



Vegetation Management North American Transmission Forum Review Results

TIPSC

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June 4, 2013

- The North American Transmission Forum is an independent Non-profit corporation. It's members include

- investor-owned,
- state-authorized,
- municipal, cooperative,
- U.S. federal, and
- Canadian provincial utilities.

- The Forum is organized around six integrated programs:

- Practices,
- Peer Reviews,
- Information Sharing,
- Metrics,
- Reliability Initiatives, and
- **Assistance**

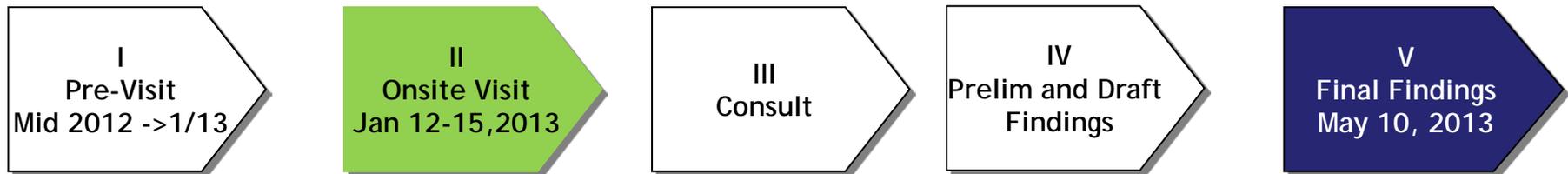
NATF Core Values:

- Leading change by sharing best practices
- Holding each other accountable in our pursuit of excellence
- Ensuring senior leadership's ongoing commitment to the Forum's mission
- Fostering a community for sharing information through openness and candor
- Maintaining confidentiality



January 12-15, 2013 BPA Assistance Visit

BPA desired NATF experts to take a critical look at the significant changes made to the BPA program in the last few years, with the expectation of a detailed assessment that would result in specific opportunities to “check and adjust” the program.



Pre-calls between team members

- A. AV Team: 3 industry members; 3 NATF SME's.
- B. 20 BPA personnel, including high level management
- C. BPA history & background
- D. BPA capabilities
- E. BPA restrictions

AV team plus 3 additional NATF industry members

While the AV team members may not understand all of the challenges, limitations, and intricacies with which BPA must operate, *we are impressed with the positive momentum and excellent results over the last four years, and have shared many points to consider for continued improvement*

- A. validated many of the BPA's processes and decisions;
- B. gave BPA specific improvement ideas to consider;
- C. valuable Lessons Learned/Examples of Excellence
- D. Areas of Concern and Action Items



Conclusions

V
Final Findings
May 10, 2013

Situation: BPA struggled with achieving desirable results with its transmission vegetation management program, including >1 tree contact in the post-June 2007 “mandatory and enforceable” NERC Reliability Standards period.

- ...BPA has achieved an impressive and significant turnaround in the effectiveness of its program.
 - **strong leadership** and the ability to drive a **cultural change** to do the right things the right way....impressive **executive involvement** and support of the vegetation management department’s efforts, and a strong and supportive **external affairs** department.
 - **commitment to excellence** by the vegetation management team.
 - BPA has an **outstanding LiDAR program**.
- BPA challenges:
 - sustaining its success
 - BPA has achieved “control” of its 15,000+ miles of transmission lines -> moving to “sustainment” of systematically maintaining its ROWs.
 - continuing to improve.
 - The risks of backsliding into complacency, potentially exacerbated by budget cuts and unfilled positions (low headcount) need to be avoided. Removing inefficiencies in BPA’s processes can improve results on many levels.



