William Petersen

William (Bill) Petersen has been in the power industry for approximately fourteen years as the Compliance Manager for the facility he represents. He currently is the Compliance Manager at the Temple Power Station where his primary duties are to ensure compliance with environmental and power industry regulations (NERC, PUCT, ERCOT, etc.). He is designated the weather readiness coordinator and ensures the facility's readiness for the respective season.

Prior to Temple, he served the same role for four years at the Sandy Creek Energy Station in Riesel, TX. Other prior professional experience includes ten years at the Texas Commission on Environmental Quality as an Environmental Investigator and Emergency Responder.

Bill graduated from Baylor University and still resides outside of Waco, TX. He has been married for twenty-three years and has two children in high school with one entering college next year at the University of Arkansas.

Temple Power Station

SUMMER WEATHER BEST PRACTICES

2024 ERCOT SUMMER WEATHER WORKSHOP

Outline

1. Temple Power Station Overview
2. Seasonal Readiness Procedure
3. iMonnit system overview
4. Shade Protection
5. HVAC Inspections/Monitoring
6. GSU Transformer supplemental cooling

Facility Overview

Temple Power Station consists of two 2 on 1 combined cycle power blocks located in Temple, Texas.

Temple Power Station Highlights

- Temple I Power Block is owned by Temple Generation I, LLC
- Temple II Power Block is owned by Temple Generation II, LLC.
- Each Block uses reclaim water for cooling tower makeup.
- The facility is a “zero liquid discharge” facility.
- Each facility utilizes wet compression to increase the summer net MW capacity
- Heat Trace system designed to º15F with a wind speed of 15mph.
- Facility summer design capacity is º110F.

