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**BC**hydro

**FIELD SERVICES**

## Leading Practice Review

Vancouver, British Columbia

May 12, 2004

# Statement of Confidentiality

This document contains ideas and information that are privileged and confidential to BC Hydro and Accenture and shall not be disseminated, distributed, or otherwise conveyed to any third party without express written consent.

# Meeting Objectives

- Review project scope and objectives
- Discuss major findings
- Outline a path forward

# Project Context

**BC Hydro Field Services commissioned a project to benchmark best-in-class performance to identify opportunities to improve cost performance while strengthening service levels.**



- BC Hydro is among the leaders in power delivery
- Continuous improvement is the cornerstone for the BC Hydro Field Services organization
- Field Services sought to increase operational learning and identify areas for added improvement by commissioning an external benchmarking study
- As part of the exercise, Field Services held itself to a very high standard, benchmarking against leading high performance companies across the globe in the utilities, telecom, and services sectors
- Based on this forward thinking approach, Field Services was able to identify areas for added improvement so that the company can continue to outdistance others in the electric utility industry

# Benchmark Considerations

**Benchmarking is a useful management tool for providing a directional assessment of current performance. However, care must be exercised in reaching conclusions due to the inherent difficulties in benchmarking.**

## Difficulties in Benchmarking

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### *Relevant Peer Companies*

- BC Hydro has both a unique service area and a T&D structure – splitting into BCTC, Distribution, Field Services, and Engineering organizations – that are uncommon to other electric utilities
- BC Hydro must move beyond the Canadian marketplace to obtain a large enough (i.e., statistically relevant) number of peer companies to benchmark

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### *Valid Benchmark Metrics*

- Numerous benchmark metrics are available with varying degrees of statistical validity; care must be used in choosing metrics
- Even with valid metrics, benchmark results can vary widely depending on the metrics selected; use multiple metrics to gain a more balanced perspective of performance levels

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### *Accurate Benchmark Data*

- Numerous factors make “apples to apples” comparisons difficult
  - Accounting treatments
  - Currency exchange rates
  - Data is a “snapshot in time” that may reflect unusual or one-time events like major storms, non-seasonal weather, or major IT transition period

# Project Overview

**The Benchmarking Project is a critical step for BC Hydro Field Services to achieve its vision of becoming commercially viable.**

## Project Objectives

- Provide defined metrics for workforce efficiency and internal client satisfaction
- Complete directional benchmarks and expand through market comparisons
- Identify target areas for improvement
- Focus on operational learning, not just the numbers

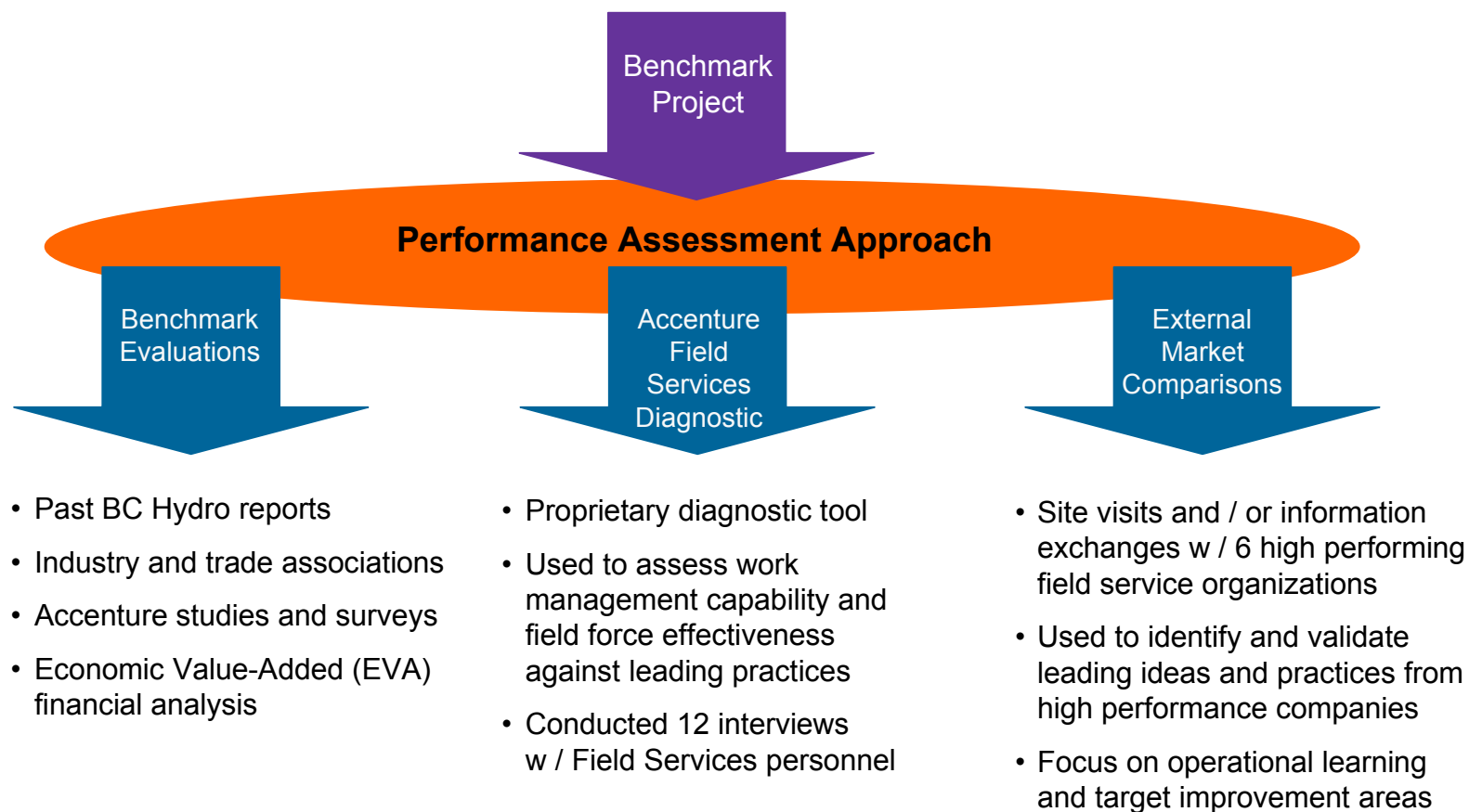


## Expected Benefits

- Leadership in cost, service levels, and practices
- High level understanding of current performance relative to others
- Operational learning of practices that high performing field service organizations employ
- Fact-based change platform for the Field Services organization

# Approach

**A three prong approach was used to assess Field Services performance and to identify target improvement areas using benchmarking analysis, Accenture diagnostic toolsets, and market comparisons.**



# Key Findings and Conclusions

**Our comprehensive approach found Field Services to be a competitive service provider, but there are major opportunities to improve workforce efficiency that could generate \$18 to \$30 million in added value.**

## *Workforce Efficiency*

- Benchmarks suggests BC Hydro has a solid cost position driven by leading practices in Field Services (1Q in Distribution, Contractor Usage, Vegetation, Vehicles / Worker), low wage rates, and a favorable currency rate
- However, a closer analysis reveals Field Services lags many in the industry in workforce efficiency (3Q/4Q in Time on Tools, T&S staff levels, overtime). Fortunately, major opportunities exist that can help improve worker efficiency and substantially lower Field Services' cost structure.
  - A comparison of Field Services business practices with other companies and industries suggests that up to 60 - 90 minutes of improvements in job site time exist to move Field Services from a 3Q/4Q ranking to 1Q
  - Field supervision is a key driver of crew productivity that Field Services can better leverage to improve performance
  - Based on staffing benchmarks, Field Services may be able to operate with a leaner workforce augmented by contractors in both the Transmission and Stations areas (3Q/4Q ranking)
  - Preliminary findings suggest Field Services may be able to save \$1.5 to \$3.2 MM/year by better managing overtime (3Q/4Q)
  - A financial breakdown found contractor spending is a major value lever – equaling 25% of Field Services' annual expenses – which others have been able to manage through procurement efforts for significant cost and service level improvements

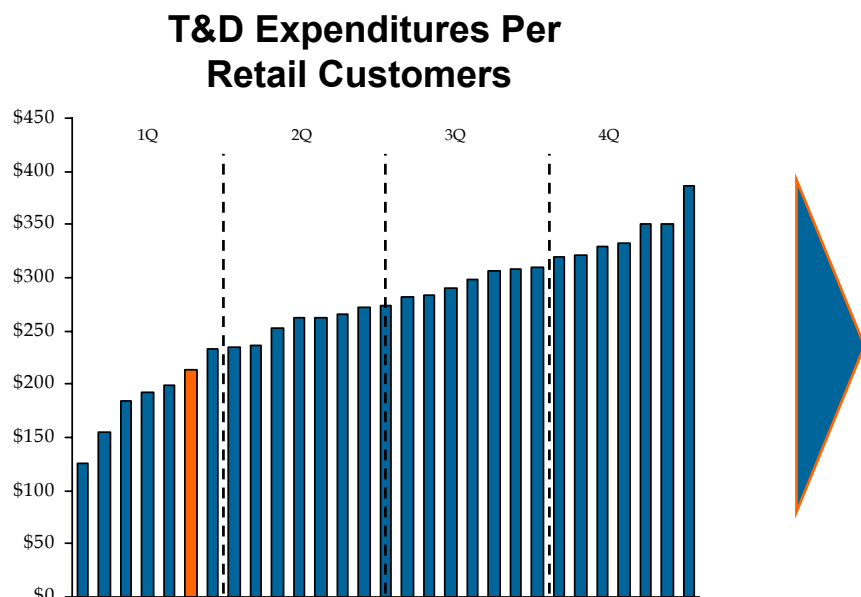
## *Internal Client Satisfaction*

- Market comparisons found crew performance measures help drive worker productivity. However, many high performers have abandoned or do not use SLAs. As a result, FS should take care in developing detailed SLAs.
- More important – trouble response is an improvement opportunity for BC Hydro, with the key drivers being outage to dispatch and dispatch to crew arrival

