HB 107

Project pre-filing meeting with stakeholders

November 21, 2019

Agenda

- INTRODUCTIONS
- HB 107 BACKGROUND
- PROPOSED STRUCTURE OF PROJECT FILINGS
- COMBINED HEAT & POWER
- NATURAL GAS BUS PROJECT

HB 107 Background

HB 107, passed during the 2019 legislative session, expands the Sustainable Transportation & Energy Plan (STEP) Act to include natural gas programs.

With PSC approval Dominion Energy Utah can invest in sustainability projects.

- The law allows DEU to seek up to $10 million annually, over a period of 5 years, beginning July 1, 2019.

DEU can pursue a broad range of projects within these categories:

- Innovative Utility Programs – Associated with natural gas use including technology programs, infrastructure, renewable energy projects, economic incentive rates, and community programs.
- Natural Gas Clean Air Programs in the Transportation Sector – Through the use of CNG and RNG in commercial transportation fleets.
- Funds are also allowed for the investigation, analysis, and implementation of the above programs.

HB 107 Background

The Commission may authorize DEU to implement and fund programs that it determines are in the public interest.

- In determining whether a project is in the public interest, the Commission shall consider the following factors:
  - To what extent the use of renewable natural gas is facilitated or expanded by the proposed project;
  - Potential air quality improvements associated with the proposed project;
  - Whether the proposed project could be provided by the private sector or would be viable without the proposed incentives; and
  - Potential benefits to ratepayers

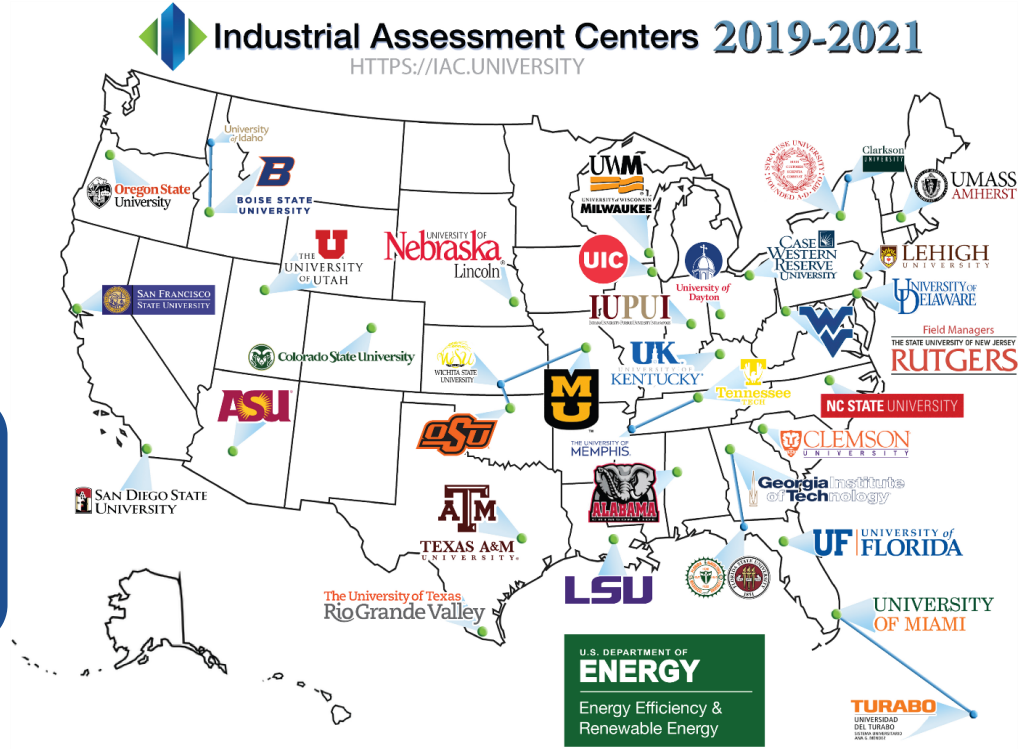
DEU must seek input from the Division of Public Utilities, the Office of Consumer Services, and any person that files a request for notice with the Commission.

