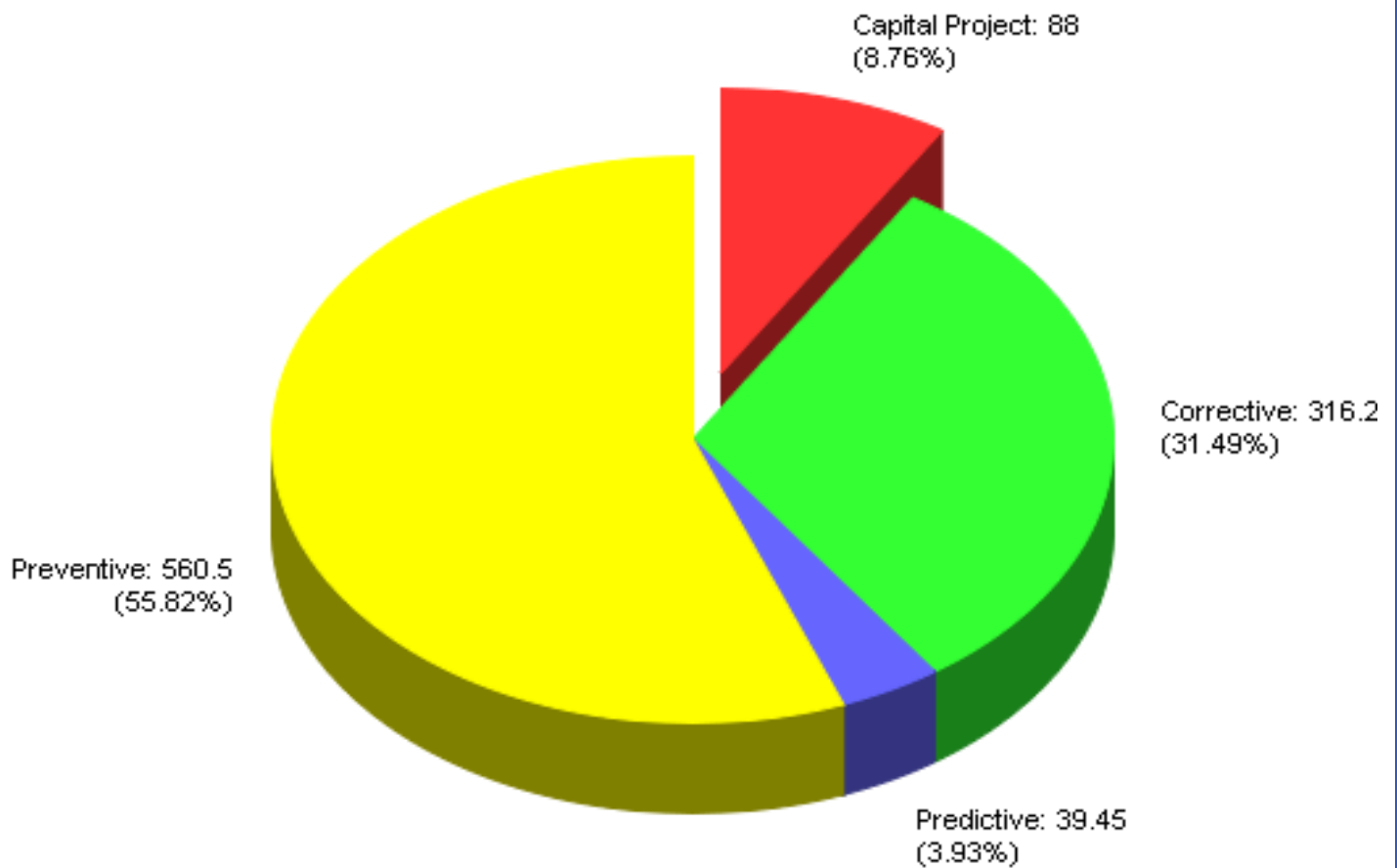


# DECEMBER 2012



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# SECTION 1: GRENADA, CARRIACOU & PETITE MARTINIQUE

## 1.1 GENERATION SUMMARY

### 1.1.1 EXECUTIVE SUMMARY (DECEMBER)

	Gross Gen	Net Gen	Peak Demand	Fuel Received	Fuel Consumed	Heat Rate	Make-up Lubes	Lube Consumption
	(kWhr)	(kWhr)	(kW)	(USG)	(USG)	(kJ/kW Hr)	(USG)	(g/kWhr)
Queen's Park	15,674,665	15,215,000	27,672	973,964	963,282	8,421	2,948	0.64
Carriacou	666,701	650,320	1,255	46,739	47,584	9,903	25	0.13
Petite Martinique	63,727	60,388	148	6,477	5,849	12,762	17	0.91
SGU	0	0	2,955	0				
<b>Total</b>	<b>16,405,093</b>	<b>15,925,708</b>		<b>1,078,194</b>	<b>1,016,715</b>			

	BBP Bulk Lubes Storage	Plant A Bulk Lubes Storage	Lubes in Drums		Vehicle Fuel
	(USG)	(USG)	(USG)		(USG)
Queen's Park	6,850	339.5	4,227	Grand Anse	2,890
Carriacou	-	-	1,000	Queen's Park	65
Petite Martinique	-	-	35	C'cou & P/M	216
<b>Total</b>	<b>6,850</b>	<b>339.5</b>	<b>5,262</b>		

### YEAR-TO-DATE PERFORMANCE

YEAR-TO-DATE COMPARISON													
Station	Peak Load (KW) YTD	Peak Load % vs '11	Gross Gen (kWh) YTD	Gross Gen % vs '11	Engine Availability YTD (%)			Gross Fuel Efficiency YTD (kWh/USG)			Forced Outage Rate YTD (%)		
					Tar	2012	2011	Tar	2012	2011	Tar	2012	2011
Queen's Park	29,199	-3.60%	191,043,817	-2.00%	92	87.6	92.3	16.00	16.4	16.1	2.4	4.5	2.7
Carriacou	1,296	-3.28%	7,859,934	-4.13%	95	97.7	95.7	15.25	15.4	15.7	2.4	0.8	0.0
Petite Martinique	158	4.64%	800,236	-3.63%	95	98.7	95.8	11.50	11.5	11.5	3	2.6	0.2

