HIAA EcoStruxure™ PME 9.0

Moving Forward

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HalifaxStanfield

Agenda

1	Airport Overview
2	Electrical System Summary
3	PME Journey
4	HIAA Objectives
5	Future Goals
6	Questions

HalifaxStanfield

Airport Overview

$3B+

Total Economic Output

4.3M

Passengers

5th Year Record Growth

5.7%

Increase over 2017

37,000

Metric Tonnes of Cargo

200-240

Aircraft Movements / Day

1st

North America Self-Service Baggage Drop Off System

8th

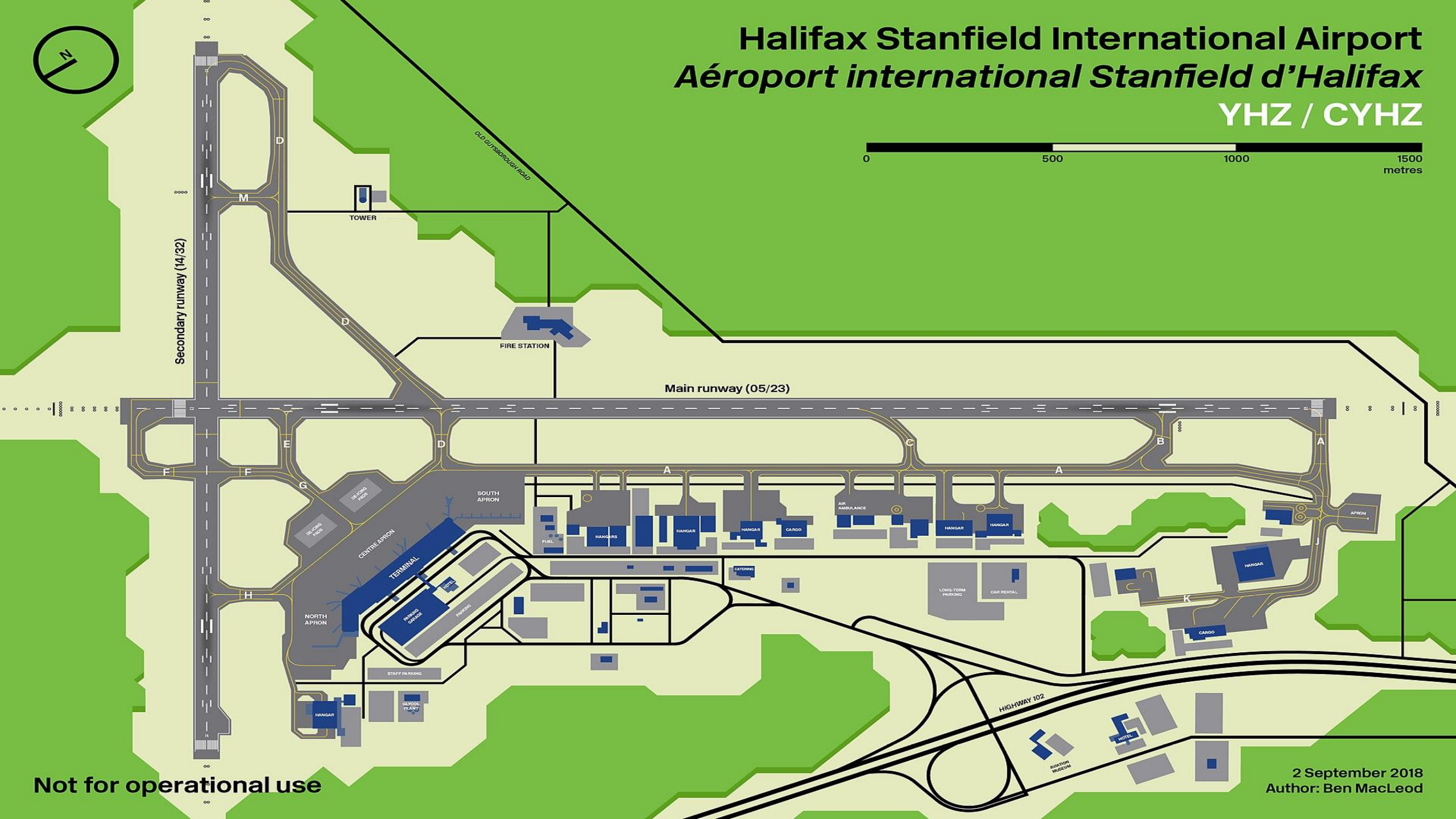
Largest Airport in Canada

$41M

Capital Investment in 2018


Highway 102
MAIN SUB
PARKADE
TEC
CSC

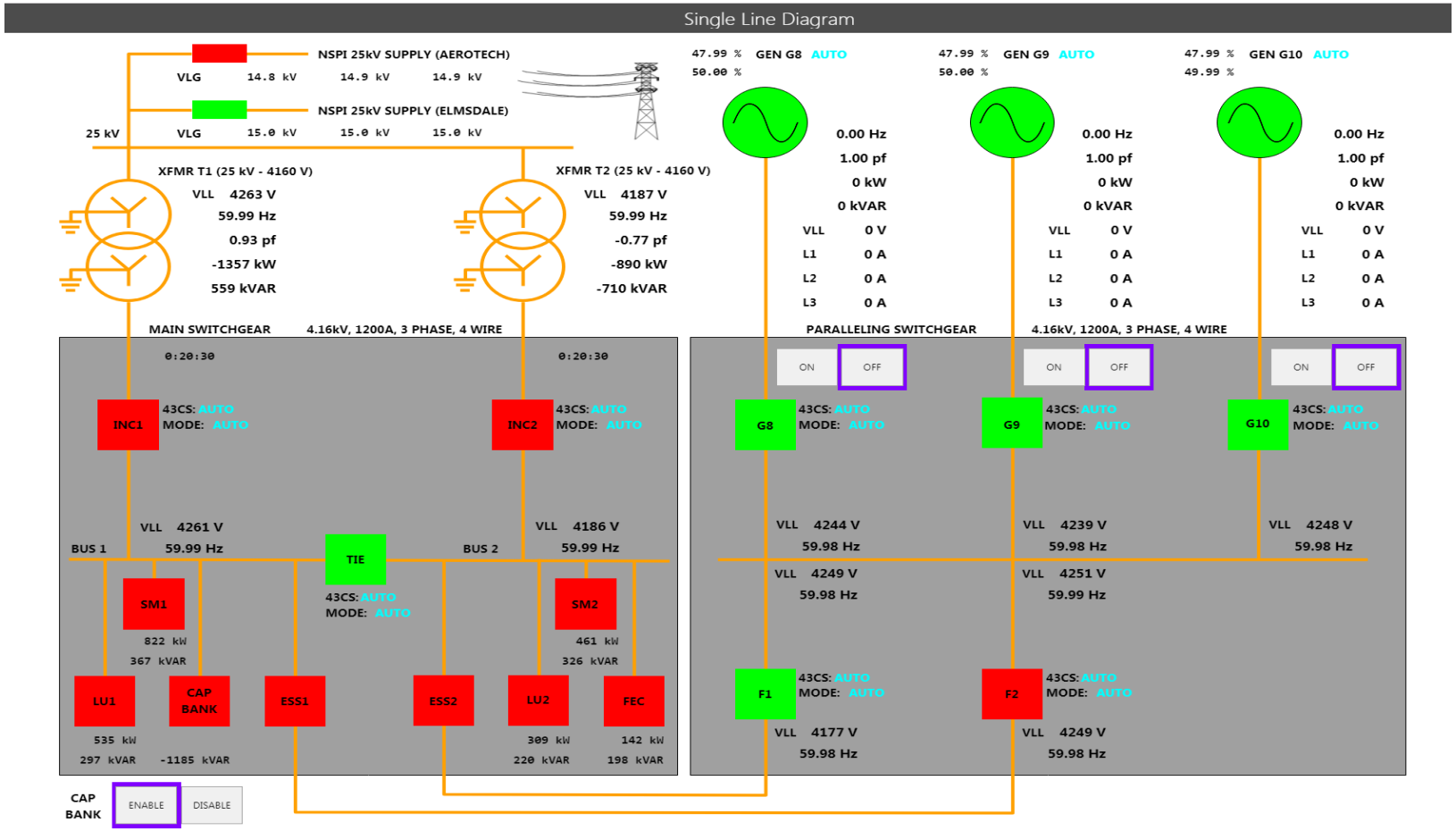
Halifax Stanfield International Airport
Aéroport international Stanfield d'Halifax
YHZ / CYHZ



Not for operational use

2 September 2018
Author: Ben MacLeod

Electrical System Summary



(2) NS Power Supplies

- Currently Run ~2.5MW
- Peak ~ 3.1MW in Winter
- Peak ~ 3.5 MW in Summer
- 12M Rate Class

(3) 2MW Generators

- All Start in Loss of Mains and take load within 15 seconds
- Run and Maintained as per CSA C282 Standard

PME Journey

- 2012 Electrical & Gas Sub-Metering Improvements Project
  - Installed ION Power Meters in All Substations (FEC and CSC)
  - Meters were connected to Existing Building Automation System
- 2016 Power System Project that renewed switchgear at Main Substation and (4) Substations in the ATB and FEC
  - Redundant utility supply from separate NSP substations
  - Enhanced generator backup system with monitoring
  - Redundant routing between Main Substation and ATB
  - UPS System upgrades for critical IT systems
  - Replacement of aging ATB substation equipment
  - Expanded backup power capability at CSC

