

RISK COMPLIANCE AUDIT (RCA)

LOW-COST, HIGH-VALUE, FULL-SYSTEM RISK CHECK





WELCOME

- Welcome to today's webinar entitled, *"Risk Compliance Audits (RCA) for Utilities"*
 - Why risk compliance audits matter
 - Variety of applications for RCA to support utility risk goals
 - RCA validity and cost effectiveness
 - RCA development process
 - RCA program example – vegetation management cycle review
- Pose questions via Teams chat – answered at end of webinar
- Forthcoming post-webinar email with link to landing page tomorrow
 - Recorded webinar, copy of slides in PDF format, quick survey



A LITTLE BIT ABOUT US

- A subsidiary of parent company Celerity, Clear Path Utility Solutions orchestrates a critical leadership role between **construction companies** and **vegetation field services**
- Clear Path provides advanced **emergency** and **non-emergency response services** to help utility companies assess, plan and execute vegetation projects in the field as they evolve
- In short – **we empower power**





TODAY'S SPEAKERS

RYAN KORPELA
President
Clear Path



- 32 years' experience in electric utility industry
- Extensive utility construction / vegetation mgmt. acumen
- Project Management Professional
- Board Certified Master Arborist / Safety Mgmt. Specialist

MIKE TILLY
VP Business Dev.
Clear Path



- 28 years electric utility construction experience
- 12 years industrial environmental consulting
- Civil and environmental engineer expertise
- Formed electric power construction firm 2001

RON ADAMS
Subject Matter Expert
Right-Way Utility Solutions



- 40+ years electric utility experience
- 17 years vegetation management at Duke Energy
- Former Chair of the NERC Standard Drafting Team for FAC-003-4



RYAN KORPELA

- Ryan Korpela – President, Clear Path
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An aerial photograph of a mountainous landscape at dusk or dawn. The mountains are silhouetted against a blue sky with a hint of orange light on the horizon. A complex network of glowing orange lines, representing a power grid, is overlaid on the landscape, connecting various points across the terrain. The overall color palette is dominated by blues and oranges.

RISK COMPLIANCE AUDITS (RCA) HELP ANSWER THE QUESTION

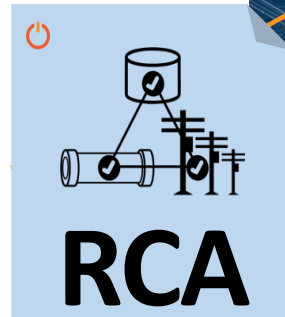
“How do i know if?”

- Are you in compliance? (Veg, Assets, Reliability...)
- What risk you are holding?
- Are your programs delivering the results you expect?

WHAT IS RCA + WHY DOES IT MATTER?

- **RCA (Risk Compliance Audit)** is a low-cost, high-value, statistically-valid, field-and-data based risk assessment tool you can proactively deploy across your entire utility network

- Veg Mgt compliance
- Asset Mgt compliance
- Reliability compliance
- Risk assessment



RCA DIFFERENCES FROM OTHER AUDITS

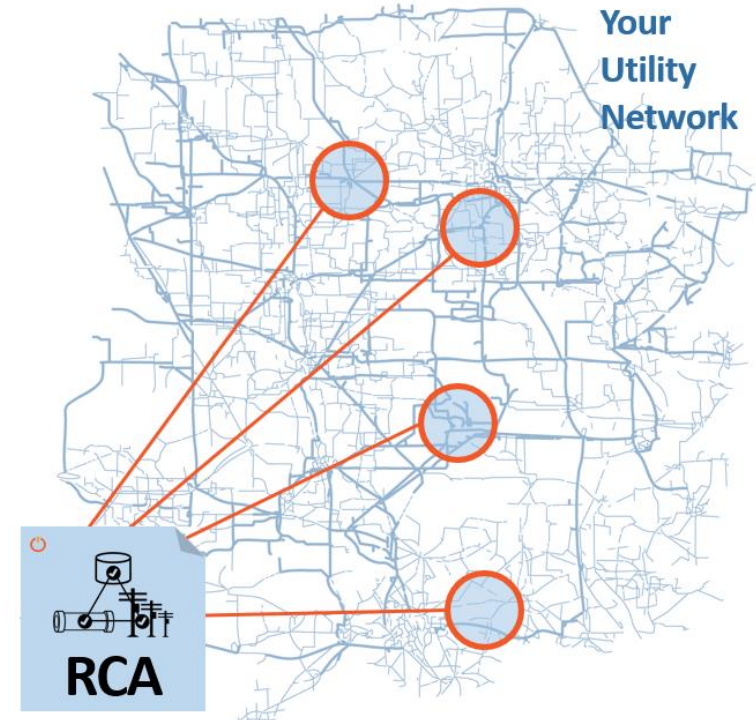
- RCA is a tactical, rapid-cycle, low-cost complement to existing long-cycle, high-cost, project-based audits