### QUEEN'S PARK POWER STATION SUMMARY (YEAR-TO-DATE)

YEAR-TO-DATE COMPARISON												
UNIT DESIGNATION	Installed Capacity (kW)	Gross Gen (KWh) 2012 YTD	Gross Gen (KWh) 2011 YTD	Engine Availability (%) YTD			Gross Fuel Eff. (kWh/USG) YTD			Forced Outage Rate (%) YTD		
				Tar	2012	2011	Tar	2012	2011	Tar	2012	2011
MAK 1	5,500	28,750,000	23,619,777	85	90.5	86.2	16.4	16.35	16.12	2.4	4.7	1.0
MAK 2	5,500	17,609,000	16,512,224	95	82.7	91.6	16.3	16.50	16.46	2.4	2.2	5.3
MAK 3	7,450	41,913,000	42,178,443	90	87.2	92.4	16.5	16.54	16.52	2.4	9.9	2.6
WARTSILA 4	8,000	36,948,318	40,902,869	90	87.0	94.1	16	16.69	16.26	2.4	8.5	2.6
WARTSILA 5	8,000	38,447,956	44,138,563	90	87.4	94.5	16	16.28	16.09	2.4	2.9	1.3
WARTSILA 12	5,000	6,989,000	5,944,100	95	95.2	92.9	15.5	15.48	14.87	2.4	2.6	2.5
CAT 3500's	9,140	4,711,878	5,912,758	90	83.1	94.1	14.5	16.08	14.21	2.4	1.0	3.9
<b>TOTAL</b>	<b>48,590</b>	<b>175,369,152</b>	<b>179,208,734</b>	<b>92</b>	<b>87.6</b>	<b>92.3</b>	<b>16</b>	<b>16.39</b>	<b>16.14</b>	<b>2.4</b>	<b>4.5</b>	<b>2.7</b>

#### 1.1.2 5 YEAR GENERATION PERFORMANCE vs. PERFORMANCE TARGETS

PERFORMANCE INDICATORS	TARGET	2008	2009	2010	2011	2012	TRAFFIC LIGHT
System Load Factor (%)	> 74%	70.39	70.36	71.64	71.19	72.27	
Generation Reserve Margin (%)	>50%	65.47	59.54	57.61	60.42	66.41	
Plant Energy Consumption (%)	< 3.4%	3.27	3.38	3.08	3.11	2.98	
Utilization Factor (%)	< 45%	42.85	45.64	46.90	45.80	44.76	
Generation Non-Served Energy (%)	0.02%	0.02	0.02	0.02	0.01	0.01	
Fuel Efficiency (kWh/USG)	16.00	16.27	16.34	16.22	16.14	16.39	
Incident Rate (incidents per 100 employees.)	0.0	0.03	0	0	0	0.00	
Engine Availability (%)	92%	87.3	86.59	92.38	92.26	87.09	
Forced Outage Rate (%)	2.4%	14.31	7.79	3.9	2.75	4.54	
Vehicle Availability (%)	95%	91.13	90.60	95.09	94.93	96.75	
Maintenance Overtime (%)	7%	15.21	12.26	3.27	4.82	4.08	
Plant Lube Oil Consumption (g/kWh)	<0.65	1.02	0.63	0.45	0.57	0.61	

### 1.1.3 GROSS GENERATION

All Plants combined have a gross generation of 16.40GWhrs which is a 0.65% decrease versus last December.

At Queen's Park, gross generation was 15.67GWhrs with Net generation of 15.21GWhrs resulting in Plant Consumption of 2.9%. Peak demand was 27,671 kW which is 0.1% decrease over December 2011.

At Carriacou, the gross generation in December was 666,701kWhrs, which is 5.41% less than last December's generation. The peak demand decreased to 1,255kW which is 4.2% less than last December's peak.

In Petite Martinique, gross generation was 63,727 kWhrs, which is 10.5% decrease over the same period in 2011. Peak demand was 148 kW which is the same as December 2011.

### 1.1.4 ENGINE AVAILABILITY

Engine availability at Queen's Park was 82% in December. The continued outage on MaK #2 had the largest impact on availability.

In both Carriacou and Petite Martinique, engine availability was 99.6% and 90.2% respectively.

### 1.1.5 FUEL EFFICIENCY

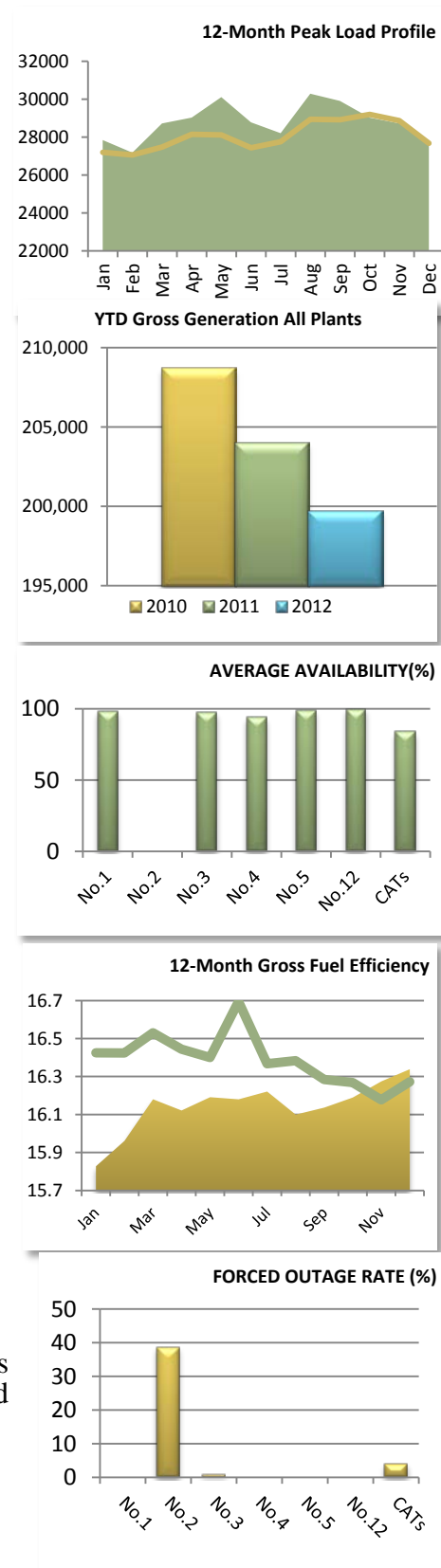
Fuel Efficiency at Queen's Park in December returned to 16.27kWh/gal

Carriacou fuel efficiency was 15.7kWh/gal and Petite Martinique the efficiency was 10.9kWh/gal.

### 1.1.6 FORCED OUTAGE RATE

In December, the forced outage rate in Queen's Park was 6.2% due to the outage of MaK#2.

In Petite Martinique the Lister encountered main circuit breaker problems as a bushing within the breaker disintegrated. There was no recorded forced outage for Carriacou.



## 1.2 ENVIRONMENTAL

The following table shows records of environmental activities in Grenada, Carriacou and Petite Martinique for the last three months.

