RED-Rochester, LLC®

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PRESS PACKET

JULY 31, 2018 RED-ROCHESTER – EASTMAN BUSINESS PARK BOILER CONVERSION RIBBON CUTTING CEREMONY
1:00 – 3:00 PM ET
1200 RIDGEWAY AVE. ROCHESTER, NY 60416
(TENT IN NORTH EAST CORNER OF PARKING LOT)

PLEASE DIRECT REQUESTS FOR MORE INFORMATION TO:

JIM BREEZE, MANAGER OF CUSTOMER RELATIONS (585) 327-2054 or jbreeze@recycled-energy.com

OVERVIEW

The boiler conversion project was implemented to comply with the US EPA's Industrial Boiler Maximum Achievable Control Technology (BMACT) rule to reduce hazardous air pollutants. RED-Rochester in cooperation with its parent companies, Ironclad Energy Partners and Stonepeak Infrastructure Partners, has completed a ~$75M investment that fully retired 127 years of continuous coal-fired operations in Eastman Business Park and have replaced it with four new clean-burning natural gas fired boilers and converted an existing coal fired boiler to natural gas. Engineering and Construction started in October 2016 and the new facility was fully transitioned to natural gas fired operations in March 2018. Some highlights from this project include:

- Eastman Business Park is completely coal-free for the first time in over 127 years.
- Emissions of sulfur dioxide reduced by ~99%
- Heavy metals reduced by ~62%
- CO2 emissions reduced by ~50%.
- NOx emissions reduced by ~60%
- Particulate emissions reduced by ~80%
- The RED-Rochester's steam generation plant and utility controls have been fully modernized, ensuring Eastman Business Park is an attractive destination for industry for another 127 years.

PROJECT DESCRIPTION

The four new natural gas fired packaged boilers are housed in a new building adjacent to the existing boiler house. In addition to the investment in the four new packaged boilers, RED converted an existing coal-fired boiler to natural gas. These five natural gas fired boilers are capable of generating 1.5 million pounds of steam per hour. In addition to the boiler conversion project, RED also invested $7M in best-in-class Emerson Ovation operating controls. The controls provide powerful new tools for our operators to optimize both the efficiency and reliability of our utility assets park wide.

ECONOMIC IMPACTS

RED-Rochester currently provides approximately 117 highly-skilled, full time jobs in Eastman Business Park. Moreover, RED-Rochester provides 16 mission-critical utility services to approximately 110 different customers within the Park that employ over 6,500 people that have an even broader impact on the greater Rochester economy. By making this $75M investment, RED-Rochester has not only invested in preserving existing Eastman Business Park jobs, but also created approximately 60 equivalent full-time construction jobs over the past 18 months. This project is the largest investment in physical infrastructure in Eastman Business Park in over three decades.

ENVIRONMENTAL IMPACTS

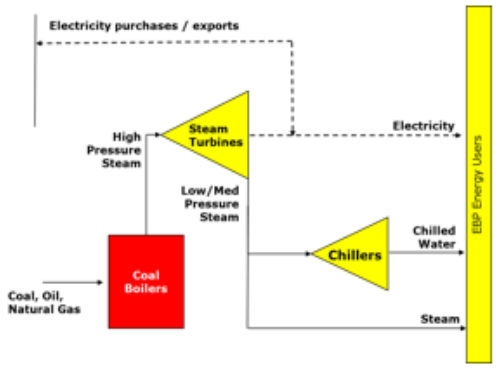
The conversion from burning coal to natural gas has brought RED-Rochester's tri-generation (electricity, steam & chilling) assets into compliance with the mandatory EPA Industrial BMACT rules and will provide large reductions in air pollutants and greenhouse gas emissions. The following table illustrates a number of these important reductions.