Current Operations-based Insp/Auditing:

- x Often % of assets tested per year
- x Verifies work completed meets spec
- x Cycle-based work often not done on time
- x Task-focused compliance

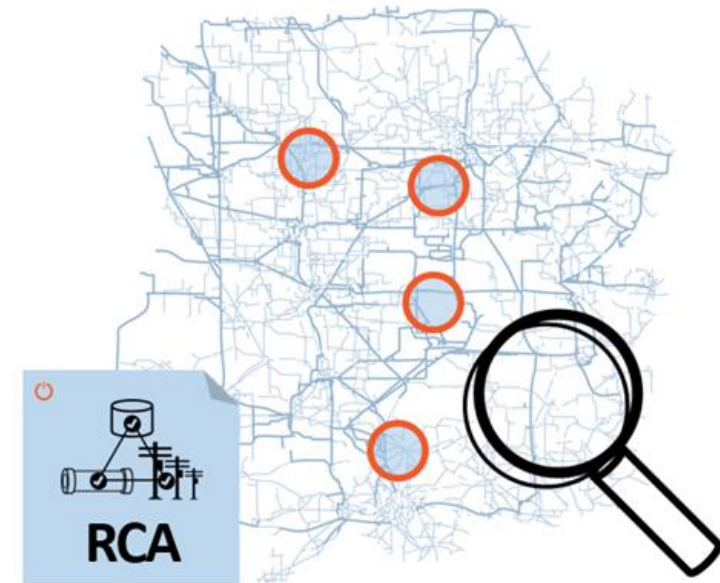
vs. **RCA Process:**

- ✓ **Not associated with any specific operation**
- ✓ **Attributes selected to target non-compliance**
- ✓ **Random survey locations find the unexpected**
- ✓ **Statistical data findings apply system-wide**