Administrative Energy 3-Month Performance			
	October	November	December
Queen's Park	25,122	24,305	<b>22,610</b>
Carriacou (T&D)	1,047	1136	<b>521</b>
Carriacou (Office)	1,030	1016	<b>825</b>
Petite Martinique (Office)	891	863	<b>760</b>

Queen's Park 3-Month Performance				
		October	November	December
NAWASA Water (USG)	Celestine	37,248	25,096	<b>22,455</b>
	D' Arbeau	1.93	6	<b>0.79</b>
Solid Waste Removed (yd <sup>3</sup> )		330	330	<b>413</b>
Oily Waste Removed (USG)		6,300	6,300	<b>6,300</b>
Recordable Spills (No.)		0	0	<b>0</b>

GRENLEC GHG (CO <sub>2</sub> ) Emissions 3-Month Performance			
	October	November	December
Queen's Park	10,646	10,341	<b>9,821</b>
Carriacou	358	353	<b>397</b>
Petite Martinique	52	47	<b>49</b>
Fleet (combined) *	27	26	<b>25</b>

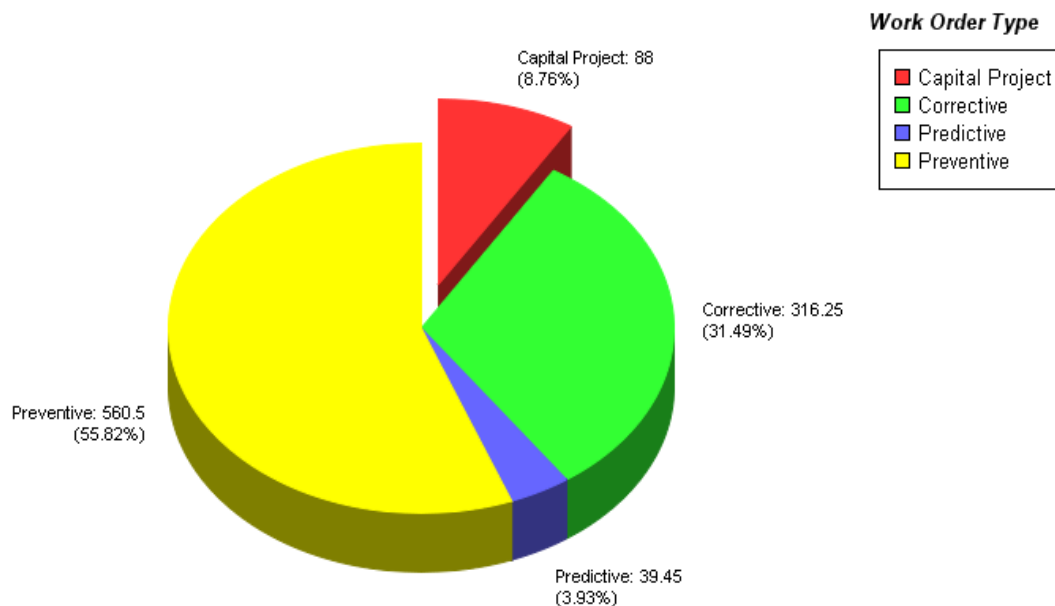
*NB: Emissions measured in Metric Tons*

For the year 2012 all plants combined produced 102,321 metric tons on CO<sub>2</sub>.

## 1.3 HEALTH & SAFETY

There was no Health and Safety meeting during the month of December. At the end of December, the Generation Department recorded **1,803** days with no lost time accident.

## SECTION II: QUEEN'S PARK POWER STATION



### 2.1 MAINTENANCE HIGHLIGHTS

Planned and corrective maintenance activities were carried out on MaK #1, Wartsila #4 & #5, Cats #101, #106, #107 & #108.

**MaK#1:** An inspection was carried out on the alternator for the genset. Repairs were carried out on the turbocharger washing piping to stop a water leak.

**MaK#2:** The planned 60,000 hours overhaul continued during the month with the general rebuilding of the engine; the actuator was replaced by a refurbished unit. The rocker gear, pushrods, fuel pumps, fuel injectors and fuel system piping were refitted to the genset and the valve clearances were adjusted. The sump was cleaned and the crankcase doors were fitted with new seals. The cylinder head covers were also fitted with new seals. At the end of the month, we are still awaiting the parts for the alternator, with the expectation that they should be available in early January to continue the alternator repairs and commissioning of the genset.

**MaK#3:** A defective fuel meter was replaced with a serviceable one for this genset.

**Wartsila#4:** The fuel injector service was carried out, in which new nozzles were fitted to the injector bodies. The #A4 & #A5 fuel injection pumps were replaced, repairs were carried out to stop water leaks on the charge air cooler, oil leak at the actuator booster, fuel leak on the flexible fuel pipe to #B8 fuel pump and air leak on pilot line between the stop and air start valve. Adjustments were made to the starting fuel limiter to facilitate easier starting.

**Wartsila#5:** The charge cooler drain pipe on the A-Bank which was blocked was cleared and the plugs were fitted with new seals on the LT side of the cooler.



**Cat 101:** Towards the end of December, the genset encountered a coolant leak which contaminated the oil supply. This was traced to the oil cooler assembly which had developed a leak. The faulty oil cooler was removed from the engine and replaced by a new unit, the contaminated oil was removed and replaced with serviceable oil. The engine was cleaned and prepared for load testing. The unit was returned to service.