PME Journey

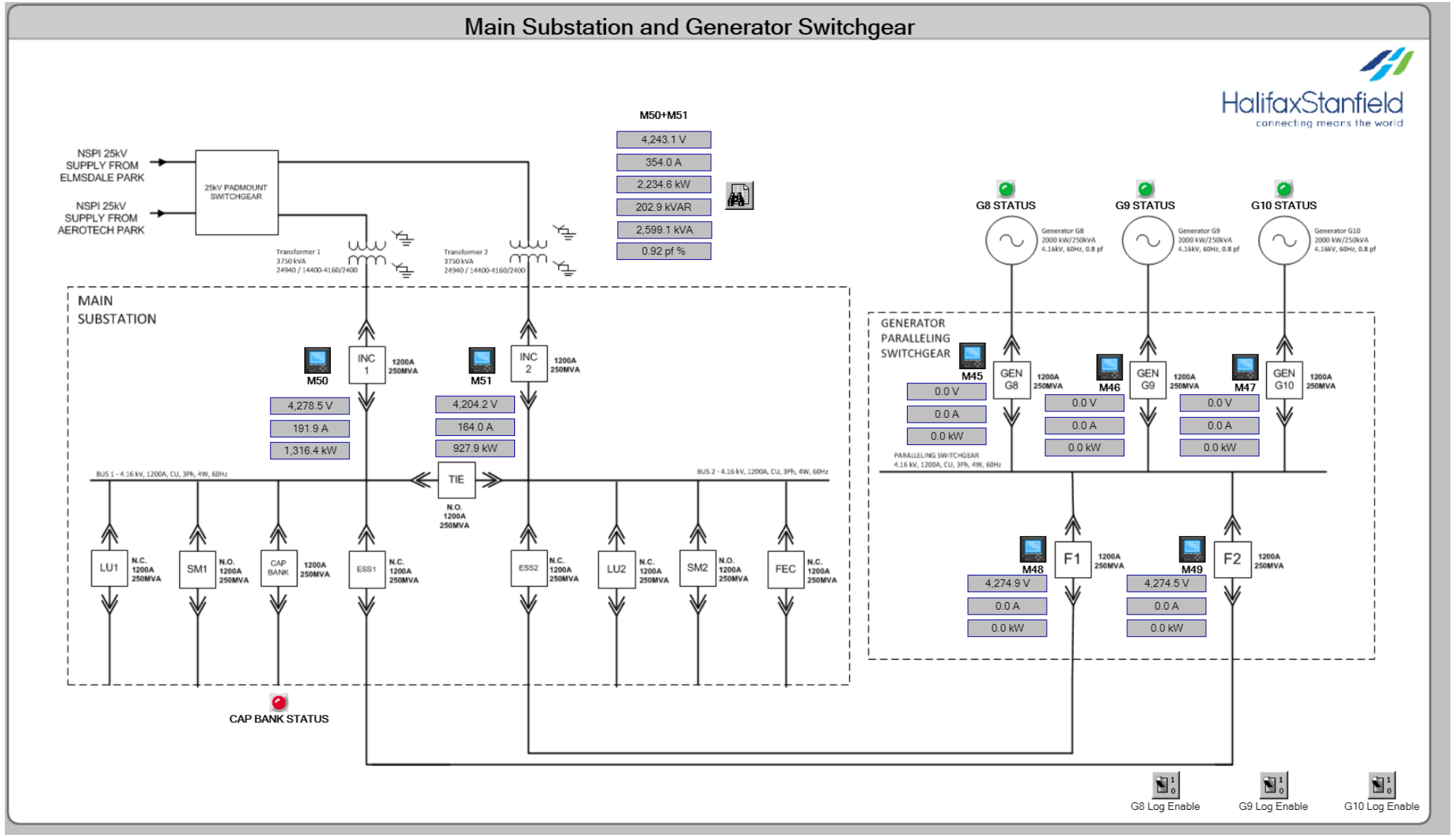
- 2016 Started the Electrical Power Monitoring System Project
  - Installed StruxureWare Power Monitoring Expert 8.0 which allowed HIAA to:
    - Track Real-Time Power Conditions
    - Study Trends
    - Reveal Energy Wastes
    - Find unused Capacity
    - Verify Efficiency Improvements
    - Allocate Costs to Buildings, Departments, Processes, and to Capital Projects
  - Connected Existing Installed Base of ION Meters
  - Installed new ION 7650 Power Meters to Monitor Incoming Power Quality from the Utility and from own Generators

EcoStruxure™ PME HIAA Objectives

- Maintain Quality of Power Supply to Airport Facilities
- Log Electrical System Performance and Regulatory Data
- Report on Tenant Utility Usage for Cost Recovery
- Monitor and Report Utility Consumption in Order to Improve Sustainability

Maintain Quality of Power Supply to Airport

Main Substation and Generator Switchgear



MAIN_SUB.M50

Volts/Amps | Power Quality | Energy & Dmd | Inputs/Outputs | Setpoints | Setup/Diagnostic