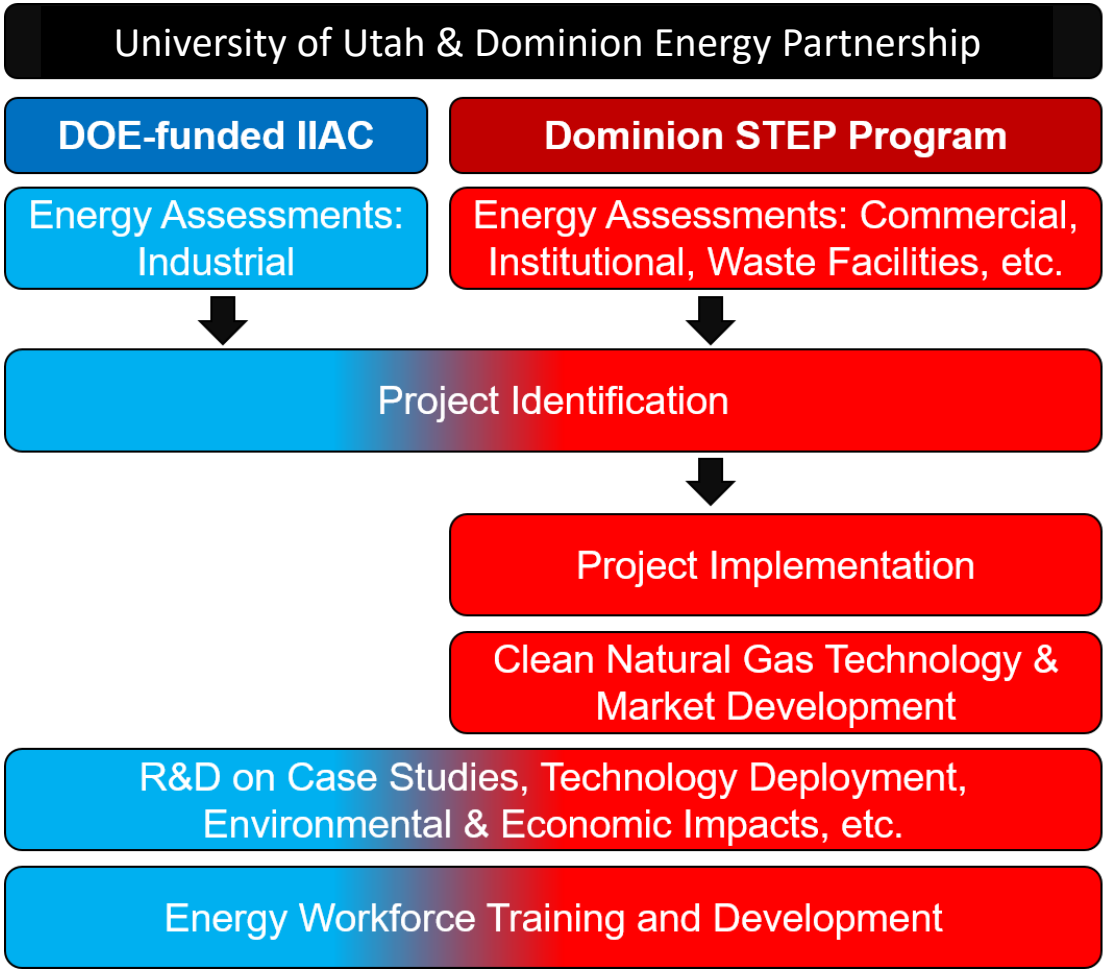
The statute also contains provisions for audit/review of expenditures, establishment of a balancing account, a carrying charge in an amount established by the Commission, and a requirement for an annual report to be filed with the Public Utilities, Energy & Technology Committee.

Proposed Structure of Project Filings

The Company proposes to use the Intermountain Industrial Assessment Center (IIAC) at the University of Utah to investigate, analyze, and implement projects.

- The University of Utah is one of 28 U.S. DOE-sponsored programs around the country designed to offer technical assistance to manufacturers.
- Partnering with the University of Utah allows the Company to leverage funds already granted by DOE for future projects.
- The University of Utah has already performed analysis on five potential Innovative Utility Program projects.




University of Utah & Dominion Energy Partnership
DOE-funded IIAC
Dominion STEP Program
Energy Assessments: Industrial
Energy Assessments: Commercial, Institutional, Waste Facilities, etc.
Project Identification
Project Implementation
Clean Natural Gas Technology & Market Development
R&D on Case Studies, Technology Deployment, Environmental & Economic Impacts, etc.
Energy Workforce Training and Development

Proposed Structure of Project Filings

The Company has other potential projects in need of analysis by the University of Utah such as:

- RNG at the Salt Lake City landfill
- RNG at the Salt Lake City water treatment plant
- Main & service line extensions to solid fuel combustion heated homes
- CNG freight switcher infrastructure at the inland port
- CNG infrastructure for mining equipment
- CNG infrastructure for snow removal equipment
- The Company proposes to fund the University of Utah with an additional $2.4 million ($800k per year in 2020, 2021, and 2022) for analysis of other Innovative Utility & Transportation Programs.