Air Contaminant	*Reduction in Emission Rate from Coal to Natural Gas*
NOx	**>60%**
SO2	**>99%**
Total Particulate	**>80%**
Greenhouse Gases (CO2 Equivalents)	**>51%**
Ammonia and Acid Gases	**>99%**
Metals	**>62%**

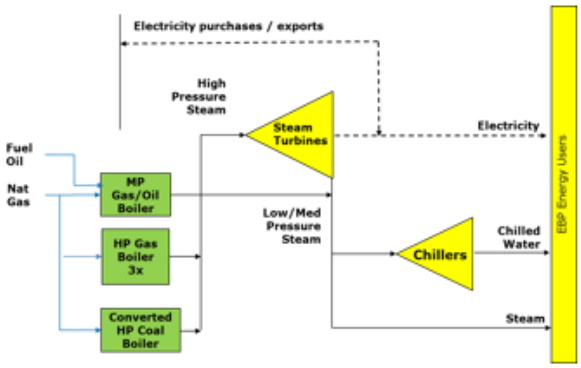
The conversion project has eliminated slag coal waste generated by the retired coal fired boilers. There is no solid waste when firing natural gas and only negligible fly ash waste when the ultra-low sulfur diesel oil (RED's back-up fuel) is burned. Additionally, the train transportation of coal to Eastman Business Park and associated traffic delays on Ridge Road have been eliminated. The loading of approximately 18 vehicles per day of post combustion coal fly ash and slag management has been eliminated.

DESIGN BUILD DESCRIPTION

RED Rochester's strategy was to simultaneously meet EPA regulations while fulfilling plant requirements to ensure stable utility rates for our customers. The design build strategy replaced coal with natural gas using three new high pressure gas fired boilers, one medium pressure natural gas fired boiler and converting one existing coal boiler to gas. The existing boiler that was converted to natural gas and the new medium pressure boiler can burn either natural gas or oil which provides back-up flexibility. These new and converted assets have been integrated with the existing utility distribution system as shown in the figures below. This approach took full advantage of the utility distribution system, where steam supplied to Eastman Business Park is first used to generate electricity before being delivered to customers for space heating and other mechanical industrial processes. In addition to generating steam and electricity, the steam from the new boilers is also used to produce chilled water for Eastman Business Park customers by using steam in place of electricity to mechanically drive chillers.