**Cat 106:** A faulty fuel supply valve was replaced on the genset.

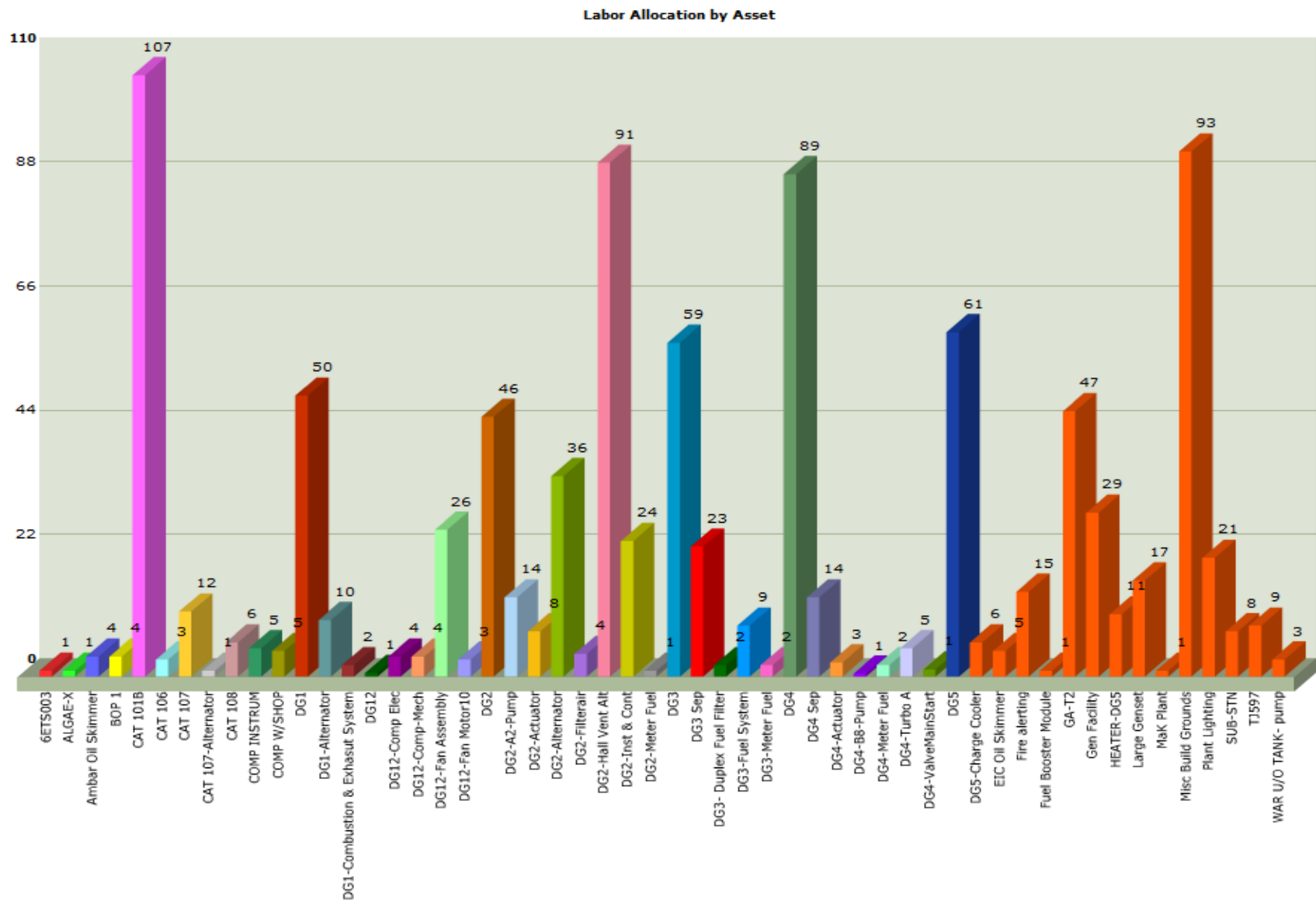
**Cat 107:** A 24v dc contactor was replaced by a 240v ac contactor for the radiator fan motor and a 24v dc relay was installed to control the contactor.

**Cat 108:** A blown diode was replaced on the rectifier assembly and a fuel filter was replaced on the genset.

Separator Preventive Maintenance	
400hr Service	No.1 LOPX
720hr Service	No.5 SU830

	Preventive Maintenance				Condition Based Maintenance		
	500hr	1000/1500hr	2000/3750hr	12000hr	Oil Sample	Peak Pressure	Emissions
MaK 1					✓	✓	
MaK 2					✓		
MaK 3		✓			✓		
Wart 4			✓		✓	✓	
Wart 5		✓			✓	✓	
Wart 12					✓		
Cat 101B			✓				
Cat 104							
Cat 106							
Cat 107							
Cat 108B							
Cat 103B	3 Weekly Inspections						
Cat R2	3 Weekly Inspections						

The following chart illustrates the labour hour allocation per asset.



## QUEEN'S PARK POWER STATION STATISTICS

Month	Day In Month	Gross Gen (MWh)	Station Aux. (MWh)	Net Gen. (MWh)	*** Percent (%) Station Use	Fuel Oil Consumed (gals)	Peak Load MW (Pres Year)	**** Plant Heat Rate KJ/kWh	Gross Fuel Effic (kWh/Gal)	Net Fuel Effic (KWh/Gal)	Net Station Efficiency (%)	Load Factor (%)	** Capacity Factor (%)
Jan-12	31	15,658.8	465.3	15,193.5	2.97%	953,363	27,196	8,386	16.42	15.94	42.93%	77.39%	43.23%
Feb-12	29	14,834.3	429.2	14,405.1	2.89%	903,213	27,055	8,338	16.42	15.95	43.18%	73.70%	43.77%
Mar-12	31	15,943.0	485.3	15,457.7	3.04%	964,490	27,741	8,415	16.53	16.03	42.78%	77.25%	44.01%
Apr-12	30	15,547.0	412.1	15,134.9	2.65%	945,442	28,143	8,457	16.44	16.01	42.57%	74.25%	44.35%
May-12	31	16,002.1	455.9	15,539.2	2.85%	975,746	28,113	8,475	16.40	15.93	42.48%	76.51%	44.17%
Jun-12	30	15,196.6	507.7	14,686.2	3.34%	910,263	27,439	8,262	16.69	16.13	43.58%	74.44%	43.35%
Jul-12	31	15,834.0	512.5	15,321.5	3.24%	967,427	27,754	8,427	16.37	15.84	42.72%	76.68%	43.71%
Aug-12	31	16,481.3	527.3	15,954.0	3.20%	1,005,964	28,937	8,357	16.38	15.86	43.08%	76.55%	45.50%
Sep-12	30	16,475.9	499.9	15,976.0	3.03%	1,011,289	28,914	8,517	16.29	15.80	42.27%	76.59%	47.00%
Oct-12	31	16,987.3	504.0	16,483.3	2.97%	1,043,712	29,199	8,426	16.28	15.79	42.73%	78.20%	46.89%
Nov-12	30	16,408.8	426.5	15,982.3	2.60%	1,014,001	28,868	8,459	16.18	15.76	42.56%	76.40%	45.30%
Dec-12	31	15,674.7	459.7	15,215.0	2.93%	963,282	27,672	8,421	16.27	15.79	42.75%	76.14%	43.27%
<b>Total</b>		191,043.7	5,685.3	185,348.8		11,658,192							
<b>Average</b>		15,920.3	473.8	15,445.7	2.98%	971,516	28,085.87	8,412	16.39	15.90	42.80%	76.17%	44.55%
<b>Max</b>		16,987.3	527.3	16,483.3	3.34%	1,043,712	29,199.00	8,517	16.69	16.13	43.58%	78.20%	47.00%
Density Figure obtained from Petrocaribe 0.8504 kg/l													
Colorific Heat Value of fuel obtained from Petrocaribe 42600 kj/kg													
Net Station Efficiency = 3600/Net Plant Heat Rate													
** Capacity Factor = Gross Generation (kWh) / Station Available Capacity x Hours per month													
*** Percentage Station Use = Total Auxiliary / Gross Generation													
**** Plant Heat Rate = Conversion from Liters to Gallons changed to 3.7854													

