

ADRES

Automated Demand Response
and Energy Savings Solution



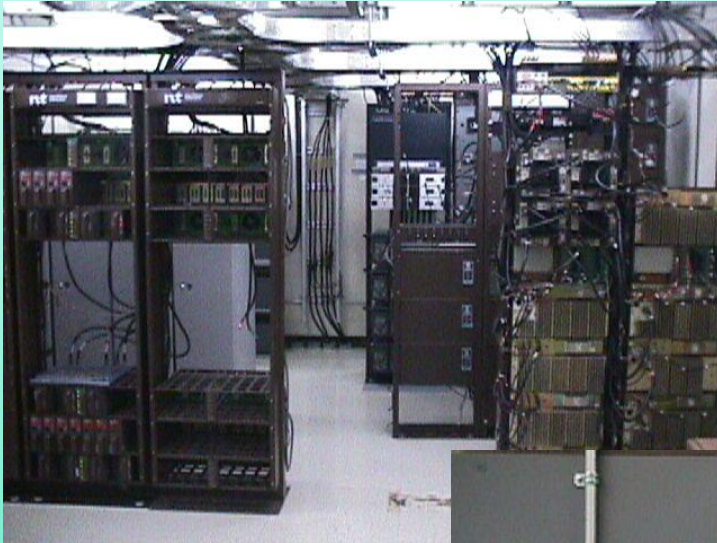
Winn Energy Controls, Inc.

ADRES Presentation - 20 Minutes

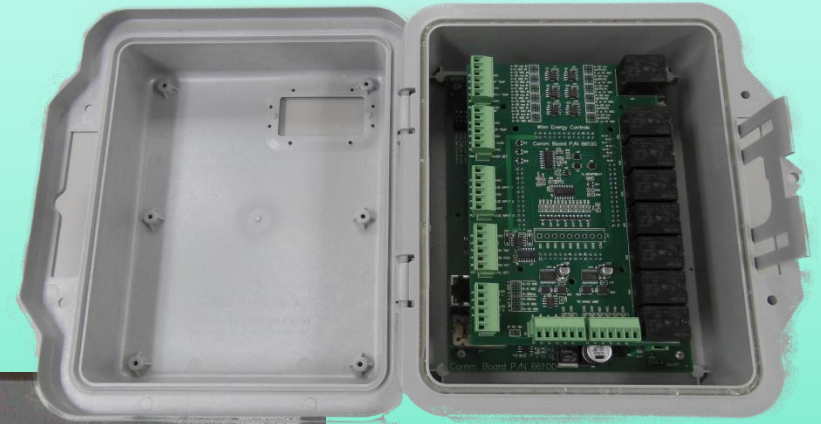
- **Company Background** 1 minutes
- **Clients and Representative Projects** 1 minute
- **ADRES Solution (Hardware, Communications and Software platform)** 4 minutes
 1. **Communication Board**
 2. **Relay IO Board**
 3. **ADRESpro Web Based HMI**
- **Installation Support** 2 minute
 1. **Installation Manuals**
 2. **Wiring Diagrams**
 3. **ADRESpro software User Guides**
 4. **ADRESpro software tutorials**
- **ADRES Solutions Applications Micro-grid (Generators, Lift Stations, etc.)** 2 minutes
- **ADRES Built-In Measurement and Verification** 2 minutes
- **ADRES Solution Live Demonstration Generator Unit** 5 minutes
 1. **Map**
 2. **Navigation Tree**
 3. **Monitor, Trend, Schedule, Configure, and Contacts Tab Panel**
 4. **Alarms, Service, Maintenance and Performance Tab Panel**
- **ADRES Digital LTE Cellular DOD Cyber Security** 3 minutes

- **Winn Energy Controls, Inc.**
 - California Corporation, Incorporated 1994
 - Privately Owned, Closely Held
 - Over 6,000 Controls Delivered.
 - All Six Engineers and Key Personnel US Born
- **Partial End User Client List**

