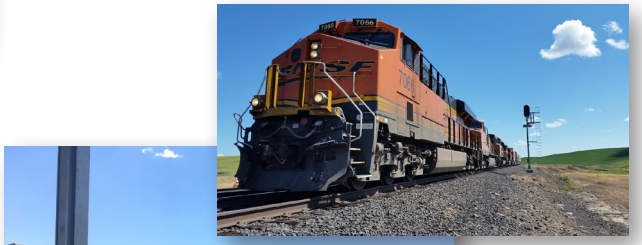
Case Study - BNSF
Remote Power: Railway Signal Control

Introduction

BNSF Railway, created through the merger of Burlington Northern Inc. and Santa Fe Pacific Corp., builds on the traditions of hundreds of predecessors and provides customers with efficient, reliable and cost-effective transportation services. BNSF serves over 32,500 route miles in the western two-thirds of the United States, portions of Canada and key South American gateways. Many of these routes wind their way through the most remote parts of North America. Providing continuous reliable electrical power to the farthest reaches of their routes is critical for the ongoing control and monitoring of their transportation assets.

Qnergy Solution

Qnergy's Smartgen power solution is specifically designed to provide seamless and extremely reliable power generation to remote locations. With multiple configurable and controllable outputs, the Smartgen was programmed to output 240Vac (single-phase) electric power to provide charging services to a BNSF Signal Control room. Its smart logic was programmed to only initiate generation when extra electricity was needed beyond that which was being produced by the parallel solar and wind resources.



Results

The Smartgen was installed and commissioned in June 2017 at a remote site in Eastern Washington State. It was placed adjacent to the Signal Control station and is fueled by propane. Electrically, it is coupled directly to the control room electrical panel with a standard single-phase 4-conductor cable carrying the 240 VAC / 60 Hz.

Application	Signal Control Battery Bank Charging
Operating Profile	On Demand Cycle Charging
Power Ouput Configuration	240 VAC / 60 Hz Standard Grid Single Phase
Power Output Setting	3,100 watts
Fuel Source	Propane

Qnergy
Renewable. Reliable. Resilient.

Qnergy at a Glance

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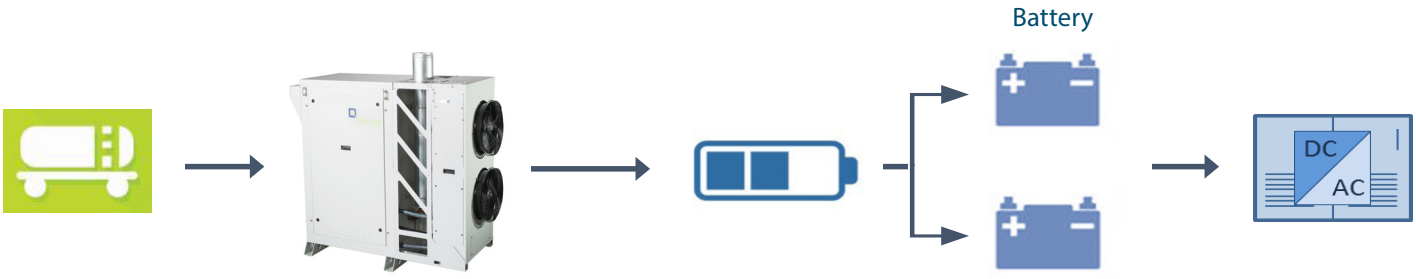
Qnergy is a company focused on providing energy to a world market looking for innovative, cost effective and efficient ways to energize the future. With more than 40 years of expertise and proven reliability, Qnergy brings proprietary, high-performance Stirling engine technology to the marketplace for commercial, industrial, and residential applications.

Qnergy products include the advanced free piston designed QB series Stirling engine generator that is incorporated into products for remote power for oil & gas, telecom, space and water heating as well as other off-grid applications.

Qnergy has the ability to bring talent and technology together with its customers, suppliers, and investors to develop unique energy solutions for the 21st century. The company is headquartered in Ogden, Utah.

BNSF SmartGen Configuration:



About BNSF

BNSF is a critical link that connects consumers with the global marketplace. For more than 160 years, BNSF has played a vital role in building and sustaining this nation's economy. Today's BNSF Railway is the product of nearly 400 different railroad lines that merged or were acquired over the course of 160 years. BNSF is committed to the safe operation of every mile of the 32,500-route-mile network. With a team of approximately 42,000, BNSF safely transports the products and material that help feed, clothe and power communities across the U.S. and around the globe.

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