# T&D Cost Structure

**Benchmark data suggests that BC Hydro has a solid cost position in the industry driven by leading practices in Field Services, low hourly wage rates, and a favorable currency exchange rate.**

## Cost Drivers

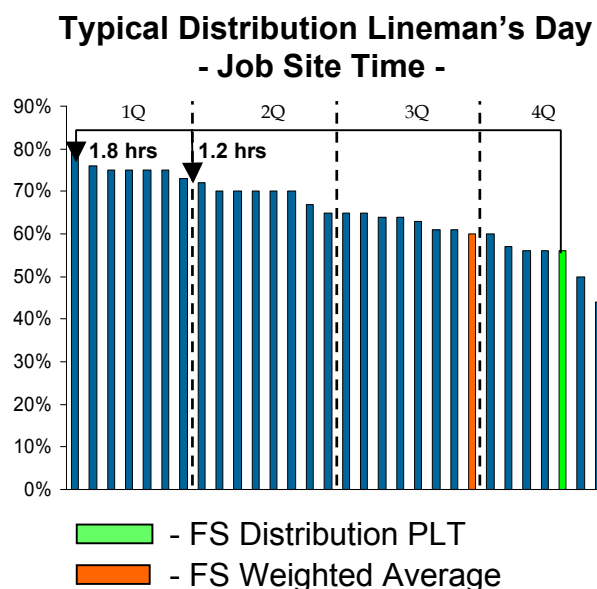


- Field Services' leading practices
  - 1Q Distribution / Field Services Costs
    - Smaller crew sizes (typically)
    - Flexible CBU workforce
    - Strong contractor usage
    - Customer options to perform work
  - 1Q T&D Vegetation Mgmt Costs
  - Low Fleet Cost (1Q in Fleet Expense as Percent of Total T&D O&M Expenses)
  - Impressive Time & Attendance
- FS skilled hourly wage rates - 27% below benchmark survey average
- BCH costs based on Canadian dollar equal to US\$0.679 – near 25 year low

# Time on Tools

A comparison of Field Services business practices with other companies and industries suggests that up to 60 - 90 minutes of improvements in job site time exist.

## Supporting Reasons



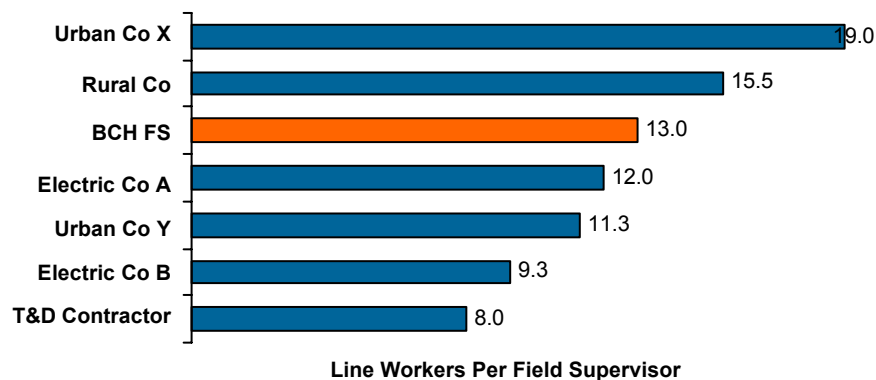
Source: PA Consulting T&D Benchmark Survey, Accenture Delphi Study with Field Services 1<sup>st</sup> Line and Area Managers, Accenture analysis.

- **Benchmarks.** Data suggests Field Services can increase PLT job site (*i.e., productive*) time by 1.2 – 1.8 hrs / day
- **Field Services Practices.** Accenture diagnostic and market comparisons found several improvement areas to realize increased FS “time on tools”
  - Field supervision (field time, skills, tools)
  - Crew performance metrics
  - Work planning and scheduling
  - Materials / Vehicles
- **Industry Analogs.** A number of field service providers have demonstrated major productivity gains are achievable
  - Top Decile Electric Utility (4.5 hrs / day => 5.5 to 6.0 hrs / day)
  - Large Telecom Company (3.5 jobs / day => 4.5 jobs / day)

# Field Supervision

**Field supervision is a key driver of crew productivity that Field Services can better leverage to improve overall cost and service level performance.**

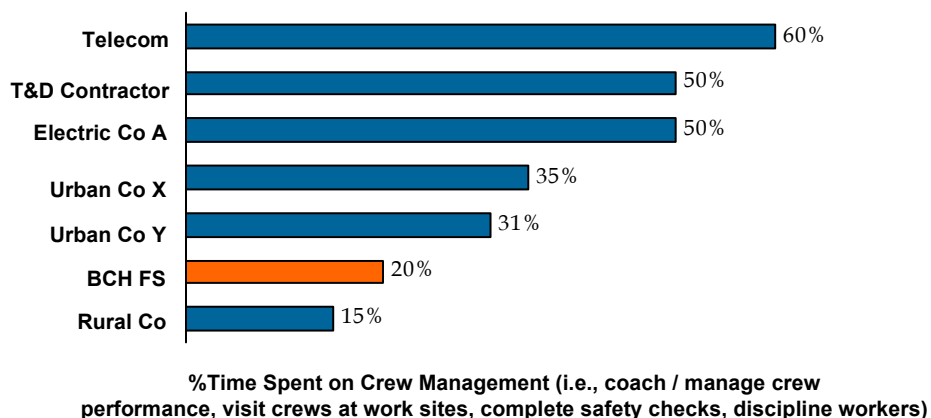
## Span of Control



## Field Time

- High performers all reported field presence of crew supervision is “extremely effective” in driving crew productivity (scored 5 out of 5)
- Field Service significantly lacks 1<sup>st</sup> line managers’ time managing crews in field compared with high performing organizations (FS = 20% vs. High Performers = 50+%)
- Field Services also lags higher performers in the number of days per week that 1<sup>st</sup> line managers are in the field – 2.5 vs. 5 days/wk

## Percent of 1<sup>st</sup> Line Manager’s Time Spent in Field



## Leadership Skills

- Common hurdle is promoting supervisors from trades for job requiring different skills
- Many high performers emphasize better selecting, training, and investing in supervisors to help lead, coach and motivate crews
- FS may be able to establish similar programs

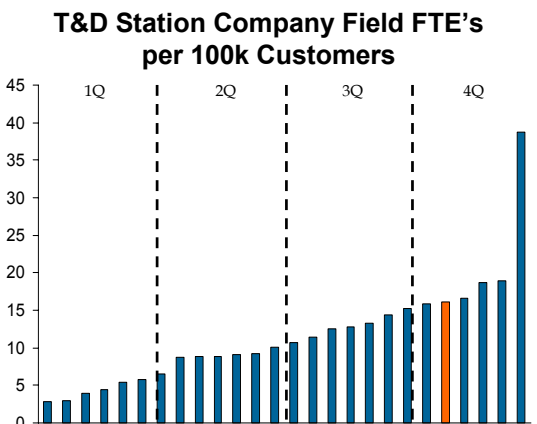
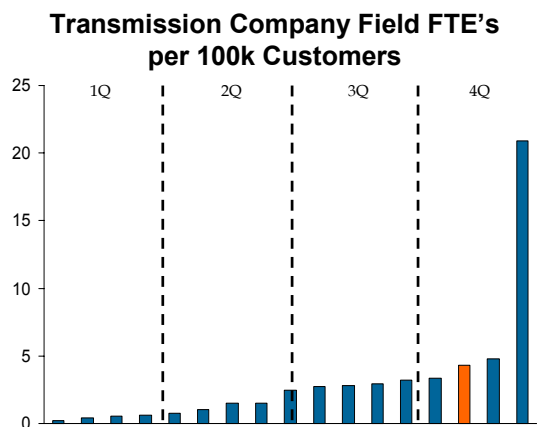
## Supervisor Tools

- Crew performance measures are critical tools that high performers use to set expectations and manage both crews and field supervisors
- FS 1<sup>st</sup> line managers can benefit from development of crew performance metrics

Source: Accenture 2004 survey and market comparisons with field service organizations, Hal Vatne – Manager of Strategic HR Field Services.