Existing Plant with Coal Boilers

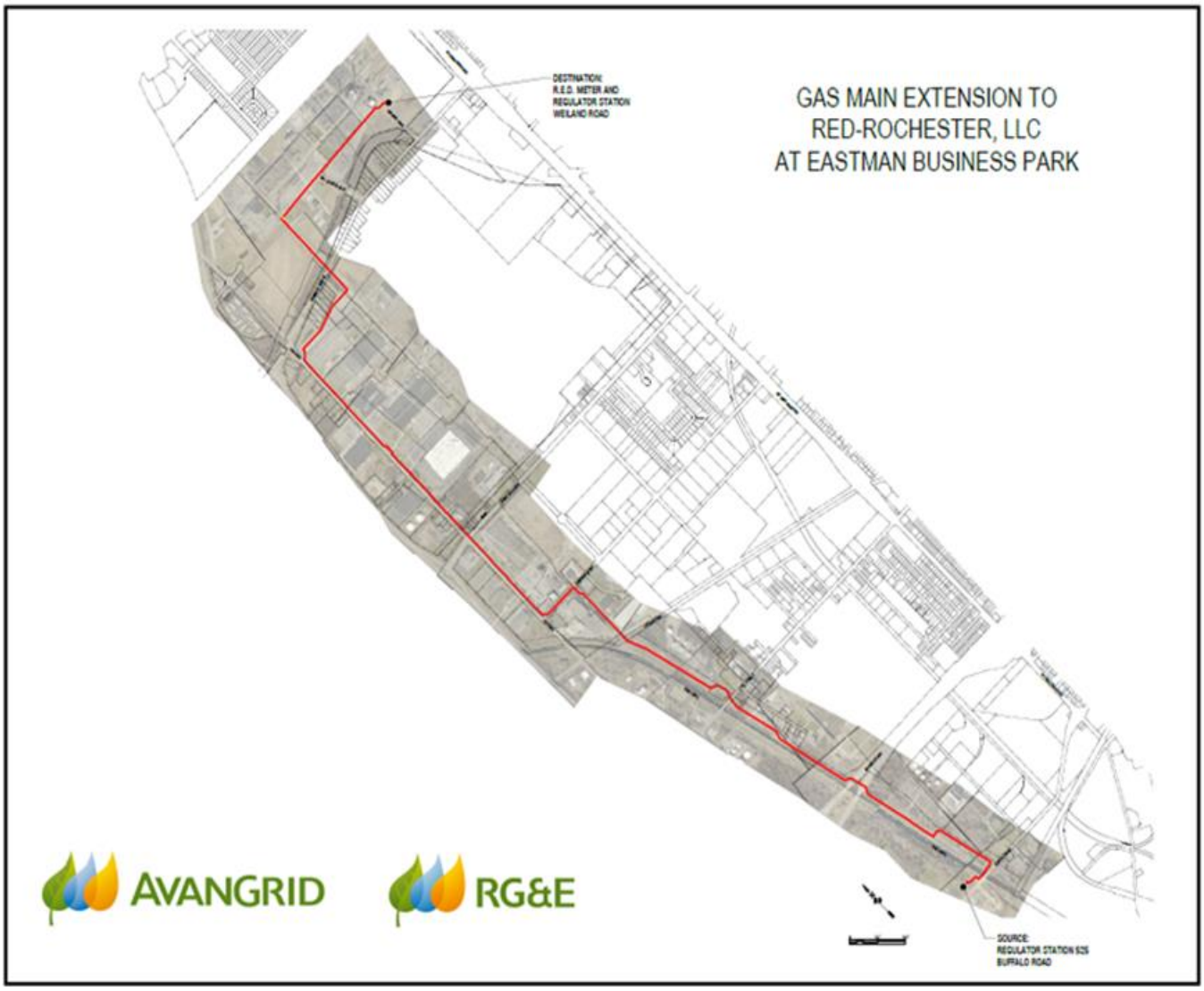


Converted Plant with Gas Boilers

Reliability is enhanced by increasing the number of high pressure boilers (from three to four). Further, three of the high pressure boilers are new and all are fired by natural gas, which is inherently more reliable than coal due to: (i) the efficiency with which it can be delivered into the boiler, (ii) the absence of concerns associated with the moisture content of the coal, and (iii) the reduced wear and tear on the boilers. The size and turndown range of the boilers has been optimized to the steam cycle for the current steam loads of our customers. Capital and operating costs were optimized by eliminating the high costs of coal delivery and handling and by working collaboratively with a highly experienced engineering and construction partner. Increasing the future capacity has been enabled by sizing critical plant components for additional steam and electric generation equipment.

GAS SUPPLY OVERVIEW

RED-Rochester's previous gas supply of ~625 Dth from Rochester Gas and Electric (RGE) was not sufficient to meet the needs of the new boilers. A new natural gas pipeline was needed to increase availability to ~1,800 Dth to meet current and future requirements. Rochester Gas & Electric through its contractor, The DDS Companies of Rochester, permitted, constructed and owns a new 4.5 mile natural gas pipeline line to meet our needs. This new pipeline was completed and placed into service in September 2017. The route of the new pipeline, from Buffalo Road to RED-Rochester's plant, is shown in the graphic below.