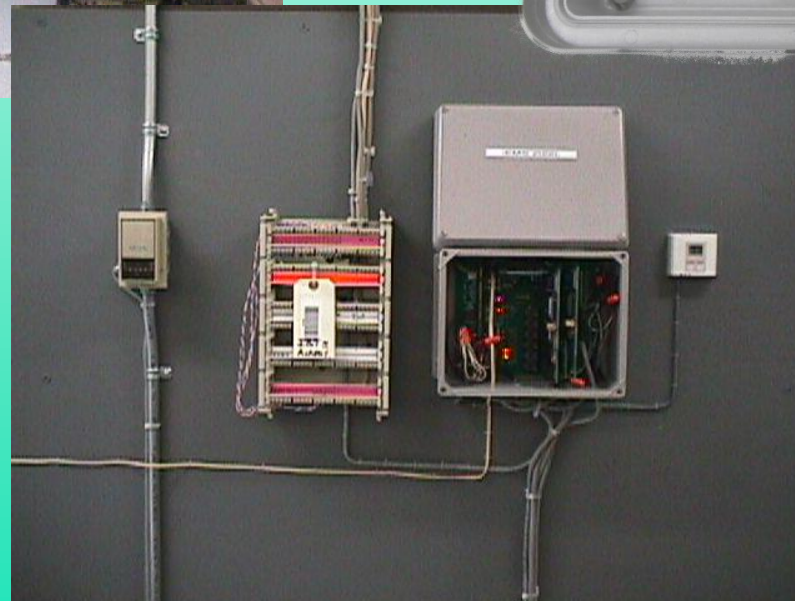




Cellular Repeaters



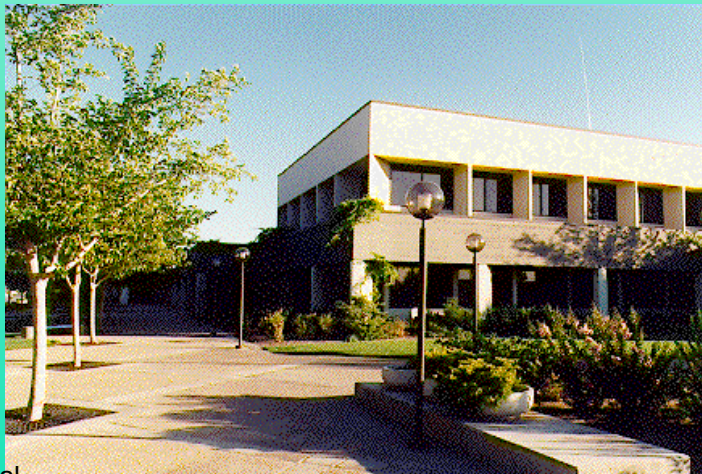
ADRES Installation

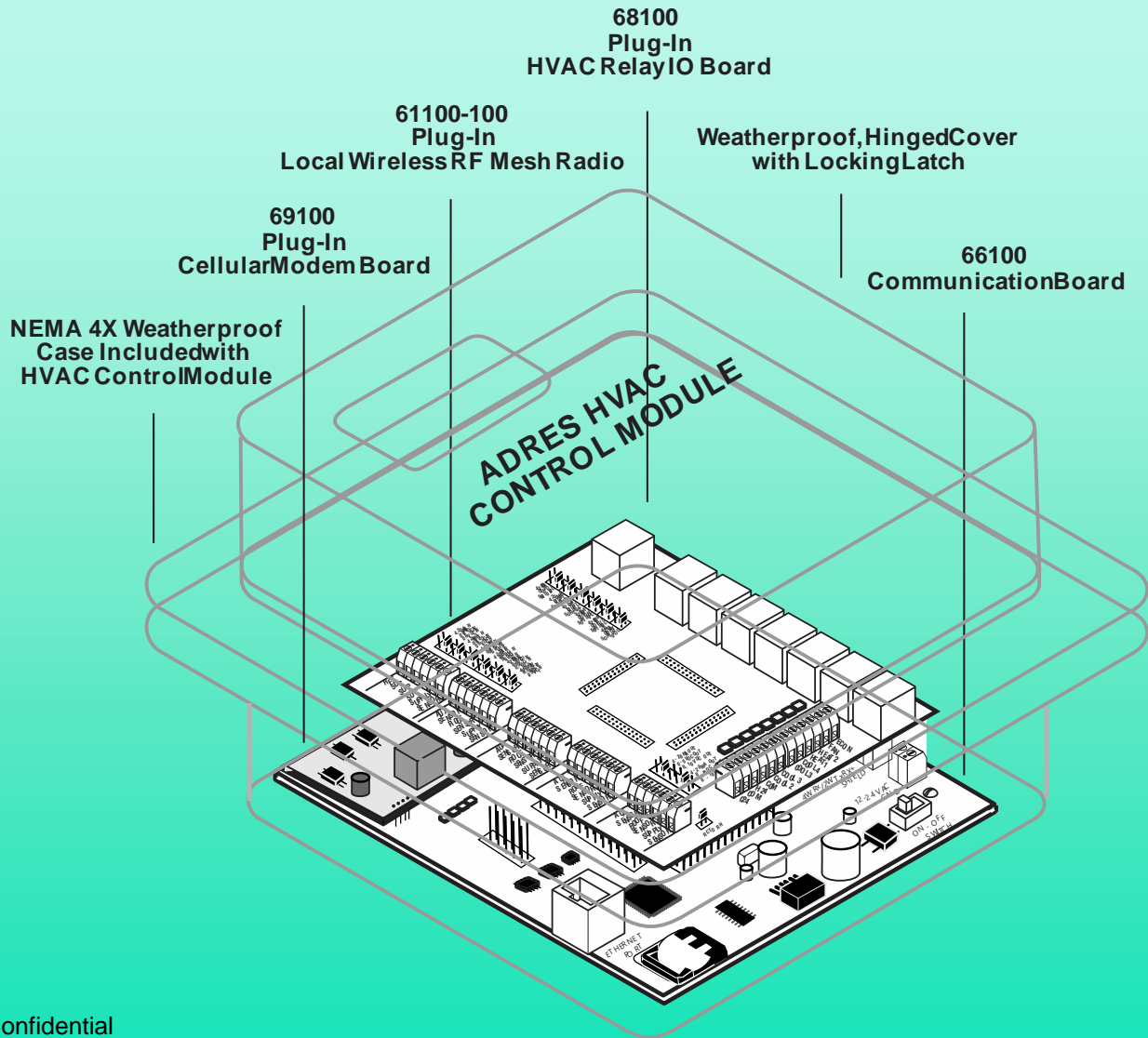


ADRES

Automated Demand Response
and Energy Savings Solution

City of Lancaster Project Guaranteed Savings Project

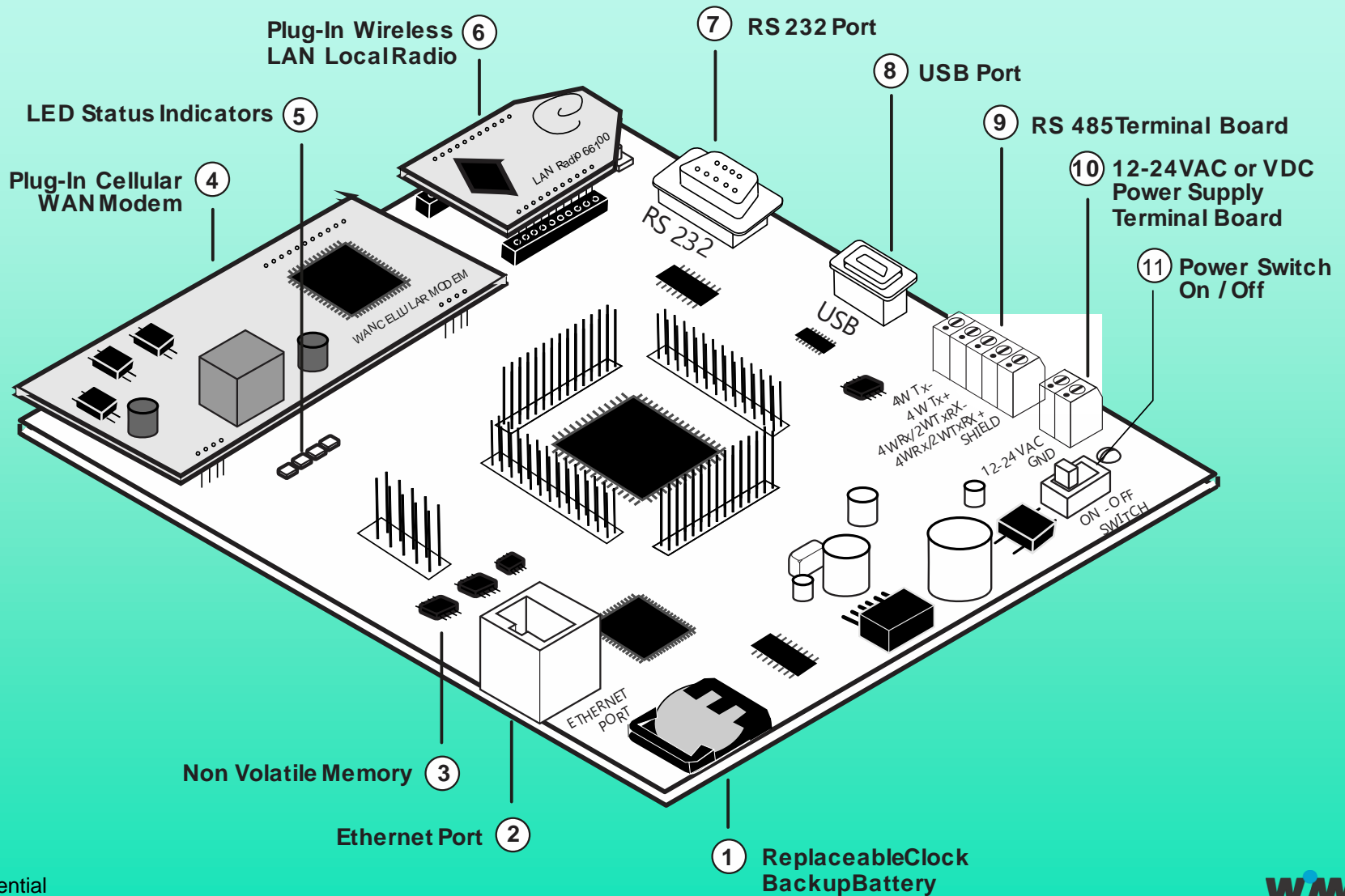




ADRES Communication Board Capabilities:

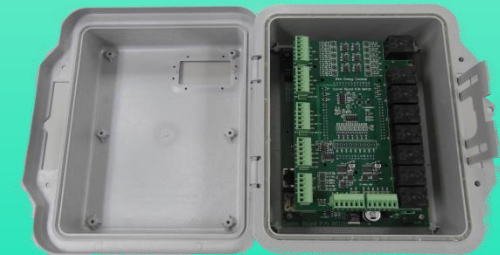
- 32 Bit Microcontroller, Surface Mounted – USA Mfg. / USA Built (Arizona Plant).
- RTOS - Custom Real Time Operating System - No Linux or Open Source Code
- Hardwired Ethernet
- Hardwired RS232
- Hardwired USB
- Hardwired RS485 2 or 4 wire jumper selectable
- Optional LTE Cellular (FIPS140 Compliant)
- Optional Fiber Optic
- Satellite GPS Time and Location
- Optional LCD Display
- Battery Backed Real Time Clock
- 1 Plus Year Data Storage in 15 Minute Increments with Day, Date, Time Stamp
- Over-the-air firmware update capability
- Plugin Relay IO Expansion Board
- Remotely accessible Power On/Off to peripherals
- Optional Video Camera
- Custom Sensor Integration
- Other custom configurations available





ADRES Relay, Input and Output Control Board Capabilities

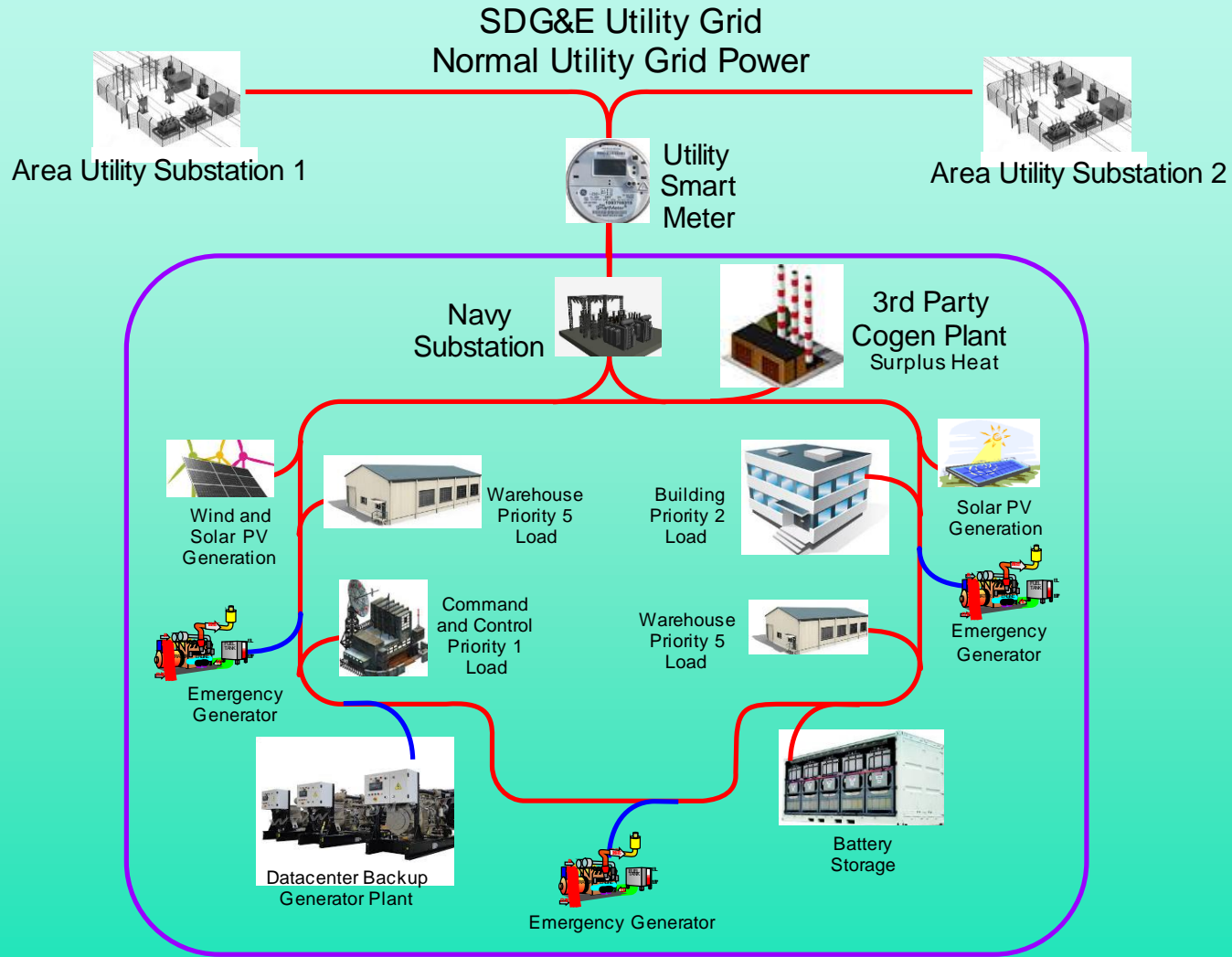
- Eight (8) Form C pilot relays (Contacts rated 10 Amp 250 VAC)
- Two (2) Analog Outputs - Jumper Selectable for 0-5 VDC, 0-10 VDC or 4-20 MA.
- Eight (8) Analog Inputs - Jumper Selectable for 0-5 VDC, 0-10 VDC or 4-20 MA.
- Eight (8) Digital Inputs
- Eight (8) Digital Outputs - Open Collector
- Three (3) Sub-meter Inputs - Pulse Counting
- Custom Configurations Available
- Optimized Control Logic for each Pre-Defined Application
 - Generator
 - Lift Station
 - Utility Grid Recloser
 - Cap Bank Control
 - Breaker and Switchgear Control
 - Chiller
 - Boiler
 - HVAC RTU
 - HVAC Air Handler
 - HVAC VAV Box
 - Solar and Battery Storage
 - Wind Turbine
 - Solar Thermal