Back to Network

Logged Events

Transient & Sag/Swell statistics CBEMA

Waveforms/sequence of events

Sag/swell

Transients

Manual waveform trigger

Voltage Disturbances

Last disturbance 4/27/2019 7:35:17.488 AM

Disturbance counts

Sag/swell	102
Transient	311

Reset counters

Last reset at 11/3/2016 4:57:00.000 PM

Harmonics Measurements

Total Harmonic Distortion

V1(ab)	0.7 %	I1	2.2 %
V2(ca)	0.8 %	I2	2.1 %
V3(bc)	0.9 %	I3	2.4 %

Harmonics Log

Harmonics Details

Setup

Device Time 4/27/2019 11:46:06.891 AM

Device Type 7650

MAIN_SUB.M50

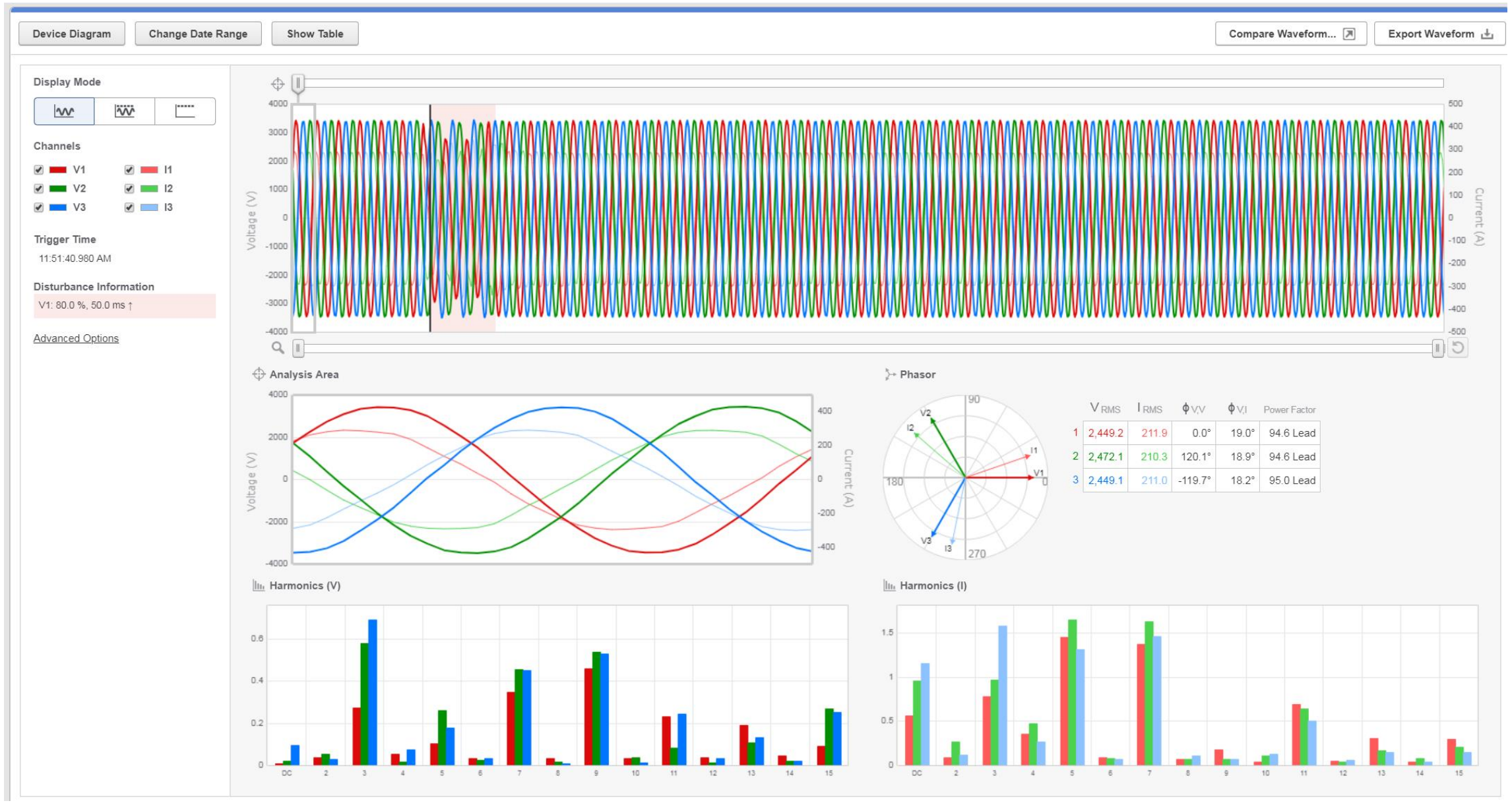
Device Diagram | Change Date Range

Duration	Magnitude Phase1	Magnitude Phase2	Magnitude Phase3	Cause	Timestamp
0.000390	-	-	134.000	Transient Phase3	4/27/2019 7:35:17.488 AM
0.000195	-	-	129.000	Transient Phase3	4/26/2019 11:41:27.477 AM
0.000227	126.000	-	-	Transient Phase1	4/26/2019 11:41:27.477 AM
0.001204	139.000	-	-	Transient Phase1	4/4/2019 3:52:12.716 PM
0.000976	-	128.000	-	Transient Phase2	4/4/2019 12:20:59.062 PM
0.000618	-	-	144.000	Transient Phase3	4/4/2019 12:20:59.054 PM
0.000618	142.000	-	-	Transient Phase1	4/4/2019 12:20:59.054 PM
0.300000	78.547	102.375	101.163	SagSwell	4/4/2019 11:51:46.121 AM
0.050000	80.038	102.787	102.387	SagSwell	4/4/2019 11:51:41.031 AM
0.068000	77.724	92.663	94.121	SagSwell	4/3/2019 4:52:27.226 PM
0.067000	77.834	92.505	94.311	SagSwell	4/3/2019 4:52:21.074 PM
0.000716	130.000	-	-	Transient Phase1	4/3/2019 3:57:48.942 PM
0.000065	-	126.000	-	Transient Phase2	4/3/2019 1:35:51.226 PM
0.042000	102.289	64.210	102.686	SagSwell	4/3/2019 1:35:49.134 PM
0.025000	101.908	77.007	102.337	SagSwell	4/3/2019 1:26:11.683 PM
0.016000	101.620	76.471	102.758	SagSwell	4/3/2019 12:19:23.512 PM
0.000260	-	-	127.000	Transient Phase3	4/2/2019 3:05:51.580 PM

MAIN_SUB.M50

Device Diagram | Change Date Range | Show Waveforms

Timestamp	Cause	Cause Value	Effect	Effect Value	V1 Waveform	V2 Waveform	V3 Waveform	I1 Waveform	I2 Waveform	I3 Waveform
4/27/2019 7:35:17.488 AM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Downstream - Medium Confidence	-	-	-	-	-	-
4/26/2019 11:41:27.477 AM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - High Confidence	-	-	-	-	-	-