Going forward, the Company proposes to seek Commission approval separately on Innovative Utility & Transportation Programs after they are identified & analyzed by IIAC.

Overview of Initial Projects

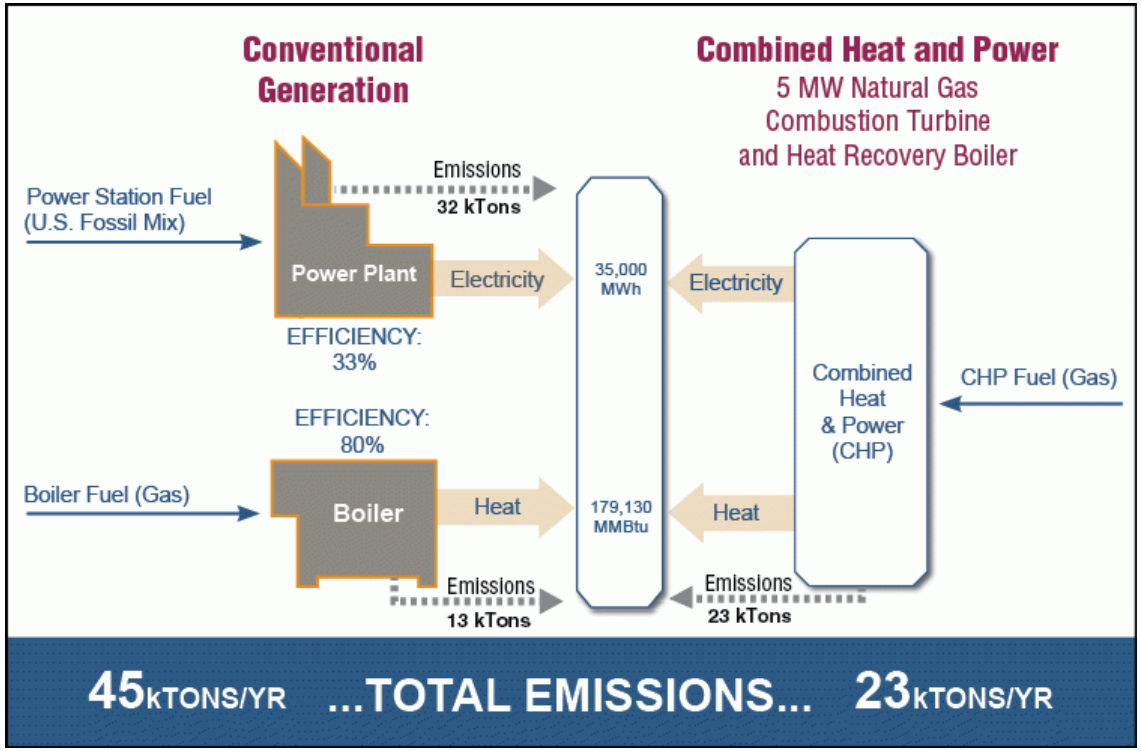
Initial filing December 31, 2019

Two projects:

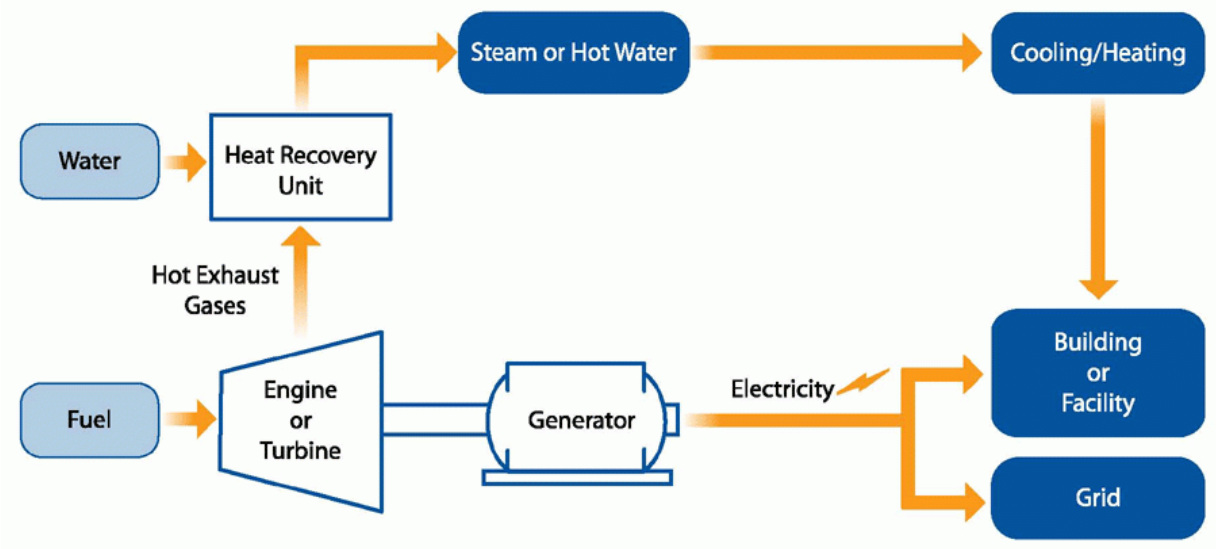
- Project 1: Company A, located in Ogden, could reduce NO_x output, a precursor to both particulate matter (PM) 2.5 & ozone O_3, by 253 tons annually by installing a 20 megawatt combined heat and power (CHP) system.
  - Project cost is estimated at a total of $45 million
  - The Company proposes an incentive of 30% of the total cost or $4.5 million per year in 2020, 2021, and 2022.
- Project 2: South Jordan School District CNG bus fueling station.
  - $1.5 million for time-fill and fast-fill dispenser
  - Supports 40 new CNG buses
  - Enables 146 tons of avoided NO_x emissions per year

Combined Heat & Power Project

CHP Project

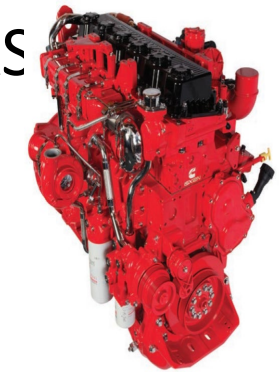

Conventional Generation
Combined Heat and Power
5 MW Natural Gas Combustion Turbine and Heat Recovery Boiler
Power Station Fuel (U.S. Fossil Mix)
Emissions
32 kTons
Power Plant
Electricity
EFFICIENCY: 33%
35,000 MWh
Electricity
Combined Heat & Power (CHP)
CHP Fuel (Gas)
EFFICIENCY: 80%
Boiler Fuel (Gas)
Boiler
Heat
179,130 MMBtu
Heat
Emissions
13 kTons
Emissions
23 kTons
45kTONS/YR ...TOTAL EMISSIONS... 23kTONS/YR

CHP Project


Steam or Hot Water
Cooling/Heating
Water
Heat Recovery Unit
Hot Exhaust Gases
Fuel
Engine or Turbine
Generator
Electricity
Building or Facility
Grid

CNG Bus Fueling Station

CUMMINS ISX12N NEAR ZERO SPECIFICATIONS USED IN REFUSE, VOCATIONAL AND DELIVERY CLASS 6-7-8 TRUCKS



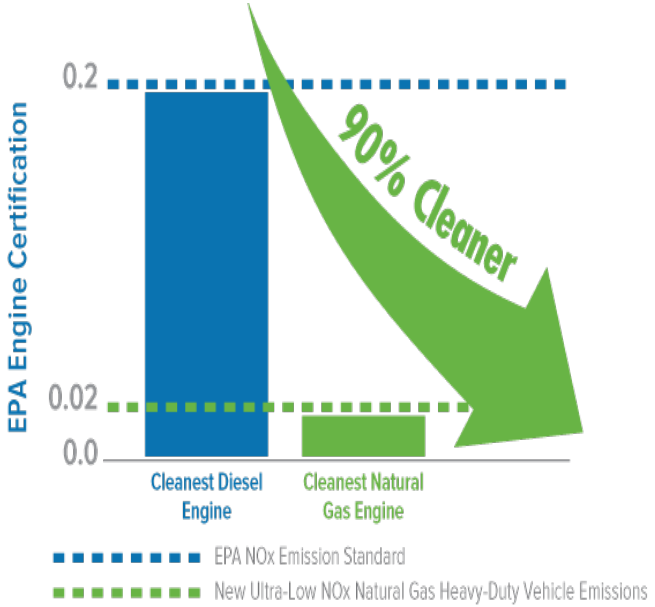
Cummins Westport

Specifications

NOx Emission	0.02 g / bhp-hr. (90% below EPA)
Maximum Horsepower	400 HP | 298 kW
Peak Torque	1,450 LB-FT | 1,966 Nm
Governed Speed	2100 RPM
Type	4-cycle, spark-ignited, in-line 6-cylinder, turbocharged, CAC
Engine Displacement	762.2 CU IN | 11.9 LITERS
Number of Cylinders	6
Operating Cycles	4
Net Weight (dry)	2,650 lb | 1,202 KG
Fuel Type	CNG / LNG / RNG
Aftertreatment	Three-Way Catalyst

