
WECC.ORG
COMPLIANCE OPEN WEBINAR
EXTENDED — November 17, 2022, 2:00 PM MT

WECC

Compliance Open Webinar

November 17, 2022

Mailee Cook

Training and Outreach Specialist

Board of Directors and Associated Meetings

Coming Soon!

- Oversight Quarterly Trends Update
  - A report available on wecc.org that provides requested insights into oversight trends in the Western Interconnection.
  - The first report will be published soon, followed by regular updates.
  - More information will be available at our December 15, 2022, Compliance Open Webinar.

Antitrust Policy

- All WECC meetings are conducted in accordance with the WECC Antitrust Policy and the NERC Antitrust Compliance Guidelines
- All participants must comply with the policy and guidelines
- This meeting is public—confidential or proprietary information should not be discussed in open session

Antitrust Policy

- This webinar is being recorded and will be posted publicly
- By participating, you give your consent for your name, voice, image, and likeness to be included in that recording
- WECC strives to ensure the information presented today is accurate and reflects the views of WECC
- However, all interpretations and positions are subject to change
- If you have any questions, please contact WECC's legal counsel

Agenda

Winter Weather Preparedness Internal Controls

- Update on the EOP-011 standard
  - Phil O'Donnell, WECC
- Risk Assessment for Plan Development and Practical Controls that Can Be Implemented Now
  - Leland McMillan, NAES Corporation and David Lemmons, Greybeard Compliance Services
- Multiple Plant Maintenance Plan Development and Technical Controls for Management
  - Glen Farmer, Avista Corporation

Agenda

Winter Weather Preparedness Internal Controls, continued

- Internal control considerations specific to Wind and Solar
  - Rhonda Jones, Invenergy and Colin Chilcoat, Invenergy
- Emergency Response/Resiliency planning
  - Curtis Crews, Texas RE
- Q&A

WECC

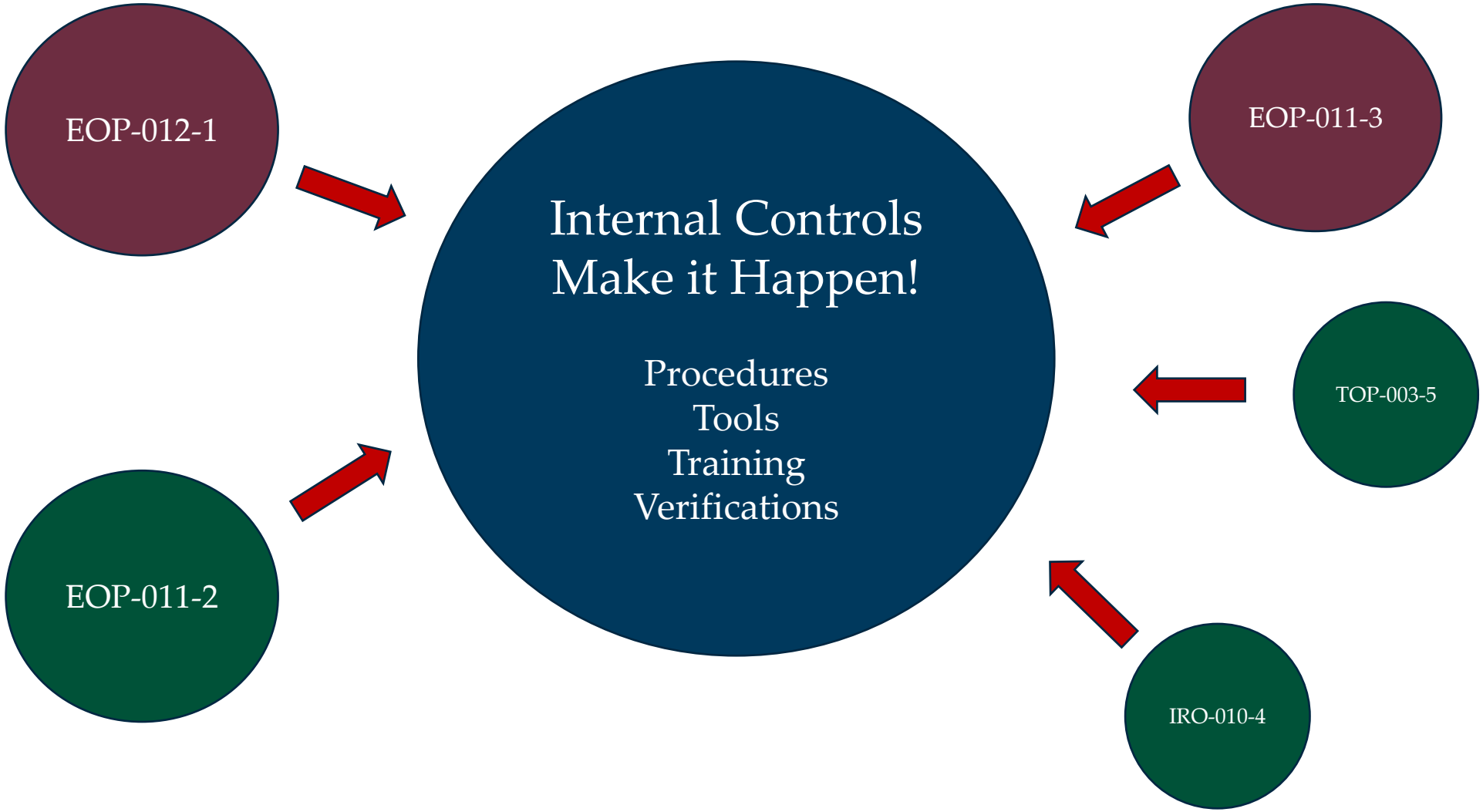
Cold Weather Standards Update

November 17, 2022

Phil O'Donnell

Sr. Technical Advisor, O&P

Cold Weather Standards Update



EOP-011-2

- TOP and BA Operating Plans must include/address cold weather impacts (R1, R2)
- GO must have a cold weather preparedness plan (R7)
- GO (or GOP) must provide training on the plan (R8)

Full implementation required on April 1, 2023

EOP-011-2 Implementation

On April 1, 2023

- TOP and BA Operating Plans and GO cold weather preparedness plans must be developed.
- **TOP and BA Plans must be reviewed by the RC**.
- First annual inspection and maintenance of generating unit freeze protection measures must be performed.
- Generating-unit-specific training for maintenance and operations personnel must be complete.

EOP-011-3 and EOP-012-1

Filed with FERC on October 28, 2022

- EOP-011-3:
  - TOP and BA have more specific guidance on coordinating manual load shed
- EOP-012-1:
  - GO requirements removed from EOP-011-2
  - Still require a cold weather preparation plan
  - Training—annually
  - Performance-Based Cold Weather Criteria
  - Five-year performance and data review
  - Corrective Action Plans following Cold Weather Events

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Electric Reliability and Security for the West

Contact:

Phil O'Donnell

Sr. Technical Advisor, O&P

podonnell@wecc.org

Cold Weather Preparation

NAES

Greybeard Compliance Services

Cold Weather Risk Assessments

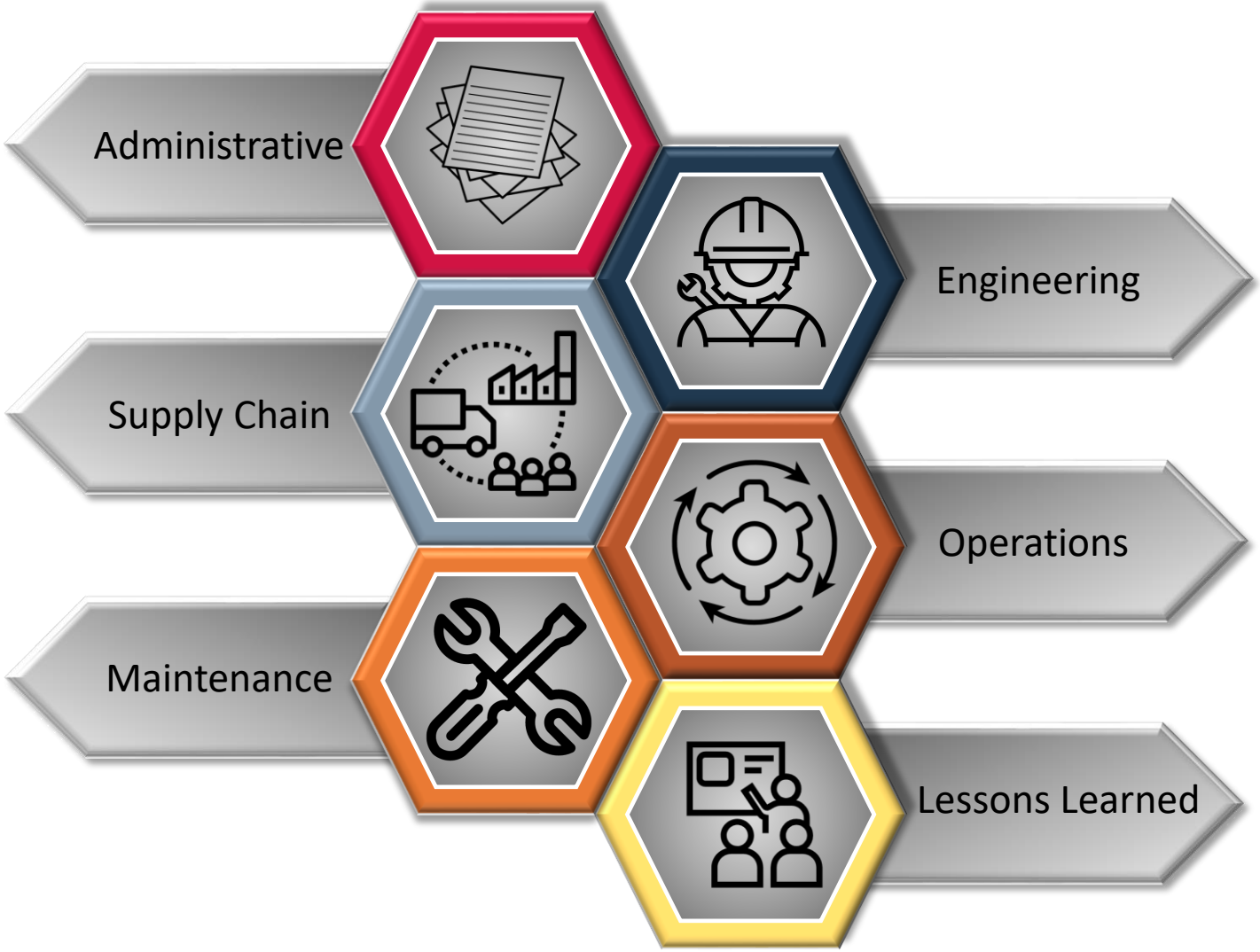
- Plant Design/Historical Performance
- Fuel Delivery Risk
- Event versus Seasonal Preparation
- Supply Inventories
- Other Limitations
- Personnel Concerns