4/4/2019 3:52:12.716 PM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - High Confidence	-	-	-	-	-	-
4/4/2019 12:20:59.054 PM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - Medium Confidence	-	-	-	-	-	-
4/4/2019 11:51:46.121 AM	Sag/Swell 1	Disturbance End	Voltage Disturbance State	Normal	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/4/2019 11:51:45.821 AM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - High Confidence	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/4/2019 11:51:45.821 AM	Sag/Swell 1	Disturbance Start	Voltage Disturbance State	Disturbance	-	-	-	-	-	-
4/4/2019 11:51:41.031 AM	Sag/Swell 1	Disturbance End	Voltage Disturbance State	Normal	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/4/2019 11:51:40.981 AM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - High Confidence	~~ ☑	~~ ☑	~~ ☑	~~ ☑	~~ ☑	~~ ☑
4/4/2019 11:51:40.981 AM	Sag/Swell 1	Disturbance Start	Voltage Disturbance State	Disturbance	-	-	-	-	-	-
4/3/2019 4:52:27.226 PM	Sag/Swell 1	Disturbance End	Voltage Disturbance State	Normal	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/3/2019 4:52:27.159 PM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - Medium Confidence	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/3/2019 4:52:27.159 PM	Sag/Swell 1	Disturbance Start	Voltage Disturbance State	Disturbance	-	-	-	-	-	-
4/3/2019 4:52:21.074 PM	Sag/Swell 1	Disturbance End	Voltage Disturbance State	Normal	-	-	-	-	-	-
4/3/2019 4:52:21.066 PM	-	-	-	-	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/3/2019 4:52:21.008 PM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - High Confidence	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐	~~ ☐
4/3/2019 4:52:21.008 PM	Sag/Swell 1	Disturbance Start	Voltage Disturbance State	Disturbance	-	-	-	-	-	-
4/3/2019 3:57:48.942 PM	Disturbance Direction Detection 1	Analysis Done	Disturbance Direction Detection 1	Disturbance Direction Detected - Upstream - High Confidence	-	-	-	-	-	-



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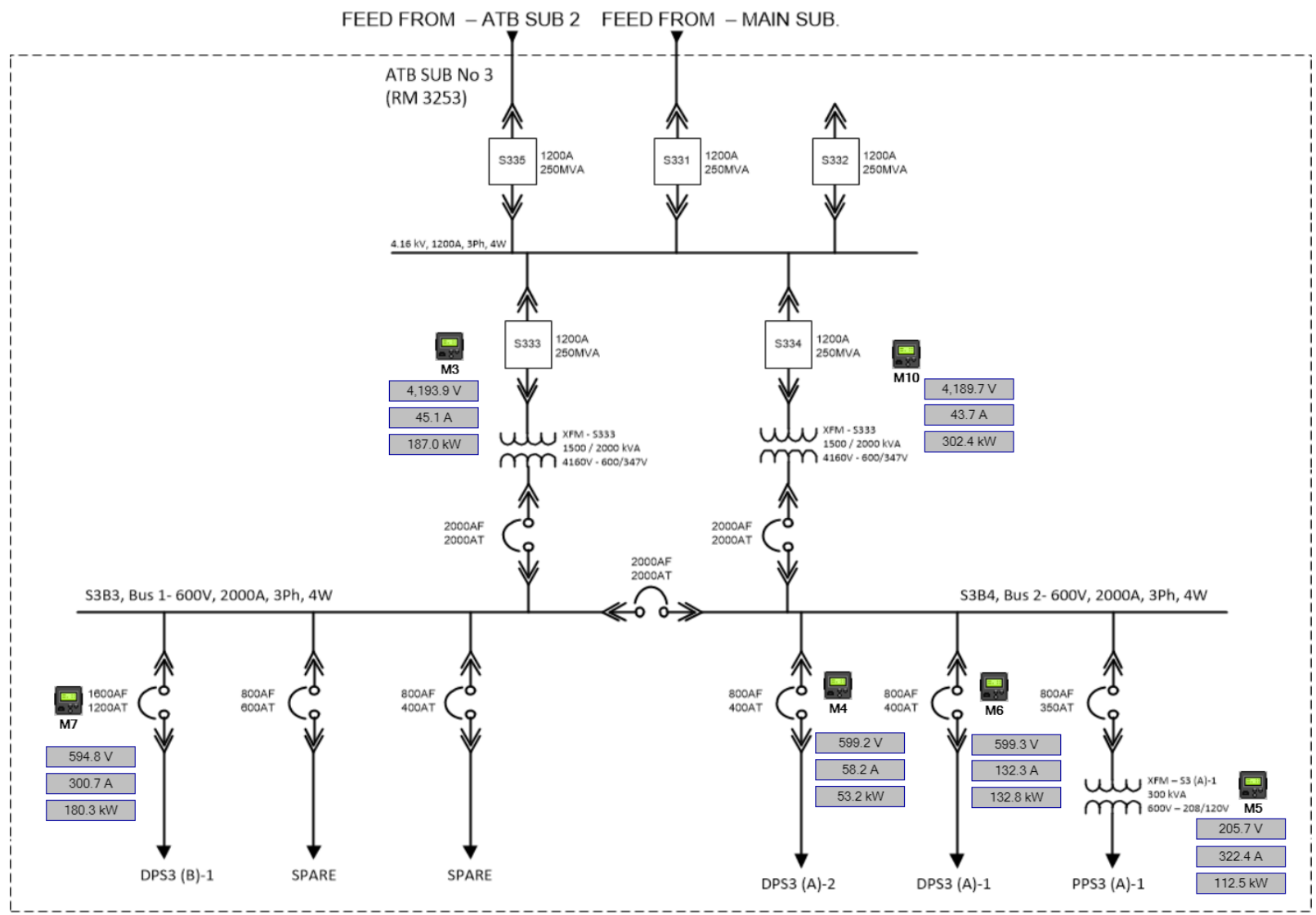
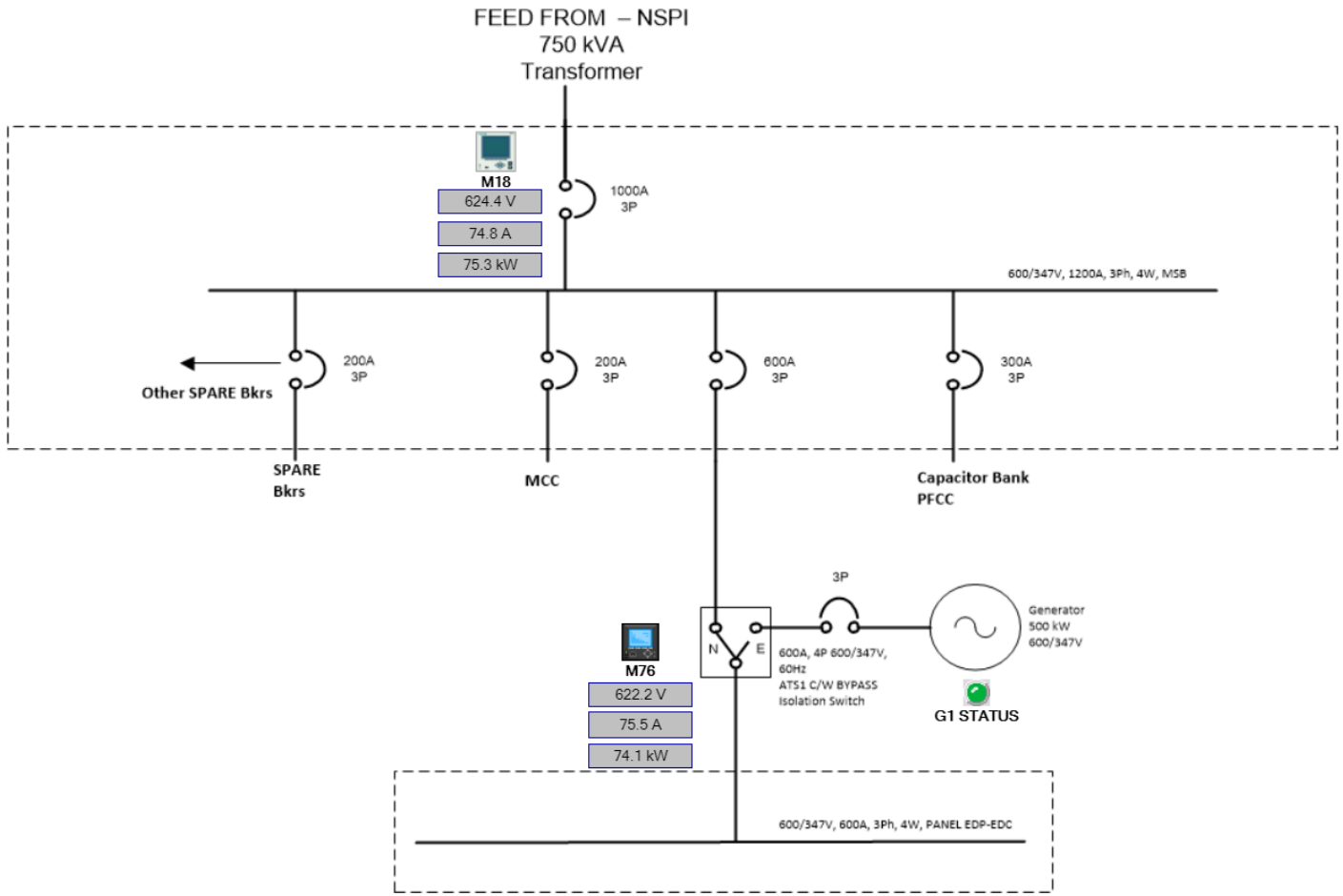
ATB - Substation 3



