

Norfolk Southern's Combined Heat/Power Energy Improvement Project

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This presentation will summarize conditions before and after installation of a new heat and power generation systems at Norfolk Southern's Juniata Locomotive Shop, and what was done to overcome operational shortcomings prior to the initialization of the new energy project. It will outline before and after air emissions regulations and controls, resource consumptions, waste generation, and pathways for energy losses and other inefficiencies.

The Juniata Locomotive Shops have a long and storied history in railroading folklore which began in 1850, in Altoona, Pennsylvania. Over the years, this site has expanded into one of the largest locomotive repair shops in the North America, at one time encompassing over 50 buildings covering 70 acres. The shops have the ability to reduce a locomotive down to its bare frame and totally rebuild it in 6 ' days. In the mid 1950s three (3) new coal fired steam boilers were constructed in the confines of the old boiler house to provide steam via an underground piping network to the various shops for comfort heating and to also provide steam for various other process and cleaning operations. The challenges of the current project were to work within the confines of a mature site footprint, with an aging infrastructure system, and at the same not interfere or impede daily shop operations.

In 2015, Norfolk Southern made a considerable financial commitment to improving the overall energy efficiency of the entire sites (37) buildings. This paper will explore the sustainable design improvements planned throughout the entire site limits, define equipment upgrades, energy improvements, quantify waste stream reductions, and present the anticipated Return on Investment (ROI). These improvements will enable NS to punctuate its commitment to sustainability and innovation in the years to come.