fcgEnergy
Management Consultants

Overview:

How do you avoid the trap of “Digitizing the Paper Inspection Form” and calling it a win?

It starts with the inspection questions.

fcgEnergy, using our detailed library of confidential and publically available industry specific data, coupled with discussions with industry leaders, was able to fill in the gaps in this utility’s maintenance, equipment, and outage databases to create a tailored inspection program reflecting their unique modes of failures and system risks.

With a business rule based inspection program in place, information gathered will better support their current initiatives of root cause analysis, asset replacement, and updating material and design standards

fcgEnergy
Management Consultants

Operations & Engineering

T&D Mobile Inspection Program

"It starts with the inspection questions"

The Challenge:

How do you avoid the trap of "Digitizing the Paper Inspection Form" and calling it a win?

It starts with the inspection questions.

Working with a Midwest electric utility operating a 450 unit underground network system, fcgEnergy, using our detailed library of confidential and publically available network specific data, coupled with facilitated discussions with similar industry leaders, was able to fill in the gaps in this utilities maintenance, equipment failure and outage databases to create a base line inspection program tailored to their unique failure modes and risk profile.

The fcgEnergy Approach:

With a tablet program in place for mapping and work assignments, it was a natural extension to add one more application – the inspection program.

While the paper form has and could continue to serve them well, the pain to remain was greater than the pain to change.

This was driven by new OSHA arc flash requirements, the ramp up in replacement programs exerting additional pressure on crew availability, and the increased

challenges to justify spending levels beyond the “low hanging fruit” options selected in the past.

fcgEnergy, working with the utility was able to:

- ***Define the key drivers of system performance by;***

  - ***Reviewing and evaluating System Outages:***
    Underground network systems are highly reliable, experiencing typically 1 to 1.5% of the number of Overhead system outages, thus making outage trend analysis challenging and suspect.

    This was supported by fcgEnergy industry experience and data

  - ***Maintenance Records:***
    Maintenance records, with more data points can be insightful if they are sufficiently detailed, accurate and available.

    fcgEnergy has also found a similar approach in dealing with substation and transmission assets.

  - ***Internal databases and analysis***
    As former utility Planning, Engineering and Operations managers, fcgEnergy consultants understand what questions to ask, what files to look for, and what analysis likely has been done to find these hidden gems - in particular before these key people retire and IT erases their hard drive!

  - ***Employee knowledge and historical experiences:***
    Gathering employee opinions and experiences is insightful, but needs to be balanced with possible biases, such as

- "I can tape a secondary joint, in a crowded splice box, better than any separable connector you can buy",
- "PILC is our worst performer, but I agree we also have a problem with unsupported oil stop joints, in particular those installed in the 1970's"
- "I see no value in using 15kv separable dead break tees as midpoint isolation and hi-potting points – I can find the faults faster than breaking down those splices"

➢ ***Leverage Industry experience***

Emailing multiple question *surveys* is ok, but it is very difficult to get valuable insights that lead to actionable strategies.

They also occasionally create a false sense of comfort or discomfort depending on where you poll on a particular attribute (e.g. Average protector PM cycle is 4 years, we are at 3 years, thus we should extend our cycle – not reflecting the type and class of protectors, inspection questions/results along with employee skill sets)

fcgEnergy has found that a facilitated discussion based on a targeted multiple question agenda is a better approach.

Using our contacts in the industry, we can identify those specific peers solving or experiencing similar challenges, such as;

- Those having similar operational experiences
  - ➢ Westinghouse CMD protectors
  - ➢ Transformer termination compartments by specific vintage and manufacture

- Those having similar investment history
  - ➢ Richards versus Eaton Protectors

- PILC to Poly primary and secondary cable ratios
- Equipment replacement levels

- Those that have or are considering specific technology investments
  - SCADA Programs based on DigitialGrid, Eaton or Richards platforms

The Results

As a result, working with fcgEnergy, the utility was able to:

- ***Create High Impact Inspection Questions***
  The utility was able to reduce the digital form questionnaire from a hundred fifty broad questions to a targeted fifty
  - With crews initially asked to fill out a manageable twenty five questions
  - And using business driven rules if an issue was found, more questions would be asked

- ***Leverage Software and Technology Advances***
  To support the goal of one visit, one inspection record, a discussion was facilitated with software vendors who specialize in mobile inspections (both within and outside the utility industry).

  They, offered insights such as:
  - The need for a Mobile friendly application – software should self-adapt to whatever device crews/supervisors/engineers decide to use e.g. a desktop, laptop or a IPhone
  - The ability to embed pictures within the form (not as an attachment), with free form writing ability
  - In field "face time" with remote supervisors and engineers
  - Standalone analytics and exception reporting

- ***And build a solid base to support future initiatives such as***
  - Updating material and design standards
  - Work practices and training needs
  - Root cause analytics and metrics, and
  - System investment and asset renewal programs

To continue the discussion and learn more how fcgEnergy can work with your team, please contact us at info@fcgEnergy.com