## 2.2 QUEEN'S PARK ENGINE SUMMARY – December 2012

Engine No.	Online Hours	Standby Hours	Forced Hours	Planned Hours	Units Gen. (kWh)	Fuel Con. (US gals)	On line Hours (%)	Percent Avail. (%)	Forced Rate (%)	Planned Rate (%)	Capacity Factor (%)	Heat Rate (KJ/kWh)	Fuel Effic. (Units)
Cat.101B	115.0	458.1	163.3	7.7	127,000	9,846	15.5	77.0	22.0	1.0		10731	12.90
Cat. 104	13.6	730.4	0.0	0.0			1.8	100.0	0.0	0.0	0.25		
Cat. 106	5.3	738.7	0.0	0.0			0.7	100.0	0.0	0.0			
Cat. 107	0.0	726.2	17.8	0.0	87,600	4,982	0.0	97.6	2.4	0.0		7872	17.5833
Cat. 108	77.9	635.8	30.4	0.0			10.5	95.9	4.1	0.0	0.00		
MaK 1	711.0	20.7	0.0	12.3	3,255,000	199,405	95.6	98.3	0.0	1.7	0.83	8479	16.3236
MaK 2	0.0	0.0	288.0	456.0	0	0	0.0	0.0	38.7	61.3	#DIV/0!	#DIV/0!	#DIV/0!
MaK 3	712.9	10.7	5.9	14.6	4,425,264	267,262	95.8	97.3	0.8	2.0	0.83	8359	16.5578
Wart 4	313.3	388.9	0.0	41.8	2,092,030	126,805	42.1	94.4	0.0	5.6	0.83	8390	16.498
Wart 5	727.4	10.1	0.0	6.5	4,899,671	303,303	97.8	99.1	0.0	0.9	0.84	8568	16.1544
Vaasa 12	196.0	548.0	0.0	0.0	788,100	51,678	26.3	100.0	0.0	0.0	0.80	9076	15.2502
Cat. 103	0	744.0	0.0	0.0	0	0	0.0	100.0	0.0	0.0	0.00	0	#DIV/0!
<b>SGU Plant</b>													
Cat. 103	0	744	0.0	0	0	0	0	100	0.0	0	0.00	0	
Cat. R2	0	744	0.0	0	0	0	0	100	0.0	0	0.00	0	
<b>Totals/Avg.</b>	<b>2872.31</b>	<b>5755.49</b>	<b>505.39</b>	<b>538.81</b>	<b>15,674,665</b>	<b>963,281</b>	<b>30%</b>	<b>89%</b>	<b>5%</b>	<b>6%</b>		<b>8506</b>	<b>16.3</b>

## 2.3 QUEEN'S PARK LUBE OIL DATA

December 2012

Engine No.	Make-Up	Oil Change	Usage Rate (g/kWh)	Expected	Disola M 4015	Texaco Ursa
Cat. 101B	0	0				0
Cat. 104	0	0				
Cat. 106	0	0				
Cat. 107	0	0				
Cat. 108	10	0				0
MaK 1	639.29	0	0.65	0.55	639.29	
MaK 2	0	0	0.00	0.55	0	
MaK 3	572.98	0	0.43	0.55	572.98	
Wart 4	298.51	0	0.48	0.43	298.51	
Wart 5	1107.27	0	0.75	0.43	1107.27	
Vaasa 12	320.3	0	1.35	0.65	320.3	
Cat. 103	0	0				
Cat. R2	0	0				
Total	2948.35	0			2948.35	

## 2.4 QUEEN'S PARK FUEL DATA

Month	Petrocaribe Fuel Received (US Gals)	Plant Fuel Used (US Gals)	Percent Difference
January	973,863	953,363	-2.15
February	915,708	903,213	-1.38
March	990,395	964,490	-2.69
April	985,737	945,442	-4.26
May	987,239	975,746	-1.18
June	956,925	910,263	-5.13
July	967,835	967,427	-0.04
August	1,015,847	1,005,964	-0.98
September	1,034,892	1,011,289	-2.33
October	1,054,591	1,043,712	-1.04
November	1,024,978	1,014,001	-1.08
December	973,964	963,282	-1.11
<b>TOTAL</b>	<b>11,881,974</b>	<b>11,658,192</b>	

$$\text{Percent difference} = \frac{\text{Fuel Used} - \text{Petrocaribe Fuel Received}}{\text{Fuel Used}} * 100$$

## SECTION III: CARRIACOU POWER STATION

### 3.1 MAINTENANCE HIGHLIGHTS

- Repaired oil leaks
- Cleaned up work shop, carrying old stuff to dump site
- Removed debris from cistern top to dump site

Engine Preventive Maintenance				
	250hr Services	Date Serviced	350/400hr Services	Date Serviced
Cummins 1	✓	Dec 05, 2012		
	✓	Dec 24, 2012		
Cummins 2			✓	Dec 13, 2012
Cummins 3			✓	Dec 04, 2012
			✓	Dec 29, 2012
Cat 105				