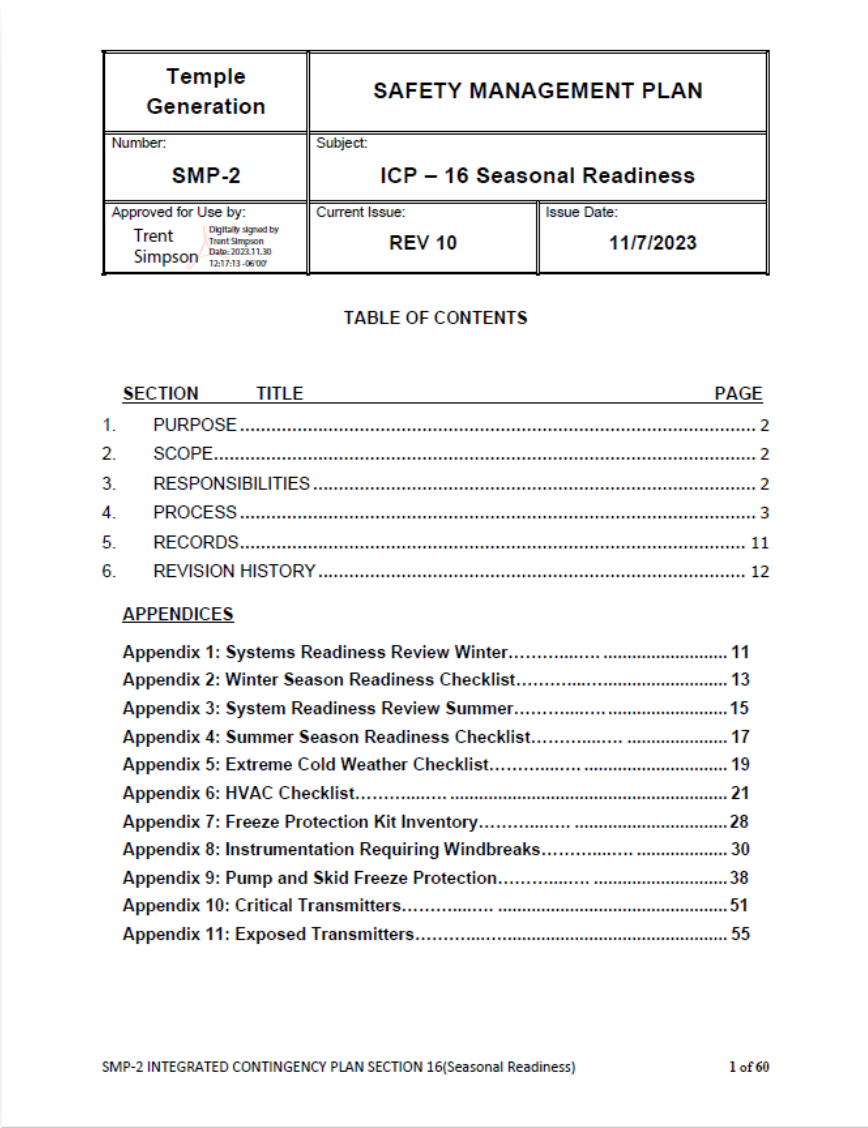
Facility Location Within ERCOT

Facility Overview

Location	▪ Bell County, TX
Market Area	▪ ERCOT North
Design Capacity (MW)	▪ Approximately 759 MW
COD	▪ July 2014 and May 2015
Key Equipment	▪ 4 Siemens Model SGT6-5000F CTs. ▪ 4 Benson Heat Recovery Steam Generators ▪ 2 Siemens SST6-5000 Steam Turbines
Fuel	▪ Natural Gas
Electronic Interconnection	▪ Oncor 345 kV Knob Creek Substation
Water Supply	▪ City of Temple, TX

Seasonal Readiness Procedure

- **Key Components**
  - Personnel Training **§25.55(c)(2)(D)**
  - Confirm water supply **§25.55(c)(2)(A)(i) and (ii)**
  - Ensure adequate chemical inventory/supply chain **§25.55(c)(2)(A)(iv)**
  - Stage additional fans/coolers as needed **§25.55(c)(2)(A)(iii)**
  - System Walkdowns
    - Windwall removal verification
    - Verify cooling system operation **§25.55(c)(2)(A)**
    - Ensure proper ventilation of all equipment
  - HVAC Inspections and Monitoring **§25.55(c)(2)(A)(vi)**
    - Inspections conducted by plant personnel and followed by a third party **§25.55(c)(2)(A)(v)**
      - Motor Control Centers
      - Various cabinets (i.e. NH3 dilution fans, etc.)
    - Monitored through operator rounds and iMonnit system **§25.55(c)(2)(A)(vi)**
  - Summer Weather Checklists **§25.55(c)(2)(A)**
- Procedural Improvements since initial draft
  - Annual review of critical component list **§25.55(c)(2)(E)**