CSC


FEED FROM – NSPI
750 kVA
Transformer
M18
624.4 V
74.8 A
75.3 kW
1000A
3P
600/347V, 1200A, 3Ph, 4W, MSB
200A
3P
Other SPARE Bkrs
SPARE
Bkrs
200A
3P
MCC
600A
3P
300A
3P
Capacitor Bank
PFCC
3P
Generator
500 kW
600/347V
N
E
600A, 4P 600/347V,
60Hz
ATS1 C/W BYPASS
Isolation Switch
G1 STATUS
M76
622.2 V
75.5 A
74.1 kW
600/347V, 600A, 3Ph, 4W, PANEL EDP-EDC
G1 Log Enable

HVAC

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MCC 1	
609.2 V	
7.8 A	
5.8 kW	

MCC 4	
601.3 V	
39.4 A	
33.7 kW	

MCC 10	
590.4 V	
117.0 A	
78.8 kW	

MCC 14	
204.5 V	
5.2 A	
0.8 kW	

MCC USBCD	
206.1 V	
6.3 A	
1.4 kW	

Panel PHC1	
604.9 V	
28.0 A	
20.9 kW	

Chiller 5	
590.4 V	
0.4 A	
0.3 kW	

MCC 1A	
609.2 V	
2.9 A	
2.0 kW	

MCC 5	
598.8 V	
21.0 A	
16.4 kW	

MCC 11	
597.6 V	
23.6 A	
19.3 kW	

MCC 15	
609.2 V	
51.8 A	
11.6 kW	

MCC B1029	
604.1 V	
14.2 A	
10.4 kW	

Panel PPE6	
601.3 V	
12.3 A	
8.8 kW	

Chiller 6	
590.4 V	
0.1 A	
0.0 kW	

MCC 2	
601.3 V	
6.8 A	
4.6 kW	

MCC 6	
602.1 V	
14.0 A	
9.2 kW	

MCC 12	
590.4 V	
19.7 A	
9.4 kW	

MCC 2100	
600.0 V	
42.4 A	
29.2 kW	

Panel HPD	
601.3 V	
16.8 A	
16.9 kW	

Chiller 7	
590.4 V	
0.7 A	
0.6 kW	

MCC 3	
601.3 V	
54.1 A	
37.8 kW	

MCC 9	
590.3 V	
41.0 A	
24.0 kW	

MCC 13	
590.4 V	
39.2 A	
21.8 kW	

MCC S41	
600.0 V	
43.6 A	
23.7 kW	

Temp. Chillers	
590.4 V	
100.0 A	
-7.0 kW	

Chiller 10A	
611.0 V	
1.6 A	
0.3 kW	

UPS system

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Percent Full Load : 24.0 %

Watts Output : 21,700.0 Watts

B1038A Eaton 9390

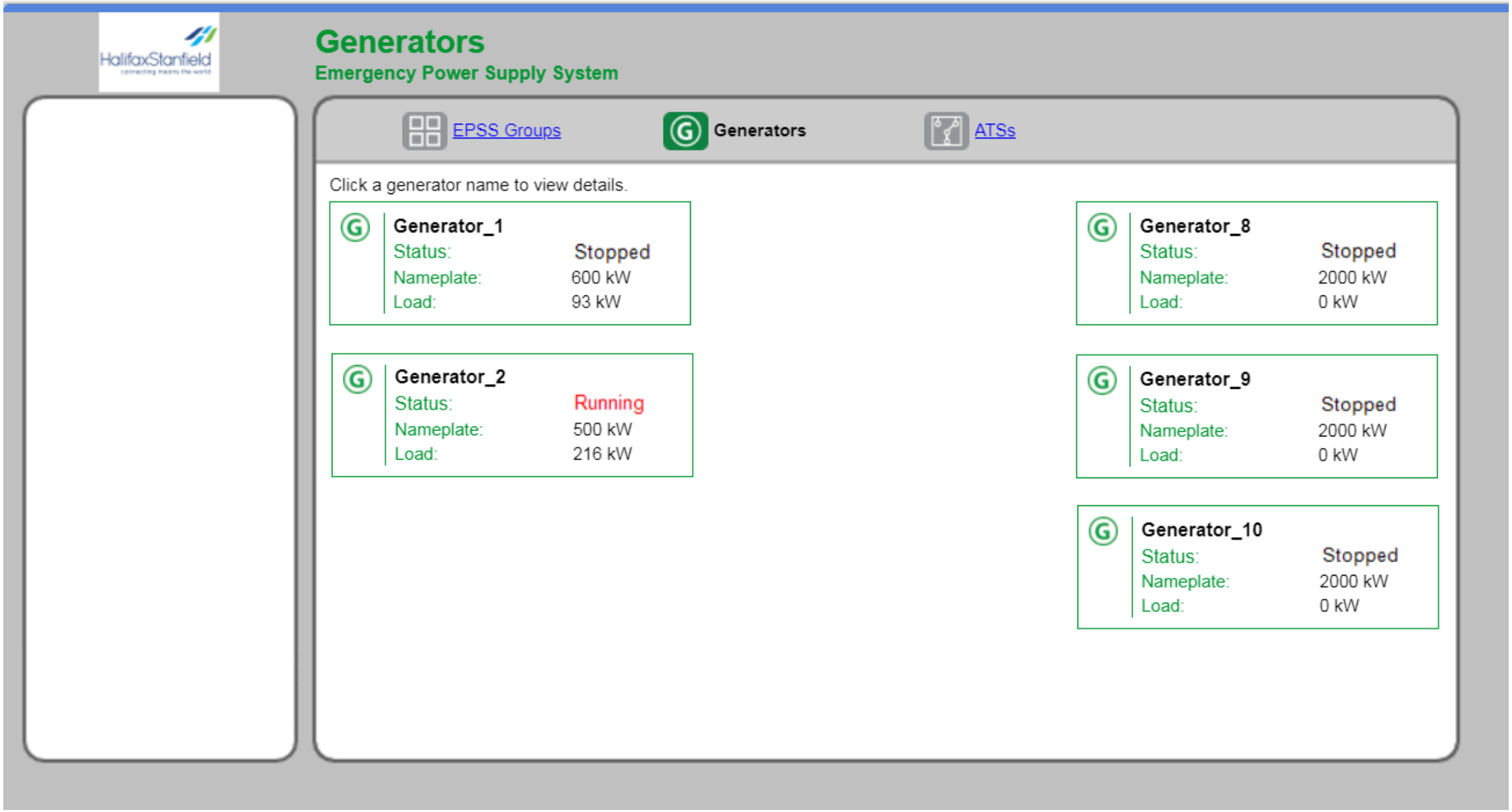
Percent Full Load : 10.0 %

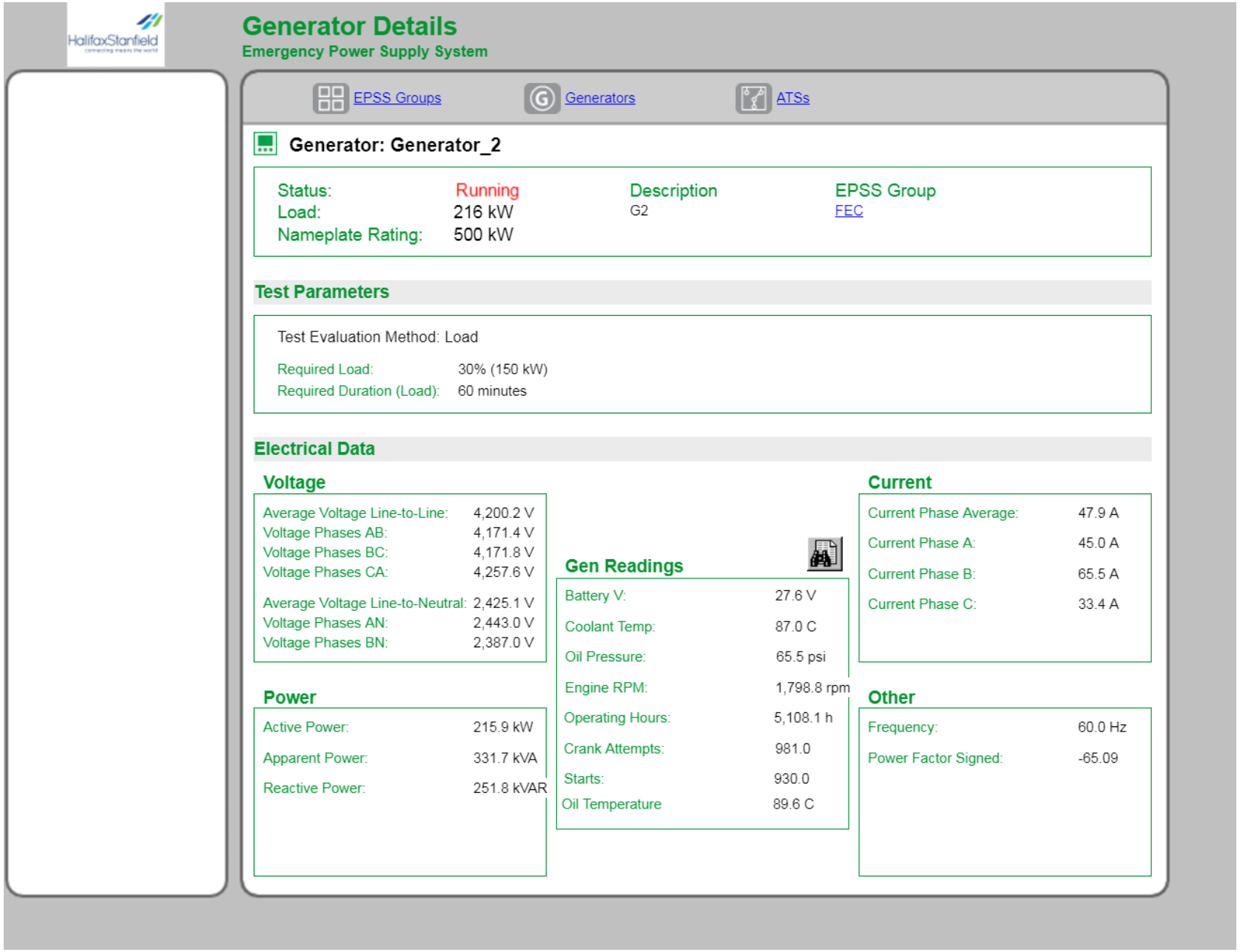
Watts Output : 2,700.0 Watts

CSC Eaton 9390

UPS.APC_B070	Precent Full Load : 15.0 % Watts Output : 240.0 Watts	UPS.APC_1067C	Precent Full Load : 48.0 % Watts Output : 1,062.0 Watts	UPS.APC_2053	Precent Full Load : 15.0 % Watts Output : 240.0 Watts	UPS.APC_2084B_R6	Precent Full Load : 22.0 % Watts Output : 360.0 Watts	UPS.APC_2620_3	Precent Full Load : 23.0 % Watts Output : 714.0 Watts
UPS.APC_B1033	Precent Full Load : 27.0 % Watts Output : 460.0 Watts	UPS.APC_1113A	Precent Full Load : 40.0 % Watts Output : 819.0 Watts	UPS.APC_2084A_3	Precent Full Load : 14.0 % Watts Output : 232.0 Watts	UPS.APC_2112F	Precent Full Load : 27.0 % Watts Output : 585.0 Watts	UPS.APC_3015	Precent Full Load : 18.0 % Watts Output : 357.0 Watts
UPS.APC_1017N	Precent Full Load : 16.0 % Watts Output : 234.0 Watts	UPS.APC_1528A	Precent Full Load : 23.0 % Watts Output : 460.0 Watts	UPS.APC_2084A_4	Precent Full Load : 20.0 % Watts Output : 342.0 Watts	UPS.APC_2505	Precent Full Load : 23.0 % Watts Output : 460.0 Watts	UPS.APC_5009	Precent Full Load : 31.0 % Watts Output : 590.0 Watts
UPS.APC_1021B	Precent Full Load : 0.0 % Watts Output : 0.0 Watts	UPS.APC_1540A	Precent Full Load : 5.0 % Watts Output : 0.0 Watts	UPS.APC_2084A_5	Precent Full Load : 32.0 % Watts Output : 678.0 Watts	UPS.APC_2517D	Precent Full Load : 11.0 % Watts Output : 118.0 Watts		
UPS.APC_1028B	Precent Full Load : 31.0 % Watts Output : 720.0 Watts	UPS.APC_2030_1	Precent Full Load : 18.0 % Watts Output : 360.0 Watts	UPS.APC_2084A_R6	Precent Full Load : 0.0 % Watts Output : 0.0 Watts	UPS.APC_2620	Precent Full Load : 20.0 % Watts Output : 357.0 Watts		

Log Electrical System Performance and Regulatory Data


HalifaxStanfield
Generators
Emergency Power Supply System
EPSS Groups
Generators
ATSs
Click a generator name to view details.
Generator_1
Status: Stopped
Nameplate: 600 kW
Load: 93 kW
Generator_2
Status: Running
Nameplate: 500 kW
Load: 216 kW
Generator_8
Status: Stopped
Nameplate: 2000 kW
Load: 0 kW
Generator_9
Status: Stopped
Nameplate: 2000 kW
Load: 0 kW
Generator_10
Status: Stopped
Nameplate: 2000 kW
Load: 0 kW


HalifaxStanfield
Generator Details
Emergency Power Supply System
EPSS Groups
Generators
ATSs
Generator: Generator_2
Status: Running
Load: 216 kW
Nameplate Rating: 500 kW
Description
G2
EPSS Group
FEC
Test Parameters
Test Evaluation Method: Load
Required Load: 30% (150 kW)
Required Duration (Load): 60 minutes
Electrical Data
Voltage
Average Voltage Line-to-Line: 4,200.2 V
Voltage Phases AB: 4,171.4 V
Voltage Phases BC: 4,171.8 V
Voltage Phases CA: 4,257.6 V
Average Voltage Line-to-Neutral: 2,425.1 V
Voltage Phases AN: 2,443.0 V
Voltage Phases BN: 2,387.0 V
Power
Active Power: 215.9 kW
Apparent Power: 331.7 kVA
Reactive Power: 251.8 kVAR
Gen Readings
Battery V: 27.6 V
Coolant Temp: 87.0 C
Oil Pressure: 65.5 psi
Engine RPM: 1,798.8 rpm
Operating Hours: 5,108.1 h
Crank Attempts: 981.0
Starts: 930.0
Oil Temperature 89.6 C
Current
Current Phase Average: 47.9 A
Current Phase A: 45.0 A
Current Phase B: 65.5 A
Current Phase C: 33.4 A
Other
Frequency: 60.0 Hz
Power Factor Signed: -65.09

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Generator Run Report - G2

For

HIAA

FEC

Prepared By

PME 9.0

Test Period

4/20/2019 10:55:32 PM - 4/21/2019 1:41:49 PM (Atlantic Daylight Time)

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Generator Run Report - G2

4/20/2019 10:55:32 PM - 4/21/2019 1:41:49 PM (Atlantic Daylight Time)

Sources in EPSS Group: FEC

Source	Type	Description
Generator_2	Generator	G2

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Generator Run Report - G2

4/20/2019 10:55:32 PM - 4/21/2019 1:41:49 PM (Atlantic Daylight Time)

ATS and Generator Events Summary

Timestamp	Source Name	Status
4/20/2019 10:55:32.41 PM	Generator_2	Starting
4/20/2019 10:55:34.34 PM	Generator_2	Running
4/21/2019 1:41:49.43 PM	Generator_2	Stopped