Practical Controls that can be implemented now

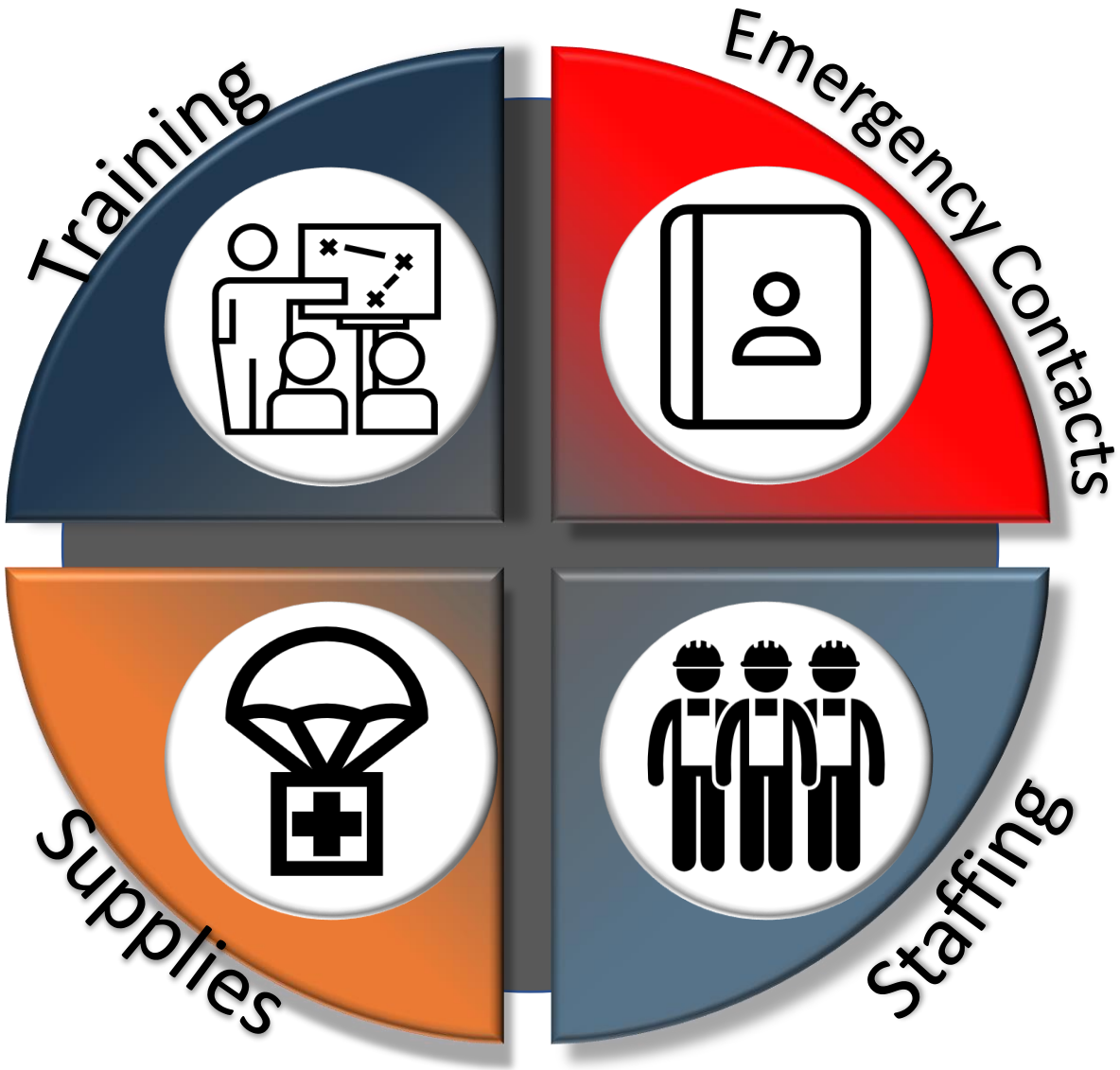
Cold Weather Plans

- Triggers
- Preventative Actions
- Monitoring

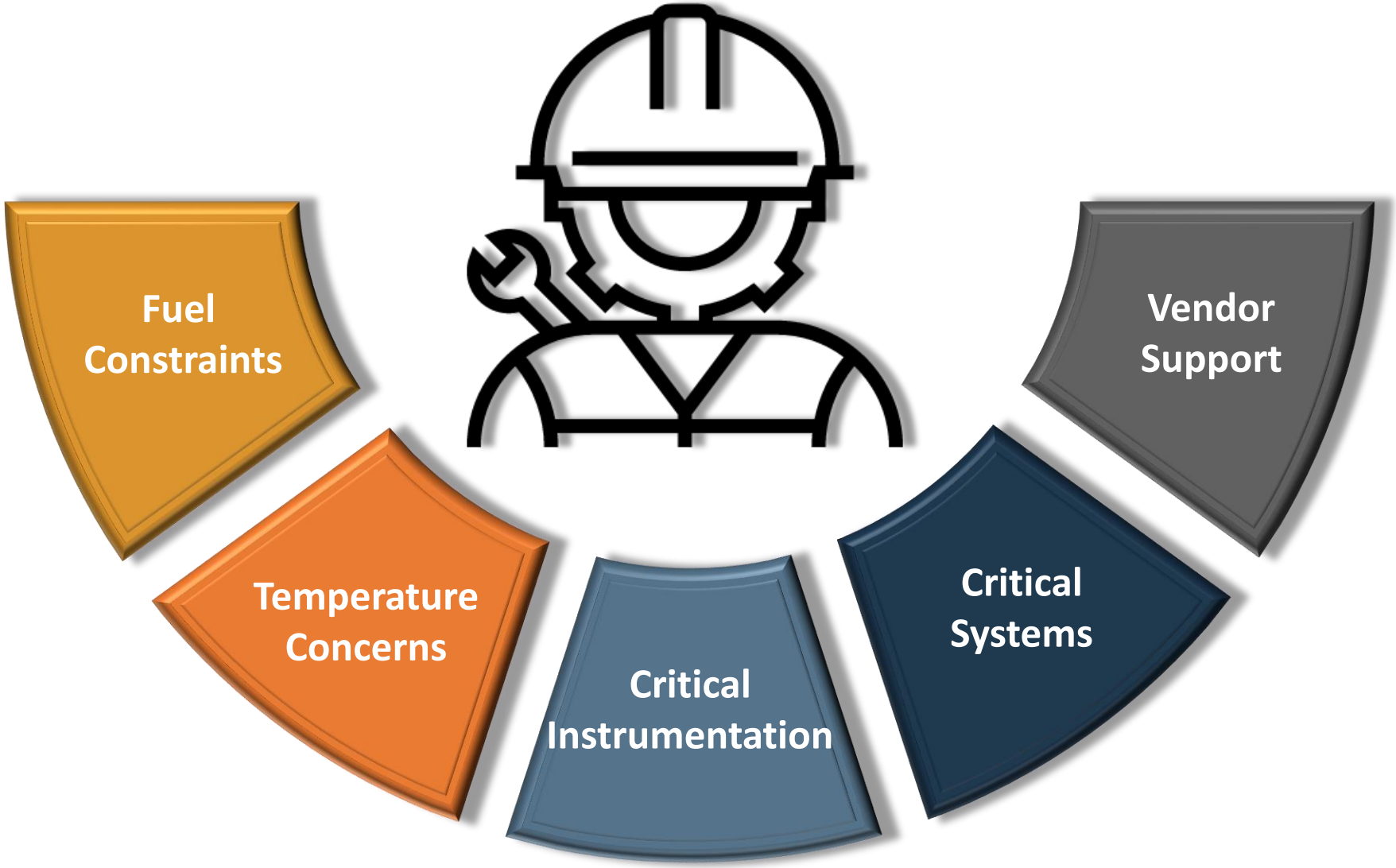
Robust Cold Weather Procedures



Administrative

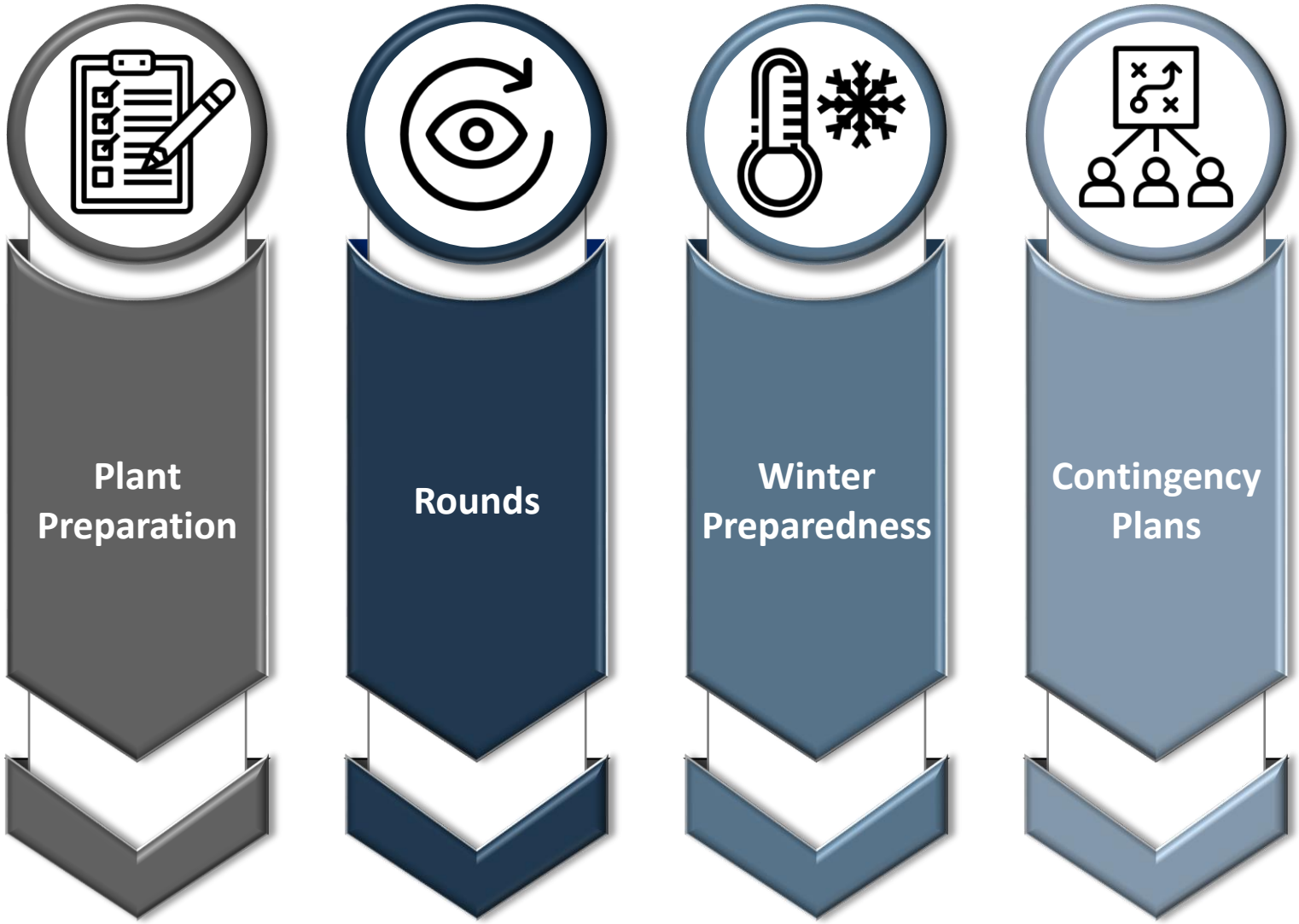


Engineering

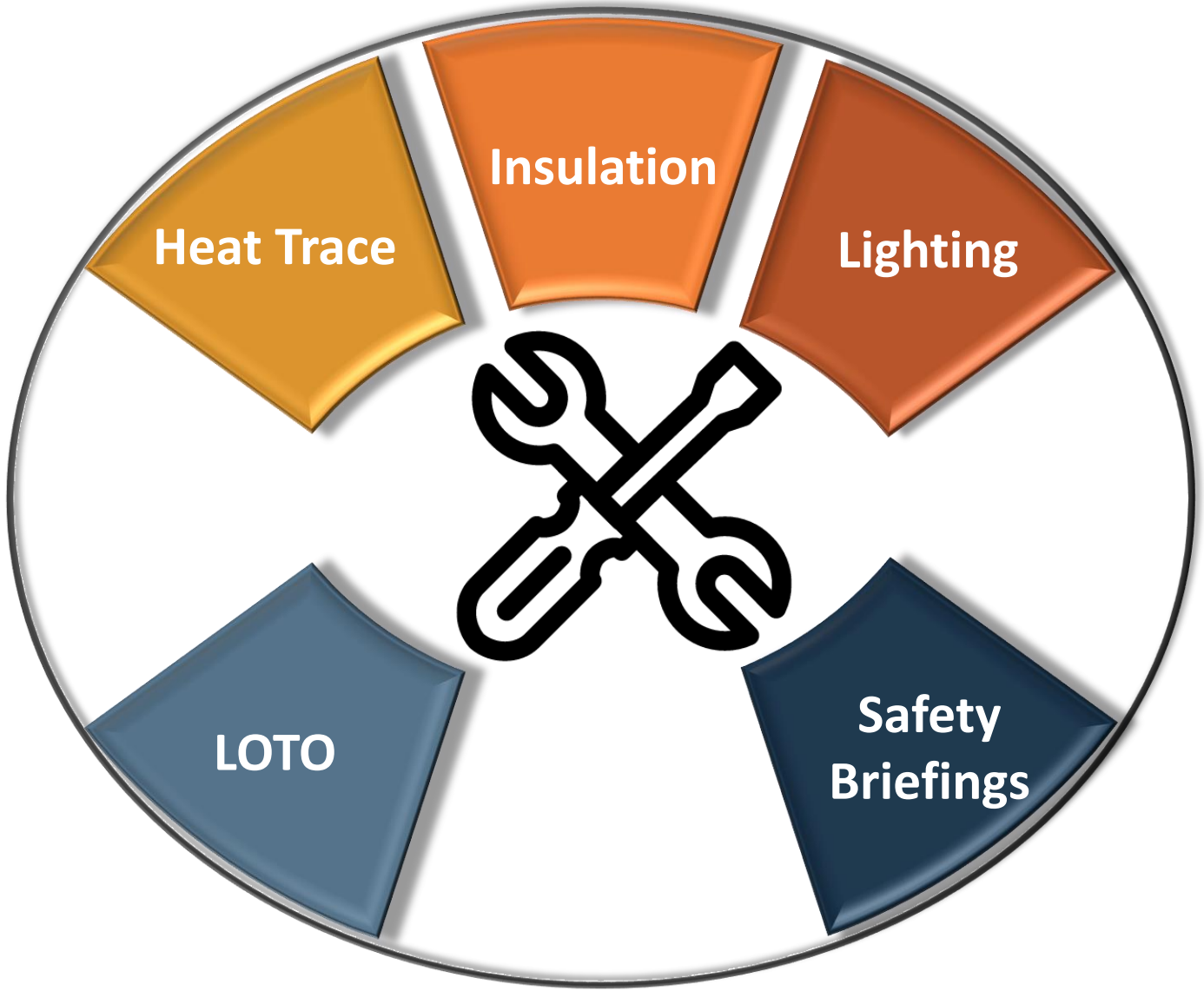


Supply Chain

Operations


Plant Preparation
Rounds
Winter Preparedness
Contingency Plans

Maintenance



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Multiple Plant Maintenance Plan Development and Technical Controls for Management