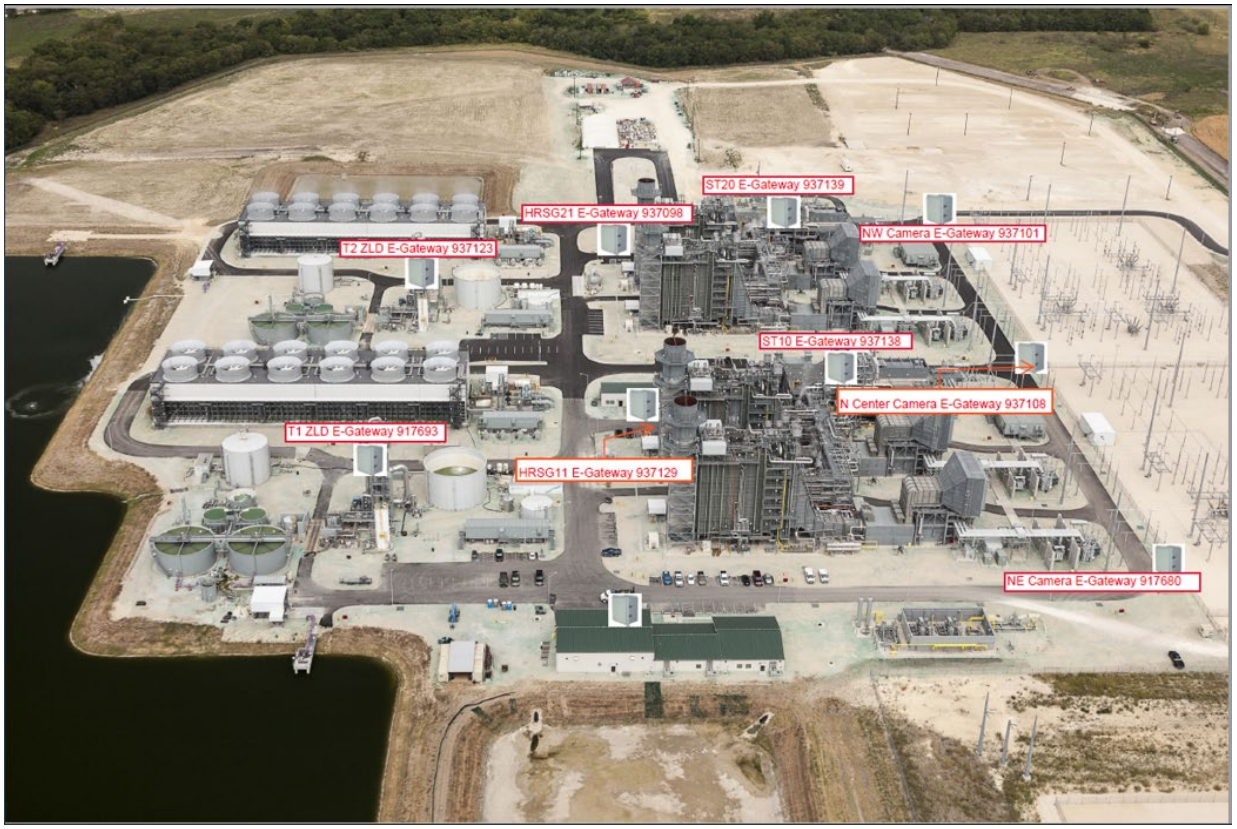


Temple Generation	SAFETY MANAGEMENT PLAN	
Number: SMP-2	Subject: ICP – 16 Seasonal Readiness	
Approved for Use by: Trent Simpson (Digitally signed by Trent Simpson Date: 2023.11.30 12:17:13 -06'00')	Current Issue: REV 10	Issue Date: 11/7/2023

TABLE OF CONTENTS

iMonnit System Overview

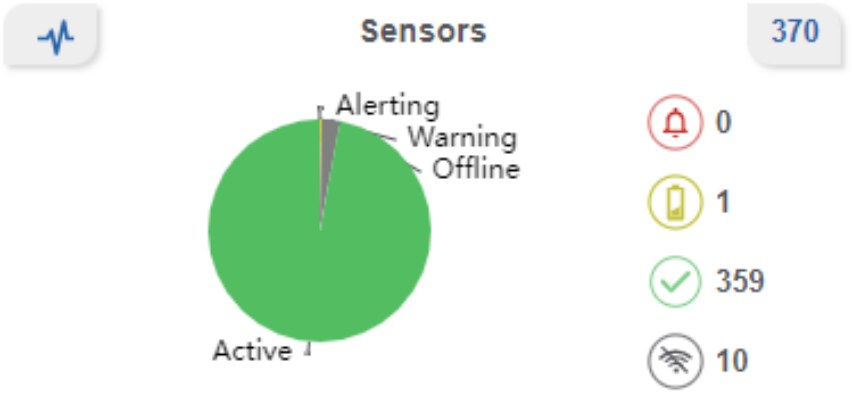
- **Top/Down Equipment description**
  - Network Requirements
    - Cellular
    - Wifi (Mesh system)
  - Ethernet Gateways
  - Temperature Sensors
    - AA 3.6v lithium battery
    - Frequency Hopping Spread Spectrum (FHSS) 900MHz.
  - Estimated equipment cost for 320 sensors and 11 gateways was approximately $62K.