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Generator Run Report - G2

4/20/2019 10:55:32 PM - 4/21/2019 1:41:49 PM (Atlantic Daylight Time)

Generator Summary

Generator: Generator_2 **Nameplate: 500 kW**

Start Time: 4/20/2019 10:55:34 PM Stop Time: 4/21/2019 1:41:49 PM

Evaluation Method	Overall Test Status
Load	PASS

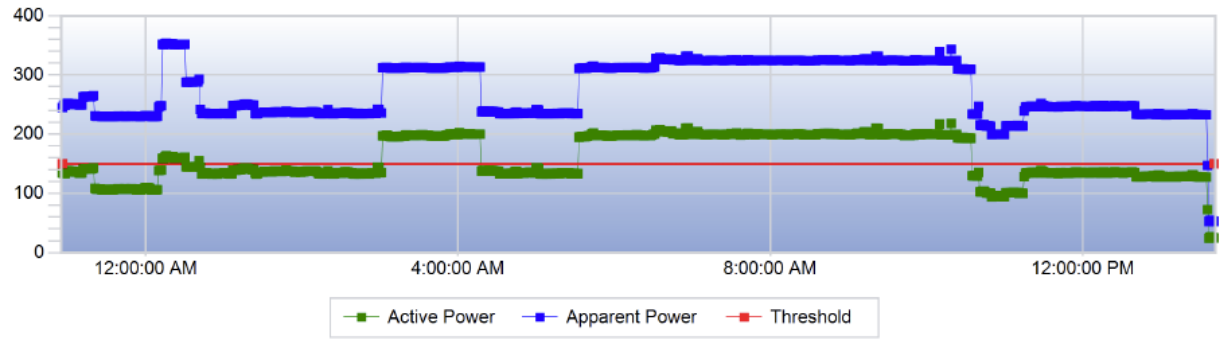
Test	Stage	Test Status
Load	One	PASS

Generator Load Summary

Generator: Generator_2 **Nameplate: 500 kW**

Start Time: 4/20/2019 10:55:34 PM Stop Time: 4/21/2019 1:41:49 PM

Longest Continuous Load	Nameplate %	Threshold	Actual Run Duration	Required Run Duration	Test Status
4/21/2019 5:33:00 AM - 4/21/2019 10:34:00 AM	30%	150 kW	301.0 min	60 min	PASS

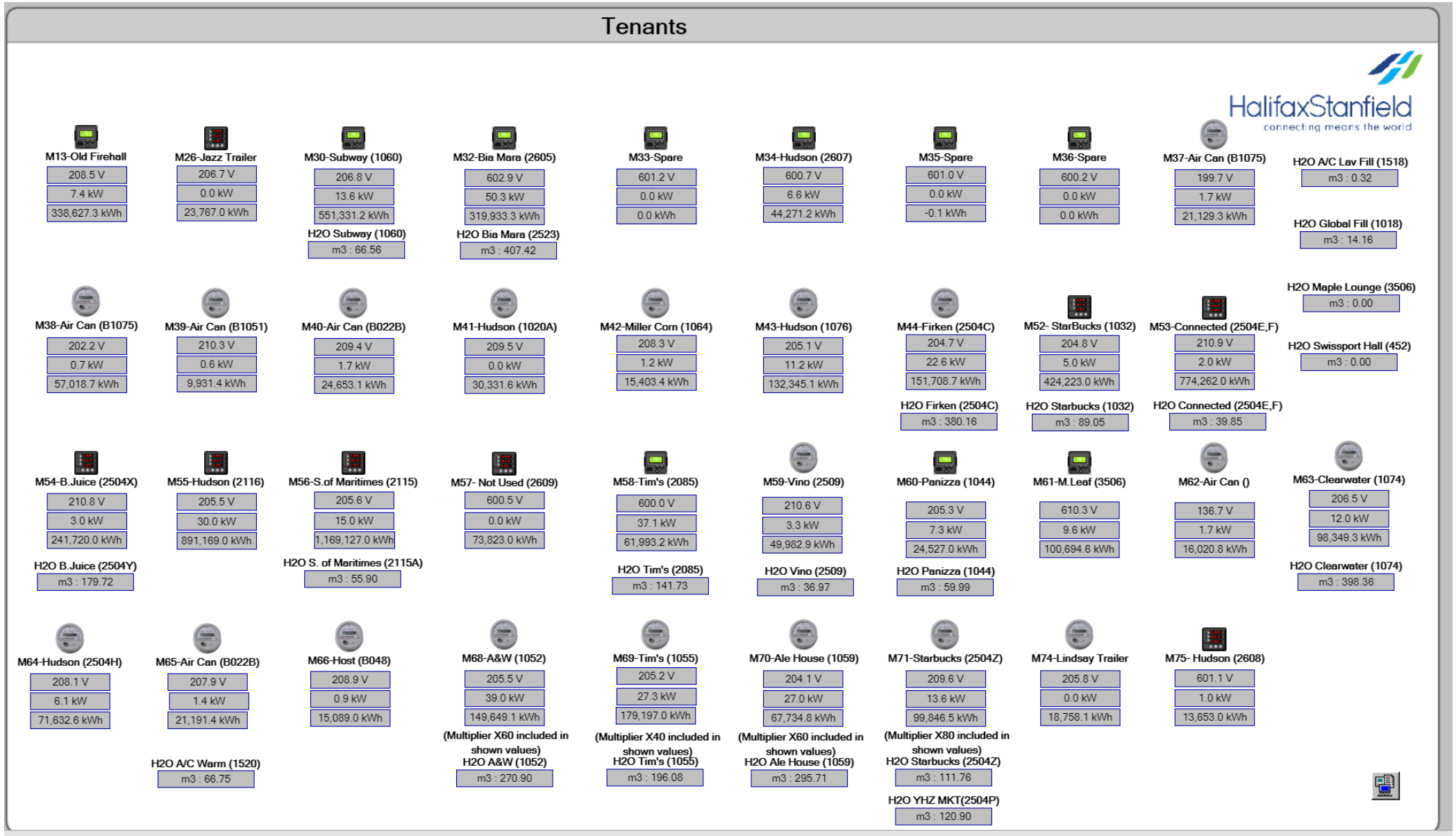


Min, Avg, Max Readings for the Longest Continuous Load

Measurement	Min	Avg	Max	Units
Active Power	192.95	199.73	218.18	kW
Apparent Power	309.40	321.82	343.13	kVA
Current Phase A	44.38	49.49	53.63	A
Current Phase B	60.82	61.04	65.21	A
Current Phase C	29.59	29.98	32.84	A
Voltage Phases AB	4,165.03	4,169.81	4,173.17	V
Voltage Phases AN	2,433.98	2,438.95	2,442.79	V
Voltage Phases BC	4,182.86	4,203.22	4,218.91	V
Voltage Phases BN	2,389.99	2,397.56	2,402.46	V
Voltage Phases CA	4,255.42	4,268.62	4,288.22	V
Voltages Phase CN	2,450.73	2,462.59	2,476.21	V