# Staffing Levels

**Based on staff benchmarks, Field Services may be able to operate with a leaner workforce augmented by contractors in both the Transmission and Stations areas.**



■ - BC Hydro

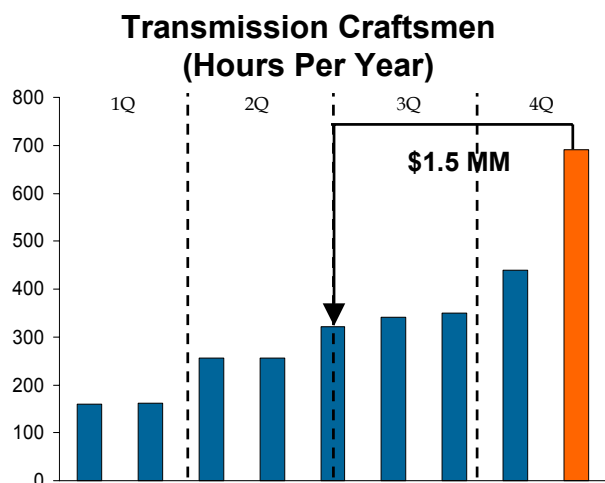
## Comments

- **Benchmarks.** Transmission and Stations staff levels consistently benchmark in the 3Q/4Q across different metrics (*e.g., customers, assets, or equipment*)
- **Multi-skilling.** Unlike FS, many high performing companies use multi-skilled workers (*e.g., T&D lineman, Relay and Communications techs*) to increase worker flexibility and lower staffing needs
- **Contractor Usage.** Transmission and Stations have opportunities to increase contractor usage to be more in-line with industry

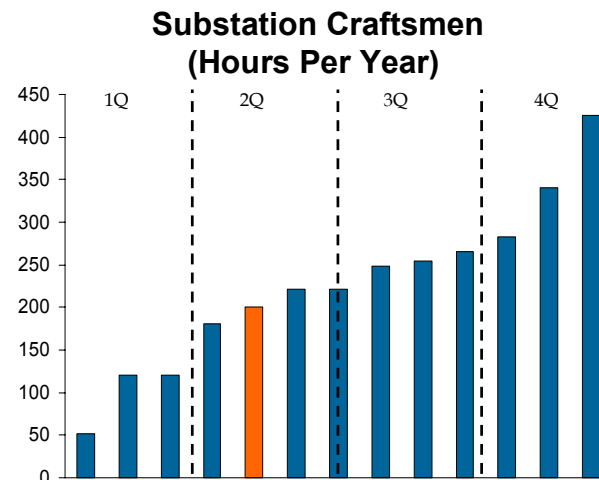
Source: 2003 PA Consulting T&D Benchmark Survey, Accenture analysis.  
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# Overtime Hours

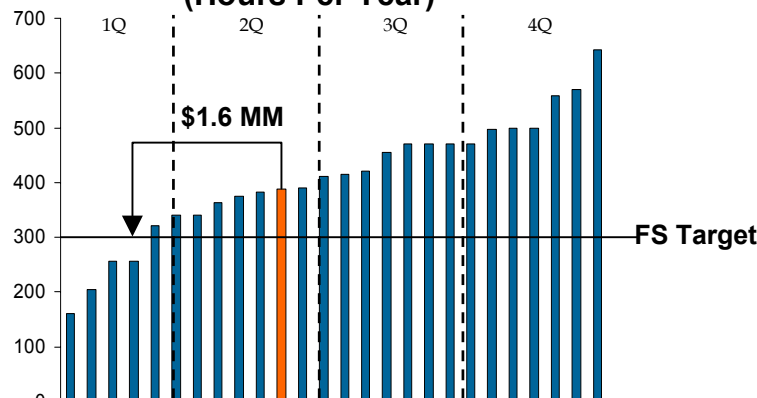
**Preliminary findings suggest Field Services may save \$1.5 to \$3.1 MM by reducing overtime for Transmission and Distribution workers.**



Note: Further analysis is suggested to determine nature and frequency of overtime drivers. As an example, one-time events like 2003 forest fires may have caused greater OT hours than normal in Transmission.



**Distribution Craftsmen (Hours Per Year)**



Source: PA Consulting Field Services Benchmarking Study, BCH data taken from Payroll system from December 01, 2002 to November 30, 2003  
 Transmission savings:  $(690\text{hrs} - 289\text{hrs}) = 401\text{hrs} * 67 \text{ IBEW Emp} = 26,867\text{hrs} * \$28 * 2 = \$1,504,552$   
 Clerical savings:  $110\text{hrs} - 88\text{hrs} = 22\text{hrs} * 190 \text{ OPE Emp} = 4,180\text{hrs} * \$15 * 2 = \$125,400$

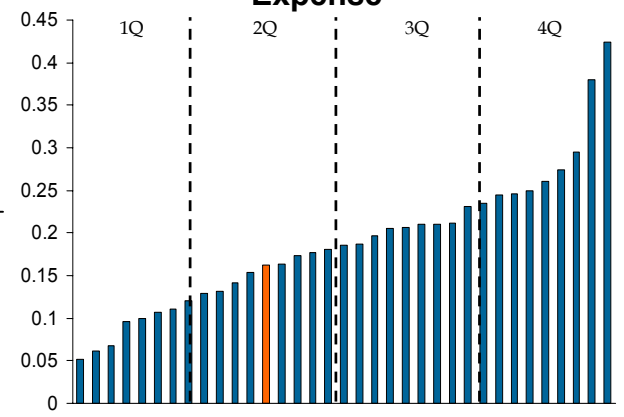
- BC Hydro

# Fleet Management

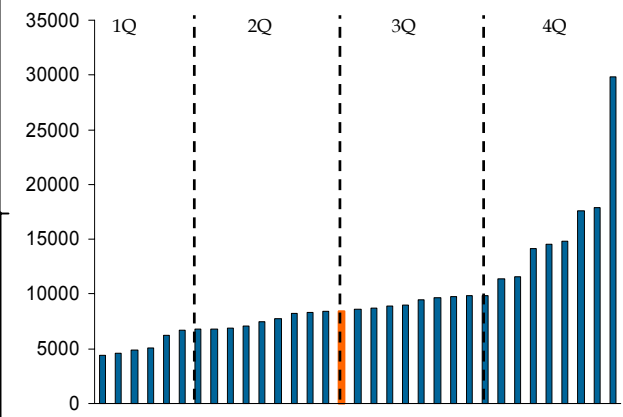
**BC Hydro is generally a better than average performer in terms of relative fleet size and fleet expenses compared to industry peers.**

*Note: Fleet Expense includes direct labor (foreman, mechanics, admin & support, other), contract labor, contract services, parts & equipment, fuel, depreciation (for purchased vehicles), leases for vehicles and equipment, Mgmt & Admin expenses, and Other*

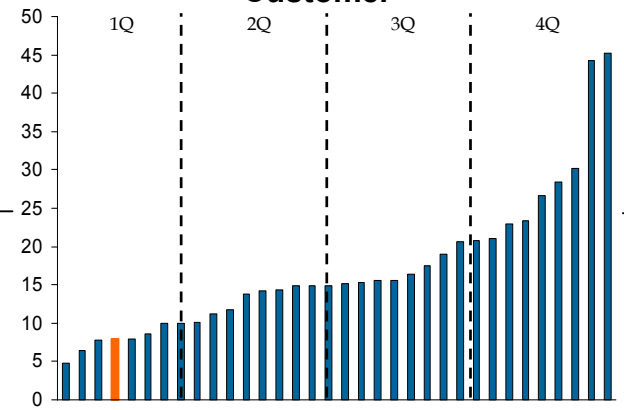
**Fleet Expense per Total T&D O&M Expense**



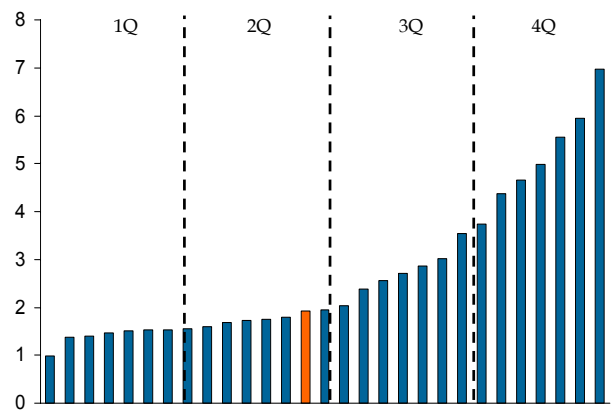
**Fleet Expense per Vehicle**



**Fleet Expense per Distribution Customer**



**Vehicles per Field FTE**



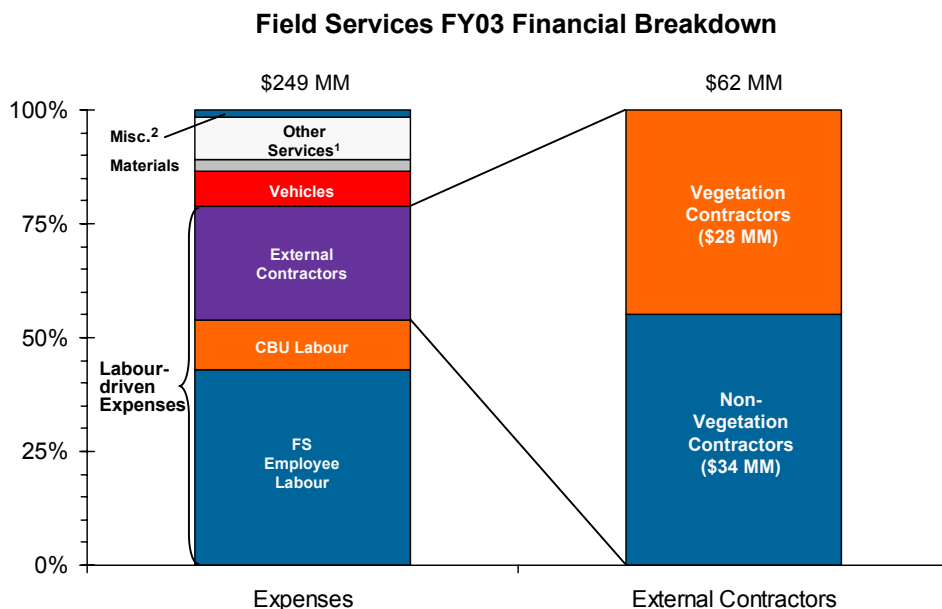
**BC Hydro**

Source: Eric Perkins  
 Vehicles include trailers  
 Fleet Expense is the sum FS, DLOB, and BCTC fleet allocations annualized from 9 month December 2003 data  
 Field FTEs approximated by adding IBEW employees from FS, BCTC and DLOB (from December Head Count report)