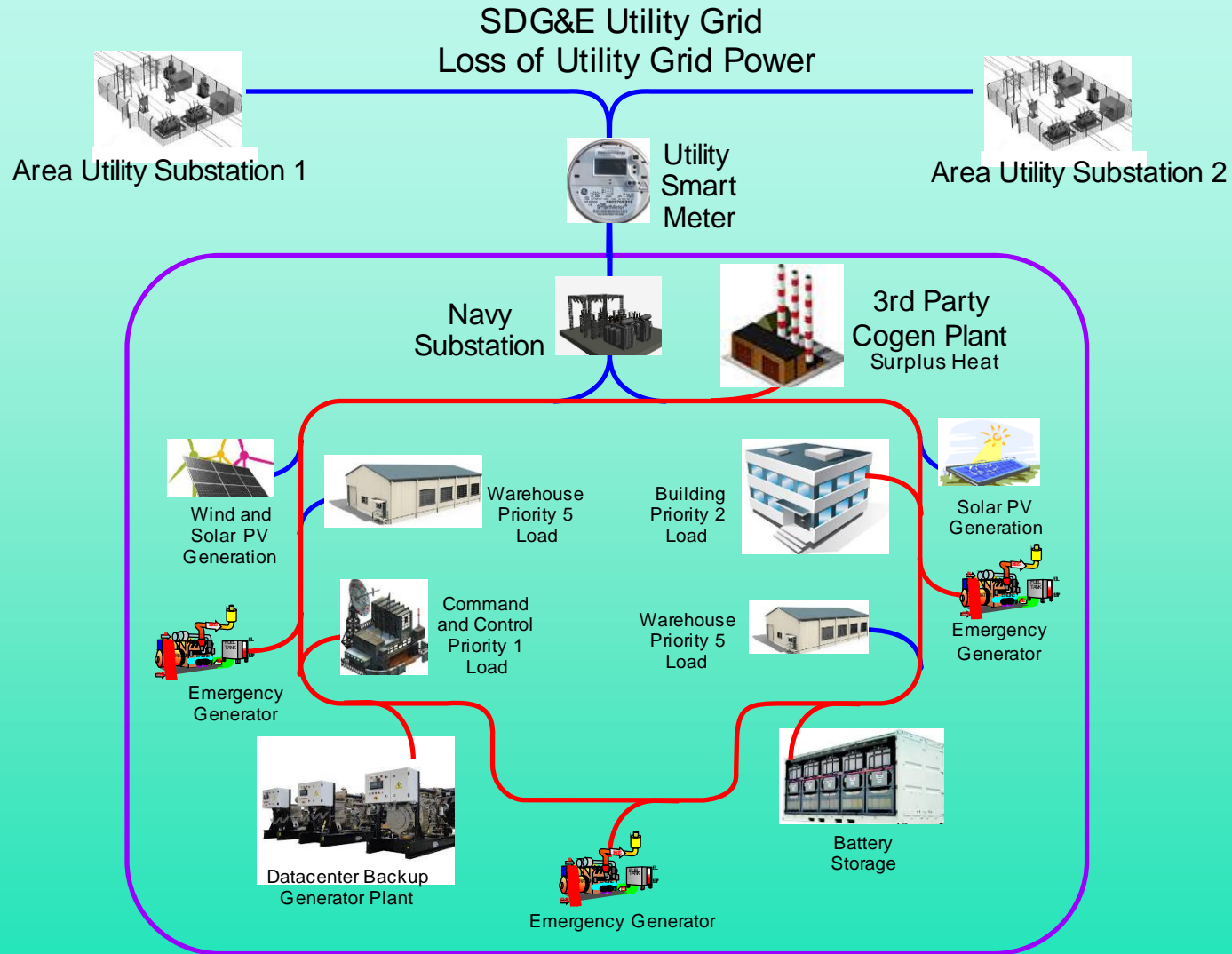
ADRESpro Application Program Server and Web Interface

- Microsoft 2012R2 Server based Operating System.
- Microsoft Sql Server Database Compatible.
- ODBC Compliant Application.
- Single downloadable installation file set with User's Guide.
- On-line operator and user training demonstration and tutorials.
- User expandable and configurable.
- Real-time automated M&V reporting.
- Historical data monitoring, logging and reporting.
- Automatic generation of management reports.
- Automatic alarm and alert reporting.
- ADRES Controllers can be used with other HMI software

Navy Base Micro-grid Example Normal Utility Power



Navy Base Micro-grid Example Loss of Utility Power



Map
Reports
Trends
Manage

Welcome, DARYN

Buildings & Units

Filter ▼

- DBM
 - DIALYSIS CENTER
 - SOUTHWEST
 - Dialysis Center 1
 - Generator 1 - Building Backup
 - HOME DEPOT
 - REGION 3
 - Alken SC Distribution
 - Facility Lift Station - Building
 - Generator #1 - Building Backup
 - WEST
 - Ontario CA Distribution
 - Generator #1 - Building Backup**
 - HVAC #1 - Admin North
 - HVAC #2 - Rooftop
 - Lighting #1 - Warehouse
 - LINCOLN UNIVERSITY
 - ALL
 - Central Plant
 - Generator Plant - DR Control

Monitor
Trends
Schedule
Configure
Contact

Unit Details

Generator #1 - Building Backup

START
STOP

Master Switch: AUTO

Battery Volts: 0.0

Ambient Temp: 0.0

Run Hours: N/A

Charge Air Temp: 0.0

Charge Air Pressure: 0.0

Oil Pressure: 0.0

Engine RPM: N/A

Fuel Temp: 0.0

Fuel Pressure: 0.0

Coolant Temp: 0.0

GET READINGS

System Status

System Ready: ●

Gen Running: ●

Common Warning: ○

Common Fault: ○

Latest Reading: 10/1/2018 4:00:00 PM

Coolant Temp: 0.0

Fuel Temp: 0.0

Fuel Pressure: 0.0

Unit Description

Generator Type: KOHLER 250 KW

Controller Type: DEC 3 + NO ANALOG
AVAILABLE FROM ECM

Serial Number: -

Fuel Type: Diesel

Bldg Number: Ontario CA Distribution

Address: 5655 Ontario Mills Parkway
ONTARIO, CA 91765

Alarm
Service
Performance

Alarms/Service

Start Time	Priority	Alarm Description	Status	Acknowledged By	End Time	Alarm Duration
10/1/2018 1:09:00 PM	1	Generator Running	False		10/1/2018 1:29:00 PM	20 Min
10/1/2018 1:09:00 PM	1	Common Fault	False		10/1/2018 1:29:00 PM	20 Min
10/1/2018 1:09:00 PM	1	Master Switch Not In Auto Warning	False		10/1/2018 1:29:00 PM	20 Min
9/26/2018 10:10:00 AM	1	Generator Running	False		10/1/2018 1:29:00 PM	5 Days, 3 Hrs, 19 Min
9/26/2018 10:10:00 AM	1	Common Fault	False		10/1/2018 1:29:00 PM	5 Days, 3 Hrs, 19 Min
9/26/2018 10:10:00 AM	1	Master Switch Not In Auto Warning	False		10/1/2018 1:29:00 PM	5 Days, 3 Hrs, 19 Min
9/4/2018 8:44:00 AM	1	Common Fault	False		10/1/2018 1:29:00 PM	27 Days, 4 Hrs, 45 Min
9/4/2018 8:44:00 AM	1	Master Switch Not In Auto Warning	False		10/1/2018 1:29:00 PM	27 Days, 4 Hrs, 45 Min
8/14/2018 6:58:00 AM	1	Common Fault	False		10/1/2018 1:29:00 PM	48 Days, 6 Hrs, 31 Min