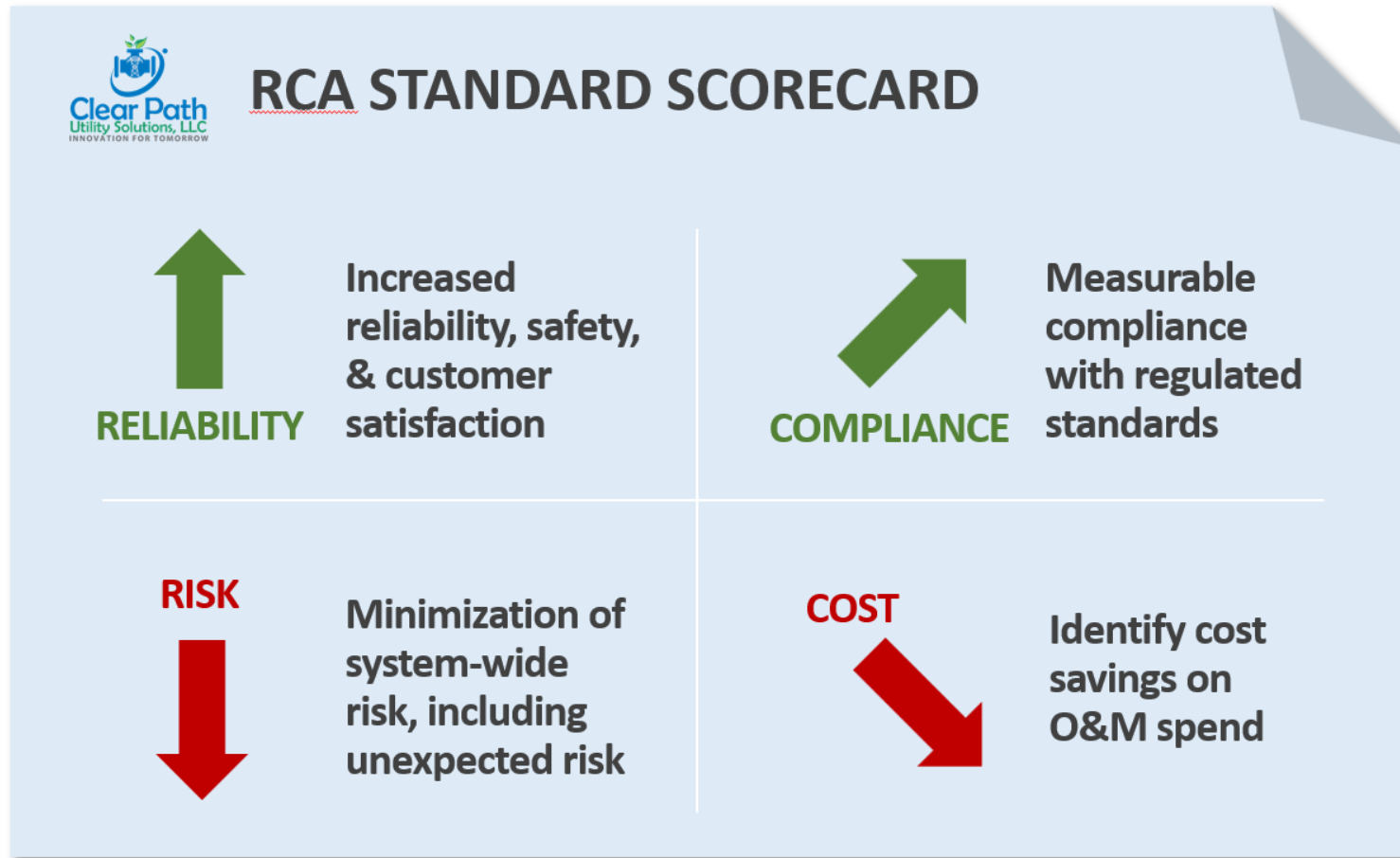
RCA VALUABLE BENEFITS

- Holistic system-wide view of compliance status
 - Early warning system for strategic risk management
 - Provides compliance trend line data showing improvement or degradation
 - Independent from any other task-based audit
- Basis for continuous improvement processes
 - Establishes foundation for data drive decision making processes
- Statistically valid data for ops teams, risk managers and insurers
- Apparent / root cause analysis of non-compliance results in corrective actions
- Tailored to specific compliance concerns for your utility



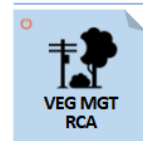
- Compliance scorecard
- Targets areas of concern
- Early warning data
- Compliance trend lines
- Root cause analysis
- Cost effective process
- Workstream independent
- System-wide insights

RCA KPI'S, METRICS AND OUTCOMES



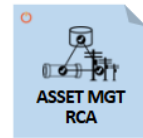
MULTIPLE UTILITY APPLICATIONS

- A separate RCA can be developed for a variety of utility and regulatory applications



Vegetation Management

- Effectiveness of Trim Cycles and Alternative Methods
- Abnormal Conditions
- Overall VM program Compliance
- NERC FAC-003



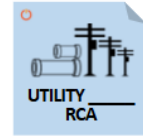
Asset Management

- Wood Pole Inspection Programs
- Abnormal Conditions
- Electric Ops Compliance



Wildfire Risk Assessment

- Utility-specific wildfire risk profile
- Baseline comparisons with other utilities
- Data for development of Wildfire Mitigation Plans



Ongoing Program Assessment

- Establishes a data-driven process
- Using statistically-valid data to manage continuous improvement programs

RCA VALIDITY AND COST EFFECTIVENESS



The RCA statistical basis is recognized for Rate Case & actuarial purposes

- Foundation of project is sound statistical analysis
- Findings represent conditions on a network-wide basis – Holistic representation of conditions



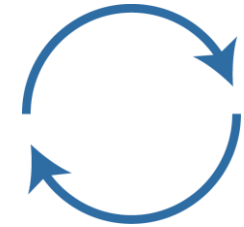
RCA Implementation is highly cost-effective

- Small percentage of network components actually required to be field-tested
- RCA is not dependent on any other ongoing operational activities