GAS MAIN EXTENSION TO
RED-ROCHESTER, LLC
AT EASTMAN BUSINESS PARK
DESTINATION
R.E.D. METER AND
REGULATOR STATION
WELAND ROAD
SOURCE:
REGULATOR STATION 625
BUFFALO ROAD
AVANGRID
RG&E

Kodak Utility Service History

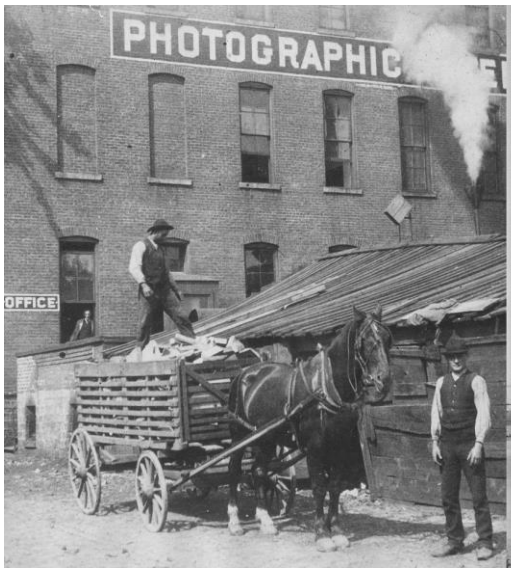
Founded in 1888, the Eastman Kodak Company has been in the business of making its own power almost from the beginning. Small wood-fired boilers powered mechanical shafts at Kodak's first dedicated building in down town Rochester. When George Eastman founded Kodak Park the first building constructed, Building 1, was a power plant. Completed in 1891, Building 1 housed coal boilers and steam powered refrigeration machines. It's well documented that Mr. Eastman would bring his mother to the Park and drop her off at Building 1 while he attended to business. She would read, knit, and attend to her plants in the warmth of the boiler house until George picked her up on his way home.

The advent of the electrical age coupled with the meteoric rise of Kodak led to a need for a large and more technologically advanced power plant to be built. Building 31 originally housed 2 boilers and a number of accessory air compressors and turbine generators. Over the years the plant was expanded to include 6 underfeed stoker boilers, 4 package boilers, and a host of other steam equipment to keep the manufacturing up and running.

As Kodak Park continued to spread west, new power generating plants were required. Building 101 would house the "west" power plant from the mid-1920's until the construction of Building 321 in 1963. Building 101 housed four small package boilers and one turbine generator. The Building 101 boilers originally ran using coal as a primary fuel but were converted to natural gas and oil fired units in 1937.

The next power plant to be constructed was Building 321 in 1963. Although it started with just one cyclone-type boiler (#41) it would eventually take on after its sister plant in Building 31 and grow to house 3 more boilers (#42, #43 and #44 together with 4 turbine generators. The final unit installed was a compliance-type boiler (#44) which came on-line in 1986. #44 Boiler was converted to fire natural gas with oil backup in 2017 as part of RED's MACT Conversion Project.

The most recent evolution of utility services started in September 2013 with RED-Rochester's acquisition of Kodak's utility assets. RED-Rochester together with Ironclad Energy Partners and Stonepeak Infrastructure Partners thereafter invested $75M to retire all coal fired operations with the construction of Bldg. 371. This new boiler house contains 1 medium pressure and 3 high pressure package boilers constructed in the U.S. and shipped to Rochester from both Texas and Oklahoma. As part of this project, #44 Boiler, an existing coal fired boiler in Bldg. 321, was converted to natural gas as well. The five of these natural gas fired boilers represent the capacity to generate 1.5 million pounds of steam per hour - positioning Eastman Business Park for competitively priced, clean and reliable utility services for decades to come.



First Wood Fired Steam

Building 1 Eastman Business Park

Dual Stacks of Building 321

Building 321 – Existing Boiler House

Building 371 – New Boiler House

Shift Whistle

Beginning with the establishment of Kodak Park in 1891, a factory whistle was used to alert employees of the beginning and end of their shifts. The whistle that will be blown as part of today's ceremony and that can be seen during out plant tour is a replacement for the original 1891 model and was purchased by Eastman Kodak Company in 1916. Built by the Union Water Meter Company of Worcester, Massachusetts. The "whistle" is actually at 3-Bell Steam Gong and is tuned to hit the first, fifth, and eighth notes of the music scale. Originally the whistle was operated using 135 pound steam but today it will be blown using compressed air.