# Contractor Spend

**A financial analysis found contractor spending is a major value lever – representing 25% of Field Services’ annual expenses – that others have managed through procurement to gain cost and service improvements.**

## Contractor Spending



- At \$62 million, external contractor spending represents 25% of the total annual expenses for Field Services
- At \$28 million, vegetation management is the third largest expense item after FS employee and CBU labour costs
- With over 60+ tree trimming contractors, Field Services may benefit from consolidating its number of contractors
- Accenture procurement engagements have typically resulted in 5% – 10% savings on clients’ contractor spending

<sup>1</sup> Other Services includes Internal and External Services but excludes Contractors & Outside Services

<sup>2</sup> Miscellaneous expenses include Buildings & Equipment (\$2.2MM) and BCH charges (\$1.7MM)

Source: FY03-09 Consolidated Dec 11-03 Final.xls, Field Services Reporting Cube – Cognos PowerPlay, Grant Baxter – Field Services, Accenture analysis.

# Performance Management Frameworks

**Evidence from market comparisons found crew performance measures help drive productivity. However, most high performers have either abandoned or do not use service level agreements.**

## Crew Performance Measures

- Crew performance measures were often cited in benchmark studies and market comparisons as a “practice that makes a difference”. Many high performers had strong compatible units program.
- Examples
  - One peer’s 1<sup>st</sup> line managers meet w/ crews to review quarterly performance scorecards measuring safety, attendance, callout availability, and productivity
  - Another peer uses metrics for resource supervisors, crew supervisors & crews. Metrics focus on actual man-hours compared to estimates, in-service dates met, #work requests that failed in auto-close, % pre-checks done on-time, safety, absenteeism
  - Telecom company focus on number of good jobs completed per day per technician with simple definitions and straightforward calculations for workers to understand

## Service Level Agreements (SLAs)

- The UK marketplace has experimented with service level agreements early in its deregulated history for electric, gas, and water utilities
- Today, most of these companies have abandoned service level agreements
  - Created significant overhead burdens
  - Was an artificial exercise in pricing between internal groups (asset mgr and field services)
  - Introduced and reinforced bad behaviors
- Instead, companies have moved to a set of key performance indicators (KPIs) focused on asset management and field service with each group accountable to manage to their own set of KPIs.
- As a result, FS should take care in developing detailed SLAs with internal clients
  - Keep simple, pragmatic and have KPIs driven into the organization – OR ELSE –
  - Abandon in favor of other mechanisms

# Trouble Response

**Field Services could improve its lagging trouble response times by focusing on outage-to-dispatch and dispatch-to-arrival times and adopting new staffing practices and employee incentives.**

## — Distribution Practices to Reduce Response Times —

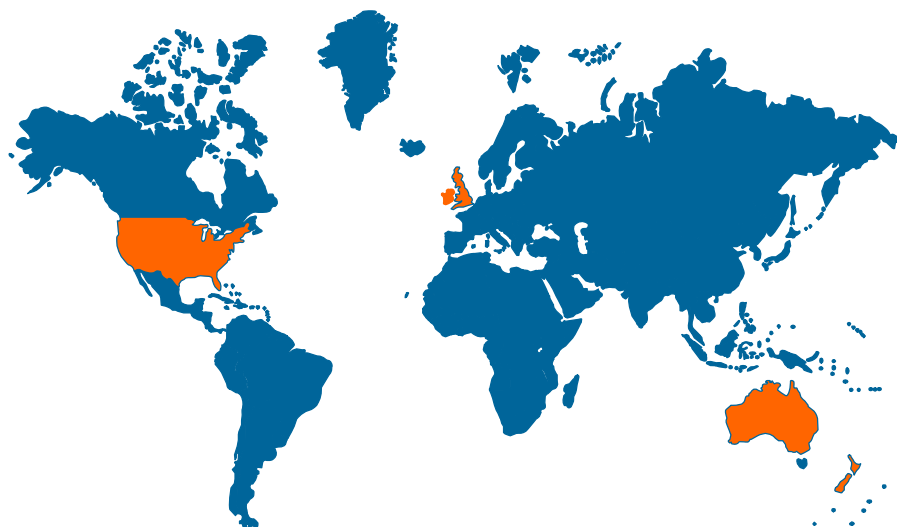
	Current Field Service Practices	New Practices to Consider	
<b>Staffing</b>	<ul style="list-style-type: none"> <li>■ On-call staff after hours (weekends only)</li> <li>■ 2<sup>nd</sup> shift / overlapping coverage (Lower Mainland only)</li> <li>■ Redeploy Construction and Maintenance crews</li> <li>■ 1-man crews take trucks home (Limited to standby FS personnel)</li> <li>■ 7 Days / Week staffing (Lower Mainland only)</li> </ul>	<ul style="list-style-type: none"> <li>■ On-duty trouble crews</li> <li>■ 24x7 trouble response staffing in most areas</li> <li>■ 24-hours on-duty crews</li> <li>■ Flexible shift starts</li> <li>■ 4x10-hour shifts</li> </ul>	<p>← <i>Rated as a Distribution Practice that "Makes a Difference"</i></p>
<b>Employee Incentives</b>	<ul style="list-style-type: none"> <li>■ Minimum response times</li> <li>■ Mandatory rotation (driven by OT)</li> <li>■ Use contractors</li> <li>■ Performance measured by length of time to respond</li> <li>■ On-call personnel get paid for standby</li> </ul>	<ul style="list-style-type: none"> <li>■ Minimum percent of callouts to be met</li> <li>■ Voluntary rotation</li> <li>■ Automated callout system</li> <li>■ Bonuses for callouts</li> </ul>	

Source: January 30, 2004 conversation with Earl Lockhart, 2003 PA Consulting T&D Benchmarking Study, past Accenture reports, Accenture analysis.

# Market Comparisons

**Six market comparisons were conducted to identify and validate ideas and leading practices from the high performance companies around the globe.**

