



# 2019 STANDARD PROGRAM OVERVIEW

**2019 PRACTICE SHARING CONFERENCE:**  
**SEPTEMBER 23<sup>RD</sup> - SEPTEMBER 25<sup>TH</sup> (2 1/2 DAYS)**  
**HOST COMPANY - SOUTHERN CALIFORNIA EDISON,  
 IRVINE CA.**

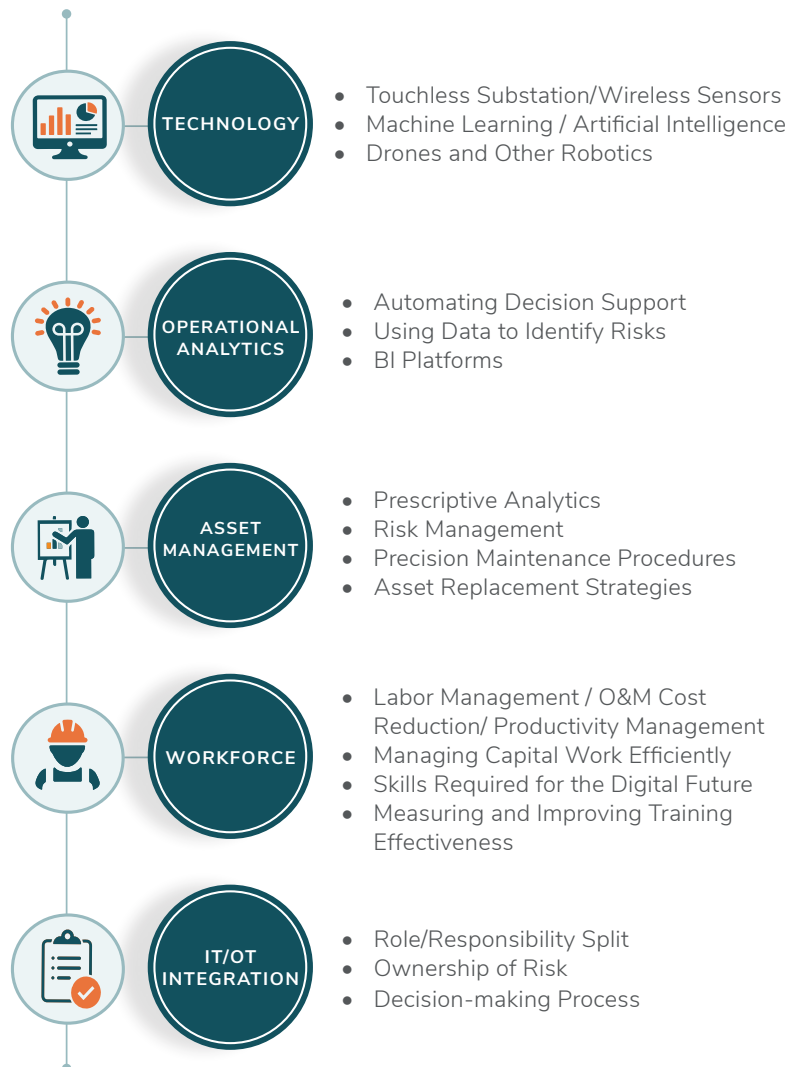
## WHAT IS THE SUBSTATION BEST PRACTICE COLLABORATIVE?

- A community of industry professionals led by a Utility Steering Group exchanging ideas and sharing innovative and leading edge practices across the industry.
- 24 North American electric utilities working together to solve common industry problems and understand how to achieve superior business outcomes.
- A web of working and networking channels between Members to support ongoing sharing of data, information, technology, and practices.

## HOW DID THE COLLABORATIVE ORIGINATE?

- In 2013, UMS Group was engaged to conduct an industry study on Substation Inspection practices which included a two-day forum in which the participants shared their practices and discussed driving performance improvement.
- The following year, a similar effort was undertaken around Substation Maintenance. At the conclusion of the forum, the participating utilities decided to form a Collaborative focused on sharing around Substation Maintenance, Construction, and Asset Management.

The **2019 Standard Program** will begin with on-site interviews of the Members to identify the practices, processes, and technology that Members are using to address the below topic areas. These interviews will be used to create the Agenda for the Conference. During the conference, the members will select follow-up activities for the rest of the year including the identification of three topics to be included in a more Detailed Study to be part of the Program Report.



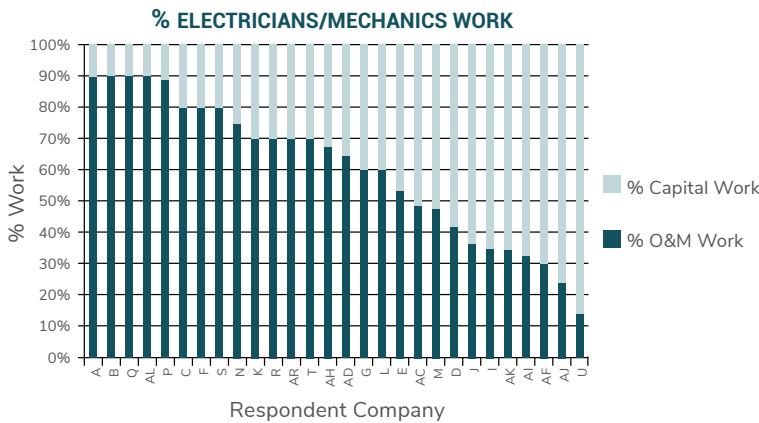
**For more information, contact: Kate Tancke | [ktancke@umsgroup.com](mailto:ktancke@umsgroup.com) | 973-335-3555**

Over the last six years, dozens of utilities have participated in the Collaborative and identified a myriad of ways to drive performance improvement. These utilities have leveraged the network of members to share data, make site visits, benchmark, and create a web of working and networking channels. Below are examples of the key practices that have been shared.

## A NUMBER OF KEY PRACTICES HAVE BEEN SHARED OVER THE LAST SIX YEARS

### ELECTRONIC TAILBOARD APP

- I pads with custom developed App
- Automatically uploaded to a database and can be accessed remotely
- All entries are time-stamped
- Can pre-fill job details and tasks for multi-day jobs
- Updates automatically pushed to iPads
- Provides Access to Safe Work Practices and Safe Operating Procedures



### ADVANCED ANALYTICS FOR TRANSFORMERS

- Algorithm based on detectable acetylene, moisture, dielectric strength, and cooling performance
- Analyze transformer load curves, identifies load spikes, correlates sensor data, and calculates transformer LOL based on IEEE C57.91-2011
- 100+ Transformers, 1 year of data with 1 minute resolution – 210 million rows of data for ambient temperature, top oil temperature, winding oil temperature and load

### DRIVING PRODUCTIVITY AND EFFICIENCY

- Tracks work, switching and delays (e.g., travel, jobsite, paperwork, depot, safety mtgs, etc.)
- Separately measure productivity (total time including delays vs standard) and efficiency (actual wrench time vs standard)
- Decompose all work into units, determine resources needed for each unit, set target time for each unit
- Prep trucks, material, pole delivery at night, and bundle specialized tasks.

### RISK-BASED SUBSTATION INSPECTIONS

- Identified most critical equipment and developed inspection schedule considering type of equipment, security situation, environmental impact, and NERC compliance
- Differentiate inspections by substation – 1, 2, or 4 month cycle
- Drivers of frequency – security concerns, primary voltage level, oil filled reactor or regulator, gas filled device without SCADA, oil filled riser cables, etc.

## COLLABORATIVE MEMBERS



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