

# BI FUEL ?

DIESEL + NG, LNG, CNG,  
WELLHEAD GAS?



2014 Spring Convention - Savannah, GA



# THINGS TO THINK ABOUT

- MAINTAIN DIESEL ENGINE PERFORMANCE
  - **START UP 100% DIESEL FAST START**
  - **BLOCK LOAD UP & DOWN**
  - **HIGH DEMAND FLUCTUATING LOADS**
  - **HIGH DEMAND STEP LOADS**
  - **HOURS OF RUNTIME**
  - **EXTEND FUEL CAPACITY**



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# THINGS TO THINK ABOUT

- SELECTION OF THE TYPE OF GAS
  - NATURAL GAS UTILITY SUPPLIED 1:1
  - LNG 1.6 GALLONS = 1 GALLON OF DIESEL
  - CNG 1.4 GALLONS = 1 GALLON OF DIESEL
  - WELL HEAD GAS ? = 1 GALLON OF DIESEL



# EXPECTATIONS

- REDUCTION IN DIESEL FUEL USAGE & COST UP TO 70%\*
- EXTENDED RUNTIME
- NO CHANGE IN DIESEL ENGINE AND GENERATOR PERFORMANCE
- NO INTERFACE OR TAMPERING WITH OEM CONTROLS
- NO ENGINE MODIFICATION
- WILL NOT EFFECT THE ENGINE WARRANTY
- CO EMISSIONS WILL GO UP AND CAN BE BROUGHT BACK INTO COMPLIANCE WITH DOC

*\*DEPENDENT ON LOAD, GAS QUALITY, ENGINE COOLING etc..*



# THINGS ABOUT A BI FUEL ENGINE

- **ENGINE PROTECTION**
  - **INDEPENDENT BI FUEL CONTROL PANEL-ECU**
  - **GAS INLET PSI AND GAS OUTLET PSI**
  - **EXHAUST TEMPERATURE**
  - **GAS DETECTION**
  - **FLAME DETECTION**
  - **ENGINE/GENERATOR LOAD DEMAND CONTROL OF GAS**
  - **VIBRATION SENSING**
  - **MANIFOLD AIR TEMPERATURE**



# THINGS ABOUT A BI FUEL ENGINE

- GAS CONTROL
  - BEST RESULTS IS CLOSE TO INLET OF TURBOCHARGER
  - GAS DELIVERY-UNDER 7 PSI
  - GAS LEL DETECTION
  - FLAME DETECTION
  - VIBRATION (KNOCK)



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# WHO NEEDS BI FUEL?

- CUSTOMERS WHO NEED THE EXTENDED RUNTIME DUE TO EMERGENCIES
  - HOSPITALS
  - DATA CENTERS
  - CANCER TREATMENT FACILITIES
  - RESORTS
  - OFFICE BUILDINGS
  - CONDOMINIUMS
  - MALLS
  - POLICE DEPARTMENT
  - FIRE DEPARTMENTS



# WHO NEEDS BI FUEL?

- INDUSTRIAL CUSTOMERS
  - DRILLING OIL & GAS
  - FRACKING
  - IRRIGATION
  - LARGE & SMALL MANUFACTURING
  - OTHERS



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# BI FUEL IS A GROWING TREND

- MOST ALL 4 CYLCLE TURBOCHARGED ENGINES ARE ABLE TO BE BI FUELED
- DOES IT FIT ALL SCENARIOS?
  - THAT IS A CUSTOMER DECISION



BI FUEL IS TRENDING AND GROWING

THANK YOU

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