Tenant Utility Usage for Cost Recovery

Tenants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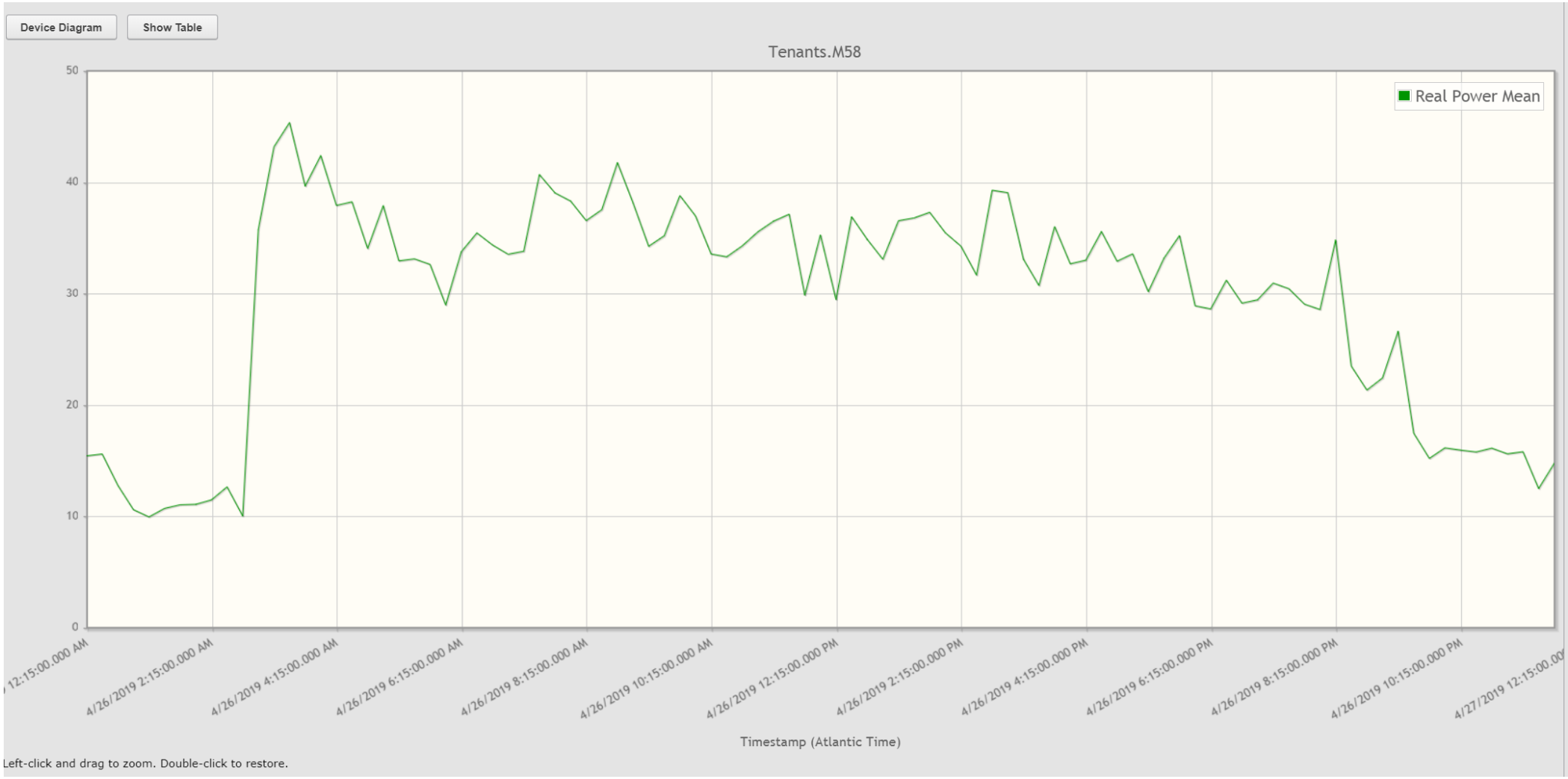
M13-Old Firehall
208.5 V
7.4 kW
338,627.3 kWh
M26-Jazz Trailer
206.7 V
0.0 kW
23,767.0 kWh
M30-Subway (1060)
206.8 V
13.6 kW
551,331.2 kWh
H2O Subway (1060)
m3 : 66.56
M32-Bia Mara (2605)
602.9 V
50.3 kW
319,933.3 kWh
H2O Bia Mara (2523)
m3 : 407.42
M33-Spare
601.2 V
0.0 kW
0.0 kWh
M34-Hudson (2607)
600.7 V
6.6 kW
44,271.2 kWh
M35-Spare
601.0 V
0.0 kW
-0.1 kWh
M36-Spare
600.2 V
0.0 kW
0.0 kWh
M37-Air Can (B1075)
199.7 V
1.7 kW
21,129.3 kWh
H2O A/C Lav Fill (1518)
m3 : 0.32
H2O Global Fill (1018)
m3 : 14.16
M38-Air Can (B1075)
202.2 V
0.7 kW
57,018.7 kWh
M39-Air Can (B1051)
210.3 V
0.6 kW
9,931.4 kWh
M40-Air Can (B022B)
209.4 V
1.7 kW
24,653.1 kWh
M41-Hudson (1020A)
209.5 V
0.0 kW
30,331.6 kWh
M42-Miller Corn (1064)
208.3 V
1.2 kW
15,403.4 kWh
M43-Hudson (1076)
205.1 V
11.2 kW
132,345.1 kWh
M44-Firken (2504C)
204.7 V
22.6 kW
151,708.7 kWh
H2O Firken (2504C)
m3 : 380.16
M52- StarBucks (1032)
204.8 V
5.0 kW
424,223.0 kWh
H2O Starbucks (1032)
m3 : 89.05
M53-Connected (2504E,F)
210.9 V
2.0 kW
774,262.0 kWh
H2O Connected (2504E,F)
m3 : 39.85
H2O Maple Lounge (3506)
m3 : 0.00
H2O Swissport Hall (452)
m3 : 0.00
M54-B.Juice (2504X)
210.8 V
3.0 kW
241,720.0 kWh
H2O B.Juice (2504Y)
m3 : 179.72
M55-Hudson (2116)
205.5 V
30.0 kW
891,169.0 kWh
M56-S.of Maritimes (2115)
205.6 V
15.0 kW
1,169,127.0 kWh
H2O S. of Maritimes (2115A)
m3 : 55.90
M57- Not Used (2609)
600.5 V
0.0 kW
73,823.0 kWh
M58-Tim's (2085)
600.0 V
37.1 kW
61,993.2 kWh
H2O Tim's (2085)
m3 : 141.73
M59-Vino (2509)
210.6 V
3.3 kW
49,982.9 kWh
H2O Vino (2509)
m3 : 36.97
M60-Panizza (1044)
205.3 V
7.3 kW
24,527.0 kWh
H2O Panizza (1044)
m3 : 59.99
M61-M.Leaf (3506)
610.3 V
9.6 kW
100,694.6 kWh
M62-Air Can ()
136.7 V
1.7 kW
16,020.8 kWh
M63-Clearwater (1074)
206.5 V
12.0 kW
98,349.3 kWh
H2O Clearwater (1074)
m3 : 398.36
M64-Hudson (2504H)
208.1 V
6.1 kW
71,632.6 kWh
M65-Air Can (B022B)
207.9 V
1.4 kW
21,191.4 kWh
H2O A/C Warm (1520)
m3 : 66.75
M66-Host (B048)
208.9 V
0.9 kW
15,089.0 kWh
M68-A&W (1052)
205.5 V
39.0 kW
149,649.1 kWh
(Multiplier X60 included in shown values)
H2O A&W (1052)
m3 : 270.90
M69-Tim's (1055)
205.2 V
27.3 kW
179,197.0 kWh
(Multiplier X40 included in shown values)
H2O Tim's (1055)
m3 : 196.08
M70-Ale House (1059)
204.1 V
27.0 kW
67,734.8 kWh
(Multiplier X60 included in shown values)
H2O Ale House (1059)
m3 : 295.71
M71-Starbucks (2504Z)
209.6 V
13.6 kW
99,846.5 kWh
(Multiplier X80 included in shown values)
H2O Starbucks (2504Z)
m3 : 111.76
H2O YHZ MKT(2504P)
m3 : 120.90
M74-Lindsay Trailer
205.8 V
0.0 kW
18,758.1 kWh
M75- Hudson (2608)
601.1 V
1.0 kW
13,653.0 kWh


Device Diagram
Show Table
Tenants.M58
Real Power Mean
50
40
30
20
10
0
12:15:00.000 AM
4/26/2019 2:15:00.000 AM
4/26/2019 4:15:00.000 AM
4/26/2019 6:15:00.000 AM
4/26/2019 8:15:00.000 AM
4/26/2019 10:15:00.000 AM
4/26/2019 12:15:00.000 PM
4/26/2019 2:15:00.000 PM
4/26/2019 4:15:00.000 PM
4/26/2019 6:15:00.000 PM
4/26/2019 8:15:00.000 PM
4/26/2019 10:15:00.000 PM
4/27/2019 12:15:00.00
Timestamp (Atlantic Time)
Left-click and drag to zoom. Double-click to restore.

Monitor and Report Utility Consumption

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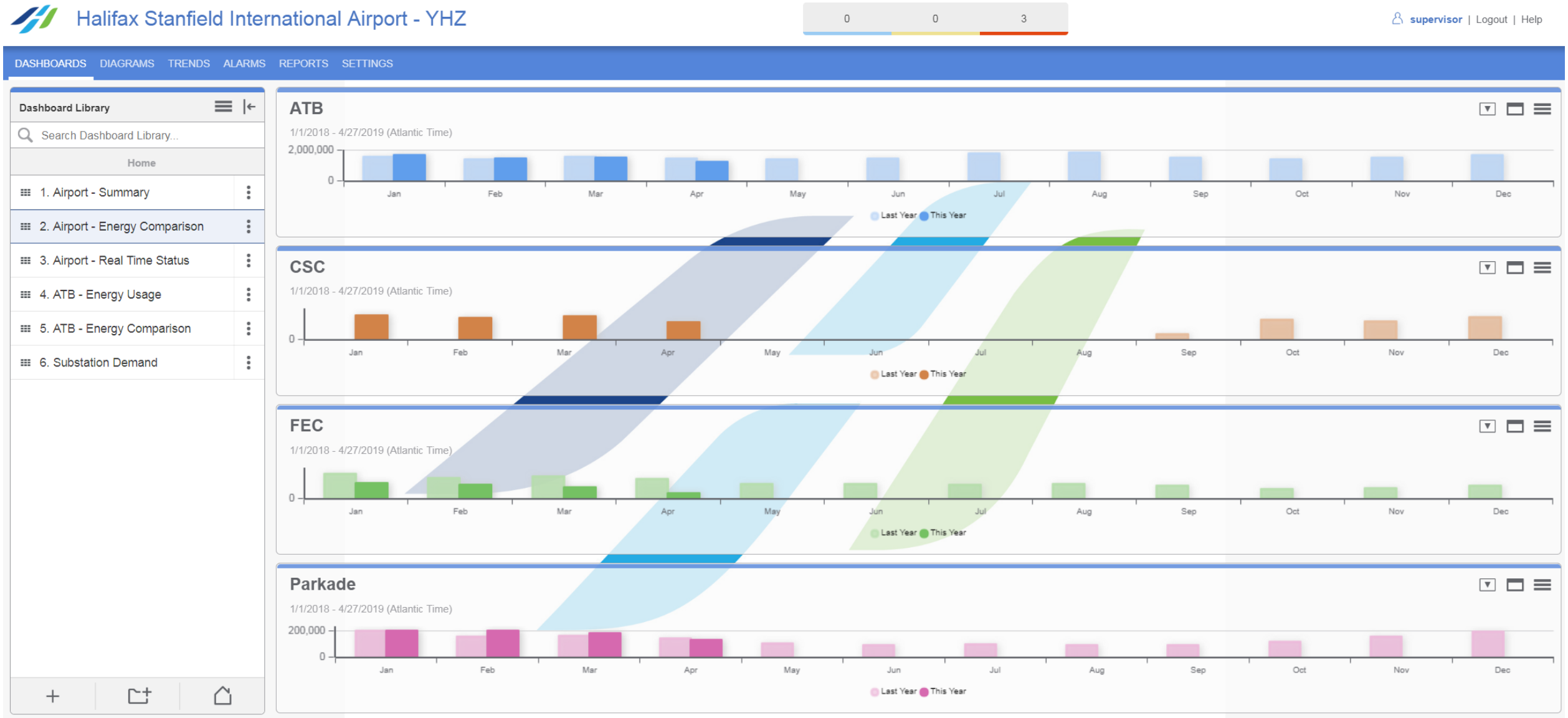
connecting means the world



