

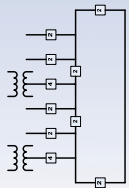
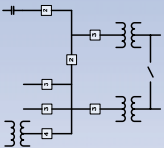


# Asset Management Update

## ATC Network Customer Meeting

May 17, 2007

Presenter: Mark Davis, Director  
Asset Management & Arrowhead Weston Department





# Maintenance to Asset Management

- The Maintenance Management approach was appropriate to establish our performance baseline of newly acquired assets.
- But we need . . .
  - To manage risk,
  - Better plan for asset renewals,
  - A strategic approach to managing and financing an aging infrastructure.

# Changing Landscape Drivers

	Asset Maintenance	Asset Management	
	2001 to 2005	2006 to 2007	=> 2012
System	<p>January 2001: \$580 million in assets            2002: \$0.7 billion in assets            2003: \$0.9 billion in assets            2004: \$1.0 billion in assets            2005: \$1.4 billion in assets</p>	<p>9,100 miles of transmission line            480 substations            2006: 1.9 billion in assets</p>	<p>Construction plans for next 10 years            \$3 billion.</p>
Need	<p>Perform a general assessment of ATC assets.            Obtain information on current assets and their maintenance requirements.            Maintain the assets to support a reliable system.            Needed to act on the increased Vegetation Management expectations (2004)</p>	<p>Maintain an asset base that has grown significantly since start of ATC.            Improved cost effective management of system.            Supporting an increased emphasis on reliability.            Transition to operations based maintenance.            NPV renewal based on financial attributes.</p>	<p>Continue to manage a reliable large fleet of assets.            Anticipated construction plans for next 10 years increase asset base significantly.            Increased emphasis on maintenance.            Operations based maintenance.            Renewal strategy considering NPV and multiple attributes.            Meet and/or exceed NERC reliability standards.</p>
Approach	<p><b>Time-based Maintenance Approach</b></p>	<p><b>Apply Industry Leading Practices</b></p> <p>Good Business Decisions            (Risk-Value-Cost-Reliability Based)</p>	



# Asset Management Department

## Developing a Methodology . . . .

“Ensure assets deliver the required function and level of performance in terms of service, in a sustainable manner, at the lowest whole life cost without compromising health, safety, environmental performance, or ATC’s reputation....”

## For the Purpose of . . . .

*Improving reliability for our customers through applying leading risk-based decision making practices to the management of our transmission assets.*



# Shift from Maintenance to Asset Management

## Key Steps

- Develop Framework for Asset Management.
- Develop Asset Health Index Calculation.
- Develop Risk/Benefit Valuation.
- Apply additional attributes to Net Present Value Concepts.

## Benefit Realized

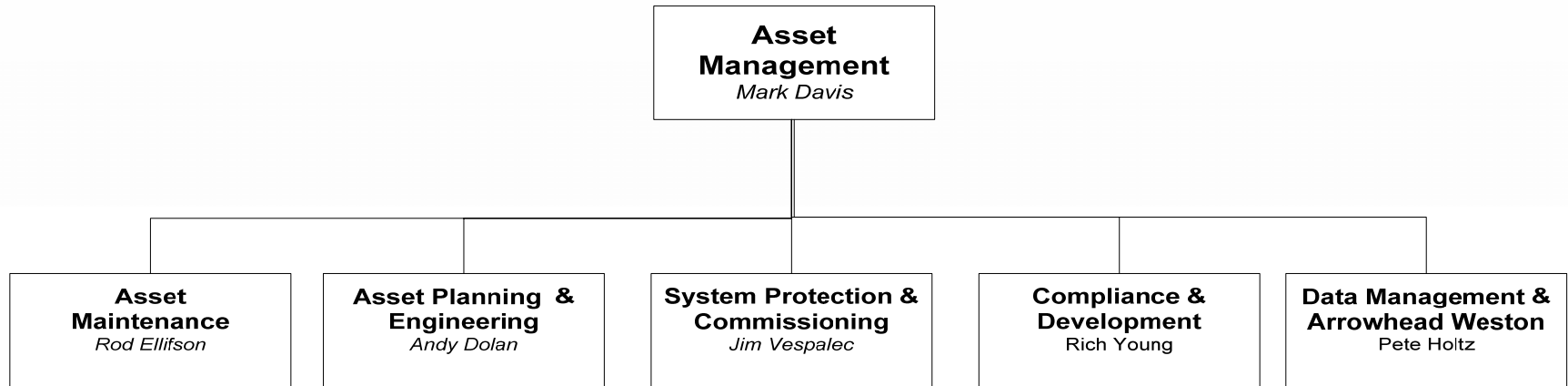
- ✓ Engaged workforce.
- ✓ Performance based asset maintenance instead of time based.
- ✓ Better Asset Renewal Decisions (Quantify the risks and benefits).
- ✓ Enhanced NPV (risk/benefit based).