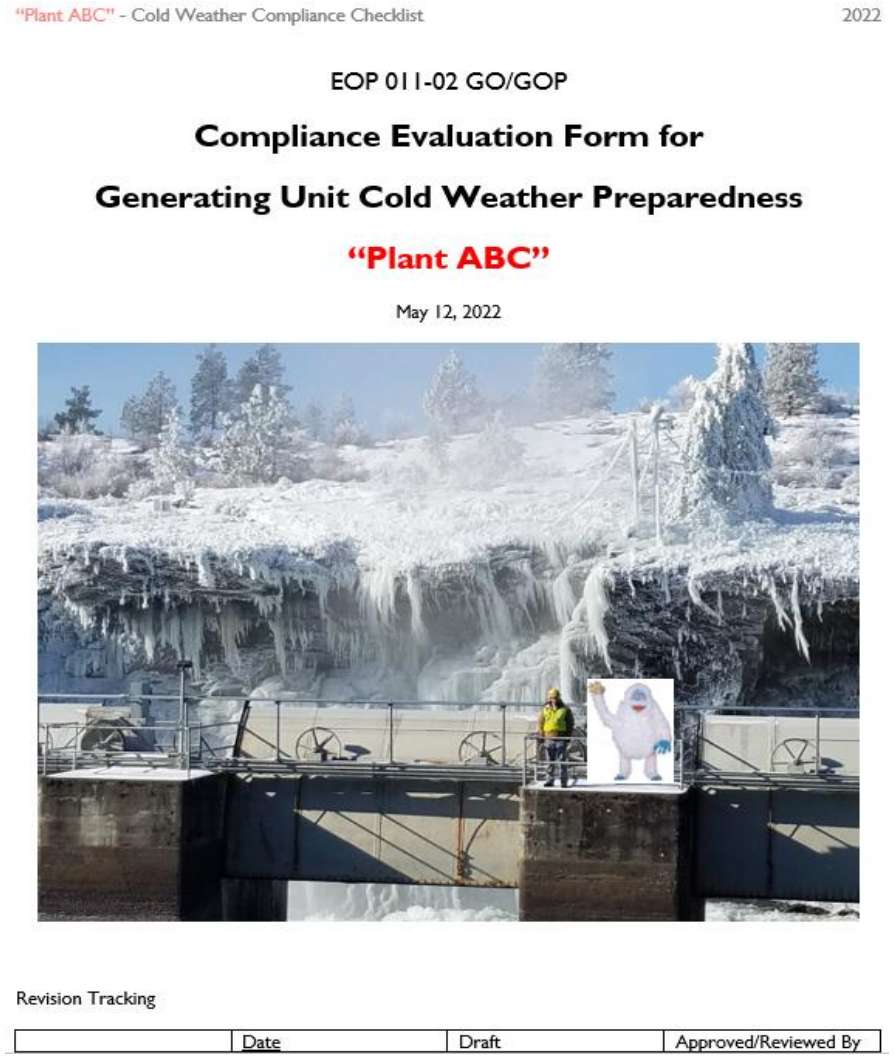
November 17, 2022

Glen Farmer, Avista Corporation

Asset Management and Compliance Engineering Manager

Site Survey Per Plant

- Internal Control doc per plant
- Plant info
- Action items
- Why
- Who
- 13 Questions for understanding current preparedness



"Plant ABC" - Cold Weather Compliance Checklist 2022

EOP 011-02 GO/GOP

Compliance Evaluation Form for

Generating Unit Cold Weather Preparedness

"Plant ABC"