### 3.2 CARRIACOU POWER STATION STATISTICS

Month	Day In Month	Gross Gen (KWh)	Station Aux. (kWh)	Net Gen. (kWh)	*** Percent (%) Station Use	Fuel Oil Consumed (gals)	Peak Load KW	**** Plant Heat Rate KJ/kWh	Gross Fuel Effic (kWh/Gal)	Net Fuel Effic (KWh/Gal)	Net Station Efficiency (%)	Load Factor (%)	** Capacity Factor (%)
Jan-12	31	660,285	15,204	645,081	2.30%	45,093	1,215	9,475	14.64	14.31	38.00%	73.04%	46.22%
Feb-12	29	618,175	17,065	601,110	2.76%	39,841	1,296	8,942	15.52	15.09	40.26%	68.53%	48.26%
Mar-12	31	654,926	18,106	637,316	2.76%	42,404	1,200	8,976	15.44	15.03	40.11%	73.36%	45.88%
Apr-12	30	652,674	17,615	635,059	2.70%	41,195	1,278	8,757	15.84	15.42	41.11%	70.93%	47.21%
May-12	31	650,382	18,199	632,183	2.80%	41,461	1,220	8,845	15.69	15.25	40.70%	71.65%	45.53%
Jun-12	30	626,619	17,704	608,915	2.83%	40,086	1,190	8,876	15.63	15.19	40.56%	73.13%	45.53%
Jul-12	31	660,596	18,503	642,093	2.80%	40,946	1,189	8,600	16.13	15.68	41.86%	74.68%	46.24%
Aug-12	31	662,900	14,932	647,968	2.25%	44,561	1,226	9,327	14.88	14.54	38.60%	72.67%	46.41%
Sep-12	30	660,178	16,796	643,382	2.54%	42,077	1,208	8,843	15.69	15.29	40.71%	75.90%	47.76%
Oct-12	31	686,212	16,796	667,346	2.45%	42,780	1,218	8,650	16.04	15.60	41.62%	75.72%	48.04%
Nov-12	30	660,286	17,464	642,822	2.64%	42,251	1,234	8,878	15.63	15.21	40.55%	74.32%	47.76%
Dec-12	31	666,701	16,381	650,320	2.46%	41,450	1,255	9,903	16.08	15.69	36.35%	71.40%	46.67%
<b>Total</b>		7,859,934	204,765	7,653,595		504,145							
<b>Average</b>		654,995	17,064	637,800	2.61%	42,012	1227		15.60	15.19	40.04%	72.95%	46.79%
<b>Max</b>		686,212	18,503	667,346	2.83%	45,093	1296		16.13	15.69	41.86%	75.90%	48.26%
Density Figure obtained from SOL					0.86035	kg/l							
Colorific Heat Value of fuel obtained from SOL					42600	kJ/kg							
Net Station Efficiency = 3600/Net Plant Heat Rate													
** Capacity Factor = Gross Generation (kWh) / Station Available Capacity x Hours per month													
*** Percentage Station Use = Total Auxiliary / Gross Generation													
**** Plant Heat Rate = Conversion from Liters to Gallons changed to 3.7854													

### 3.3 CARRIACOU POWER STATION ENGINE SUMMARY

Engine No.	On – Line Hours	Stand-by Hours	Forced Hours	Planned Hours	Units Gen. (kWh)	Fuel Con. (US gals)	Hours (%)	Percent Avail.	Forced Rate (%)	Planned Rate (%)	(%) Station Use	Capacity Factor (%)	Heat Rate (KJ/KG)	Fuel Effic. (kWh)	Effic. (%)
1	560	181	0	3	231270	13590.4	75.3	99.6	0	0.4	1.3	29.0	8199.5	17.0	44.0
2	581	161	0	2	234749	15450.8	78.1	99.7	0	0.3	1.3	20.4	11879.7	15.2	38.6
3	495	243	0	6	200682	12408.6	66.5	99.2	0	0.8	1.1	28.0	8565.37	16.2	42.1
105															

### 3.4 LUBRICATING OIL STATUS:

Engine No.	Make- up	Oil Change	Usage Rate (%)	Texaco URSA X15 W40
1	18	78	0.26	96
2	4.5	39	6	43.5
3	2.5	78	4	80.5
CAT105	0	0	0	0
TOTAL	25	195	10.26	220

### 3.5 FUEL DATA

Month	SOL Fuel Received (US Gals)	Plant Fuel Used (US Gals)	Percent Difference
January	47,179	45,093	-4.42
February	43,519	39,841	-9.23
March	44,640	42,404	-5.27
April	44,400	41,195	-7.78
May	43,800	41,461	-5.64
June	48,000	40,086	-19.74
July	45,720	40,946	-11.66
August	43,000	44,561	3.50
September	42,000	42,077	0.18
October	48,036	42,780	-12.29
November	48,036	42,251	-13.69
December	46,739	47,584	1.78
TOTAL	545,069	510,279	

Percent difference =  $\frac{\text{Fuel Used} - \text{Fuel Received}}{\text{Fuel Used}} * 100$

### Fuel Reconciliation

Month	Received	Transferred	Consumed
December	46,739	46,793	47,584



## SECTION IV: PETITE MARTINIQUE POWER STATION

### 4.1 PETITE MARTINIQUE POWER STATION STATISTICS

Month	Day In Month	Gross Gen (KWh)	Station Aux. (kWh)	Net Gen. (kWh)	*** Percent (%) Station Use	Fuel Oil Consumed (gals)	Peak Load KW	**** Plant Heat Rate KJ/kWh	Gross Fuel Effic (kWh/Gal)	Net Fuel Effic (KWh/Gal)	Net Station Efficiency (%)	Load Factor (%)
Jan-12	31	68,153	3,677	64,476	5.40%	5,902	139	12,042	11.55	10.92	29.90%	70.46%
Feb-12	29	62,612	3,401	59,211	5.43%	5,433	140	12,066	11.52	10.90	29.84%	64.26%
Mar-12	31	63,784	3,563	60,221	5.59%	5,570	133	12,143	11.45	10.81	29.65%	64.46%
Apr-12	30	65,704	3,134	62,570	4.77%	5,613	138	11,879	11.71	11.15	30.31%	63.99%
May-12	31	70,948	3,464	67,484	4.88%	6,058	153	11,873	11.71	11.14	30.32%	70.46%
Jun-12	30	62,617	3,157	59,460	5.04%	5,428	139	12,054	0.69	1.05	29.87%	62.57%
Jul-12	31	70,977	2,749	68,228	3.87%	5,921	158	11,109	0.60	1.04	32.41%	60.38%
Aug-12	31	72,472	3,382	69,090	4.67%	6,151	144	11,802	0.60	1.05	30.50%	60.38%
Sep-12	30	65,965	3,254	62,711	4.93%	5,638	133	11,885	0.66	1.05	30.29%	68.69%
Oct-12	31	68,233	4,063	64,170	5.95%	5,741	135	12,568	0.64	1.06	28.64%	67.93%
Nov-12	30	65,044	3,221	61,823	4.95%	5,614	138	12,002	0.67	1.05	30.00%	65.64%
Dec-12	31	63,727	3,339	60,388	5.24%	5,849	148	12,762	0.68	1.06	28.21%	59.90%
<b>Total</b>		800,236	40,404	759,832		68,918						
<b>Average</b>		66,686	3,367	63,319	5.06%	5,743	142	12,015	5.21	5.19	29.99%	64.93%
<b>Max</b>		72,472	4,063	69,090	5.95%	6,151	158	12,762	11.71	11.15	32.41%	70.46%
Density Figure obtained from SOL					0.8542	kg/l						
Colorific Heat Value of fuel obtained from SOL					42600	kJ/kg						
Net Station Efficiency = 3600/Net Plant Heat Rate												
** Capacity Factor = Gross Generation (kWh) / Station Available Capacity x Hours per month												