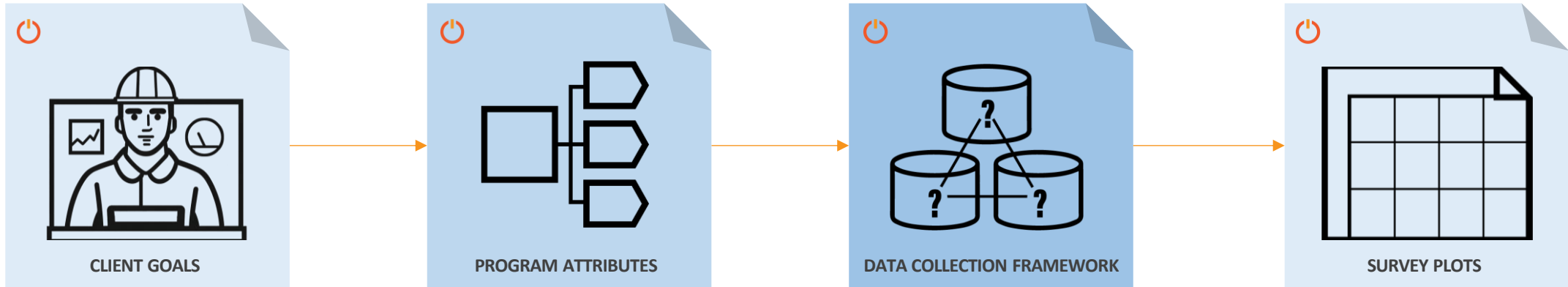
The RCA process can be one-off or a regular periodic program

- Initial field work and findings can stand-alone as current representation of compliance level
- Ongoing periodic (Annual/Semi-Annual) can show trajectory of compliance performance
- One-off = report; periodic = updated report cycle



The feedback loop of findings can drive risk-aware continuous improvement

RCA DEVELOPMENT PROCESS, PHASES 1-4



Phase 1: Access client needs & goals of RCA

- Meetings to understand current status of client programs
- Existing Data availability to support needs of RCA field work & analysis
- Expected use of RCA findings (Internal check-up, Rate Case support, Compliance concerns)

Phase 2: Develop program attributes

- What are key stratifications of data necessary to capture compliance level understanding
- Defining assessment accuracy will affect level of effort in the field

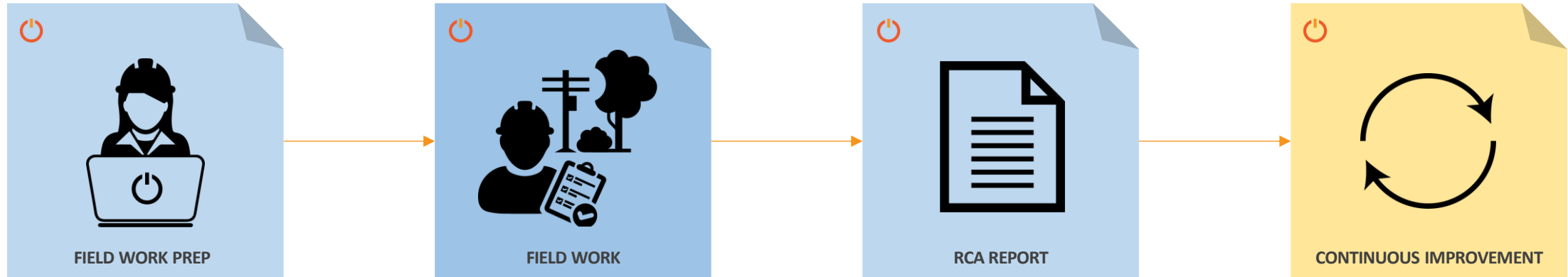
Phase 3: Generate data collection framework

- Utility provided data for circuit-level understanding of contractors, inspections/work cycles, regional mgt
- Define primary field data collection, non-conformance ID, support docs (Photo), other observations

Phase 4: Develop database of survey plots

- Randomize database and select (fixed length) plot starting points
- Include substitution plots to replace inaccessible, or unuseable plots

RCA DEVELOPMENT PROCESS, PHASES 5-7 (*8)



Phase 5: Field work program planning

- Analyze plot locations and optimize travel to minimize efforts in the field
- Select automated data collection tools and load with survey-specific information
- Finalize expected costs for mobilization and field work tasks

Phase 6: Execute field work

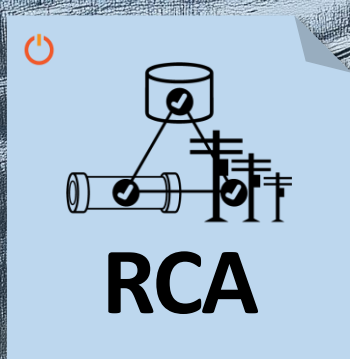
- Daily reporting, work verification processes, support for unexpected contingencies