## Global Market Comparison Regions



 - Regions where market comparison companies operate

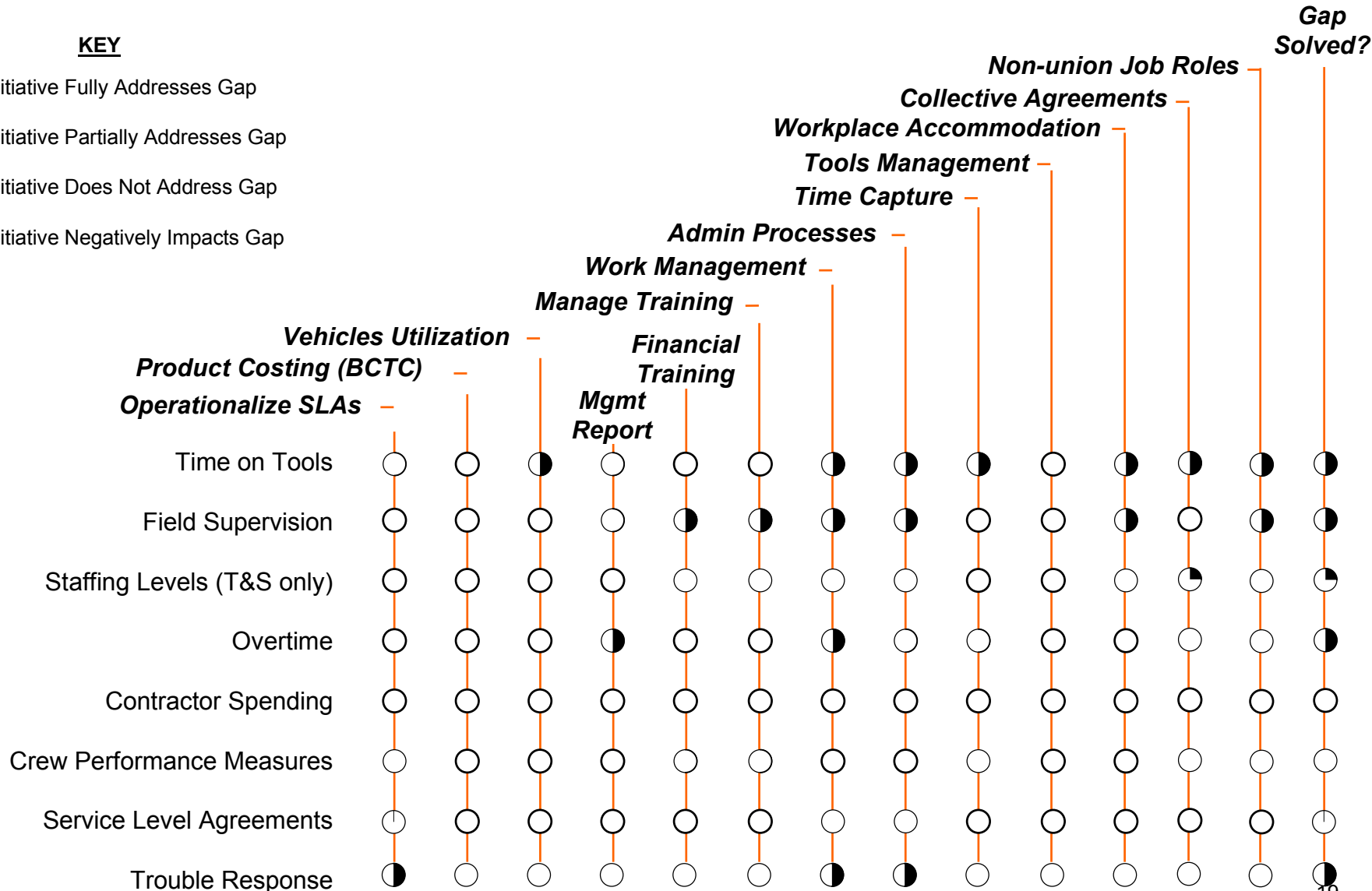
## Key Findings and Conclusions

- ✓ Strong program management with committed executive sponsorship is critical to drive lasting change and capture material benefits from business transformation projects
- ✓ Investment in field supervision gives these former technicians greater ability to lead and in turn coach and develop their workforce to achieve higher performance levels
- ✓ Work planning and scheduling (e.g., *CUEs*, *centralized scheduling*, *visibility of work across the system*) are key building blocks to managing a field services organization
- ✓ Workforce flexibility is needed to adapt to new business environments and challenges
  - Multi-skilled workers (T&D lineman, technicians, gas/electric)
  - Job site reporting / take-home vehicles / traveling crew
  - Headquarters model (location, staffing, response time)
- ✓ Performance reporting capabilities provides focus and attention to set expectations and improve overall performance
  - Overtime targets
  - Quarterly crew scorecards
  - Service level agreements / key performance indicators
- ✓ Technology is a major benefits driver but must be balanced with organizational readiness to adopt and use these tools (e.g., WMS, scheduling, mobile computing, GPS, etc.)
- ✓ Service level agreements need to be simple, pragmatic and have key performance indicators driven into the organization OR ELSE should be ABANDONED due to excessive administrative burden and promoting unintended behaviors

# Major Gaps – Initiatives Alignment

**KEY**

- Initiative Fully Addresses Gap
- ◐ Initiative Partially Addresses Gap
- Initiative Does Not Address Gap
- ◌ Initiative Negatively Impacts Gap



# Recommendations

**A two-step approach is recommended that leverages the current Transformation Program and launches four new initiatives to close the major gaps.**

## Gap Closure Strategy

	Recommendation	Description
<b>Leverage Current Transformation Program</b>	Set Program Direction	Establish clear direction with specific measures to be achieved by the Program (e.g., target \$15MM expense reduction, raise crew productivity by 1 hr, increase managers' time in field to >50%, cut trouble response by 30 minutes) to help guide and align individual project initiatives
	Revise Project Scope and Objectives	Re-scope project initiatives as appropriate to close major gaps identified in FS Benchmark Project like crew performance metrics or compatible unit estimates
	Manage Project Interdependencies	Review common objectives and shared dependencies among projects to strengthen alignment and build awareness (e.g., 1 <sup>st</sup> line manager time in field)
	Commit Appropriate Resources	Evaluate requirements for project initiatives to help balance scarce resources (people, time, dollars) and ensure timely and successful project deliverables
<b>Launch New Project Initiatives</b>	T&S Staffing Levels (Resource Balancing)	Based on high-level benchmarks, re-evaluate leaner staffing levels, increased contractor usage, and planned retirements in Transmission and Stations
	Contractor Procurement and Management	Given 25% of FS expenses are spent on external contractors, structure initiative to review contractor procurement and contractor management opportunities
	Materials Management	Address materials management issues cited in FS Distribution interviews to improve material availability and increase overall crew productivity
	Trouble Response	Pursue changes to substantially reduce customer outage to restoration times

# Value Potential

**Field Services may be able to generate \$18 to \$30 million of added value per year by closing major gaps to improve time on tools, drive down overtime, and increase its effectiveness in contractor management.**

## Range of Value Potential

	Low End Estimate	High End Estimate
Time on Tools	\$15	\$21
Labor	\$12	\$16
Vehicles	\$3	\$5
Overtime	\$1.5	\$3.1
Contractors	\$1.7	\$6.2
<b>Total</b>	<b>\$18.2</b>	<b>\$30.3</b>

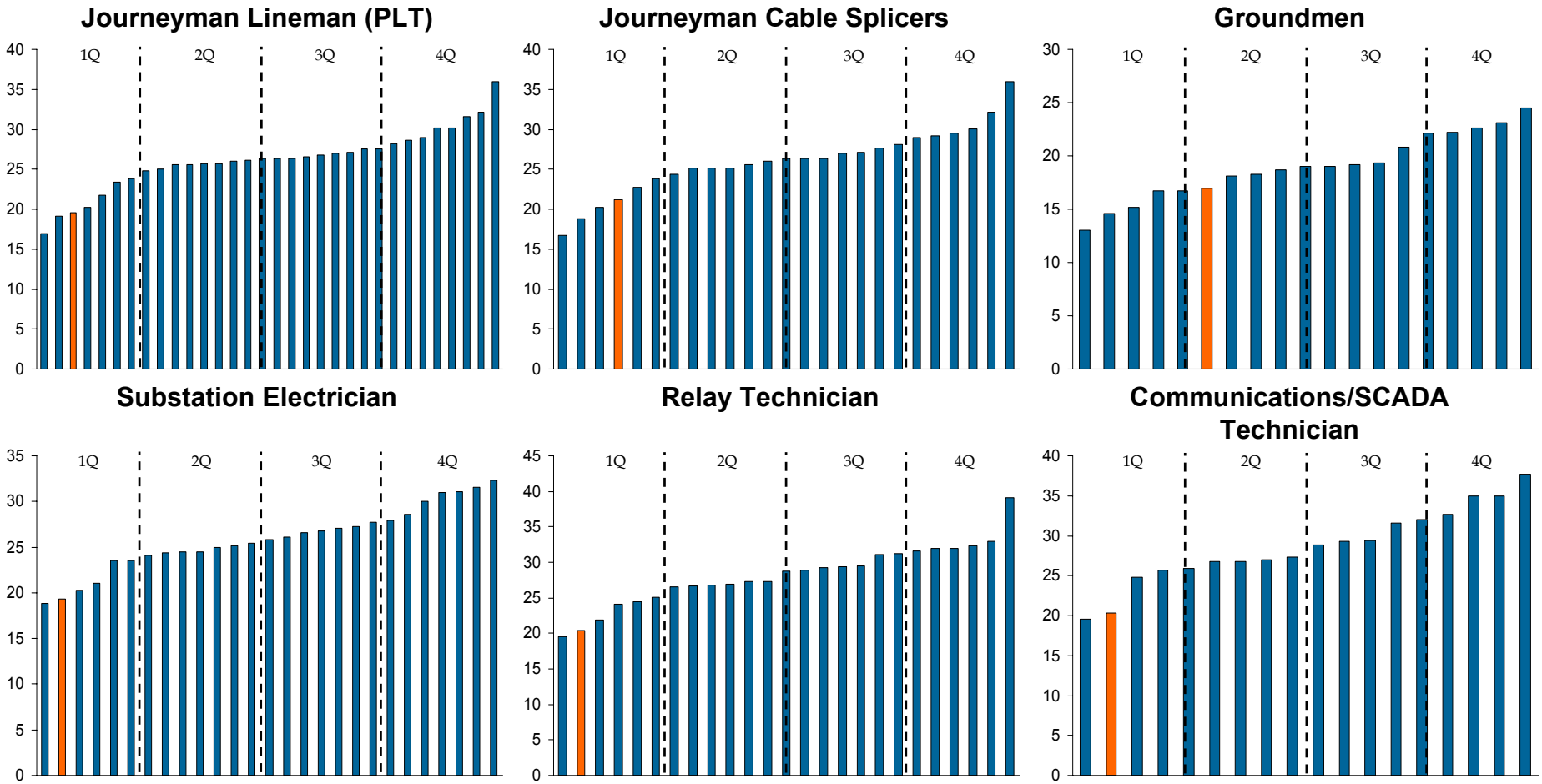
# Path Forward

- Develop an action plan to take project recommendations forward and realized expected business benefits
- Balance push for performance improvements against need to fund project recommendations in terms of people's time, money, and new technology investments