## PETITE MARTINIQUE ENGINE SUMMARY

Engine No.	On – Line Hours	Standby Hours	Forced Hours	Planned Hours	Units Gen. (kWh)	Fuel Con. (US gals)	On-line Hours (%)	Percent Avail.	Forced Rate (%)	Planned Rate (%)	(%) Station Use	Capacity Factor (%)	Heat Rate (KJ/KG)	Fuel Effic. (kWh)	Effic. (%)
<b>Lister 1</b>	494	91	145	0.0	42666	3990	66.4	80.4	19.5	0.0	0.3	33.1	42749.1	10.7	8.4
<b>Cat. 2</b>	247	446	1	0.0	21061	1858.6	33.2	99.9	0.1	0.0	0.3	32.932.7	44946.2	11.4	9.8

### 4.2 LUBE OIL STATUS

Engine No.	Make-Up	Oil Change	Usage Rate (%)	Texaco URSA Super Plus X 15 W 40
<b>Lister 1</b>	17	0	1.3	<b>17</b>
<b>Cat. 2</b>	0	10	0	<b>10</b>
<b>TOTAL</b>	<b>17</b>	<b>10</b>	<b>1.30</b>	<b>27</b>

### 4.3 FUEL DATA

Month	Fuel Received (US Gals)	Fuel Used (US Gals)	Percent Difference
<b>January</b>	7,174	5,196	27.6
<b>February</b>	7,892	5,433	45.26
<b>March</b>	7,007	5,570	-25.80
<b>April</b>	6,310	5,613	-13.50
<b>May</b>	5,900	6,058	2.60
<b>June</b>	5,828	5,428	-7.37
<b>July</b>	5,670	5,921	4.24
<b>August</b>	6,068	6,151	1.35
<b>September</b>	5,902	5,638	-4.68
<b>October</b>	5,741	6,167	6.90
<b>November</b>	5,319	5,614	5.25
<b>December</b>	5,398	5,849	1.34
<b>TOTAL</b>	<b>74,209</b>	<b>68,638</b>	

Percent difference =  $\frac{\text{Fuel Used} - \text{SOL Fuel Received} * 100}{\text{Fuel Used}}$

## SECTION V: FLEET DEPARTMENT

### 5.1 FLEET STATISTICS

In December 2012, Fleet operations continued as normal. Nine vehicles were serviced internally and two vehicles had warranty service done by local dealers.

**Table 1: Fleet Scorecard**

	October	November	December
Overall Vehicle Availability	94.48	95.01	<b>96.55</b>
Large Vehicle Availability (SL)	99.12	97.66	<b>99.27</b>
Total Miles Travelled			
Number of Vehicle Accidents	7	1	1
Number of Breakdowns	2	1	1
Personnel Injuries	0	0	0
Average Vehicles Washed/Day	9.48	7.96	8.04

### 5.2 VEHICLE SERVICES:

		Maintenance			Inspections	
Vehicle No.	Vehicle Type	Routine Service	Breakdown	Bodywork	Dielectric	Licensing
PAF347	Manager's Vehicles					
PF80	" "					
P7730	" "	✓				
PV218	" "					
PAB761	" "					
PAF119	" "					
P457	" "					
PAD763	" "					
PAA288	Office Attendant					
PAD902	Disconnection					
PAF97	" "					
TAF308	Supervisor's Vehicles					
TV548	" "					
TAA393	" "	✓				
TAB839	" "					
TAD976	" "	✓				
PN80	" "					
SL82	Bucket trucks					
SL95	" "	✓				

SL143	" "					
SL199	" "					
TAF169	" "					
SL93	Digger Derricks	✓				
SL210	" "					
SL218	" "					
SL111	" "					
SL41	" "					
T8875	Line Crew Trucks	✓				
T8899	" "					
TO20	" "	✓				
TO773	" "					
TS905	" "					
TV490	" "					
TV682	" "					
TM187	Pickups					
TO440	" "					
TV365	" "					
TV367	" "					
TZ883	" "					
TZ884	" "					
TZ943	" "	✓				
TAA419	" "					
TAC292	" "					
TAC317	" "					
TAC836	" "					
TAC946	" "					
TAD69	" "					
TAD410	" "					
TAD418	" "					
TAE161	" "					
TAE162	" "	✓				
TAE16	" "					

### 5.3 TYRE SERVICES:

	Equipment	No. of Tyres
Tyre Repairs	TO 773	1
	PAD 902	1
	TV 682	1
	TAD 976	1
	TAC 292	1
Tyre Replacement	TV 365	4
	TV 682	4
	TAD 418	4
	SL 95	1

### 5.4 VEHICLE BREAKDOWNS:

**TAF 169** - The fuel filters were clogged with dirt and water and the vehicle was unavailable for six days (included weekend and Christmas holidays).

**SL 111** had one break down due to corroded and broken radiator hose clamp. This vehicle was unavailable for only three hours.

### 5.5 VEHICLE ACCIDENTS:

**T 8899** was unavailable for twelve days due to an accident.

**Damage:** Rear bumper, cabin door and surrounding, door lock, and all lights on the same side. Vehicle was repaired and ready for commercial use at the end of the month.

### 5.6 WARRANTY SERVICES

Warranty services were done on the following vehicles: TAF464 & PAF 347

### 5.7 VEHICLE WASHING & RE-FUELING

Vehicle washing during the month proceeded normal with 221 vehicles washed, averaging 7.12 vehicles washed per day at a cost of \$5,815.00 and a total of \$960.00 for re-fueling vehicles at \$40.00 per day for twenty six days. This brought the total for washing and re-fueling to **\$6,775.00**.

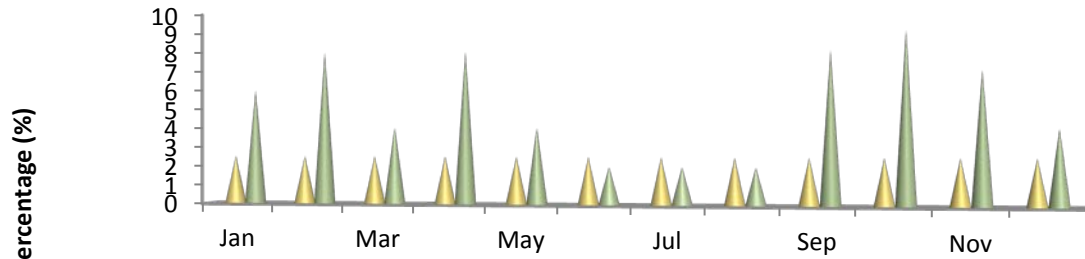
### 5.8 PERSONNEL:

There were no personnel accidents for the month.

- Fleet Mechanic Kevin Da Breo was present all days.
- Fleet Mechanic Nickson Robertson was re assigned to Fleet for the absent of Leroy Gilbert.
- Fleet Mechanic Leroy Gilbert is presently on vacation.

