

How it works:

- 1 Like a jet engine, air is drawn in through turbine blades and combusts with natural gas to spin a generator, creating electricity.
- 2 The exhaust heat from the turbine is captured in the HRSGs, where it converts water to steam.
- 3 The steam then powers a third turbine creating additional electricity.
- 4 Maximum efficiency is achieved during the winter, when excess heat in the plant's cooling system can be diverted to run the city's snowmelt system.

Key Benefits:

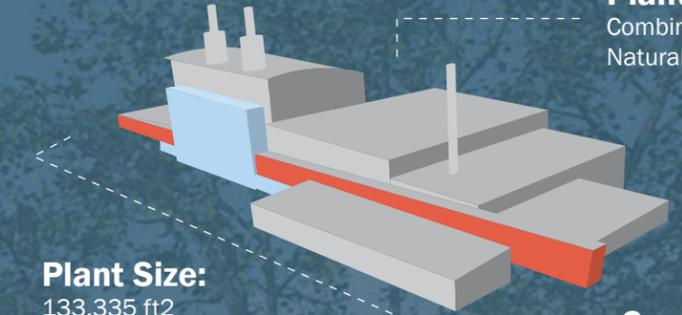
- ⚡ Clean, affordable power to attract and maintain new businesses and residents
- 📈 Decreased dependency on volatile power market
- 🌿 Reduced Emissions: -50% CO₂, -66% NO_x and -99% SO_x (from coal)
- ❄️ Enables expansion of downtown snowmelt system and potential for district heat
- 🏠 Improvement and environmental reclamation of Holland's blighted eastern gateway
- 🌳 Expansion of the Macatawa greenway and park trail system

Core Technology:

- 2x 50MW Siemens SGT-800 Combustion Gas Turbines
- 2x Vogt Heat Recovery Steam Generators
- 1x 45MW Siemens SST-400 Steam Turbine

Power Output:
145MW (winter)

Plant Type:
Combined Cycle
Natural Gas



Plant Size:
133,335 ft²

Property Size:
26 acres

Cost:
\$200+ million
(HBPW Cash reserves +
\$158.84 million AA-rated
municipal bonds)

Timeline

April 2015

Groundbreaking

July 20, 2015

Combustion Turbine
Generator delivery

August 17, 2015

Heat Recovery Steam Generator
(HRSG) delivery

August 31, 2015

Steam Turbine
Generator delivery

January 25, 2016

Building structural
steel complete

September 19, 2016

First fire

November 3, 2016

First steam

December 17, 2016

Target substantial
completion

February 15, 2017

Guaranteed substantial
completion



Brief history:

Locally-owned and operated generation has been a key factor to Holland’s vitality and economic success over the past century. In 2006, the Holland Board of Public Works began searching for a way to meet the city’s fast-growing demand for power. Using an inclusive, community-driven process, HBPW conducted an exhaustive Sustainable Return on Investment (SROI) study to study not only affordability and reliability, but also the social, sustainable, environmental and health impacts of a variety of different options. The results pointed strongly toward combined cycle natural gas.

HBPW chose a site for the plant at the eastern entrance to the community for its close proximity to downtown to support snowmelt and potentially district heat (expanding snowmelt mains to heat downtown buildings and/or Hope College).

The Holland Energy Park’s design was developed under the leadership of a blue ribbon panel, comprised of a cross-section of educational, environmental and community leaders. The committee decided that in addition to being a world-class power resource, the plant should act as a gateway into the city and as a park destination, seamlessly integrating into the surrounding natural space.



Sustainable site clean-up practices:

- One industrial, eight commercial and 27 residential properties responsibly demolished and recycled.
- Jubilee Ministries salvaged furnaces, water heaters, vanities, cabinets, doors and other furnishings.
- Benjamin’s Hope re-purposed felled tree trunks for playscape landscaping.
- Outdoor Discover Center reclaimed tree stumps for wildlife habitats.
- Star Excavating traded backfill material for right to reuse structural steel from their property at their new location.
- HBPW removed and recycled over 300 discarded tires from the wetlands.
- HBPW implemented a plan to manage and control Japanese knotweed and other invasive species.
- Foundational concrete crushed and reclaimed for site preparation.

HOLLAND’S FUTURE