Phase 7: Data analysis & Report generation

- Raw data processing, develop findings & compliance insights, generate initial and final reports

*Phase 8: Forward-looking continuous improvement plan

RCA PROJECT CASE STUDY





CLIENT

LARGE UTILITY IN EASTERN CANADA

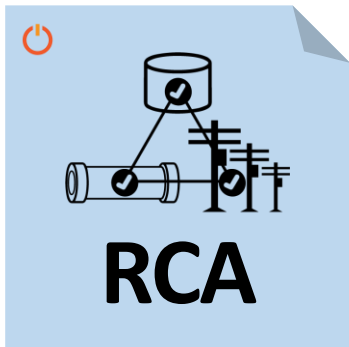
RCA CASE STUDY (VM)

- Extensive Tree-Caused Outages (TCO) and cost overruns on Vegetation Management programs
- Extended Vegetation Management cycle times up to 8 years
- Regulatory assessment was driver for revised process

RCA GOAL

- *Identify alternative Vegetation Management processes that could better achieve reliability and regulatory goals at current cost level*

RCA PROGRAM CONCEPT



1. Determine **optimal cycle** to balance cost, reliability & resources.
2. Move from **cycle-based trimming** to **defect-based program**. (“Defects” are vegetation in contact or expected within treatment period and hazard trees.)
3. Create a **small-scale but statistically-valid sample** representative of the entire system.
4. Develop a **commitment plan** to implement recommended modifications.
5. Establish a **periodic audit cadence** to ensure program effectiveness and expected results.

Network breakdown

Feeder
voltages:

- 2 ranges

Climate and Region Variations

- 4 ranges

Years since last worked

4 ranges:

- 0-2
- 3-5
- 6-8
- 9+

Utility decisions on survey accuracy vs cost

- % Confidence & % Margin of Error translates to number of survey plots required

Data preparation for randomized field-survey plots

- Plot selection to support statistical requirements plus substitutes for unavailable plots
- Each plot set at 1km in length from starting pole location

RCA DATA COLLECTION



Dedicated, experienced VMCA team to ensure consistency

- Dedicated field crews completed data collection tasks in 2-3 months

Well defined and consistent audit methodology:

- Drop down selections for primary data capture
- Full set of Corrective Action thresholds (ID deficiency, short term & long-term mitigations)

Mobile data collection with work verification during collection


Non-statistical data collection was also included

- Circuit accessibility – roadside, off-road, backlot, etc.
- Brush Density – none, low, med, heavy
- Species % in Plot – maple, spruce, pine, etc.
- While not statistically valid, does provide actionable insights about system status

RCA FINDINGS



RELIABILITY COMPLIANCE



RISK COST

- Initial Optimal cycle identified as 3 years with defect-based trimming
 - Subsequent annual RCA reviews altered site-specific cycles to 4 or 5 years for many areas
- Implementation of OCP total cost similar to previous year budget
 - Costs per line mile reduced to 1/3 of existing cycle costs
- Significant reduction in TCO and defects/km & improved reliability
- Reliability improvements confirmed after 1st optimal cycle of between 30% and 40%
- Post-OCP reliability from Force Majeure events also reduced
- Other Benefits
 - System characteristics per mile – Ingrow, regrow with workload projections, demographics, veg densities
 - Early Warning for Areas of Concern – Tree disease, mortality, risk ratings
 - Hi Value Opportunities – Alternative UVM methods (IVM, etc.), fuel loadings for fire risks



KEY TAKE-AWAYS

- RCA Process = A way to answer the question - **How do you know?**
 - RCA measures your existing programs to prove that you are delivering the business results you expect
- Extremely **cost-effective way** to quantify system-wide compliance
- Periodic RCA assessments provide **trend line data**
 - Establishes the basis for a data driven process
- Working with you, we build a **targeted program** to directly address your specific compliance concerns
- Statistically-valid **data quality can be used anywhere**
 - Board Room
 - Court Room
 - Rate Case reviews

Q & A





THANK YOU

- Thank you for attending
- Forthcoming post-webinar email with link to landing page
 - Recorded webinar
 - Copy of slides
 - Quick survey
- Stay tuned for new educational focused “eDiscovery” webinar on Dec 18th
- Have a great day!