Map
Reports
Trends
Manage

Welcome, STEVE

Buildings & Units Filter ▼

- [-] EES Development
 - [-] MCDONALDS
 - [-] HAWAII
 - [-] McDonalds Nimitz Highway
 - Generator - Store Backup
 - HVAC #1 - Dining Room Front
 - HVAC #2 - Dining Room Back
 - HVAC #3 - Kitchen
 - Lighting #5 - Indoor and Outdoor Li
 - [-] McDonalds North Nimitz Highway
 - HVAC #1 - East Dining Room
 - HVAC #2 - West Dining Room
 - HVAC #3 - Kitchen
 - HVAC #4 - Store Room
 - [-] McDonalds Waiialua
 - HVAC #1 - Kitchen, Rear
 - HVAC #2 - Front Counter
 - HVAC #3 - Central Dining Room
 - HVAC #4 - Front Dining Room
 - Lighting #5 - Facility Lights

Lighting
Monitor
Trends
Schedule
Configure
Contacts

Control Mode: Program

Override Hours: Hours

Override Minutes: Minutes

Select One or More Zones

Zone 1

Zone 5

Zone 2

Zone 6

Zone 3

Zone 7


Zone 4

Zone 8

All Zones

UPDATE SETTINGS

Lighting #5




Zone 1

Dining Room East

Status ON

Mode PROGRAM

Dr




Zone 2

Dining Room Front

Status ON

Mode PROGRAM

Dr




Zone 3

Dining Room Rear

Status ON

Mode PROGRAM

Dr




Zone 4

Kitchen

Status ON

Mode PROGRAM

Dr




Zone 5

Outdoor Signage

Status ON

Mode PROGRAM

Dr




Zone 6

Outdoor Parking

Status ON

Mode PROGRAM

Dr




Zone 7

Outdoor Security

Status ON

Mode PROGRAM

Dr



Zone 8

Manager Office

Status ON

Mode PROGRAM

Dr

Demand Response Status No Utility Controls

Latest Reading: 5/24/2018 2:44:53 PM

GET READINGS


Alarm
Service
Performance

Alarms/Service

Perform

New	Lighting Control	Service Area	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Zone 6		Zone 7		Zone 8		Reading Time
			On/Off Status	Control Mode	On/Off Status	Control Mode	On/Off Status	Control Mode	On/Off Status	Control Mode	On/Off Status	Control Mode	On/Off Status	Control Mode	On/Off Status	Control Mode	On/Off Status	Control Mode	
■		22 Indoor and Outdoor Lighting	ON	P	ON	P	ON	P	ON	P	ON	P	ON	P	ON	P	ON	P	5/24/2018 2:44 PM

Confidential



Map
Reports
Trends
Welcome

Buildings & Units Filter ▼

- Adres Pro Demo
 - SURF SUPPLY CO
 - SAN DIEGO CA
 - Shop #2
 - APM802 - Office Bench
 - Generator DEC3+ - Parking Lot
 - HVAC - Shop
 - Lighting - All
 - Unit Types
 - Air Handler #1 - Area-C
 - Boiler #1 - Area-B
 - Chiller #1 - Area-A
 - Kohler APM802 - Loading Dock
 - Lighting - Outdoor Main
 - Lift Station #1 - Area-A**
 - Pump Jack - Area-B
 - Solar Thermal - D
 - VAV #1 - Area-D
 - Wind Turbine - Backyard

Monitor
Trends
Schedule
Configure
Contacts

Control Mode Off ▼

Duration Hours 0 ▼

Duration Minutes 0 ▼

Start Hour 0 ▼

Start Minute 0 ▼

[UPDATE SETTINGS](#)

STOP

GET READINGS

Selected Unit Lift Pump 1

Ambient Temp 0

High Alarm Level 0

Low Alarm Level 0

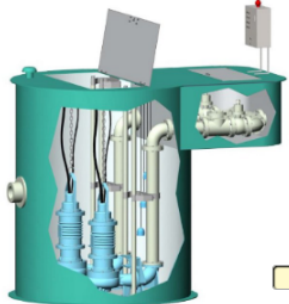
Minimum Flow Alarm 0

Motor KW 0

Motor Volts 0

Motor Amps 0

Breaker CLOSED



0 Level (Inches)

0 Flow (gpm)

0 Pressure (psig)

0 Run Hours

Unit Type Lufkin 30 KW

Alarm Status No Alarms

Demand Response Status No Utility Controls

Alarm
Service

Alarms/Service

Start Time	Priority	Alarm Description	Status	Acknowledged By	End Time	Alarm Duration
No data to display						

Map Reports Trends Manage
Welcome, STEVE

Buildings & Units Filter

- EES Development
 - MCDONALDS
 - HAWAII
 - McDonalds Nimitz Highway
 - Generator - Store Backup
 - HVAC #1 - Dining Room Front
 - HVAC #2 - Dining Room Back
 - HVAC #3 - Kitchen
 - Lighting #5 - Indoor and Outdoor Light
 - McDonalds North Nimitz Highway
 - HVAC #1 - East Dining Room
 - HVAC #2 - West Dining Room
 - HVAC #3 - Kitchen
 - HVAC #4 - Store Room
 - McDonalds Waiialua
 - HVAC #1 - Kitchen, Rear
 - HVAC #2 - Front Counter
 - HVAC #3 - Central Dining Room
 - HVAC #4 - Front Dining Room
 - Lighting #5 - Facility Lights

Monitor Trends Schedule Configure Contact

Unit Details

H/C Control: Cool Only

Indoor Fan Mode: Auto

Fan Speed: 100%

Temp Mode: Program

Setpoints: Cool 70, Heat 60

All Units UPDATE SETTINGS

Rooftop Temp: 85

Mixed Temp: 20

Economizer % Open: 0

Return Temp: 78

HVAC - Proshop

Supply Temp: 62

Fan Speed: 100

Room Temp: 77

Room Humidity %: N/A

Unit Type: Gas/Electric

Demand Response Status: Utility Control

GET READINGS

Latest Reading: 10/1/2018 12:15:00 PM

Alarm Service Performance

Alarms/Service

Perform

New	Unit Description	Service Area	Room Temp	Supply Temp	Roof Temp	Heat Set Point	Cool Set Point	Heat Stage1	Heat Stage2	Heat Energy Recovery	Cool Stage1	Cool Stage2	Cool Energy Recovery	Cool Energy Recovery2	Fan Status	Reading Time
■	HVAC	Proshop	77.0	62.0	85.0	60.0	70.0	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	10/1/2018 12:15 PM

