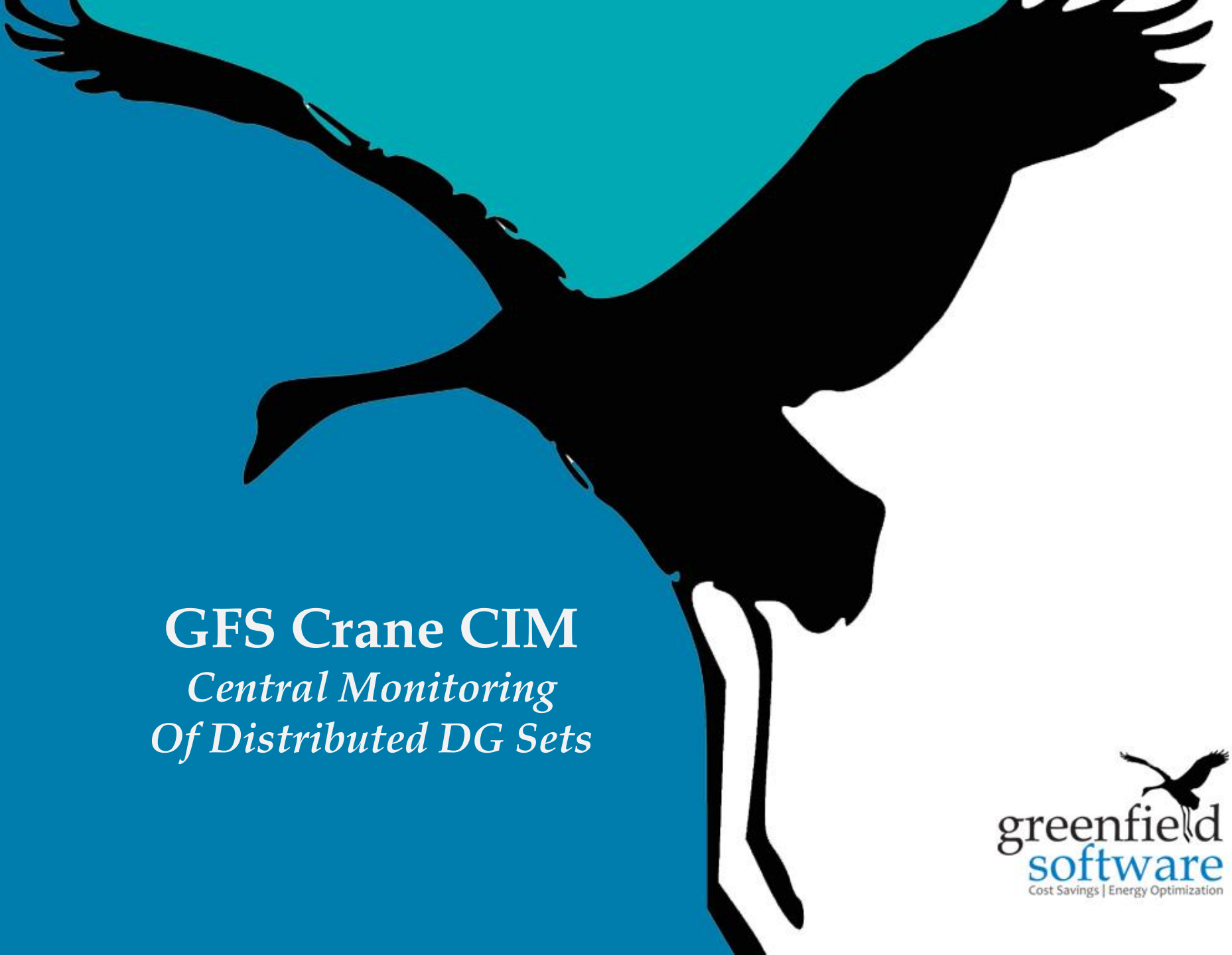


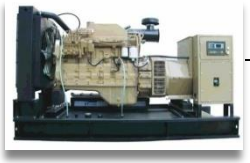
GFS Crane CIM

Central Monitoring
Of Distributed DG Sets

greenfield
software
Cost Savings | Energy Optimization

Device Data Acquisition: From a typical *DG set*

Power panels with MFEM



Gen-set with built–in controller

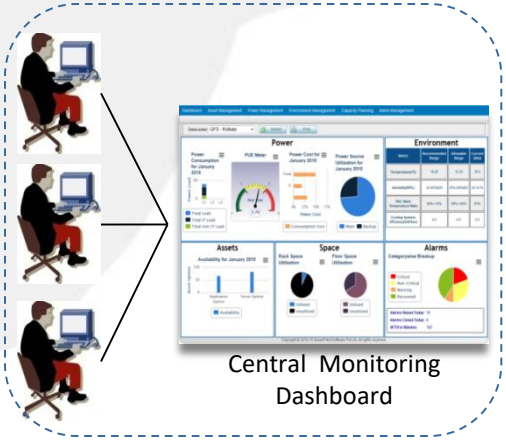
Gateway Device/Protocol Converter

MODBUS/TCP

Gen-set parameters

GFS Crane Data Integrator

Phase to Phase Voltages	Fuel Level
Phase Current	Engine Oil Temperature
Real Power (KW)	Engine Oil Pressure
Reactive Power (KVAR)	Engine Coolant Temperature
Apparent Power (KVA)	Battery Voltage
Energy (KWH)	Engine rpm
Frequency	Engine Operating Hours
Power Factor	Automatic Start/Stop State
Percentage Load	Circuit Breaker Status
	Oil Filter Differential Pressure
	Fuel Filter Differential Pressure
	Instantaneous Fuel consumption