May 12, 2022

Revision Tracking

	Date	Draft	Approved/Reviewed By

Plant Info

Example of combustion turbine, simple cycle

Facility Data	
Facility Name	
Is this a BES Facility?	Yes / No
Please list in general terms the generating unit's susceptibility to cold weather operation. Please use a separate line for definable sections of the facility.	
CT	The combustion turbine and all critical systems (lube oil, starting motor, instrument air, generator, etc.) all inside an enclosure. We have heaters in the combustion turbine enclosures and run an air dryer any time the compressor (bleed air from CT) is running. So, we always have dry air supplied to all pneumatic instrumentation. All gas regulating valves are hydraulically operated so they can't freeze up in the winter and cause a problem during extremely cold weather. Air inlet for CT has a series of stacked inlet air filtration trains – 3 rows high, that are constructed in an orientation such that water can not directly contact the filter. This eliminates the potential for rainwater or snow to build up on the cellulose or synthetic filters. Inlet icing – has not happened in the last 30 years, i.e., have no history of this happening here. It is maybe a potential, But not likely at all. We have had a wet damp day when we were on the border line of freezing and it didn't freeze. Any colder and it would have snowed. Exhaust system, nothing that operates that could cause an obstruction or need to operate before a start is initiated.
Bearing cooling system	There is one radiator bank with two cooling fans for each bearing oil cooler. The cooler runs a glycol solution (50% water) to prevent from freezing. We have valves to isolate a pump in an emergency but during normal operation they are both normally open.
Site Access	We have our own snowplows and ice melt procedures.

Current Preventive Maintenance (PM)

1. Collect and Review winter freeze protection PM's ensuring the programs specify intervals during the winter for inspection and specify resolution ideas of problems found.			
PMs Reviewed by Compliance Engineer	Y or N	PMs Attached to this document	Y or N
List all PMs for Cold Weather Preparedness and their frequency in the table below			
PM NO	General Description	Frequency for winterization / de-winterization	
20254	Rathdrum winterization • Test cooling water glycol • Heat trace on purge valves • Heat trace for scrubber	Annual, fall	

Walk Down Instruments

2. Review and walk down plant to identify any indication points that are located outdoors and could cause a faulty reading if it were to freeze up. Then walk down the transmitters and consider if they could indeed freeze up and implement any recommended changes to prevent from freezing.		
Are there any indication points that are located outdoors and could cause a faulty reading if it were to freeze up? If no, skip to next section.		Y or N
List all Instrument identified that could trip a unit based on a reading from sensor that could freeze?	Mitigation alternative available?	Instrumentation included in SOP and/or PM? Include PM #
We monitor our compressor and generator cooling air via differential pressure. If we get a faulty reading it would come in as a generic trouble alarm to investigate, will not immediately cause a trip. Not critical instrumentation because will not cause a trip.	Y or N NA	Y or N
Example critical systems that cause trip, loss of bearing oil, high vibrations.	Y or N NA	Y or N
	Y or N	Y or N
	Y or N	Y or N
	Y or N	Y or N

Heat Trace?

4. Review the current installation of heat trace and insulation on critical lines and make sure heat trace is applied properly (i.e., wrapped around the valve and not just across the body). Pull insulation if needed. Have a plan in place to monitor the heat traces (and the control systems which regulate heat trace if applicable) to ensure the heat trace is not boiling out the sensor lines or not working.				
Are there any heat trace systems installed at this facility to prevent equipment from freezing in cold weather? If no, skip to next section	Y or N	Please list the equipment with heat trace installed.	We have a couple of heat trace systems, fuel scrubber and air supply to the purge valves. Neither of these are critical. If purge valves fail to operate, we will still be able to operate up to full load.	
List all valves & pipes identified that have heat trace installed.	Heat trace installed correctly?	Plan in place to monitor operation?	Plan in place to replace heat trace based on age.	Replacement PM NO available?
	Y or N	Y or N	Y or N	NA
	Y or N	Y or N	Y or N	

On-Site Supplies

6. Plant should maintain a sufficient inventory of winterization supplies for each generating unit. These supplies should be on site and located near each generating unit for easy access. Items recommended to have in stock that may be needed to increase freeze protections are (North American Electric Reliability Corporation, January, 2012). Review plant supplies and determine if any items need to be added or removed from plant stock for cold weather emergencies:

List all equipment identified that should be in stock to assist the plant in a cold weather emergency.	Equipment noted in SOP and/or PM?
Extension Cords	Y or N
Portable Generators	Y or N
Insulation Material (tarps and fleece blankets)	Y or N
Extra/ replacement electric heat trace	Y or N
Heat Guns	Y or N
Plastic Rolls	Y or N
Propane and Propane torch	Y or N
Extra heaters	Y or N
Magnetic tank heaters for hydraulic systems	Y or N
Salamander Heaters	Y or N
Diesel tank full	Y or N
Slip tank for filling equipment	Y or N
Milk house heater	Y or N
	Y or N
	Y or N
PM Created to review plant inventory list before winter?	

Temperature Limitations?

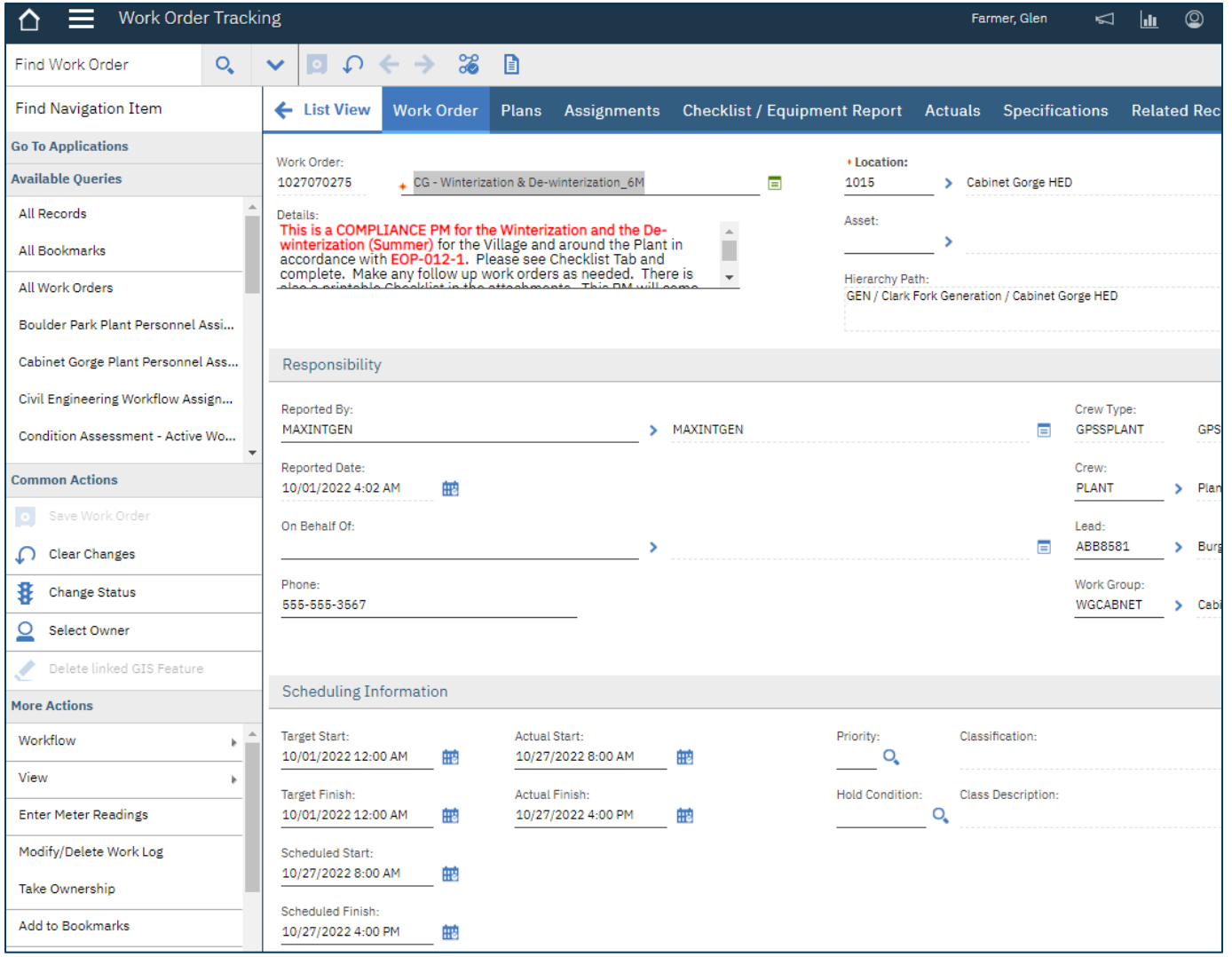
9. Know the ambient temperature limitations of each plant and if you don't know, then perform a detailed engineering design analysis of the plants to determine their ability to operate during extreme cold conditions. A low ambient temperature limit according to the design of the plant should be established.			
What is the coldest temp on record that plant operated in? (Per Compliance report temp data taken as NWS Spokane Airport for all plants)	_-10___ deg F Wind Chill __-36__ deg F	Date:	2/25/2011
Was this temp information reviewed with Plant Staff?			Y or N
Were any deficiencies or discrepancies in this data or plant managers/Sr manager's perception of plant being able to operate up to this temperature?			Y or N
Notes: James – I don't see any reason it couldn't operate			
Do the Plant personnel believe that the plant could still operate if the temp and/or wind chill were 10 or 20 degrees colder?			
Notes: yes			