In its original placement atop Building 31, the whistle signaled shift start and end times as well lunch hours. In the early days it was also used to summon the fire department to certain buildings. During World War II, blasts from the whistle would signal air raid drills and was used for civil air defense alerts into the 1960's. With an effective range of 10 miles, the Kodak Park whistle became a mainstay of neighbor's lives. Many people used the regular blasts to tell time. That's why the news that their "old friend" would be silenced at 5pm on August 8th, 1964 was

met with sadness and even contempt. Upgrades to the park's communication network and staggered lunch hours made the need for a factory whistle a thing of the past.

For Kodak's 100th Anniversary, the whistle was re-installed on Building 31 and ceremoniously blown on June 14th, 1991. Due to years of not being used and maintained it failed to sound for that ceremony, releasing nothing more than a rush of steam. For today's Building 371 Ribbon Cutting Ceremony, the whistle has been fully restored by RED's steam and electric maintenance team returning it to its prior glory both in appearance and sound. The whistle has been mounted at ground level outside Bldg. 321 and will be pointed out to you during your tour.

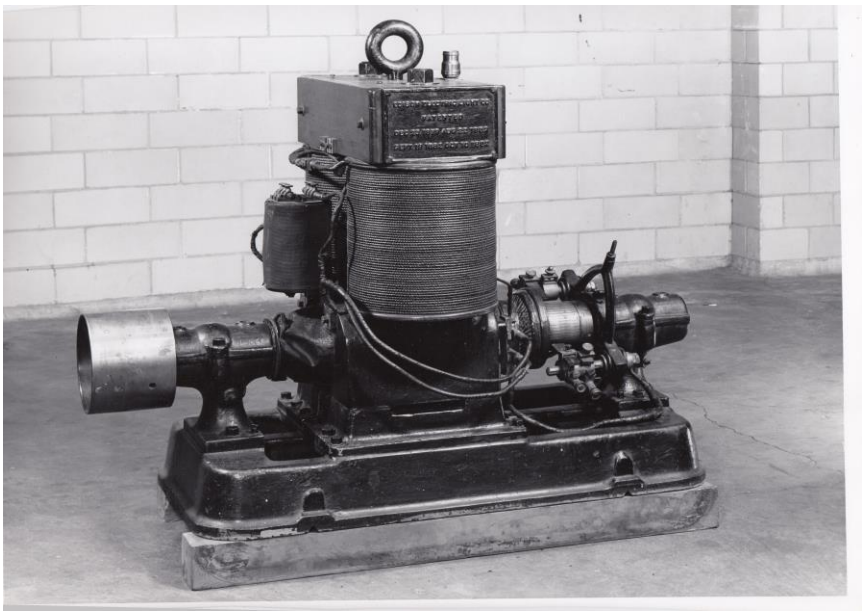
Shift Whistle on Top of Bldg. 31

Edison BiPolar Generator and DeLaval Steam Turbine

Two early examples of Kodak's power generation equipment will be on display under the Ribbon Cutting Ceremony tent. One is an Edison Bi-Polar Dynamo and the other is a De Laval Steam Turbine and Continuous Current Generator. Both pieces of equipment were purchased around the turn of the century. It is known that George Eastman personally selected and purchased the Edison machine from his good friend Thomas Edison.

The bi-polar dynamo was used to create 125-volt, 80-ampere, direct current power using a belt driven by one of the coal fired boilers in Building 1. Purchased from The Edison Machine Works on October 17, 1889, this dynamo was later moved from Kodak Park to the State Street office to generate power there.

Not much is known about the De Laval turbine and generator other than it was used to make 120-volt, 167-ampere power. It was offered for sale by the De Laval Steam Turbine Company as a Type KD generator bearing the serial number 1111.



Edison BiPolar Generator - 1889

DeLaval Steam Turbine – circa 1899