KING ENGINEERING

Case Study

Heninger Toyota Embrace Onsite Power Production with Combined Heat Power (CHP)

PROJECT INFORMATION

Client: Heninger Toyota
Contractor: AK Brown
Energy Consultant: M. Chidwick
CHP Manufacturer: EC Power
Date completed: July 2023

TECHNICAL INFORMATION

Electricity Produced: 114 kW
Heat Produced: 234 kW
Efficiency: 95+%
GHG Reduction: 435 ton
Footprint: 2 x 20 ft sea cans

"Completing this project for Heninger Toyota demonstrates the efficacy of CHP systems and their ability to be retrofitted into existing infrastructure. We are excited to collaborate with new innovative partners who want to boost their sustainability while lowering operational costs".

~ John Brown, AK Brown

In the previous year, King Engineering has effectively developed CHP systems for four clients. King Engineering emulates the European energy standards and is equally passionate about helping businesses incorporate CHP systems into both new and existing designs.

Heninger Toyota, Western Canada's first and longest-running dealership since 1968, boasts Canada's largest Toyota service center, constructed by Kanas Corporation. Wanting to incorporate an energy reduction alternative, with possible grant opportunities, Heninger Toyota selected King Engineering to execute a CHP solution to reduce Green House Gas (GHG), save money on utilities, and for energy independence.

KEC designed mechanical and electrical drawings to improve the overall energy efficiency with a cogeneration system. KEC then verified the commissioning of the system and completed the Enmax interconnection application.

EC Power used a Toyota power engine in its micro-CHP system, resulting in a 435T decrease in Green House Gas (GHG) emissions each year. Each unit generates 19 kW. This unique engineering solution houses six EC Power micro-CHP units in two 20 ft sea cans, leaving no internal footprint and reducing onsite building time.

By incorporating waste heat recovery into the engineering

"We've been able to productively use all the heat while running, especially with the recent cold snap. All the better to be making energy behind the meter too with the AB energy shortages and the notices going out requesting minimal usage".

~ Nicholas Gibson, Heninger Toyota

design, the waste heat is recycled to heat the in-floor heating system and the exterior ramp. Distech Controls were put in place to maximize the efficiency of the heat cycle of the CHP system.

WHAT IS COGENERATION?

- Combined Heat and Power (CHP), also known as Cogeneration, is the simultaneous production of electrical and thermal energy from a single fuel source.
- The most common generation systems involve the burning of fuels such as natural gas, GPL, diesel, biogas, biomethane, vegetable oil, and biomass.
- Using the same fuel to create both heat and electricity increases energy efficiency, provides environmental advantages, and secures savings.
- Cogeneration power facilities typically run at 40 to 90% better efficiency levels than standard power plants.
- The European Union has included cogeneration in its energy policy, which aims to reduce greenhouse gas emissions and become carbon neutral by 2050.