compensate, the system operator increases the line pressure delivered by the air compressor. This results in the air compressor running more often in order to compensate for the degradation of the distribution lines. Inspections are performed infrequently—usually once a year—and as a result, systems operate inefficiently and use excessive electricity for long periods of time.

Hollingsworth and Vose wanted to increase the frequency of system inspections but wanted to avoid the high cost of employing manual labor to do this. Proposals for traditional wired networking were too expensive and also fell outside the eligibility range for reimbursement from National Grid.





THE SENSINET® SOLUTION

A SensiNet® system was deployed to monitor the compressed air system in the plant.

SensiNet's wireless capability made the system cost effective and very easy to install in this crowded paper mill manufacturing line.

The SensiNet system was configured to monitor key operating parameters of the system including temperature, line pressure, airflow, and energy usage of the compressor. SensiNet software was employed to display the data, and the graphical user interface and data display made it easy to spot trends leading to system degradation.

The monitoring and reporting interval was set at one minute. A complete system profile was then measured every minute, and small changes in system performance became visible immediately. This enabled facilities personnel to take corrective action immediately to restore the system to full

efficiency and avoid increased costs do to unnecessary air compressor activity.

RESULT

A 50% efficiency gain on the compressed air system which reduced annual operating costs by \$26,000 for a five-year projected savings of \$130,000.

With a system cost of \$10,500, payback is 5 months and 5-year ROI is 13X.

Wireless capability made the system very cost effective-\$10,500 to deploy SensiNet compared to the projected cost of \$75,000 for a wired system. This cost effectiveness qualified the system for subsidization by National Grid.

National Grid reimbursed Hollingsworth and Vose for the full price of the SensiNet system.

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