Review and Add PMs

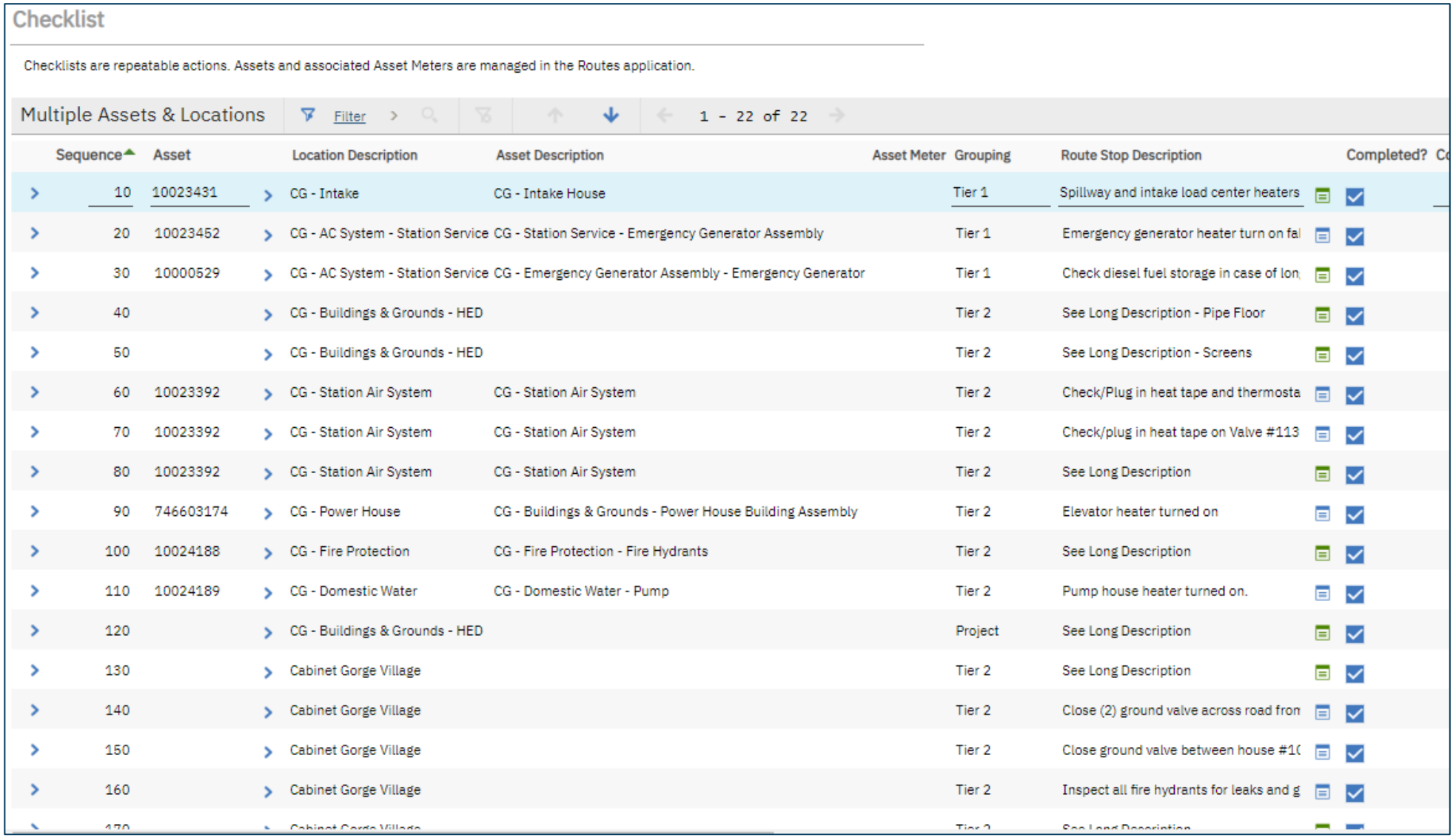
To be completed after interview by Compliance Engineer

List of All PMs noted in this document, attach print out of checklist for reference.			
	PM #	General Description	Frequency
1			
2			
3			

Work Orders Per Plant



Checklist



Checklist

Checklists are repeatable actions. Assets and associated Asset Meters are managed in the Routes application.

Multiple Assets & Locations | Filter | 1 - 22 of 22

Sequence	Asset	Location Description	Asset Description	Asset Meter	Grouping	Route Stop Description	Completed?
10	10023431	CG - Intake	CG - Intake House		Tier 1	Spillway and intake load center heaters	
20	10023452	CG - AC System - Station Service	CG - Station Service - Emergency Generator Assembly		Tier 1	Emergency generator heater turn on fal	
30	10000529	CG - AC System - Station Service	CG - Emergency Generator Assembly - Emergency Generator		Tier 1	Check diesel fuel storage in case of lon	
40		CG - Buildings & Grounds - HED			Tier 2	See Long Description - Pipe Floor	
50		CG - Buildings & Grounds - HED			Tier 2	See Long Description - Screens	
60	10023392	CG - Station Air System	CG - Station Air System		Tier 2	Check/Plug in heat tape and thermosta	
70	10023392	CG - Station Air System	CG - Station Air System		Tier 2	Check/plug in heat tape on Valve #113	
80	10023392	CG - Station Air System	CG - Station Air System		Tier 2	See Long Description	
90	746603174	CG - Power House	CG - Buildings & Grounds - Power House Building Assembly		Tier 2	Elevator heater turned on	
100	10024188	CG - Fire Protection	CG - Fire Protection - Fire Hydrants		Tier 2	See Long Description	
110	10024189	CG - Domestic Water	CG - Domestic Water - Pump		Tier 2	Pump house heater turned on.	
120		CG - Buildings & Grounds - HED			Project	See Long Description	
130		Cabinet Gorge Village			Tier 2	See Long Description	
140		Cabinet Gorge Village			Tier 2	Close (2) ground valve across road fron	
150		Cabinet Gorge Village			Tier 2	Close ground valve between house #1(	
160		Cabinet Gorge Village			Tier 2	Inspect all fire hydrants for leaks and g	

Workflow

- PM sent out automatically
- Plant does the Work Order
- Compliance Engineer Reviews
- Planner check to see Work Order meets requirements
  Then "CLOSES" Work Order
- Internal Controls

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Electric Reliability and Security for the West

Contact:

Glen Farmer, Avista Corporation

Asset Management and Compliance Engineering Manager

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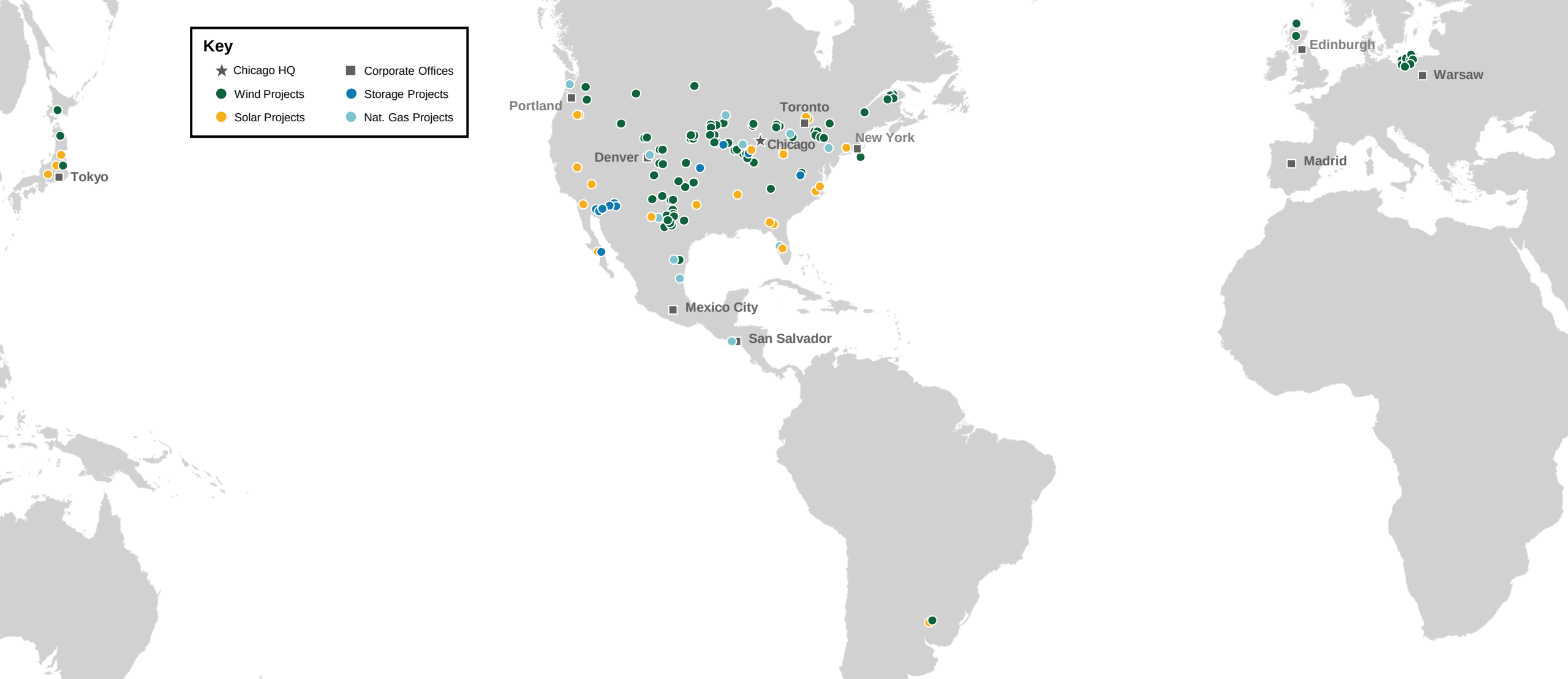
5 Minute Break

Internal Controls
Winter Weather Preparedness

Rhonda Jones & Colin Chilcoat

November 2022

Invenergy



Invenergy

190
Projects Developed

30GW
Capacity Developed

$48Bil+
Completed Transactions

8.9Mil
Homes Powered

9.8Mil
Cars off the Road Equivalent

World's Leading Privately Held Sustainable Energy Company

CORE BUSINESS

Invenergy

Our Foundation
Developing and operating sustainable energy projects around the world