# Appendix

# Average Hourly Pay Rate

**Field Service consistently scores among the lowest utilities for average payroll rates (\$US per hour) across multiple craft positions.**

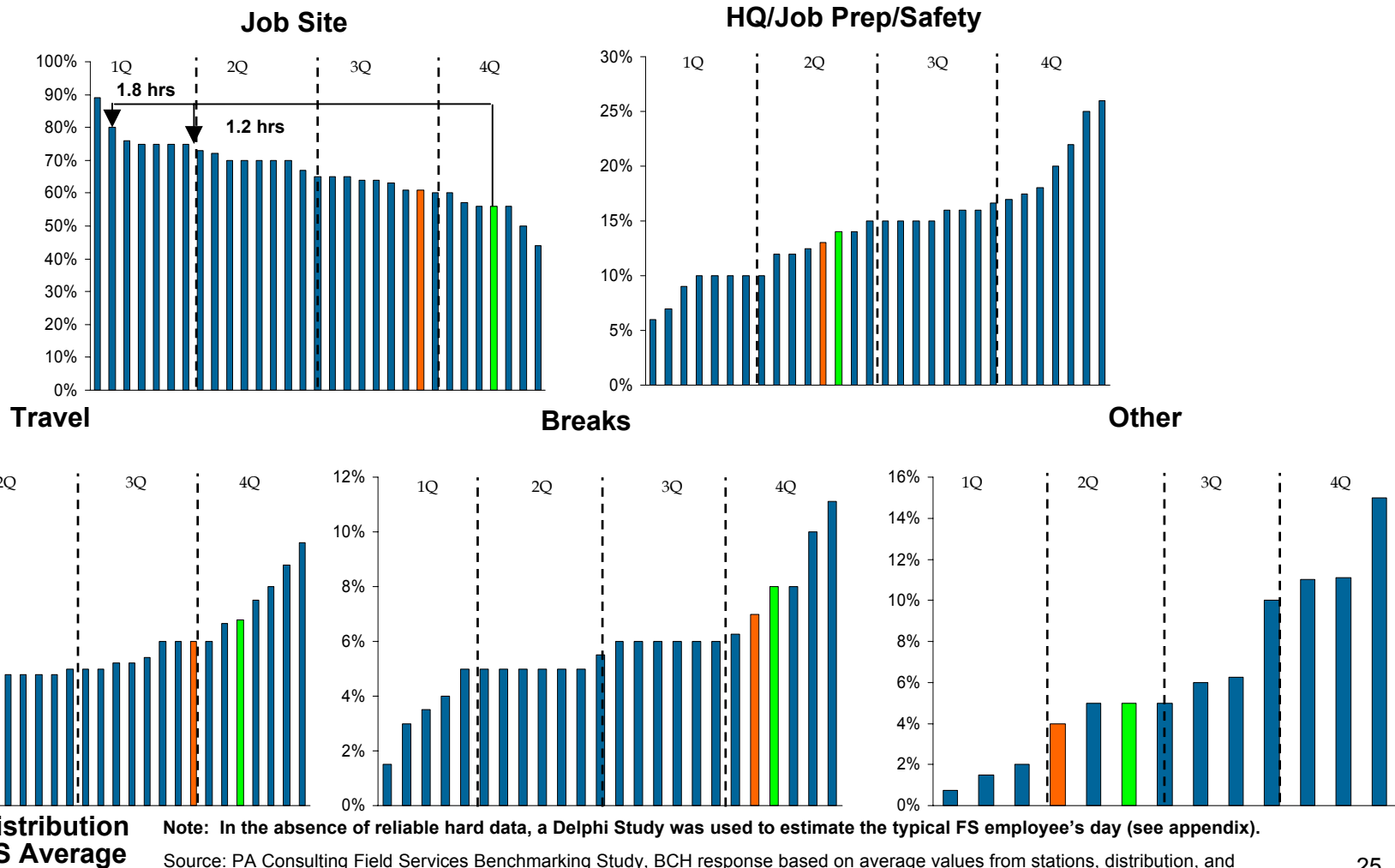


Source: PA Consulting Field Services Benchmarking Study  
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█ - BC Hydro

# Typical Distribution Lineman's Day

A review of the typical lineman's day suggests Field Services is lagging the 1Q performers by 1.2 to 1.8 hours per day.



# Accenture Field Services Diagnostic

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# Accenture Field Services Diagnostic

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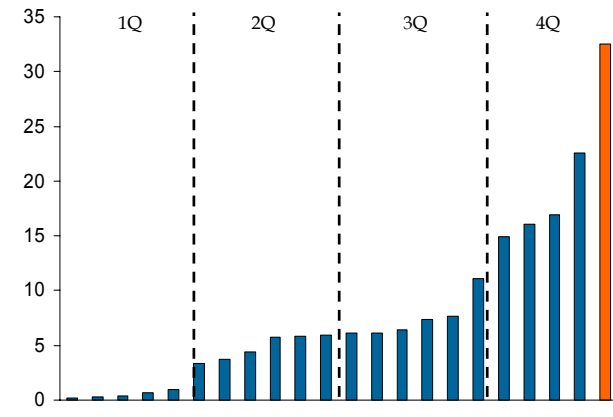
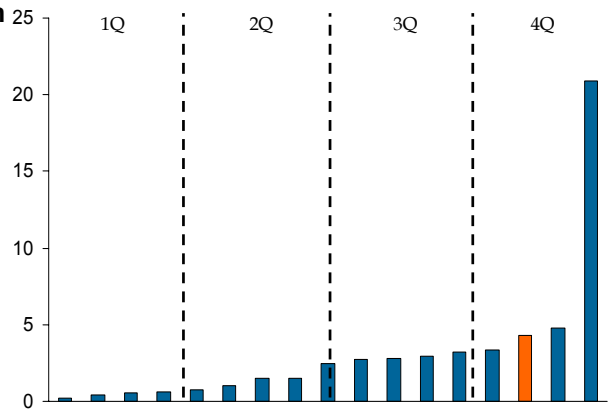
# Transmission Staffing Levels

**Benchmark data suggests both Field Services and BCTC have opportunities to streamline their workforces given their 4Q rank in Transmission staffing levels.**

Transmission Field FTE's per 100k Customers

Transmission\* FTE's per 100k Customers

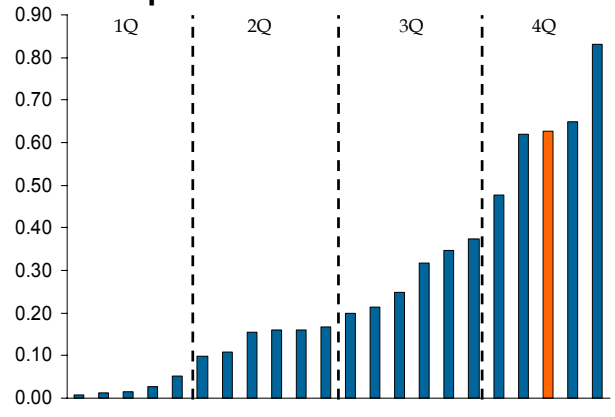
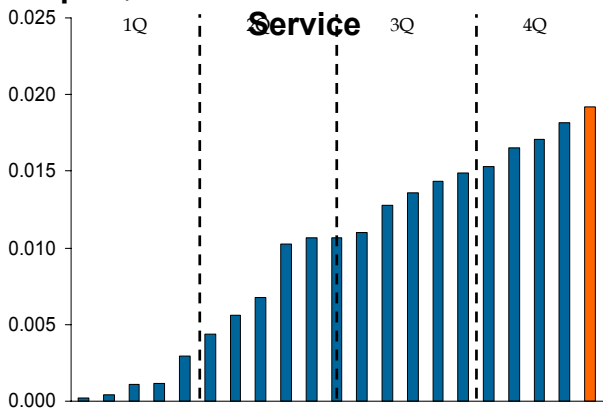
\*Note: Transmission FTEs includes both staffing from BCTC and Field Services



Transmission\* FTE's per \$100k Transmission Plant in Service

Transmission\* FTE's per MWh Transmitted

Transmission\* FTE's per \$100k Assets



# Stations Staffing Levels

**Benchmark data also suggests Field Services has a higher station staffing level than others when viewed on an equipment basis.**

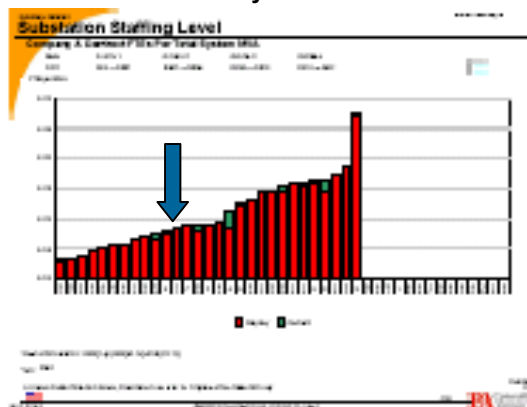
Company FTEs Per Circuit Breaker

Company FTEs Per Transformer Bank

## Observations

- Several factors appear to suggest BCH FS may require less stations personnel than a typical utility
  - BCH operates newer, larger, higher voltage stations than most utilities and has less substations to service
  - BCH planned frequency of O&M activities was reported as multiples lower than a typical utility's cycles – leading to lower work volumes
  - However, EHV stations likely have an impact on BCH FS staffing levels