Central Monitoring Dashboard

Internet

Policies

GFS Crane

Configuration

Data Analytics

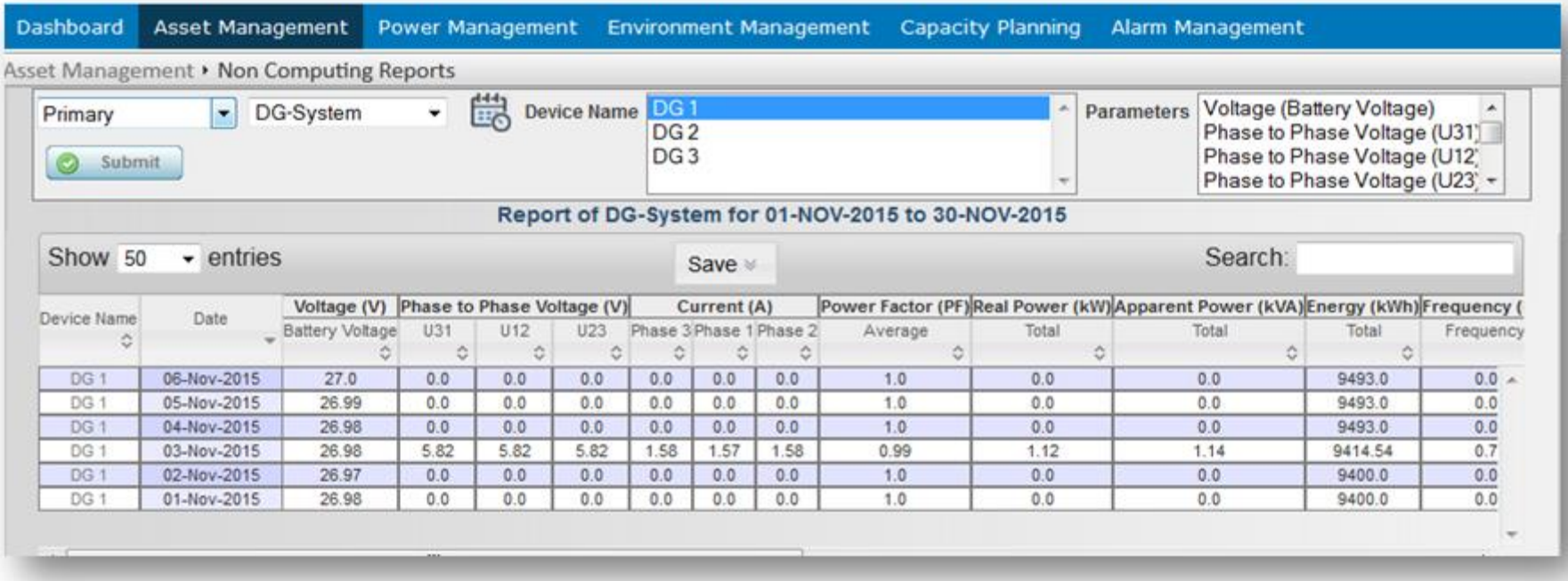
DGs at different locaations