Wind
110 projects
17,600 megawatts

Solar
49 projects
6,085 megawatts

Storage
18 projects
1,537 megawatt hours
486 megawatts

Natural Gas
13 projects
5,964 megawatts

DIVERSIFIED SOLUTIONS

Invenergy Services

Award-winning asset management and operations with an owner's mindset

Invenergy Transmission

Experience developing 4,100+ miles of transmission and distribution infrastructure to bring power to market

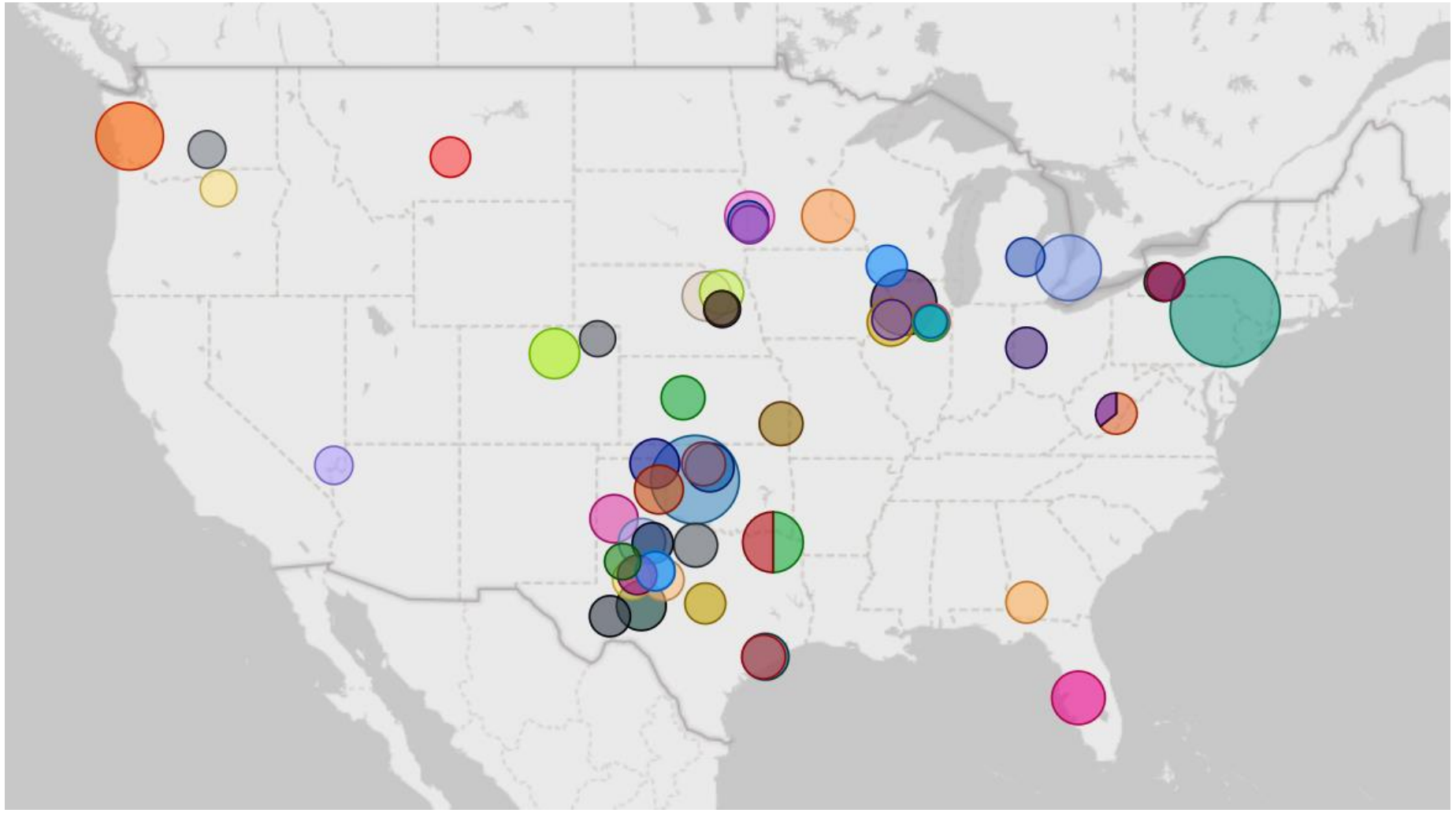
Invenergy Clean Water

Tackling the next sustainability challenge with an emerging water desalination business

ENERGIZE VENTURES

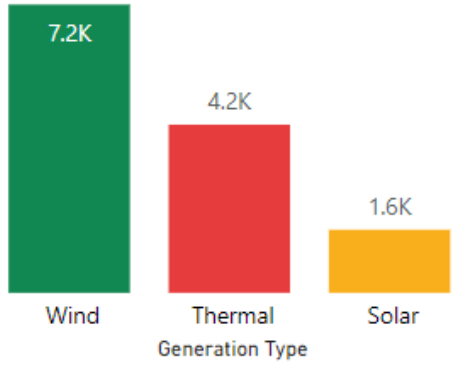
Investing in digital solutions that drive affordability, reliability and security for energy and industry

Our NERC Registered Footprint

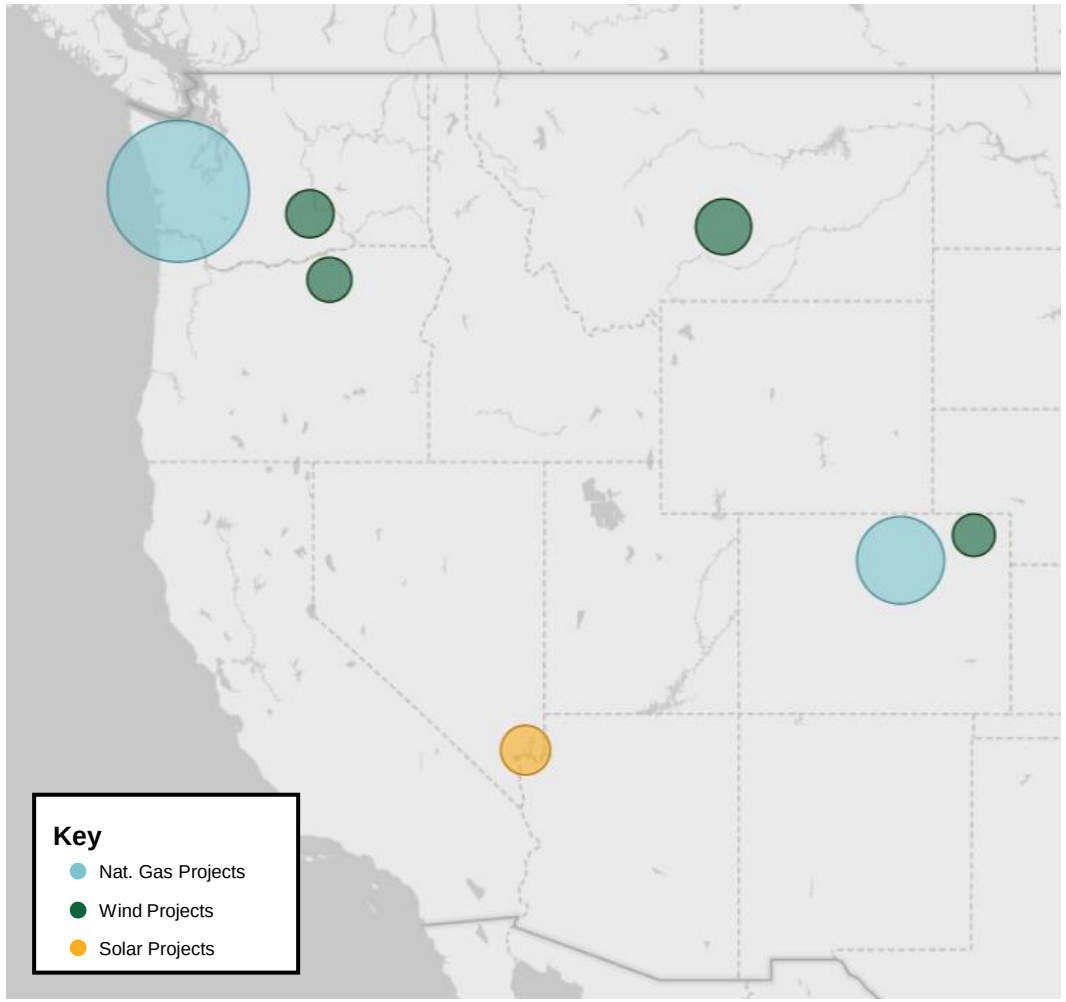


Capacity (MW)