Company and Contract FTEs Per Total System MVA



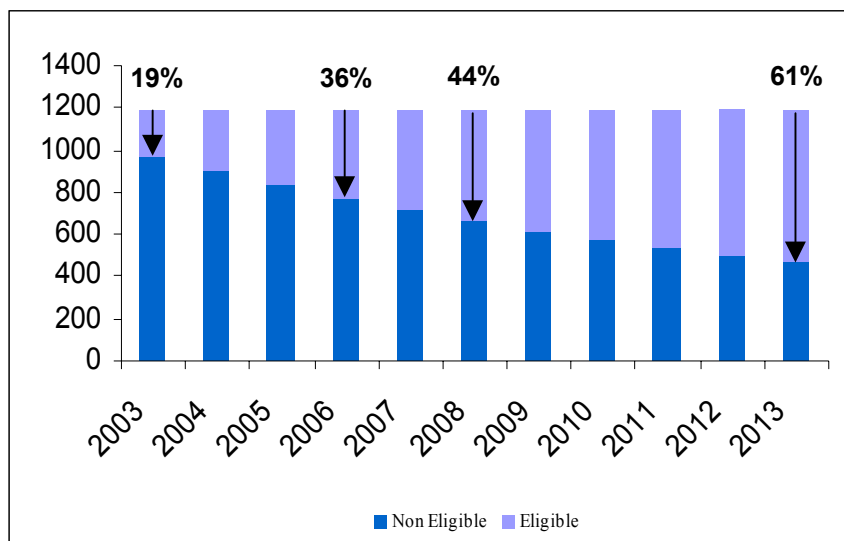
↓ = BC Hydro

- Total System MVA may not be an accurate staffing driver for BCH FS
  - BCH has highest percent of station capacity  $\geq 500\text{kV}$  of all respondents
  - BCH only utility with majority of its station capacity  $\geq 500\text{kV}$
  - Therefore, BC Hydro is an outlier that is likely favored by Total System MVA

# Employee Demographics

**Field Services has a choice in how it will be impacted either positively or negatively by its employee demographics and expected retirements.**

## Retirement Eligibility vs. Non Eligible over Time



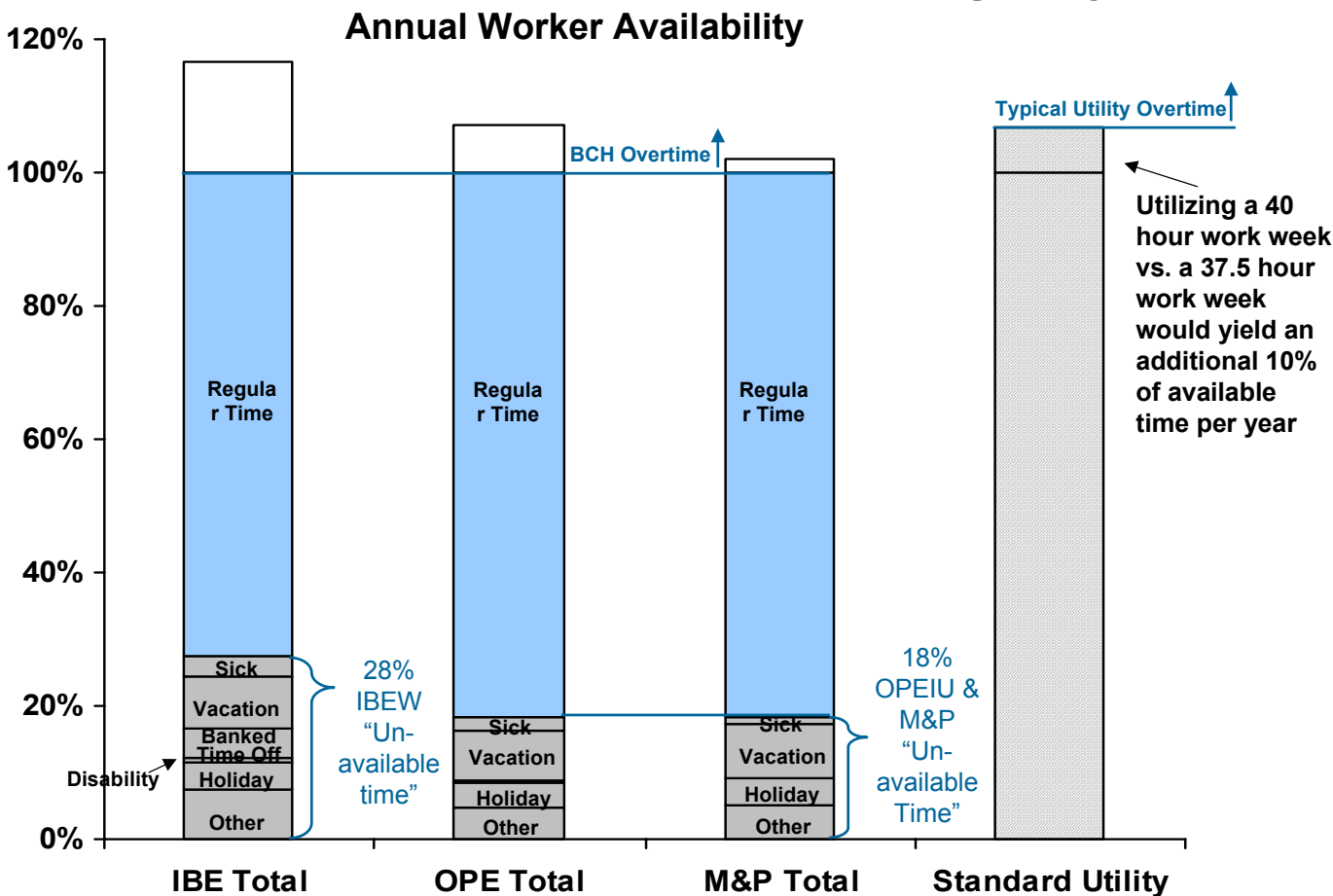
Source: Maureen Bone, Data from December 1, 2002 to November 30, 2003  
 Retirement eligibility based on early retirement eligibility for unreduced pensions

## Observations

- Field Services faces a many risks with upcoming employee retirements
  - Large employee turnover (~40% in 3 – 5 yrs)
  - Loss of critical skills and experience
  - Remaining workers challenged to meet work levels with smaller staff (“Do more with less”)
  
- A number of responses are available to address the expected loss of employees to retirement
  - Increase overtime hours
  - Hire new employees
  - Rely on more contractors
  
- However, retirements also present an opportunity to improve workforce productivity
  - Recruit “right” people to build a competitive culture
  - Restructure workforce and skill mix to better align to future work demands
  - Introduce new technologies and ideas to increase efficiencies and services
  
- Field Services recognizes these challenges and has a staffing strategy in place

# Unavailable Time

Field Services has a major challenge to overcome with the large amount of time its workers are unavailable during the year.



## Key Findings

- Field Services has a very high rate of unavailability among its workforce
  - IBEW workers are not available 28% of the time in a year (>1 day/week)
  - Other employees are unavailable for 18% of the time (~1 day per week)
  
- Unfortunately, this situation is unlikely to change in the near future due to current labour contract
  
- As a result, it is strongly recommended that Field Service focus on increasing worker productivity to overcome the very high amount of unavailable time

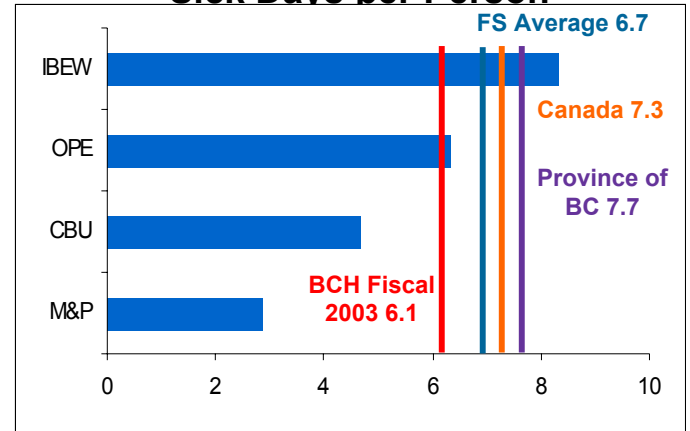
Source: Based on time reported by Field Service Employees from Dec 1, 2002 thru Nov 30, 2003

- Employees reporting <1200 hours and >2000 hours (excluding OT) were excluded from the sample set
- Based on 1950 Hours Per Year
- Vacation includes regular vacation only, Holiday included statutory holidays only, Banked time off includes all time banks such as overtime, standby, etc., Other includes all other 'work week' related categories including jury duty, SWWP days, leave of absence, compassionate leave, union paid leave, shorter work period day off, M&P Y Days, etc.