Central Monitoring Station

GFS Crane
Cost Savings | Energy Optimization

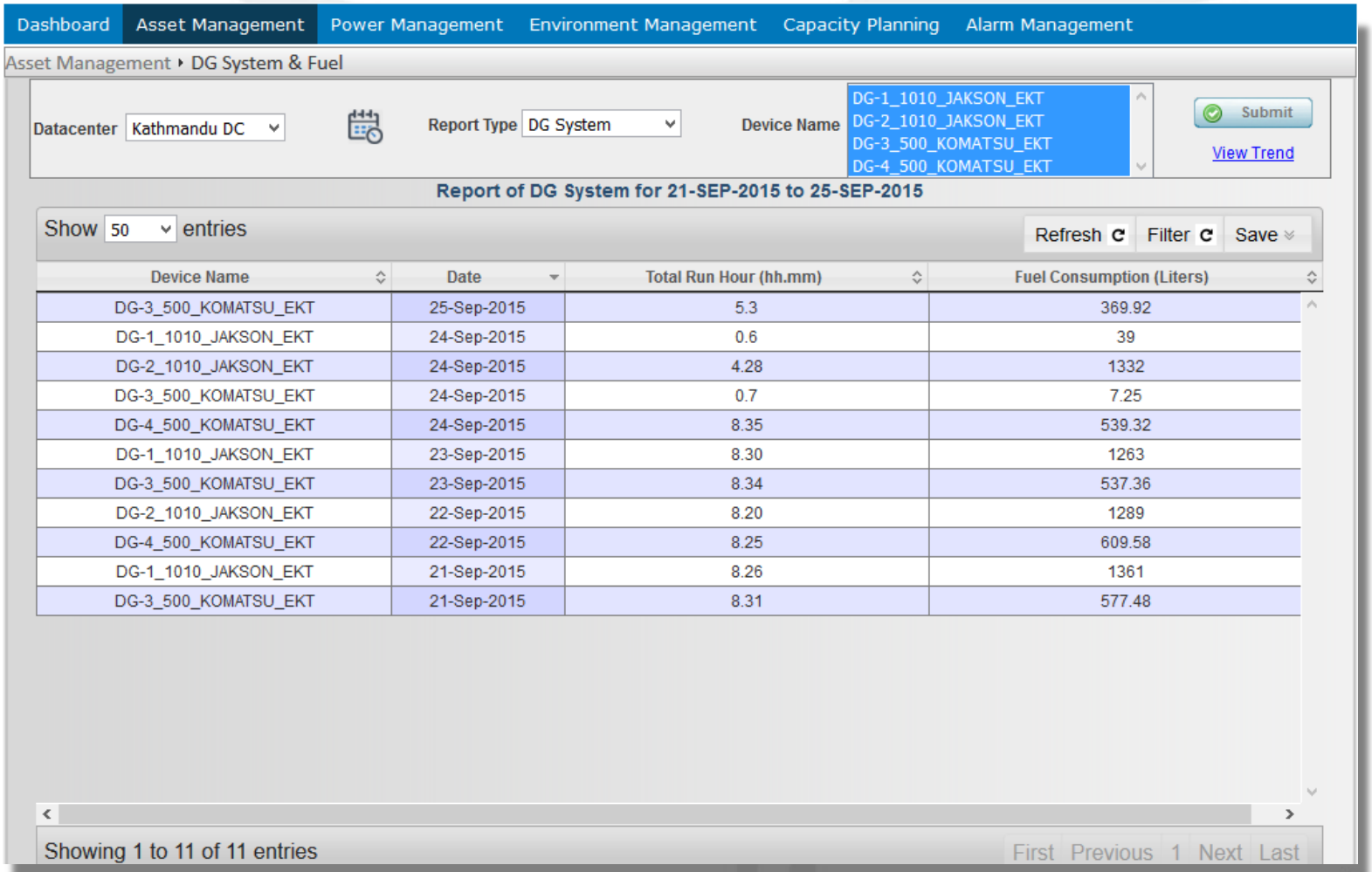
greenfield software
Cost Savings | Energy Optimization