12.97K



Our WECC Registered Footprint



July 2005
Invenergy's first development project in WECC

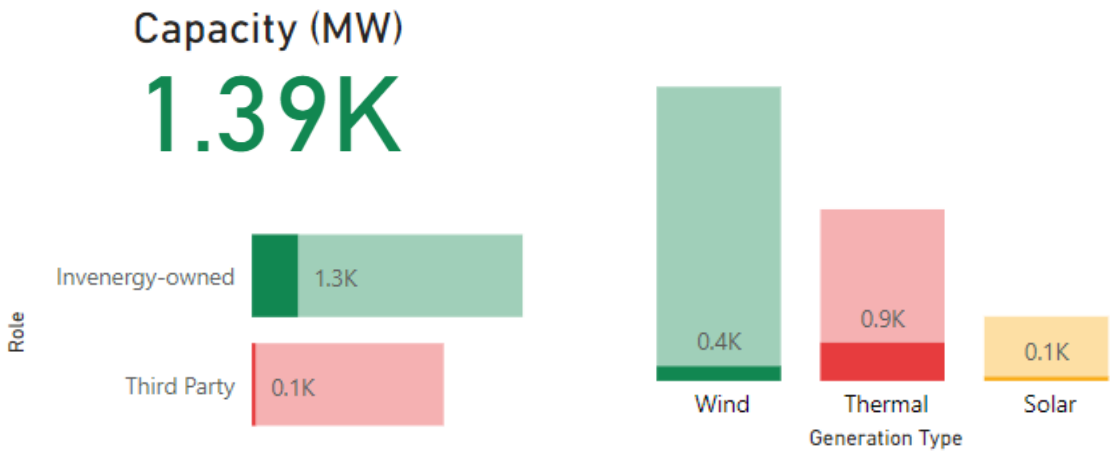
September 2007
1 GW registered capacity

September 2018
1 GW developed wind capacity

2000 → Present

August 2007
Invenergy's first registered projects in WECC

May 2021
Invenergy's first registered solar project in WECC

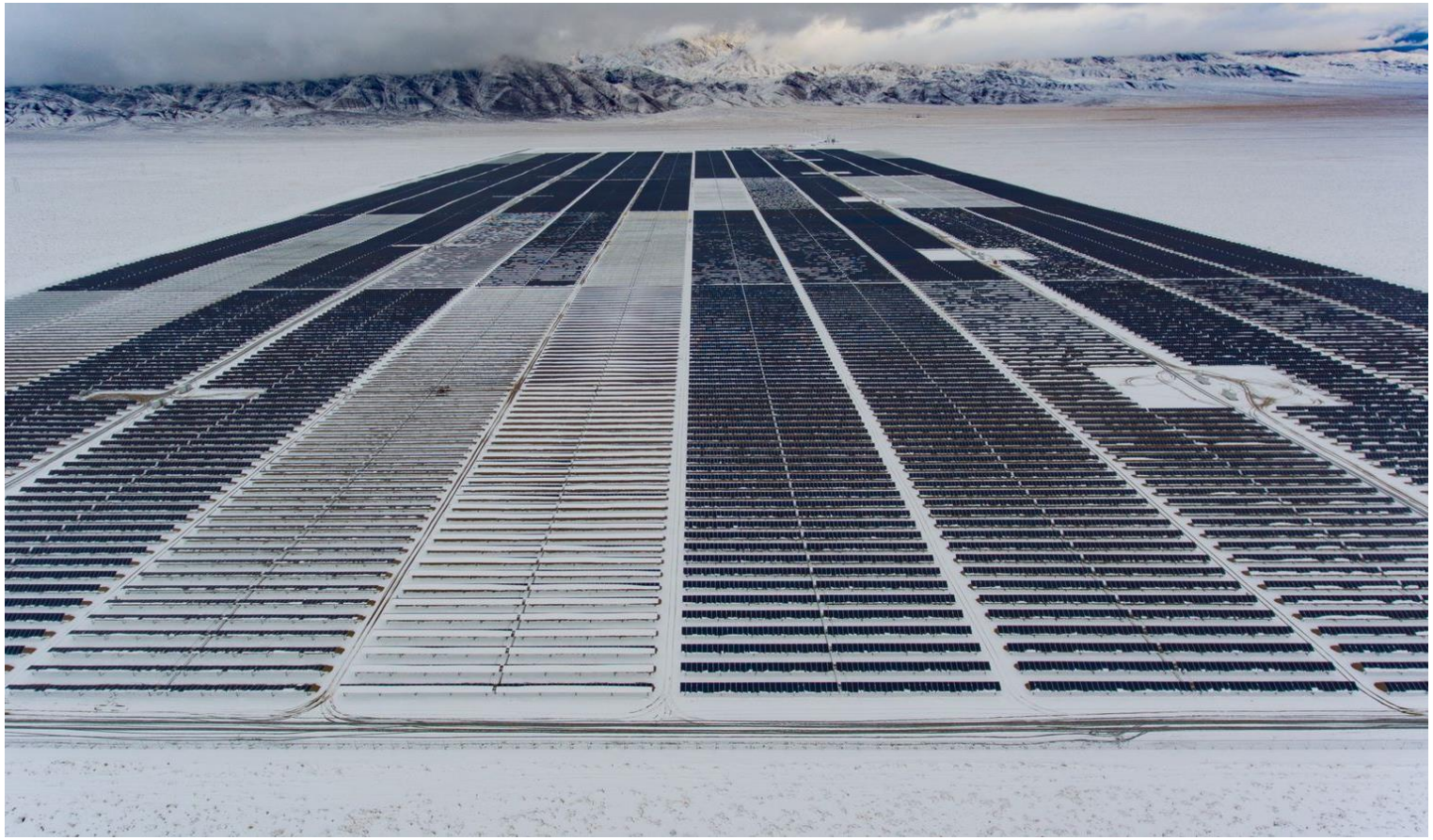


Principles To Consider

- Prioritize Reliability and Safe Operations
- Celebrate a Respected Compliance Culture Across Business Units
- Inclusive Team Roster: Think Beyond Operations
- Convey “The Why”—Impact
- Intertwine Internal Controls Within Protocols
- Always Challenging Ourselves
- Know Your Equipment
- Study Technological Enhancements on the Horizon
- Never Auto-Pilot—Staying Proactive, not Reactive
- Test Our Plans/Practices

Winter Weather Preparedness Program

- Formal enterprise program since 2015
  - Provides baseline for sites' readiness activities
  - Defined roles and responsibilities
  - Accountability and escalation
- Mix of on-site maintenance, preparedness & training, and lessons learned
- Winter preparedness is completed between Sep & Nov
- EOP-011-2 compliant



Invenergy

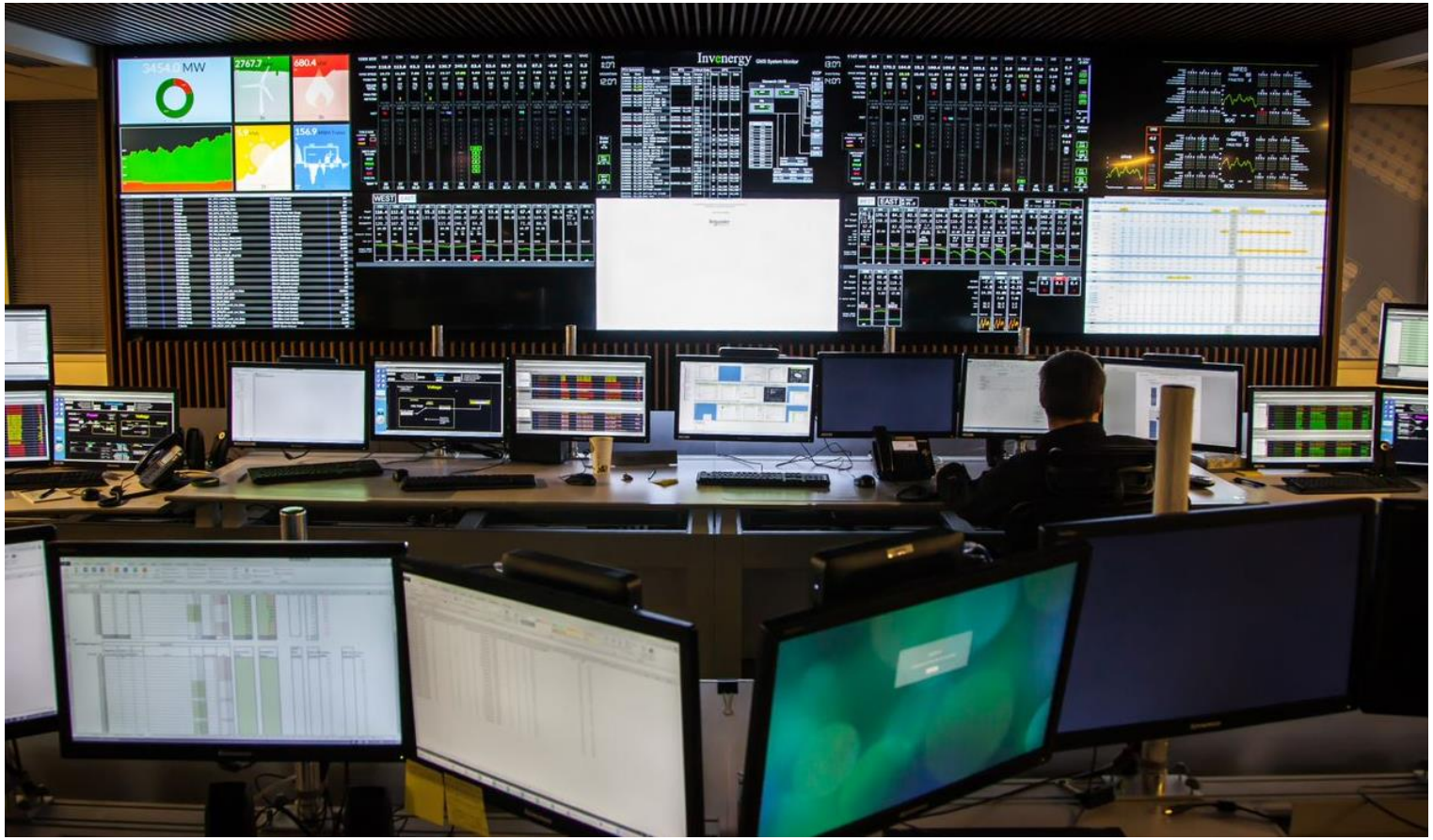
Onsite Preparedness & Controls

- Winter maintenance activities issued and tracked via Enterprise Asset Management software
  - Escalates to site and regional managers
  - Activities include: visual inspections for moisture, cracks, corrosion, coating damage both down-tower and up; lubricant inspections; insulating material checks in the nacelle and in electrical cabinets; heating element inspections on meteorological sensors and oil heaters. Similar checks for moisture, inverter integrity, and cabinet heaters are performed at our solar facilities.
- Safety controls are equally important
- Training: focus on preparedness activities and emergency response

Invenergy

Corporate Preparedness & Controls

- Project design
- WTG parameter review and adjustments before winter season
- Weather and emergency event forecasting
- Training: focus on control and communication
- Alarming



Operational Considerations

- Past performance
  - Logic, parameter adjustments, and control mode optimization
- Coordination with OEMs
  - Equipment upgrades, firmware updates, and improved ops
- Communication & Safety
  - Derate reporting, internal interpersonal comms and operational safety

Invenergy

Innovators building a sustainable world

English

Des innovateurs construisant un monde durable

French

持続可能な世界作りを目指す革新者

Japanese

Innowatorzy budujący zrównoważony świat

Polish

Inovadores construindo um mundo sustentável

Portuguese

Innovadores construyendo un mundo sustentable

Spanish

Invenergy

Join us.