Lessons Learned/ Examples of Excellence

V

Final Findings
May 10, 2013

- **Documents** tracking mechanisms (EXCEL,ACCESS,apps); cheat sheets, review ROW easements
- **Complacency** build business cases; Steven Covey's focus on execution & compliance, daily reports
- **Compliance** avoid "unintended consequences" with over-specific restrictions; internal spot checks,SW
- **Hiring** valuable bench-strength enables training, surges, succession. Internship with schools
- **LiDAR** Removes subjectivity, tool educating customers, pin-points DT's, before/after compares, ID missing structures/assess condition. Schedule "thoughtfully," leverage LiDAR with thermography to assess tree condition, timely LiDAR data requires strong vendor relationships
- **Organizational Structure & Division of Responsibility** cooperation with public affairs, general counsel; establish a predictable visibility pattern for landowners, extend handoff to engineering during new construction
- **Practices in the Field** Aerial trimming, win-wins, every touch point!, stipulate customer notifications by contractors
- **Scheduling & Work Management Systems** Lidar + laptops, Xtra projects prepped, SharePoint site with escalations, size projects based on historical knowledge, flexibility to changing conditions
- **Quality Assurance/Quality Control and Consistency** closed container system for herbicides, need for effective face-to-face communication remains.



Areas of Concern and Action Items

V

Final Findings
May 10, 2013

- **Centralization, Division of Responsibility, and Organizational Structure** Linemen to do less VEG, or have them report to VEG; DT group report to VEG, eliminate A/R work, annual inspection of all ROWs. Contractor “report cards”-> overall best value includes more factors than lowest
- **Compliance and Documentation** Switch from paper to e-files. Revise wording of TVMP to modify unintentional violation-inducing language. Standardized easement language. Efficient process for updating lines, spans, etc. Database consolidation
- **Hiring** fill gaps as quickly as possible, contracting resources if needed
- **IT/Work Management Systems** handhelds-integrating LiDAR and other systems, GPS sign-off, unique ID's, easily enter updates in the field, daily synchronization/compression, testing!
- **Practices in the Field** independent inspections, more aerial trimming/herbicides, prescription optimization.
- **Quality Assurance/Quality Control & Consistency** Quality Control program establishes both a statistically viable sampling rate and a high value Quality Assurance program, spread across a broad spectrum of the enterprise. More clarity of responsibilities for shared or leased transmission lines. Foster NRS sharing of ideas, best practices and rapport building. Implement “friendly fire” cross-district auditing.





Example of Excellence: BPA LiDAR Program

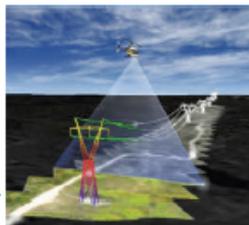
During the March 2013 Forum members meeting, Chuck Sheppard (vegetation/access road manager) and Ryan Beck (remote sensing team lead) overviewed the Bonneville Power Authority (BPA) LiDAR program. BPA's use of LiDAR spans multiple business functions and provides a variety of benefits. We believe other organizations will value learning more about how BPA uses LiDAR to address business needs.

Technology Overview

BPA defines LiDAR, which stands for Light Detection and Ranging, as follows: optical remote sensing technology that can measure the distance to a target by illuminating it with light from a sensor unit. Here are some key points and statistics:

Data Acquisition Components

- Platform – helicopter
- Operators – pilot and sensor
- LiDAR sensor
- Inertial system recorder
- Global positioning system
- Imaging (optional)
- Weather probe (optional)



Preferred BPA Scale

- ~500' above ground @ ~40 knots
- ~4000 circuit miles/year

Inside this issue:

Forum Office Open in Charlotte	4
Forum Executes MOU with EPRI	4
System Protection Workshop Brings over 100 SMEs	5
Transmission-Nuclear Power Plant Interface Practices Group and Workshops	5
Fourth Train-the-Trainer Workshop	6
NATF Review of NERC 2012 and Early 2013 Lessons Learned	6
Events Analysis and Lesson Learned Challenge Board Concept	7
Reliability Initiatives and Assistance Updates	8
Forum Program Advisory Groups (PAGs)	9
FERC Approves New Vegetation Management Standard	10

Upcoming events:

Meetings

- Modeling Practices – Charlotte, NC (June 4-5)
- Board and Members – Allentown, PA (June 12-13)
- Metrics Working Group – Atlanta, GA (June 18-19)

Workshops

- Human Performance Symposium – Chester, VA (May 14-15)
- Security Practices – Charlotte, NC (May 21-22)

Peer Reviews

- Pacific Gas & Electric – San Francisco, CA (July 29-Aug 2)

See Forum.net > [Calendar](#) for more information