Reports: Live Parameters



Device Name	Date	Voltage (V)	Phase to Phase Voltage (V)			Current (A)			Power Factor (PF)	Real Power (kW)	Apparent Power (kVA)	Energy (kWh)	Frequency (
		Battery Voltage	U31	U12	U23	Phase 3	Phase 1	Phase 2	Average	Total	Total	Total	Frequency
DG 1	06-Nov-2015	27.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	9493.0	0.0
DG 1	05-Nov-2015	26.99	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	9493.0	0.0
DG 1	04-Nov-2015	26.98	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	9493.0	0.0
DG 1	03-Nov-2015	26.98	5.82	5.82	5.82	1.58	1.57	1.58	0.99	1.12	1.14	9414.54	0.7
DG 1	02-Nov-2015	26.97	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	9400.0	0.0
DG 1	01-Nov-2015	26.98	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	9400.0	0.0

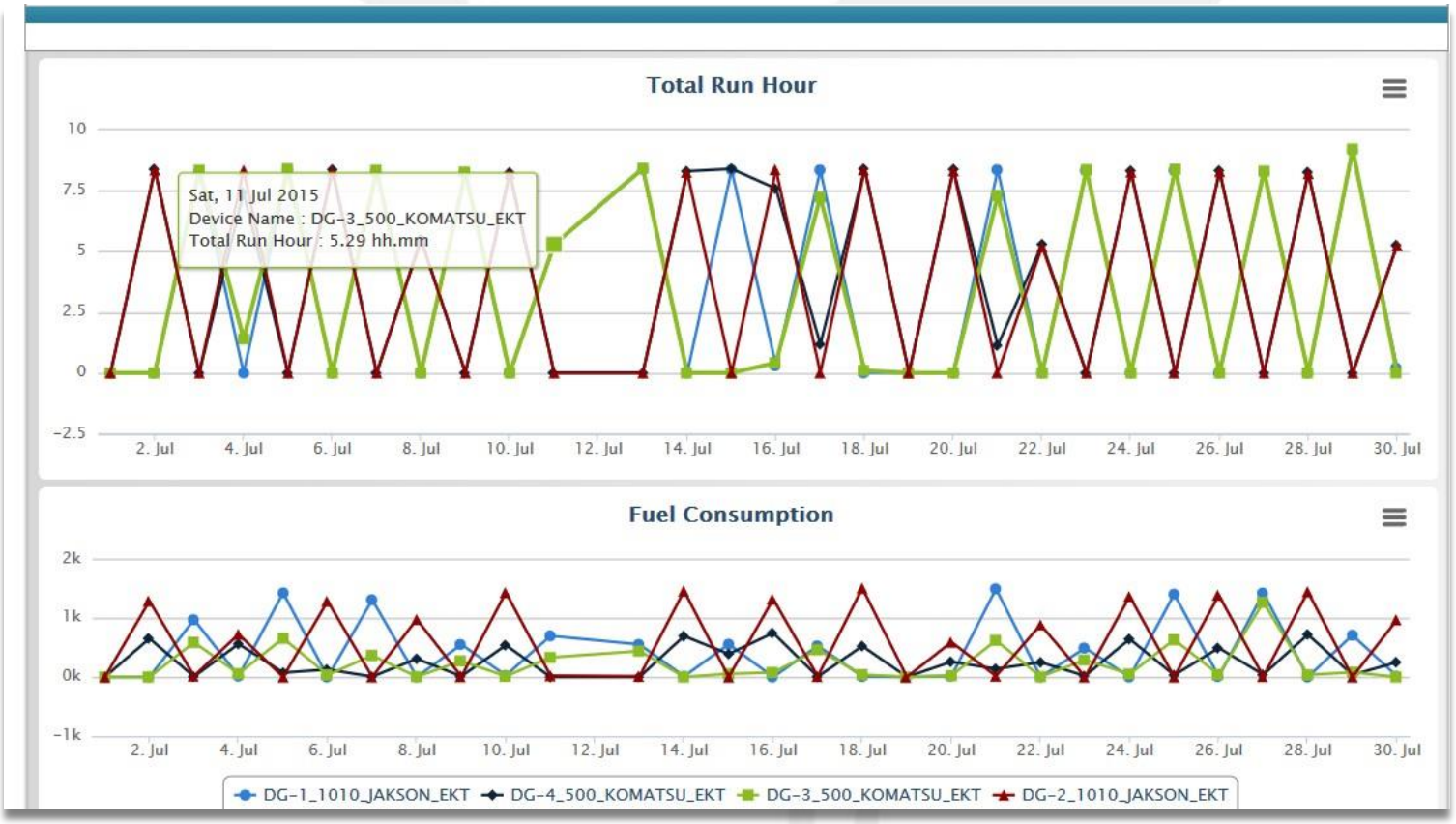
Reports: DG Run Hour Vs. Fuel Consumption