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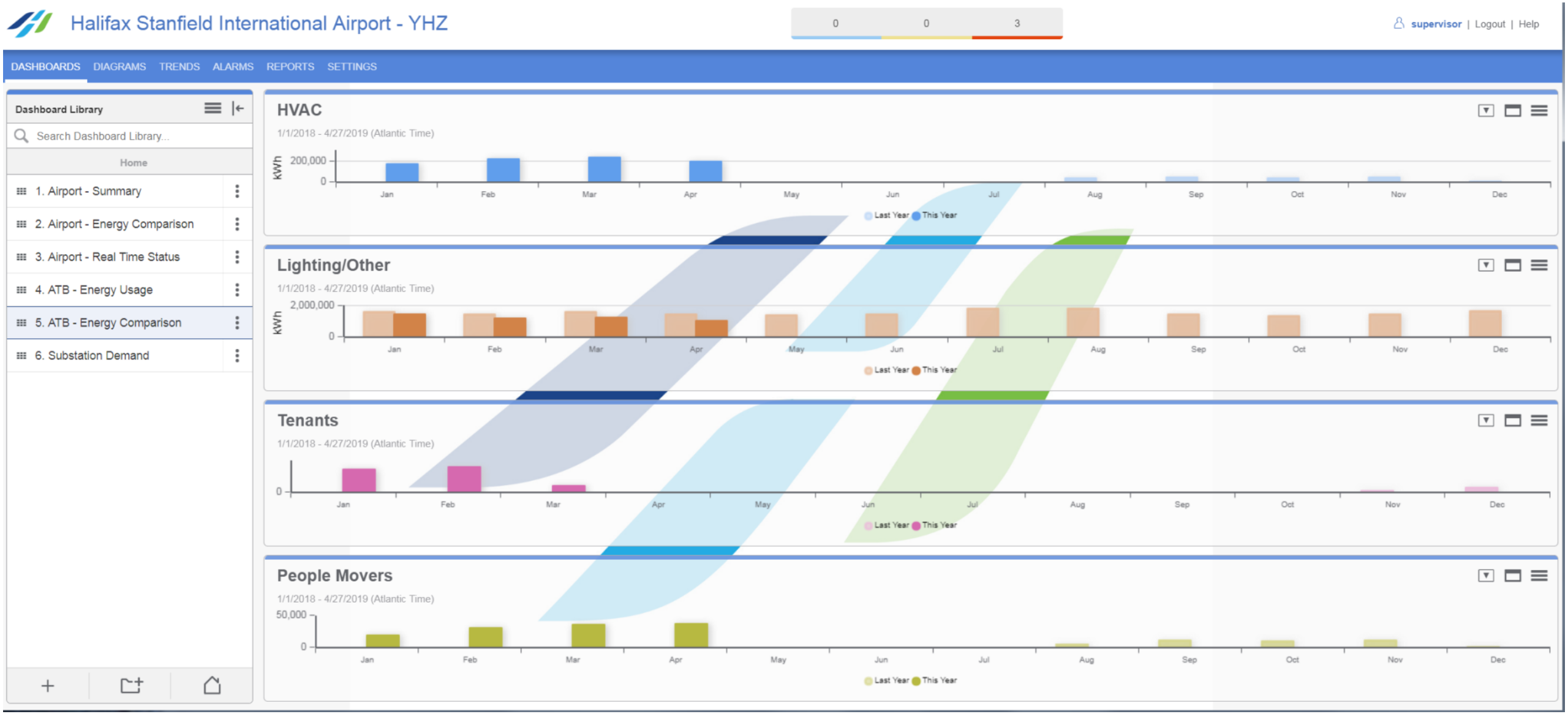

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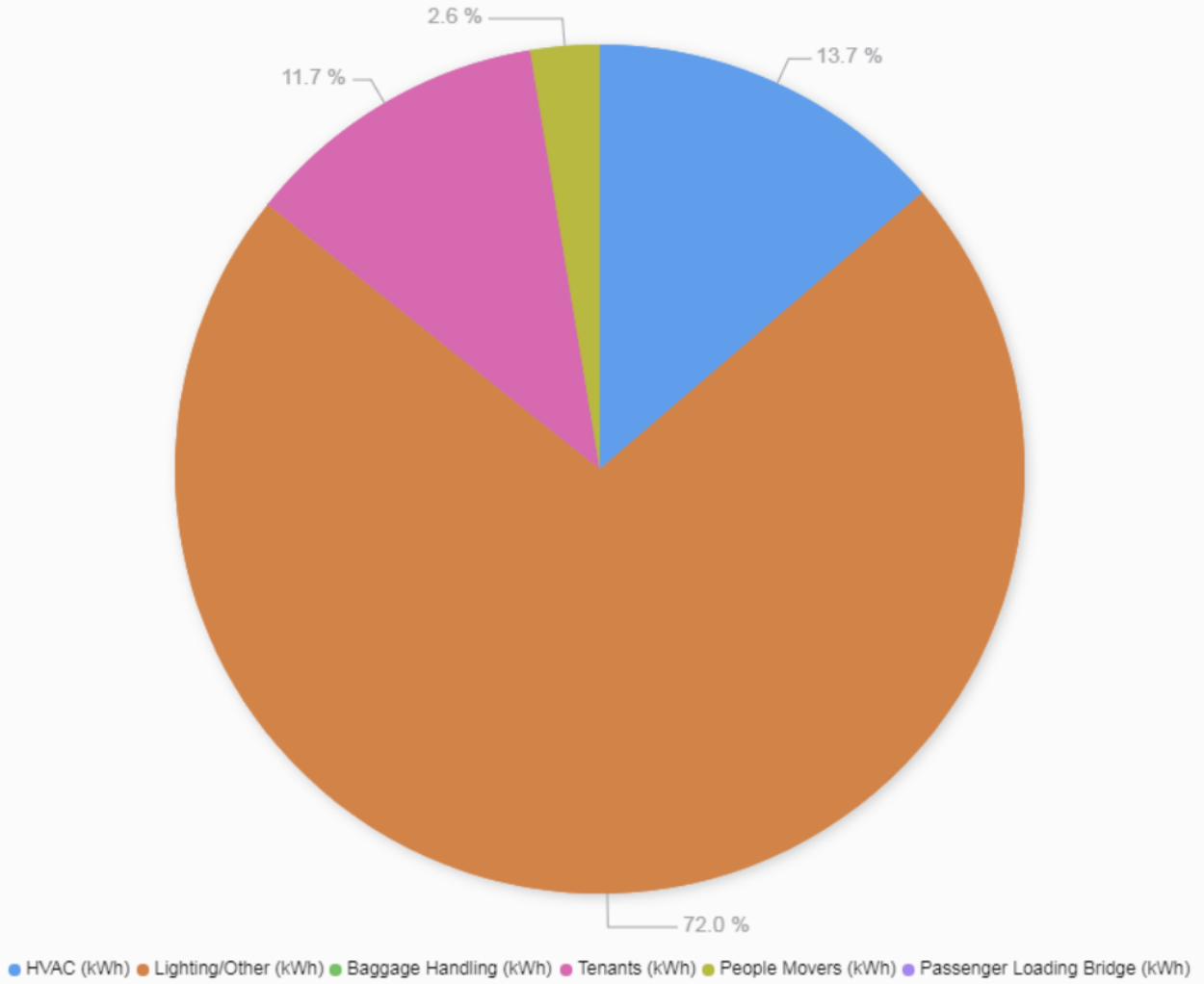
ATB - Energy Breakdown

This Month

4/1/2019 - 4/27/2019 (Atlantic Time)



Sustainable Results

airport carbon accreditation

MAPPING | REDUCTION | OPTIMISATION | NEUTRALITY

Future Goals

- Additional Energy Projects
  - Lighting Controls
  - Additional Day Light Harvesting
  - Apron Lighting with Dimming Controls
- Protection Monitoring
  - Integrate Protection breakers into PME
  - Monitor Breaker Position and Number of Operations for improved Maintenance
- WAGES Integration
  - Integrate Water and Gas Meters into PME


Thank you!
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