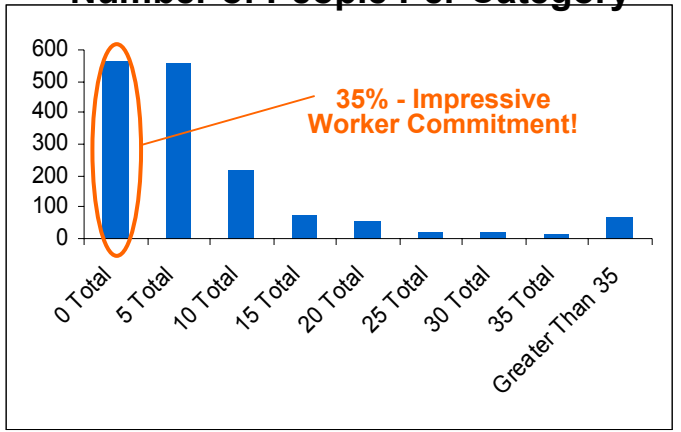
# Sick Leave

An analysis of sick leave reveals Field Services is effectively managing overall attendance but should explore the days taken by ~10% of employees.

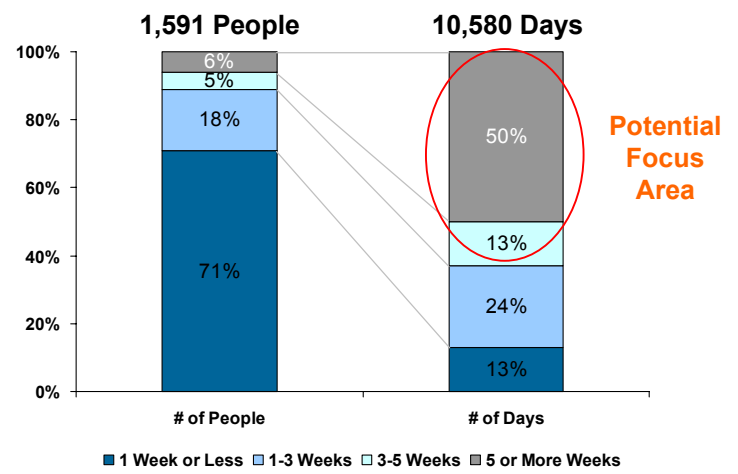
**Sick Days per Person**



**Number of People Per Category**



**Sick Days vs. Number of People**



- FS employees average 9% less sick days compared to workers in the Canada for Cal survey (average = 7.3 days)
- Potential focus areas for improvement
  - ~Bottom 10% FS employees that are responsible for 63% of all sick days taken
  - IBEW (815) workforce
- Reducing IBEW from 8.3 to 7.3 sick days/year increases hours worked by 6,400 that can be used to offset any backlog, OT, or contractor spending 32

Source: Payroll system, Maureen Bone, Data from Dec 1, 2002 to Nov 30, 2003  
 Canadian data provided by Peter Twidle from Statistics Canada publication

# Market Comparison Approach

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# Benchmark Survey Participants

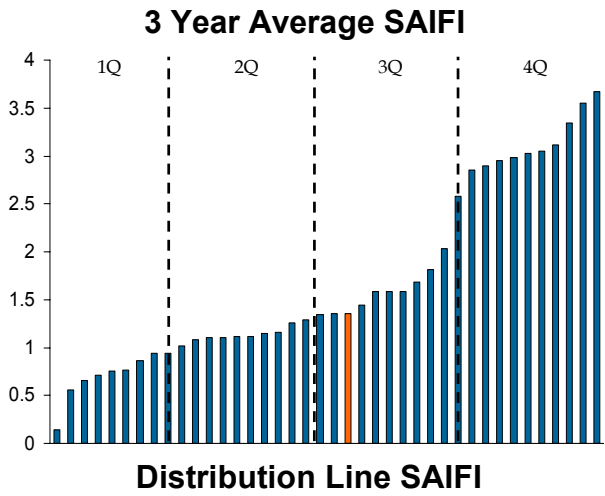
**2003 PA Consulting T&D Benchmark Study involved 43 participating companies in the electric utility industry.**

## Participating Companies

- 1 Atlantic Energy, NJ
- 2 BC Hydro, BC
- 3 Baltimore Gas & Electric, MD
- 4 CenterPoint Energy, TX
- 5 Commonwealth Edison, IL
- 6 Conectiv Power Delivery, DE
- 7 Consolidated Edison Co. of New York, NY
- 8 Delmarva Power & Light, DE
- 9 Detroit Edison, MI
- 10 Duke Power, NC
- 11 Entergy Arkansas, AK
- 12 Entergy GSU-LA, LA
- 13 Entergy GSU-TX, TX
- 14 Entergy Louisiana, LA
- 15 Entergy Mississippi, MS
- 16 Entergy NOPSL, LA
- 17 Entergy Services Inc., LA
- 18 EPCOR Power Company, Canada
- 19 Eskom, South Africa
- 20 Hydro One, Canada
- 21 Hydro Quebec, Canada
- 22 Illinois Power Company, IL
- 23 Indianapolis Power & Light, IN
- 24 Kansas City Power & Light, MO
- 25 Lee County Electric Cooperative, FL
- 26 LG&E Energy, KY
- 27 Los Angeles Department of Water and Power, CA
- 28 Massachusetts Electric Company, MA
- 29 Narragansett Electric Co., RI
- 30 Nashville Electric Services, TN
- 31 Niagara Mohawk, NY
- 32 Northwestern Energy
- 33 Northwestern Energy - MT
- 34 Northwestern Energy - ND
- 35 NSTAR Electric & Gas Corporation, MA
- 36 Oncor Energy Delivery, TX
- 37 PECO Energy Company, PA
- 38 PEPCO, DC
- 39 Public Service Electric & Gas Company, NJ
- 40 Seattle City Light, WA
- 41 Southern California Edison, CA
- 42 We Energies, WI
- 43 Xcel Energy, MN

Source: 2003 PA T&D Benchmarking Final Report

To improve from the “middle of the pack” in outage frequencies, BC Hydro should seek to reduce tree-related and station incidents.



# Potential Value Calculations

## Time on Tools Improvement

*(Lowend Estimate)*

Available Regular Hours / Year	1,537
Average OT / IBEW	321
Total Available Hours / Emp	1,858
Percent of Day at Job Site	63%
ToT hours per employee per year	1,168
IBEW Employees	796
Total Work Done	929,482
Current ToT Hrs/ Day	4.7
Target ToT Improvement (Hrs)	1.0
Percent Improvement of ToT	21%
NEW ToT per employee	1,415
NEW IBEW FTE's Needed	657
FTE Reduction	139
<b>Percent Reduction in FTE's</b>	<b>17.5%</b>
2003 Labor Expense on IBEW	\$ 68,274,000
Potential Labor Savings	\$ 11,949,593

## Vehicle Savings

*(Lowend Estimate)*

Annual FS Vehicles Expense	\$ 19,768,717
Percent Reduction in FTEs	18%
Potential Vehicles Savings	\$ 3,460,001

## Contractor Spending

FS contractor spend (excl. trees)	\$ 34,400,000
Percent savings (ACN low estimate)	5%
	\$ 1,720,000

## Time on Tools Improvement

*(Highend Estimate)*

Available Regular Hours / Year	1,537
Average OT / IBEW	321
Total Available Hours / Emp	1,858
Percent of Day at Job Site	63%
ToT hours per employee per year	1,168
IBEW Employees	796
Total Work Done	929,482
Current ToT Hrs/ Day	4.7
Target ToT Improvement (Hrs)	1.5
Percent Improvement of ToT	32%
NEW ToT per employee	1,539
NEW IBEW FTE's Needed	604
FTE Reduction	192
<b>Percent Reduction in FTE's</b>	<b>24.1%</b>
2003 Labor Expense on IBEW	\$ 68,274,000
Potential Labor Savings	\$ 16,482,015

## Vehicle Savings

*(Highend Estimate)*

Annual FS Vehicles Expense	\$ 19,768,717
Percent Reduction in FTEs	24%
Potential Vehicles Savings	\$ 4,772,363

## Contractor Spending

FS contractor spend (incl. trees)	\$ 62,200,000
Percent savings (ACN high estimate)	10%
	\$ 6,220,000

# Potential Value Calculations (cont.)

## OT Savings

### *Transmission Overtime Savings*

OT hours per worker per year	690	
Industry median for OT hours	289	
Potential OT hours reduction	401	
OT hourly rate	\$ 56	
Number of workers	67	
Potential OT savings	\$ 1,504,552	

### *Distribution Overtime Savings*

OT hours per worker per year	389	
Industry median for OT hours	300	
Potential OT hours reduction	89	
OT hourly rate	\$ 56	
Number of workers	327	
Potential OT savings	\$ 1,629,768	

### *Clerical Overtime Savings*

OT hours per worker per year	110	
Industry median for OT hours	88	
Potential OT hours reduction	22	
OT hourly rate	\$ 30	
Number of workers	190	
Potential OT savings	\$ 125,400	

## Clerical Reductions - NOT INCLUDED IN SAVINGS

(Assumes centralized scheduling, mobile devices & auto. time report)

# OPE (excluding skilled technicians)	110
# scheduling (20 per system)	20
# data entry (1 per HQ 50 less outliers)	40
Scheduling Reductions... 50%	10
Data Entry Reductions .. 80%	32
<b>Total Reductions</b>	<b>42</b>
Available Hours Per Worker	1,537
50% of OPE Group 6 Chargeout rate \$	33.00
<b>Potential savings</b>	<b>\$ 2,130,282</b>