BigG Express Data

Data Files Overview

Data in all tables is from January 1, 2017 to March 23, 2018

1. BGEIDSC.EF2EFFP.csv – fuel optimization (836 rows)

2. IBGEFILE.UNITS.csv – trucks (709 rows)

3. BGETCHDATA.PTCHTRANH.csv – fuel transactions (147,861 rows)

4. Extranet2.ExactFuelEvents.csv – fuel events (8,495,130 rows)

5. Extranet2.ExactFuelTankLevels.csv – fuel levels (7,908,828 rows)

* Some trucks have sensors in one fuel tank and some have sensors in both tanks. In either case, two readings are always transmitted, and if TankLevelGallons = 0, no record is written. Also if a record in ExactFuelTankLevels does not have a corresponding record in TankLevelGallons this is likely due to a connection error either in communicating with the truck or writing to the database.

Fuel Optimization

BGEIDSC.EF2EFFP

Useful (possibly) for individual truck fuel capacity. All MPG averages are 6.

From Josh: The current fuel level of the truck is transmitted to the system when the driver notes that he or she has departed the final stop of their load (the computers on the trucks send the % fuel remaining in the system, which comes from the same place as the exact fuel events data, the J1939 bus). The system takes that, and when running the solution for the drivers' next load, whether or not the truck has enough fuel onboard to make the next trip based on the number of miles in the trip, and whether the truck will have more than the minimum amount of fuel as configured (50 gallons minimum in the truck at any time, ideally finishing the load with over 75 gallons). We have the system configured to try to not have the driver stop to purchase any less than 50 gallons at a time.

So – if you have a 200 mile trip, and the truck can hold 300 gallons of fuel, and has currently ¼ of a tank (25%), then we know that it has 60 gallons on board. 60 gallons * 6.5 MPG is a 390 mile range, however, there is a minimum tank level of 50 gallons – so that leaves us with 10 gallons of range before we exceed that minimum level, meaning that the system needs to determine what is the best price on gas in the next 65 miles down the road of this dispatch. At that point the system determines how much fuel is needed to finish the load with at least the minimum level of fuel remaining. We have it configured to have them go ahead and fill it up to minimize the number of stops. The system locates the least expensive fuel on the route within that range, and sends the fuel solution to the driver.

Trucks

IBGEFILE.UNITS

Not sure how useful this data will be, but make and model year are provided for each truck.

Fuel Purchases/Transactions

BGETCHDATA.PTCHTRANH

The following codes (in any of the Item Code/TRNPI* fields) indicate the purchase of fuel:
ULSD – Ultra Low Sulphur Diesel
FUEL – Another code for ULSD
*CDSL – Containerized Diesel Fuel
DEFC – Another code fir Diesel Exhaust Fluid
DSL1 -- #1 Diesel Fuel (ULSD mixed with kerosene – used in very cold weather)
*BDSL – Biodiesel

These codes are non-fuel purchases:
SCLE – Scale cost
CADV – Cash Advance
DEFD – Diesel Exhaust Fluid
ADD – Additives
OIL – engine oil
UREA – Another type of Diesel Exhaust Fluid
WWFL – Window Washer Fluid
ANFR – Antifreeze

*minimal amounts will be present in the data and probably not of interest for our problem

Fuel Events

Extranet2.ExactFuelEvents

Information about the state of the truck (odometer, speed, heading, date-time, etc.) when an event occurs – event is one of 3 types: sensor data is being transmitted, the truck has been stopped or the truck has been started

Fuel Tank Levels

Extranet2.ExactFuelTankLevels

For any fuel event, an additional record is written to the fuel tank levels table to record fuel level at the time of an event.

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