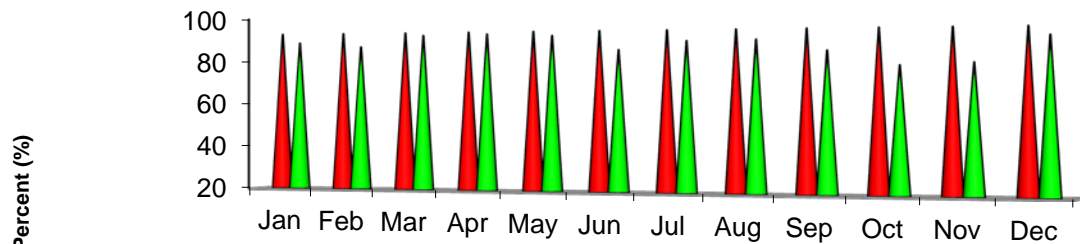
## QUEEN'S PARK GRAPHS

**Queen's Park Forced Outage Rate**



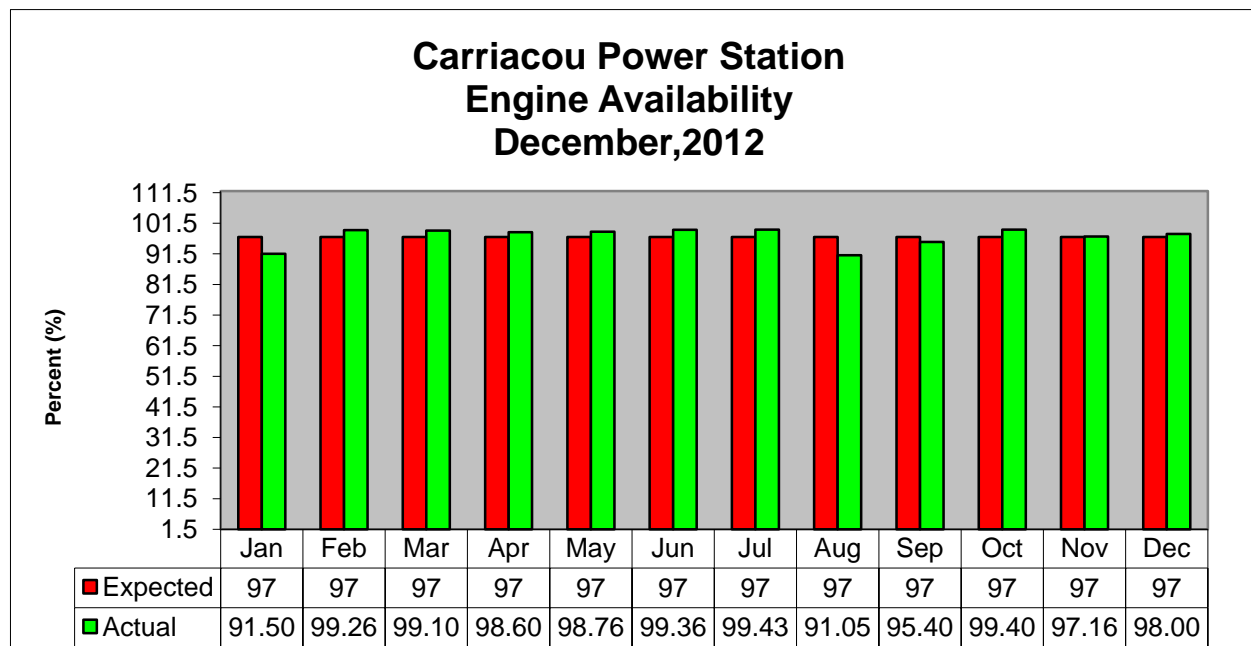
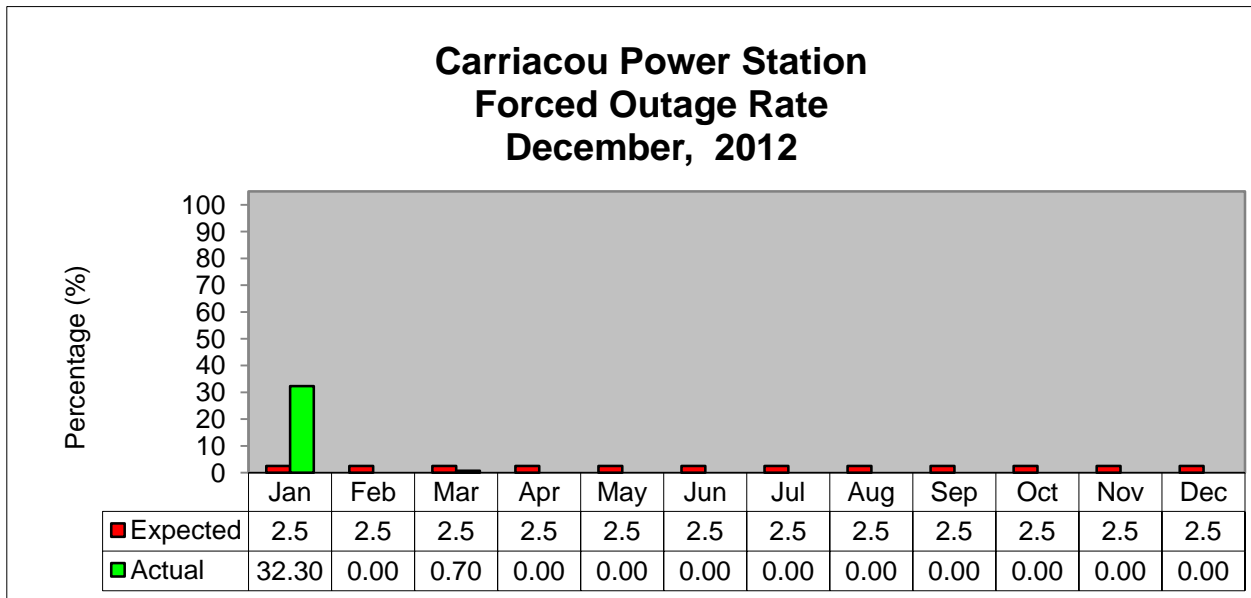
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expected	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Actual %	6.00	8.00	4.00	8.00	4.00	2.00	2.00	2.00	8.00	9.00	7.00	4.00

**Queen's Park Engine Availability**



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expected	93	93	93	93	93	93	93	93	93	93	93	93
Actual	88.76	86.68	91.72	92.06	91.02	84.29	88.02	88.45	83.30	76.69	77.72	89.20

## CARRIACOU POWER STATION



# **Carriacou Power Station Productivity December, 2012**