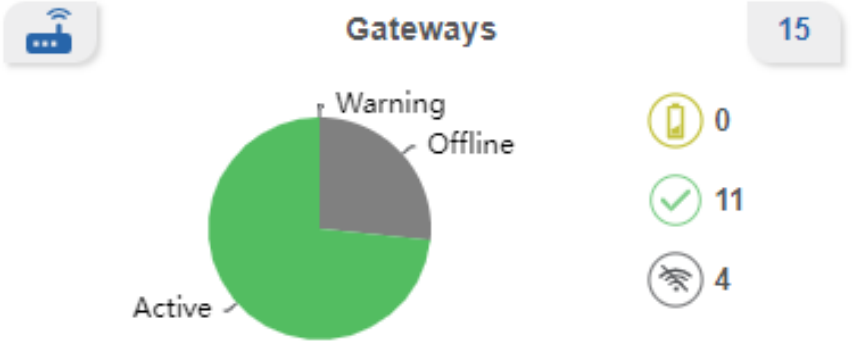


iMonnit System Platform

System Design

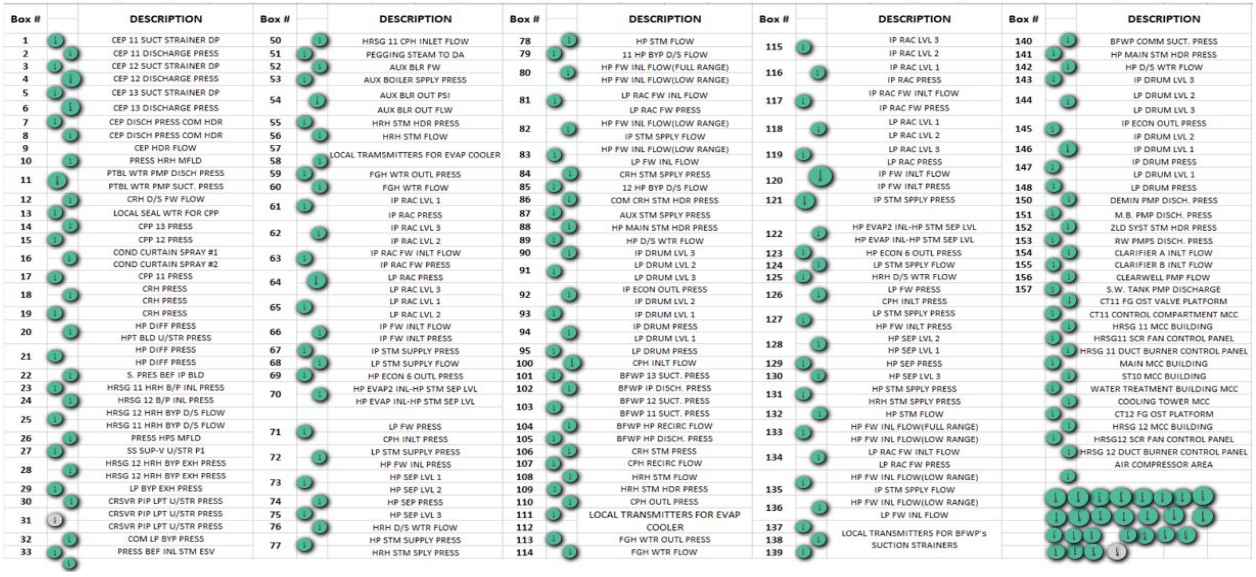
- Mesh System
  - Independent of business network
  - Setup behind its own firewall
  - iMonnit Portal
- Web-based Interface
- Annual subscription is approx. $600 for up to 500 sensors
- Subscription allows facility to poll each sensor every 10 minutes
  - One-minute polling option for extra cost.
- Interface allows:
  - User to import maps
  - Make global or individual changes to sensor settings
  - Trend sensor data
  - View battery life and connectivity
  - Creation of event email notifications





iMonnit applications for Summer Reliability §25.55(c)(2)(A)(vi)

TI Sensor Map



Box #	DESCRIPTION
1	CEP 11 SUCT STRAINER DP
2	CEP 11 DISCHARGE PRESS
3	CEP 12 SUCT STRAINER DP
4	CEP 12 DISCHARGE PRESS
5	CEP 13 SUCT STRAINER DP
6	CEP 13 DISCHARGE PRESS
7	CEP DISCH PRESS COM HDR
8	CEP DISCH PRESS COM HDR
9	CEP HDR FLOW
10	PRESS HRH MFLD
11	PTBL WTR PMP DISCH PRESS
	PTBL WTR PMP SUCT. PRESS
12	CRH D/S FW FLOW
13	LOCAL SEAL WTR FOR CPP
14	CPP 13 PRESS
15	CPP 12 PRESS
16	COND CURTAIN SPRAY #1
	COND CURTAIN SPRAY #2
17	CPP 11 PRESS
18	CRH PRESS
	CRH PRESS
19	CRH PRESS
20	HP DIFF PRESS
	HPT BLD U/STR PRESS
21	HP DIFF PRESS
	HP DIFF PRESS
22	S. PRES BEF IP BLD
23	HRSG 11 HRH B/P INL PRESS
24	HRSG 12 B/P INL PRESS
25	HRSG 12 HRH BYP D/S FLOW
	HRSG 11 HRH BYP D/S FLOW
26	PRESS HPS MFLD
27	SS SUP-V U/STR P1
28	HRSG 12 HRH BYP EXH PRESS
	HRSG 12 HRH BYP EXH PRESS
29	LP BYP EXH PRESS
30	CRSVR PIP LPT U/STR PRESS
31	CRSVR PIP LPT U/STR PRESS
	CRSVR PIP LPT U/STR PRESS
32	COM LP BYP PRESS
33	PRESS BEF INL STM ESV