Readings | Reports | Control | Options

Latest HVAC Readings for Buildings and Units - ADRES 10.192.225.50 - HVAC #1 - Front Office

Buildings and Units

- ADRES 10.192.225.50
 - HVAC #1 - Front Office**
 - Ruby Millilani
 - HVAC #1 - Dining East
 - HVAC #2 - Dining West
 - Electric Meter -
 - Ruby Millilani (ADRES)
 - HVAC #1 - Dining East
 - HVAC #2 - Dining West
 - Electric Meter -
 - Ruby Moanalua
 - HVAC #1 - Dining East
 - HVAC #2 - Dining West
 - HVAC #3 - Kitchen
 - HVAC #4 - Kitchen
 - Electric Meter -
 - Ruby Moanalua (ADRES)
 - HVAC #1 - Dining East
 - HVAC #2 - Kitchen / Food Line
 - HVAC #3 - Kitchen / Office
 - HVAC #4 - Dining West
 - Electric Meter -
 - Ruby Piilani
 - HVAC #1 -
 - HVAC #2 -

Transmit Options

Set New Program

Show Current Program

Send Program

Back to Main

Set Time / Temperature Program Schedule

Select Program

Day Selection: Program Time: 08 : 00 AM Heat Set Point: 68 Cool Set Point: 73

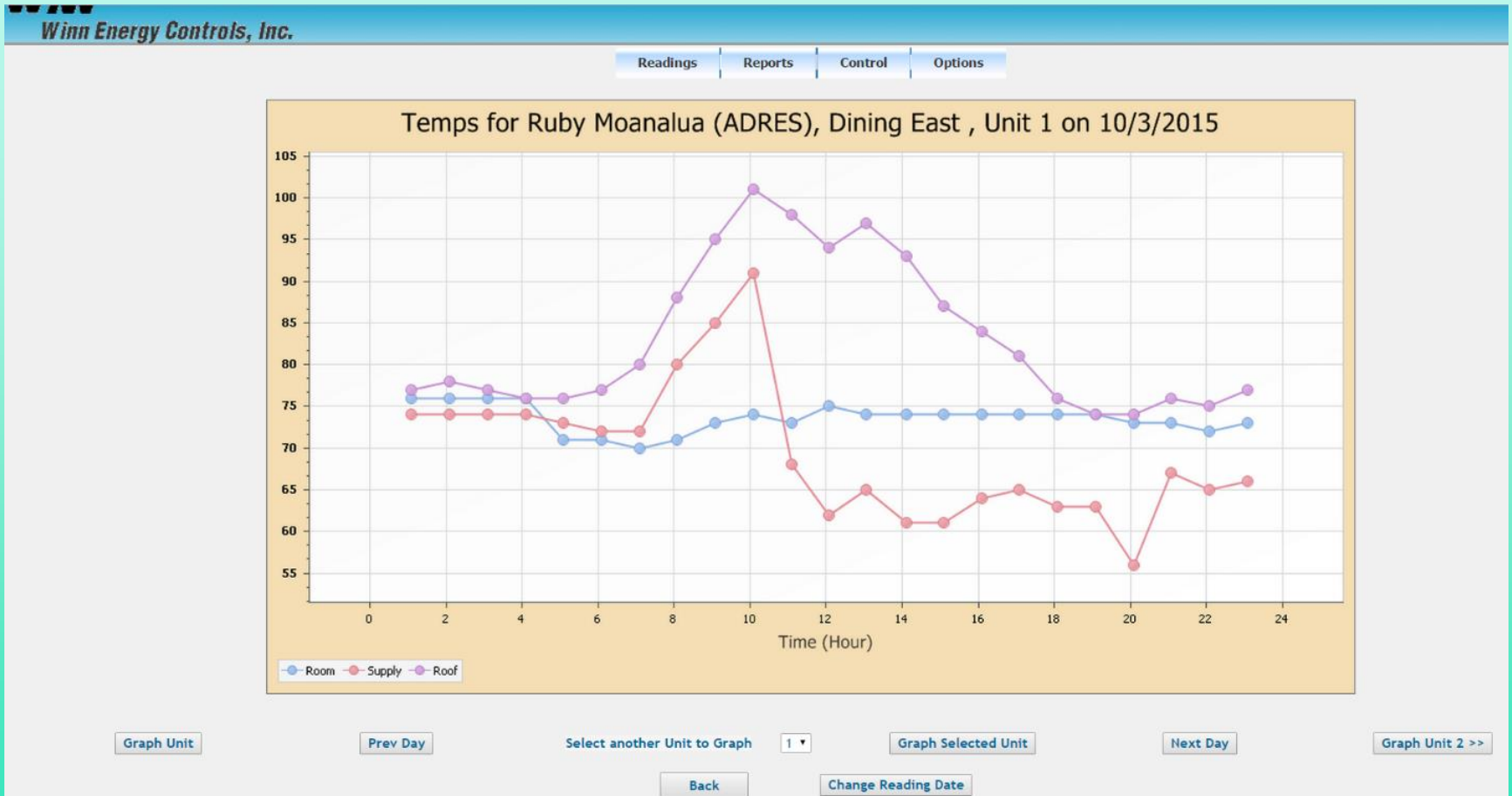
Program	Day	Program Time	Heat Set Point	Cool Set Point
<input checked="" type="radio"/> Program 1	M	08:00 AM	68	73
<input type="radio"/> Program 2	M	11:00 AM	68	73
<input type="radio"/> Program 3	M	05:00 AM	68	73
<input type="radio"/> Program 4	M	10:10 PM	55	85