Device Name	Date	Total Run Hour (hh.mm)	Fuel Consumption (Liters)
DG-3_500_KOMATSU_EKT	25-Sep-2015	5.3	369.92
DG-1_1010_JAKSON_EKT	24-Sep-2015	0.6	39
DG-2_1010_JAKSON_EKT	24-Sep-2015	4.28	1332
DG-3_500_KOMATSU_EKT	24-Sep-2015	0.7	7.25
DG-4_500_KOMATSU_EKT	24-Sep-2015	8.35	539.32
DG-1_1010_JAKSON_EKT	23-Sep-2015	8.30	1263
DG-3_500_KOMATSU_EKT	23-Sep-2015	8.34	537.36
DG-2_1010_JAKSON_EKT	22-Sep-2015	8.20	1289
DG-4_500_KOMATSU_EKT	22-Sep-2015	8.25	609.58
DG-1_1010_JAKSON_EKT	21-Sep-2015	8.26	1361
DG-3_500_KOMATSU_EKT	21-Sep-2015	8.31	577.48

Fuel Efficiency of DG System

Trends: DG Run Hour Vs. Fuel Consumption



Efficiency Trend with Varying Load

Preventive Maintenance: Setting alerts & alarms for following preventive maintenance requirements:

Voltage Hi-Low monitoring: Check rpm, stator coil.
Phase overload monitoring
Peak Performance monitoring
Frequency Hi-Lo monitoring: Power factor correction
Power factor correction required
Load factor imbalance across phases:
Phase coil issues : Check stator winding temperature.
Electrical Overload
Tank Fuel level monitoring : Check engine efficiency, fuel leakage
Engine oil replacement/replenishment
Engine Overheating : Check any oil, coolant leakage, replenishment.
Battery servicing due: Check battery electrolyte level. specific gravity of starting batteries. Add distilled water if necessary. Clean terminals.
Mechanical issues for Hi-Lo rpms
Oil filter replacement due
Fuel filter replacement due
DG Efficiency monitoring
DG Run Hour Vs. Fuel Consumption

GFS Crane
Cost Savings | Energy Optimization

greenfield software
Cost Savings | Energy Optimization

For further details:

www.greenfieldsoft.com

write to:

sales@greenfieldsoft.com

greenfield
software
Cost Savings | Energy Optimization