The cleanest heavy-duty truck engine in the world is powered by natural gas

- Certified in 2018 by the U.S. Environmental Protection Agency and California Air Resources Board



The Cummins Westport Ultra-Low NOx engine is certified to a 0.02 g/bhp-hr standard, which is:

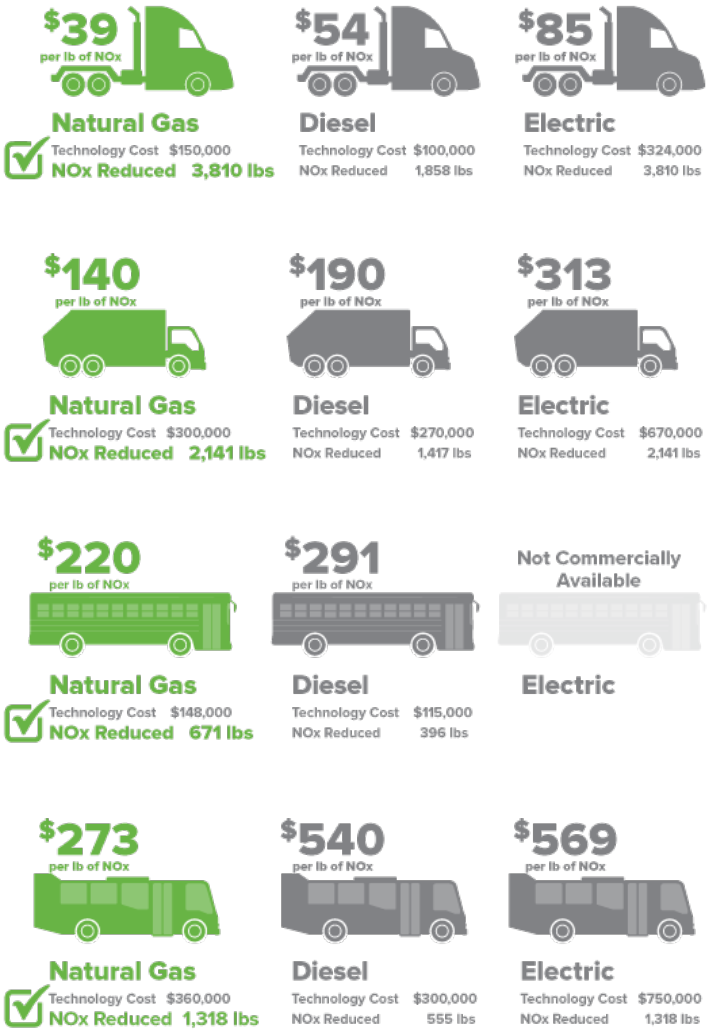
- 90% cleaner than the EPA's current NOx standard
- 90% cleaner than the latest available diesel engine

Renewable natural gas (RNG) provides even greater CO_2 and greenhouse gas emission reductions

Carbon Intensity Rating of Key Transportation Fuels

Transportation Fuel	EER-Adjusted Carbon Intensity
Diesel (conventional)	102.01
Natural gas (conventional)	88.60
Hydrogen (from natural gas)	55.61
Electricity (California grid)	38.95
RNG - Landfill gas	33.89 to 65.64
RNG - Wastewater biogas	8.61 to 34.36
RNG - Food/green waste biogas	-25.48
RNG – Dairy biogas (prospective)	-303.30

Source: www.arb.ca.gov/fuels/lcfs/fuelpathways/pathwaytable.htm, CARB, February 2017. Adjusted for heavy-duty truck applications.



NGVs Deliver the Largest & Most Cost-Effective NOx Emissions Reductions

Examples:

- ✓ Heavy Duty Trucks
- ✓ Refuse Trucks
- ✓ Transit Buses
- ✓ School Buses

Data Source: NGVA prepared using ARGONNE National Laboratories emission model. NOx emissions are based on low-NOx natural gas engines. EV emissions are the same as natural gas emissions based on the inclusion of power plant emissions, EPA MOVES emission factors for 2017 diesel vehicle, and EPA MOVES for 2007 replacement diesel vehicles. Useful life, cost and mileage vary by applications. Additional details available from NGVA upon request.