# Approach Behind our Change

- Analyzed the “AS-IS” state.
  - Identified risk adverse processes
  - Right skills of staff; adjust focus
- External Assessment.
  - Call for Papers
  - Yanco & Assoc. – consultant
  - Benchmarking – Dominion, Southern Co.
- Learn from the Workforce.
  - “Tribal” knowledge
  - HR support and guidance
- Build a Strong Sense of “Team”.
  - Candor and inclusion
- Capitalize on Talents.

$$\left(1 + \frac{SC}{APC}\right) \times \sqrt{\frac{250 TD}{TC} \times \left(1 + \frac{1.5(FOI)}{FOC}\right) \times \left(1 + \frac{1.5(ROI)}{ROC}\right)} \times$$
$$\sqrt{\frac{250 TD}{TC} \times \left(1 + \frac{1.5(FOI)}{FOC}\right) \times \left(1 + \frac{1.5(ROD)}{ROC}\right)} \times$$

# We've Re-aligned for the Future



- \* Execution of work plans.
- \* Stewardship of O&M budget.
- \* Portal of maintenance work to alliance partners.
- \* Asset data owners.

- \* Long-term planning based on system health.
- \* Stewardship of AM driven capital budget.
- \* Standards with leading practices.

- \* Enhanced business perspective.
- \* Synergies in the labor/resource pool.

- \* Develop, manage & report AM NERC/ FERC compliance.
- \* Establish metrics.
- \* Manage EPRI spending.

- \* Close the gaps in data needs.
- \* Close the gaps in records needs.
- \* Own our applications.

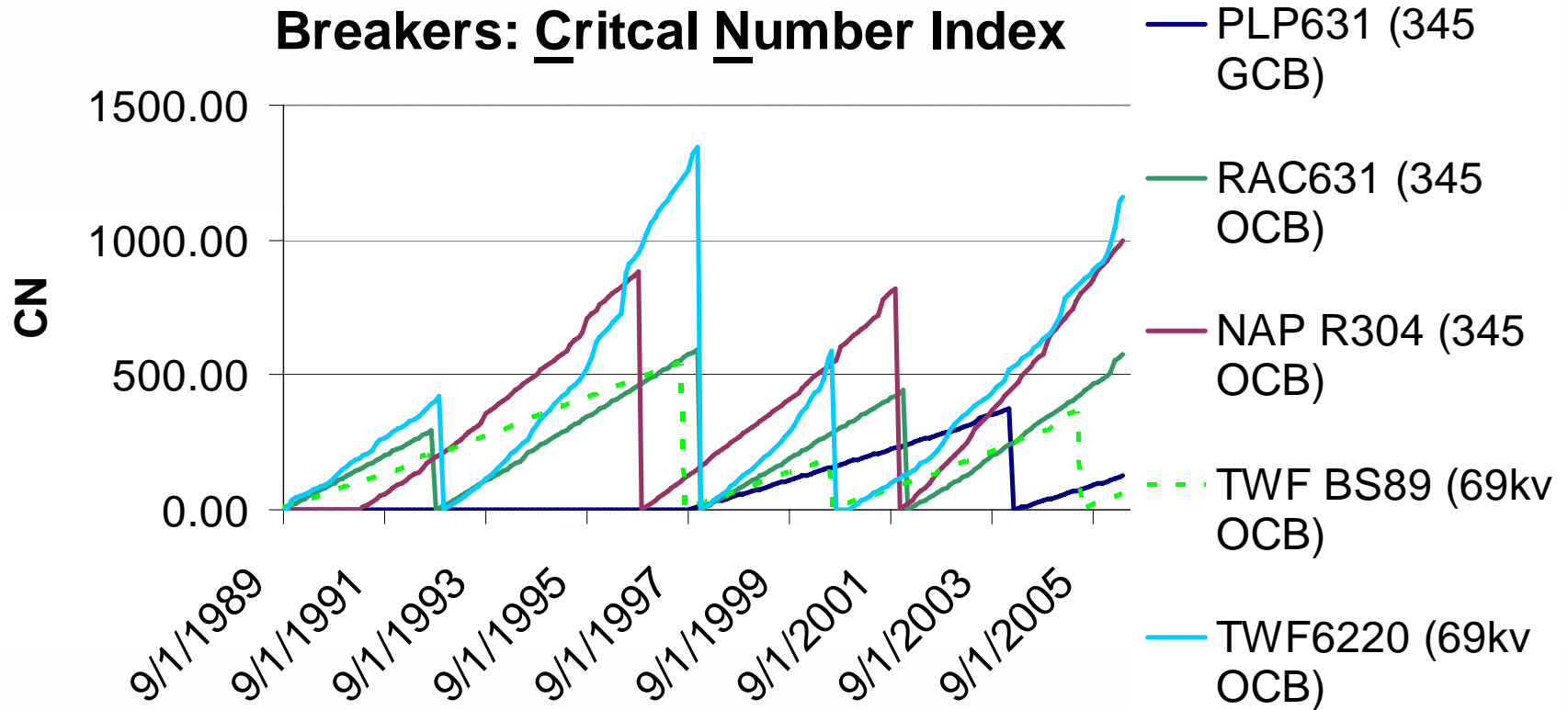


# Asset Management Methodology Pilot Project Excerpt

## Health Index Substation Circuit Breakers



# Health Index – Circuit Breakers





# We're on the move!

- Analyzing “health” of breakers,
- Challenging '09 projects using what we've learned,
- Applying methodology on the run,
  - Used to identify poor performing assets
- Employing economic analysis on some asset renewals,
- Continuing development of T-Line health index model,
- Setting firm '07 targets for data acquisition,
- Developing asset renewal model using the valuation of risk and benefits.



# We're putting the pieces in place. . . .

- Industry leading practices,
- ATC and Consultant expertise,
- Re-aligned organization,
- Focused development effort (circuit breakers, transformers, and T-Lines).

*For more than maintaining but for managing  
our transmission assets using leading  
practices.*