Box #	DESCRIPTION
50	HRSG 11 CPH INLET FLOW
51	PEGGING STEAM TO DA
52	AUX BLR FW
53	AUX BOILER SPPLY PRESS
54	AUX BLR OUT PSI
	AUX BLR OUT FLW
55	HRH STM HDR PRESS
56	HRH STM FLOW
57	
58	LOCAL TRANSMITTERS FOR EVAP COOLER
59	FGH WTR OUTL PRESS
60	FGH WTR FLOW
61	IP RAC LVL 1
	IP RAC PRESS
62	IP RAC LVL 3
	IP RAC LVL 2
63	IP RAC FW INLT FLOW
	IP RAC FW PRESS
64	LP RAC PRESS
65	LP RAC LVL 3
	LP RAC LVL 1
66	LP RAC LVL 2
	IP FW INLT FLOW
67	IP FW INLT PRESS
68	IP STM SUPPLY PRESS
69	LP STM SUPPLY FLOW
70	HP ECON 6 OUTL PRESS
	HP EVAP2 INL-HP STM SEP LVL
	HP EVAP INL-HP STM SEP LVL
71	LP FW PRESS
	CPH INLT PRESS
72	LP STM SUPPLY PRESS
	HP FW INL PRESS
73	HP SEP LVL 1
	HP SEP LVL 2
74	HP SEP PRESS
75	HP SEP LVL 3
76	HRH D/S WTR FLOW
77	HP STM SUPPLY PRESS
	HRH STM SPLY PRESS

Box #	DESCRIPTION
78	HP STM FLOW
79	11 HP BYP D/S FLOW
80	HP FW INL FLOW(FULL RANGE)
	HP FW INL FLOW(LOW RANGE)
81	LP RAC FW INL FLOW
	LP RAC FW PRESS
82	HP FW INL FLOW(LOW RANGE)
	IP STM SPPLY FLOW
83	HP FW INL FLOW(LOW RANGE)
	LP FW INL FLOW
84	CRH STM SPPLY PRESS
85	12 HP BYP D/S FLOW
86	COM CRH STM HDR PRESS
87	AUX STM SPPLY PRESS
88	HP MAIN STM HDR PRESS
89	HP D/S WTR FLOW
90	IP DRUM LVL 3
91	LP DRUM LVL 2
	LP DRUM LVL 3
92	IP ECON OUTL PRESS
	IP DRUM LVL 2
93	IP DRUM LVL 1
94	IP DRUM PRESS
	LP DRUM LVL 1
95	LP DRUM PRESS
100	CPH INLT FLOW
101	BFWP 13 SUCT. PRESS
102	BFWP IP DISCH. PRESS
103	BFWP 12 SUCT. PRESS
	BFWP 11 SUCT. PRESS
104	BFWP HP RECIRC FLOW
105	BFWP HP DISCH. PRESS
106	CRH STM PRESS
107	CPH RECIRC FLOW
108	HRH STM FLOW
109	HRH STM HDR PRESS
110	CPH OUTL PRESS
111	LOCAL TRANSMITTERS FOR EVAP
112	COOLER
113	FGH WTR OUTL PRESS
114	FGH WTR FLOW