Select Days: All Days Weekdays Weekends Clear

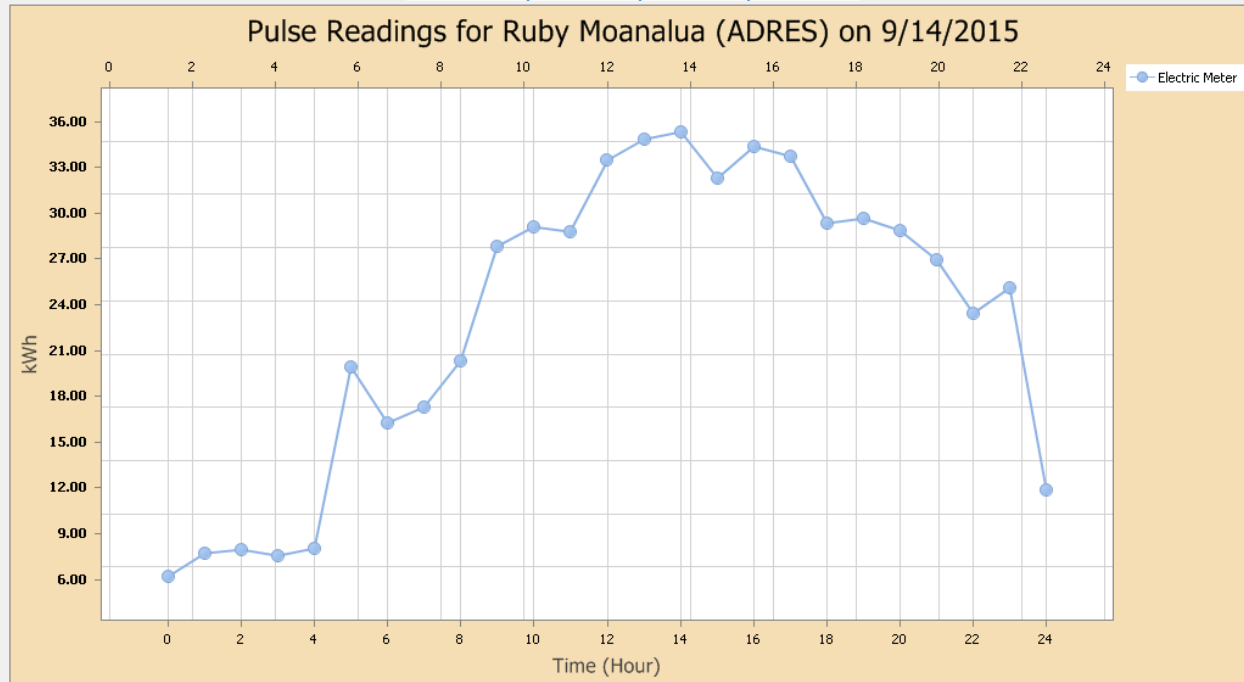
Monday
 Tuesday
 Wednesday
 Thursday
 Friday
 Saturday
 Sunday

Weekly Time / Temperature Program Schedule

Day	Program 1 Time	Heat Set Point	Cool Set Point	Program 2 Time	Heat Set Point	Cool Set Point	Program 3 Time	Heat Set Point	Cool Set Point	Program 4 Time	Heat Set Point	Cool Set Point
Monday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:10 PM	55	85
Tuesday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:10 PM	55	85
Wednesday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:10 PM	55	85
Thursday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:10 PM	55	85
Friday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:10 PM	55	85
Saturday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:00 PM	55	85
Sunday	08:00 AM	68	73	11:00 AM	68	73	05:00 AM	68	73	10:00 PM	55	85



Readings | Reports | Control | Options



Previous Day | Back | Next Day

Readings Reports Control Options				
Channel	Description	Reading	Pulses	Reading Time
1	Electric Meter	387,646.1 kWh	63,548,541	10/3/2015 12:00 AM
1	Electric Meter	387,647.1 kWh	63,548,700	10/3/2015 12:15 AM
1	Electric Meter	387,647.7 kWh	63,548,799	10/3/2015 12:30 AM
1	Electric Meter	387,648.7 kWh	63,548,966	10/3/2015 12:45 AM
1	Electric Meter	387,649.3 kWh	63,549,058	10/3/2015 1:00 AM
1	Electric Meter	387,650.3 kWh	63,549,224	10/3/2015 1:15 AM
1	Electric Meter	387,650.8 kWh	63,549,316	10/3/2015 1:30 AM
1	Electric Meter	387,651.8 kWh	63,549,483	10/3/2015 1:45 AM
1	Electric Meter	387,652.4 kWh	63,549,575	10/3/2015 2:00 AM
1	Electric Meter	387,653.4 kWh	63,549,738	10/3/2015 2:15 AM
1	Electric Meter	387,654.1 kWh	63,549,853	10/3/2015 2:30 AM
1	Electric Meter	387,655.2 kWh	63,550,040	10/3/2015 2:45 AM
1	Electric Meter	387,655.8 kWh	63,550,131	10/3/2015 3:00 AM
1	Electric Meter	387,656.8 kWh	63,550,299	10/3/2015 3:15 AM
1	Electric Meter	387,657.4 kWh	63,550,390	10/3/2015 3:30 AM
1	Electric Meter	387,658.4 kWh	63,550,558	10/3/2015 3:45 AM
1	Electric Meter	387,659.2 kWh	63,550,682	10/3/2015 4:00 AM
1	Electric Meter	387,662.7 kWh	63,551,265	10/3/2015 4:15 AM
1	Electric Meter	387,666.1 kWh	63,551,814	10/3/2015 4:30 AM
1	Electric Meter	387,668.4 kWh	63,552,189	10/3/2015 4:45 AM

[Back to Selection](#)

[Graph](#)

[Report Preview](#)

[PDF Report](#)

[Get Current Reading](#)

[Export to Excel](#)

Readings | Reports | Control | Options

Select the Report and Filtering

Select Report: M&V for Ruby Moanalua ADRES Unit 1

Baseline Range
Starting Date [mm/dd/yyyy] (Leave both blank if no range)
Ending Date [mm/dd/yyyy]

Post Range
Starting Date [mm/dd/yyyy] (Leave both blank if no range)
Ending Date [mm/dd/yyyy]

Occupied Time
Show Only Results between the Time Frame
 Use Time Filtering
Starting Time: 7:00 AM
Ending Time: 5:00 PM

Heat/Cool SetPoints
Show Only Results using the SetPoints
 Use SetPoint Filtering
Heat SetPoint (incl. if Heat SetPoint is greater than) 65
Cool SetPoint (incl. if Cool SetPoint is less than) 78

Summary Rpt | Detail Rpt | Back | Graph

Energy Savings Report Detail (HVAC)

Building: Ruby Moanalua (ADRES)

Building Status: All

Unit:

Select Days: All

Select Time: All

Baseline Range: 9/8/2015 12:00:00 AM to 9/12/2015
12:00:00 AM

PostRetro Range: All

M&V for Ruby Moanalua ADRES Unit 1

Baseline Performance Data							Post Retrofit Performance Data					Read Details	
Total Bin Hours	Energy Consumption (kWh Avg)	Room Temperature (Deg F Avg)	Supply Temperature (Deg F Avg)	Return Temperature (Deg F Avg)	Delta Temp (Supply - Return) (Deg F Avg)		Total Bin Hours	Energy Consumption (kWh Avg)	Room Temperature (Deg F Avg)	Supply Temperature (Deg F Avg)	Return Temperature (Deg F Avg)	Delta Temp (Supply - Return) (Deg F Avg)	Reading Date
72	0.25	7.4	71.0	15.0	17.8	-2.75							9/11/2015 3:15 PM
73	0.75	24.4	72.0	47.0	54.0	-7.00							9/11/2015 4:00 PM
73	0.25	8.6	72.0	16.0	18.0	-2.00							9/11/2015 4:15 PM
78	0.75	24.7	71.0	51.0	53.3	-2.25							9/11/2015 5:00 PM
78	0.25	7.7	71.0	17.0	17.8	-0.75							9/11/2015 5:15 PM
76	0.75	22.5	71.0	51.0	53.3	-2.25							9/11/2015 6:00 PM
76	0.25	8.0	71.0	17.0	17.8	-0.75							9/11/2015 6:15 PM
85	0.75	24.0	72.0	53.0	54.0	-1.00							9/11/2015 7:00 PM
85	0.25	8.0	72.0	18.0	18.0	0.00							9/11/2015 7:15 PM
84	0.75	23.0	72.0	53.0	54.0	-1.00							9/11/2015 8:00 PM
84	0.25	7.3	72.0	18.0	18.0	0.00							9/11/2015 8:15 PM
73	0.75	22.4	73.0	47.0	54.8	-7.75							9/11/2015 9:00 PM
73	0.25	7.3	73.0	16.0	18.3	-2.25							9/11/2015 9:15 PM
72	0.75	20.1	73.0	47.0	54.8	-7.75							9/11/2015 10:00 PM
72	0.25	7.3	73.0	16.0	18.3	-2.25							9/11/2015 10:15 PM
73	0.75	17.4	72.0	47.0	54.0	-7.00							9/11/2015 11:00 PM
73	0.25	1.8	72.0	16.0	18.0	-2.00							9/11/2015 11:15 PM
72	0.75	6.3	71.0	47.0	53.3	-6.25							9/12/2015 12:00 AM
71							0.75	8.1	71.0	46.5	53.3	-6.75	9/15/2015 12:00 AM
71							0.25	2.0	71.0	15.5	17.8	-2.25	9/15/2015 12:15 AM
75							0.75	6.8	71.0	51.8	53.3	-1.50	9/15/2015 1:00 AM
75							0.25	2.2	71.0	17.3	17.8	-0.50	9/15/2015 1:15 AM
76							0.75	6.7	73.0	53.3	54.8	-1.50	9/15/2015 2:00 AM
76							0.25	2.4	73.0	17.8	18.3	-0.50	9/15/2015 2:15 AM
79							0.75	6.9	76.0	57.0	57.0	0.00	9/15/2015 3:00 AM

Energy Savings Report (HVAC)

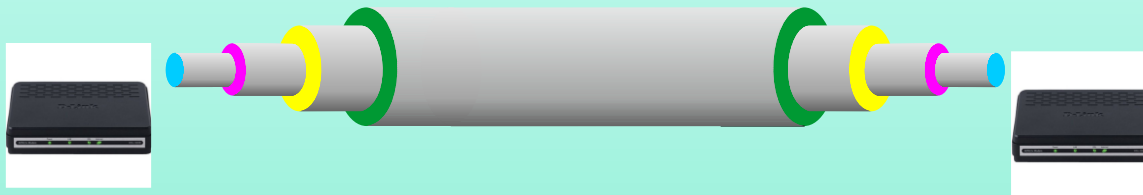
M&V for Ruby Millilani

Filtering Criteria	
Building Status: All	Baseline Range: All
Select Days: All	Post Range: 7/1/2015 to 8/1/2015
Select Time: All	

Ambient Temp (BIN)	Baseline Performance Data						Post Retrofit Performance Data						Resulting Energy Saved			
	Total Bin Hours	Energy Consumption (KWh Avg)	Room Temperature (Deg F Avg)	Supply Temperature (Deg F Avg)	Return Temperature (Deg F Avg)	Delta Temp (Supply - Return) (Deg F Avg)	Total Bin Hours	Energy Consumption (KWh Avg)	Room Temperature (Deg F Avg)	Supply Temperature (Deg F Avg)	Return Temperature (Deg F Avg)	Delta Temp (Supply - Return) (Deg F Avg)	Efficiency Improvement	Energy Saved (KWh Avg)	Total Post Retroft Hours	Total KWh Saved
0 - 4																
5 - 9																
10 - 14																
15 - 19																
20 - 24																
25 - 29																
30 - 34																
35 - 39																
40 - 44																
45 - 49																
50 - 54																
55 - 59																
60 - 64	9.00	6.3	70.6	67.0	70.6	-3.56	7.00	0.1	72.6	68.0	72.6	-4.57	4,769 %	6.2	7.00	43
65 - 69	62.00	6.9	71.5	68.0	71.5	-3.47	66.00	1.2	74.2	113.3	74.4	38.82	490 %	5.7	66.00	378
70 - 74	33.00	16.1	72.3	60.0	72.3	-12.33	169.50	6.8	74.9	166.5	75.0	91.44	138 %	9.4	169.50	1,585
75 - 79	15.00	20.4	71.9	62.0	71.9	-9.87	88.00	14.1	75.1	180.1	75.1	105.09	45 %	6.4	88.00	559
80 - 84	26.00	20.3	72.0	67.0	72.0	-4.96	65.75	16.9	75.3	179.1	75.3	103.76	20 %	3.5	65.75	227
85 - 89	34.00	23.0	72.1	70.0	72.1	-2.09	64.00	16.8	74.8	156.8	74.9	81.82	37 %	6.3	64.00	400
90 - 94	11.00	23.9	71.4	81.0	71.4	9.64	78.00	14.5	74.5	144.9	74.8	70.10	66 %	9.5	78.00	739
95 - 99							30.00	13.8	74.4	182.2	74.4	107.77				
100-104							4.00	11.8	74.8	203.0	74.8	128.25				
105-109																
110-114																
115-119																
Totals	190	117.0					572	95.8						538.25		3,931


- Meets DOD RMF Cyber Security Requirements
- Only WEC to Carrier Point-to-Point connection, no commercial servers. Identical to current Point-to-Point T1 lines and backhaul.
- Carrier Point-to-Point connection between WEC SCADA CISCO ASA and Carrier.
- End Point Digital LTE Modem meets FIPS140 requirements.
- Only Modem Private non public routable IP Pool.
- M-to-M traffic isolated and segregated on digital LTE Cellular Network.
- LTE Modems managed by WEC Network Administrators only.
- Bulk Airtime Pricing.

Digital LTE Point to Point Connection DOD RMF Cyber Secure Compliant



IP Connection Between DOD Server and Remote LTE Server, Laptop or ADRES or ADRES Sentry to PLC.

1. All communication is end-to-end Private Network
2. All LTE HMI and LTE PLCs have Private Ips.
3. IP Socket connection Initiated by Either Server, Remote LTE HMI or Remote LTE ADRES Controller.
4. Sending Request initiated using VPN Tunnel through Point-to-Point T1.
5. Connection in conformance with IPsec Standards.
6. Response using 509 Certificate Authentication (Rolling Keys).
7. Once connection established, communication encryption is described below:

-  **First level security - LTE 16/32 bit Encryption**
-  **Second level security - AES 256 bit Encryption**
-  **Third level security - IPsec with Keys**
-  **Fourth level security - RTOS on Host Micro**

- **Typical 1-2 Year Return on Investment with implementation of the “Wireless” ADRES automated demand response and energy savings solution.**
- **Remote access via web browser, server or PC Computer to buildings for real-time or historical electric, gas and water consumption.**
- **Integrated alarm reporting system for end device controlled equipment including heating and air conditioning equipment, lighting and critical building and utility energy usage parameters.**
- **Modular and expandable platform for future growth applications.**
- **Database and trend analysis of equipment and performance.**
- **Optimum scheduling of equipment service based on actual equipment run hours.**



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