TEXAS RE

Ensuring electric reliability for Texans

Internal Controls and Resiliency

Curtis Crews
Director O&P Compliance and Risk Assessment

Definitions

EOP-011-2/3 R1 "Each Transmission Operator shall develop, maintain, and implement one or more Reliability Coordinator-reviewed Operating Plan(s) to mitigate operating Emergencies in its Transmission Operator Area. The Operating Plan(s) shall include ……."

- "1.2.6. Provisions to determine reliability impacts of:
  - 1.2.6.1. cold weather conditions; and
  - 1.2.6.2. extreme weather conditions"

Definitions

EOP-011-2 R7—"Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:"

Not good enough! Make a new Standard with new definitions….

EOP-012-1 R3—"Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units. The cold weather preparedness plan(s) shall include the following, at a minimum:"

Definitions

Operating Plan- A document that identifies a group of activities that may be used to achieve some goal. An Operating Plan may contain Operating Procedures and Operating Processes.

- **Operating Procedure-** A document that identifies specific steps or tasks that should be taken by one or more specific operating positions to achieve specific operating goal(s). The steps in an Operating Procedure should be followed in the order in which they are presented, and should be performed by the position(s) identified.
- **Operating Process-** A document that identifies general steps for achieving a generic operating goal. An Operating Process includes steps with options that may be selected depending upon Real-time conditions

Cold weather preparedness plan???

A plan should state the objective clearly– Think Resiliency!

Internal Control Basics for a Plan (Development/Maintenance)

Management reviews documents for accuracy, clarity, and accessibility

- Consider an extra independent review to test accuracy, clarity, and accessibility

Roles and responsibilities clearly defined (location/site/event specific as needed)

- Ensure awareness
- Area coverage (where are support personnel staged?)

Timelines defined (overall and individual steps as applicable)

- Initiation triggers (what is “cold”/”extreme”?)
- Return to normal operations

Internal Control Basics for a Plan (Development/Maintenance)

- Is there a need for external support?
- Procedures in place to prevent the unintended use of obsolete documentation
- Management creates similar controls for all external documents and maintains a master list for distribution
- Periodic/After Action Review for updates
- Process owners are responsible for approval of document changes
- Document revisions and status are monitored
- Management responsible for overall document approval

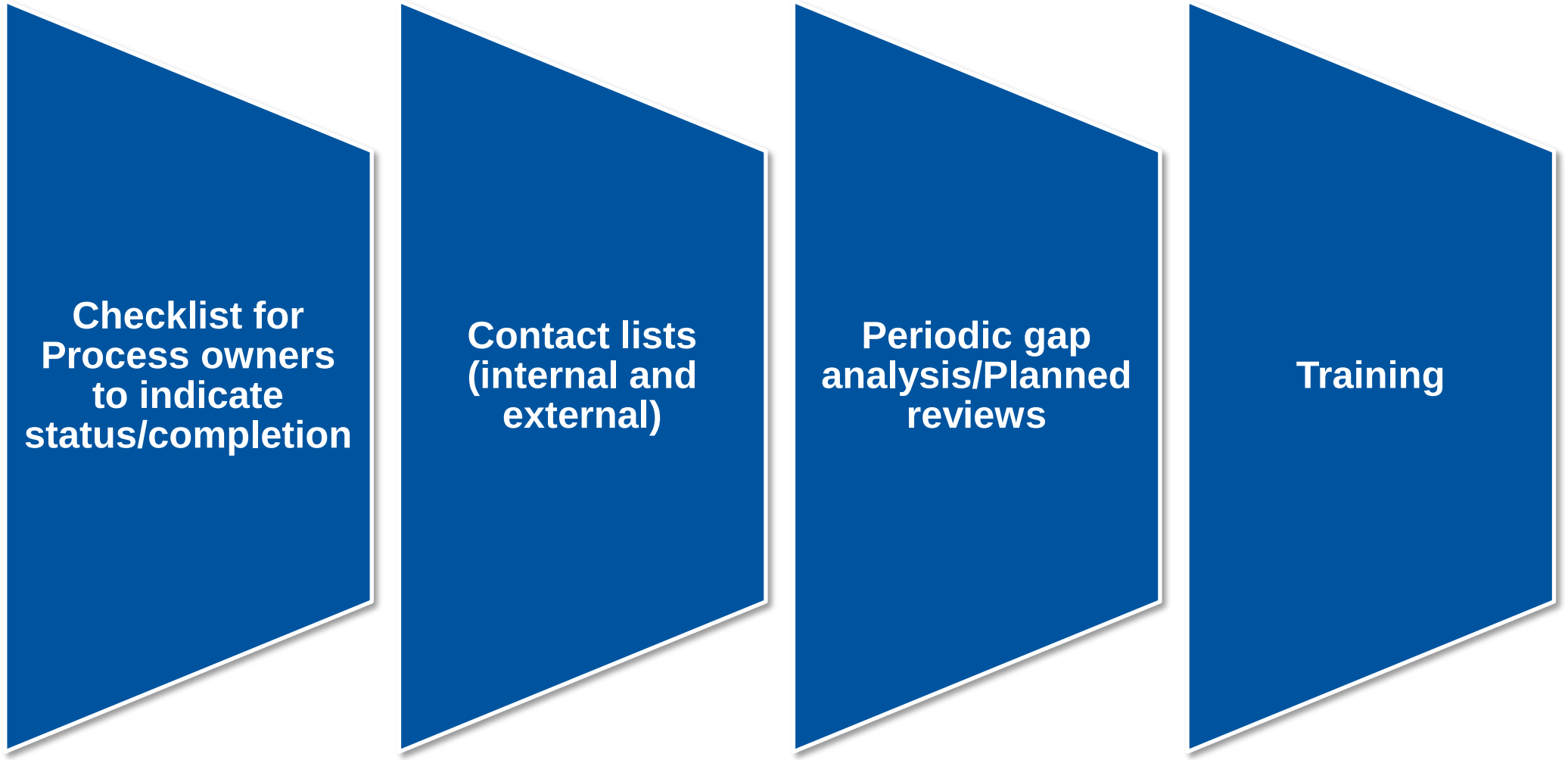
Internal Control Basics for a Plan (Implementation)

Process owners maintain an up-to-date distribution list to ensure every team member has access to the most current version of document(s)

Process for identification of needs (e.g., third-party, supplies, outages)

- Timing (need a third party? an outage?)
- Resources (tools, tool support, people and supplies)

Internal Control Basics for a Plan (Implementation)



Implementation keys

Resiliency—the capacity to recover quickly

Roles and responsibilities clearly defined (location/site/event specific as needed)

- Ensure awareness
- Staff is trained and knows the tools/actions needed

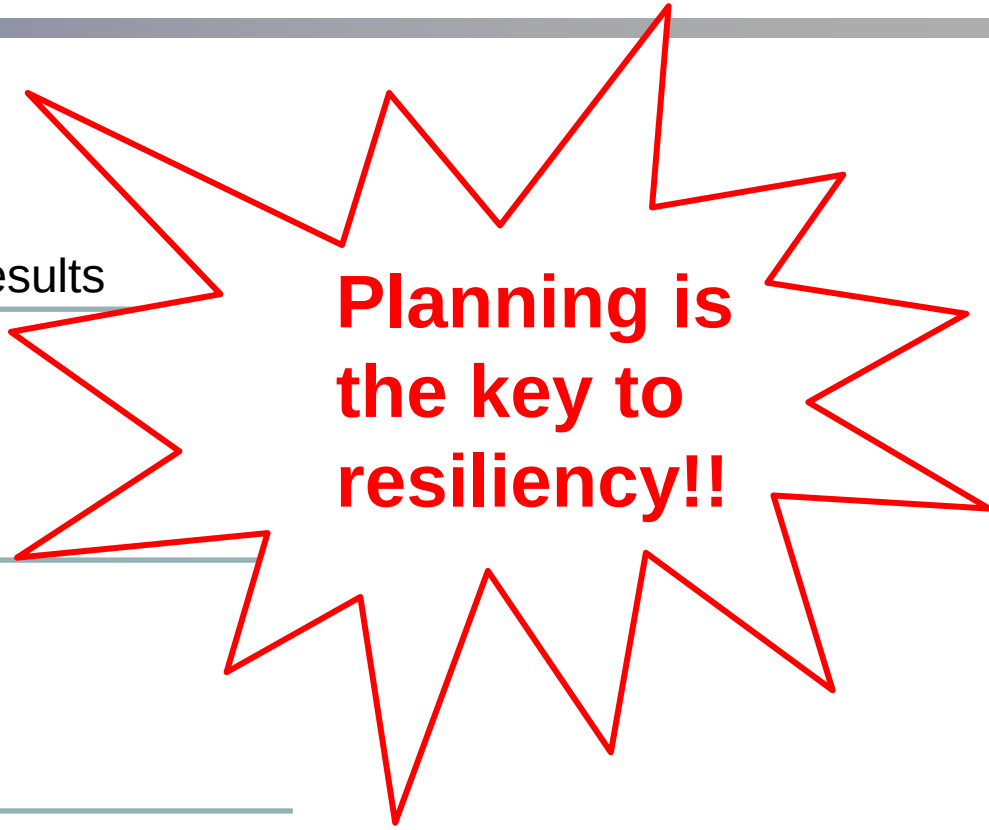
Periodic checks

Implementation timeline for needs

- Timing (need a third party? an outage? how long does it take to get to issue (physically)?)
- Resources (tools, tool support, people and supplies)

Keys

Planning provides attention on objectives and results	Actual results may be different then planned results
Planning provides a guide for action/decision making	Can not anticipate everything
Planning improves resource utilization/teamwork	Monitor utilization plans
Planning allows flexibility to adapt	Avoid blindly following the plan if conditions change



How to Participate

- Send questions via chat to **WECC Meetings**
- Use the **Raise Hand** feature and share


WECC.ORG
COMPLIANCE OPEN WEBINAR
December 15, 2022, 2:00 PM MT