Box #	DESCRIPTION
115	IP RAC LVL 3
	IP RAC LVL 2
116	IP RAC LVL 1
	IP RAC PRESS
117	IP RAC FW INLT FLOW
	IP RAC FW PRESS
118	LP RAC LVL 1
	LP RAC LVL 2
119	LP RAC LVL 3
	LP RAC PRESS
120	IP FW INLT FLOW
	IP FW INLT PRESS
121	IP STM SPPLY PRESS
122	HP EVAP2 INL-HP STM SEP LVL
	HP EVAP INL-HP STM SEP LVL
123	HP ECON 6 OUTL PRESS
124	LP STM SPPLY FLOW
125	HRH D/S WTR FLOW
126	LP FW PRESS
	CPH INLT PRESS
127	LP STM SPPLY PRESS
	HP FW INLT PRESS
128	HP SEP LVL 2
	HP SEP LVL 1
129	HP SEP PRESS
130	HP SEP LVL 3
131	HP STM SPPLY PRESS
	HRH STM SPPLY PRESS
132	HP STM FLOW
133	HP FW INL FLOW(FULL RANGE)
	HP FW INL FLOW(LOW RANGE)
134	LP RAC FW INLT FLOW
	LP RAC FW PRESS
	HP FW INL FLOW(LOW RANGE)
135	IP STM SPPLY FLOW
136	HP FW INL FLOW(LOW RANGE)
	LP FW INL FLOW
137	
138	LOCAL TRANSMITTERS FOR BFWP's
139	SUCTION STRAINERS

Box #	DESCRIPTION
140	BFWP COMM SUCT. PRESS
141	HP MAIN STM HDR PRESS
142	HP D/S WTR FLOW
143	IP DRUM LVL 3
144	LP DRUM LVL 2
	LP DRUM LVL 3
145	IP ECON OUTL PRESS
	IP DRUM LVL 2
146	IP DRUM LVL 1
147	IP DRUM PRESS
	LP DRUM LVL 1
148	LP DRUM PRESS
150	DEMIN PMP DISCH. PRESS
151	M.B. PMP DISCH. PRESS
152	ZLD SYST STM HDR PRESS
153	RW PMPS DISCH. PRESS
154	CLARIFIER A INLT FLOW
155	CLARIFIER B INLT FLOW
156	CLEARWELL PMP FLOW
157	S.W. TANK PMP DISCHARGE
	CT11 FG OST VALVE PLATFORM
	CT11 CONTROL COMPARTMENT MCC
	HRSG 11 MCC BUILDING
	HRSG11 SCR FAN CONTROL PANEL
	HRSG 11 DUCT BURNER CONTROL PANEL
	MAIN MCC BUILDING
	ST10 MCC BUILDING
	WATER TREATMENT BUILDING MCC
	COOLING TOWER MCC
	CT12 FG OST PLATFORM
	HRSG 12 MCC BUILDING
	HRSG12 SCR FAN CONTROL PANEL
	HRSG 12 DUCT BURNER CONTROL PANEL
	AIR COMPRESSOR AREA

- **Additional Temperature Sensors have been placed in:**
  - Combustion Turbine Compartments
  - NH3 Dilution Fan Variable Speed Drive Control Cabinets
  - Duct Burner Control Cabinets
  - Auxiliary Boiler Cabinets
  - All 480vac & 4,160vac Motor Control Center Buildings
  - Wet Rope sensors placed in all electrical vault sumps
    - Utilized to notify operations to pump water collected in vaults

Supplemental Shading

HVAC Inspections and Monitoring §25.55(c)(2)(A)(vi)

- **Inspections §25.55(c)(2)(A)(v)**
  - Verify each unit is in good working condition
  - Verify thermostat is set appropriate for the season
    - Winter – Heat
    - Summer - Cool
  - Verify each unit has a clean filter, if applicable
  - Continue checks through season through operator rounds

- **Monitoring §25.55(c)(2)(A)(vi)**
  - Operator Rounds
  - iMonnit temperature sensors
    - Alarms at >80 degrees Fahrenheit

- **Recent Monitoring Improvements §25.55(c)(2)(A)(vi)**
  - Monitoring relays installed in HVAC breaker cabinets
    - Relay signals the I/O cabinets
    - Alarms to Distributive Control System notifying breaker opened.
      - Allowing personnel to investigate

Cooling Tower Improvements

- **Cooling Tower Motor Improvements**
  - Motor covers installed over all fan motors
    - Protects motor from elements
    - Keeps motor windings cooler during summer months
  - Marine grade coating
    - Slows down corrosion
    - Enhances water intrusion protection

GSU Supplemental Cooling §25.55(c)(2)(A)(vi)

- **GSU Oil Coolers**
  - Fin/Fan Cooler design
  - Recirculates transformer oil continuously
  - Ensures reliability by keeping oil temp well below the temperature trip limit
  - Permanent shade structures installed to maximize cooling capacity