



Core Capital and OM&A Work Program

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Purpose of the DSP



- The Distribution System Plan (DSP) represents Hydro One's view of where customer needs and preferences, customer rates, and asset needs are aligned
- The Customer Engagement process was extremely helpful in informing the DSP and OM&A work programs and helping to shape the company's activities

Customers Preferences



- **Keeping Costs Low**

Keep costs as low as possible is customers' top priority

- **Maintain Reliable Service**

Maintaining reliable electricity service is consistently second priority to cost

- **Large Customers**

Large customers are more concerned with reliability and capacity

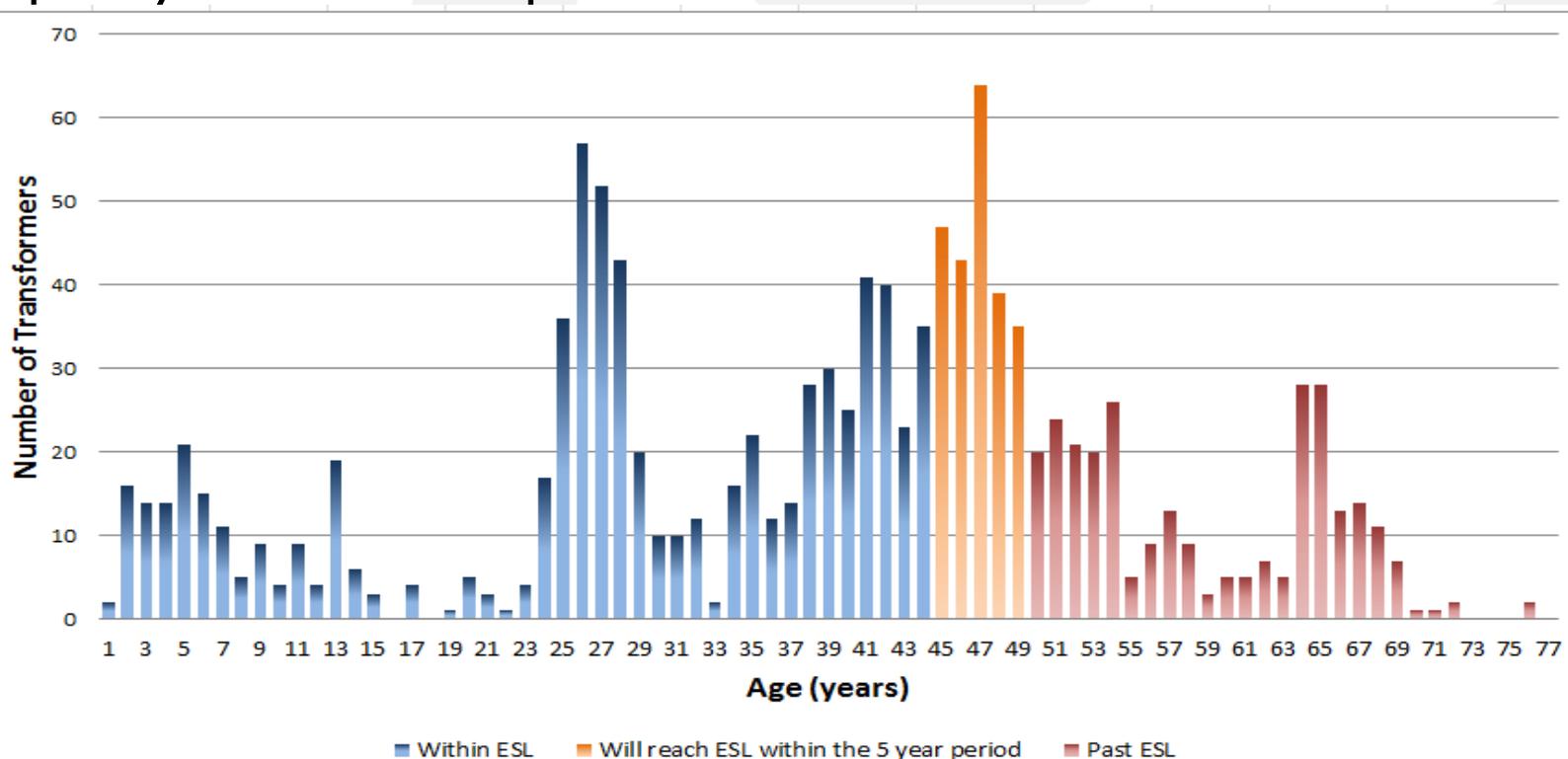
- **Manage Rate Impacts**

Willingness to accept a rate increase to improve service level is limited

Asset Needs



- Much of the distribution system was built in 1950s & 1960s
- Many assets approaching or beyond expected service life
- Replacement decisions based on asset condition, but age is a proxy for future replacements



Work Program Strategy



- Centered on sound investment to ensure safe and reliable electricity distribution in a manner that produces the greatest value for customers

Managing Costs



- Hydro One has implemented a number of productivity initiatives to reduce unit and operating costs
- Executing on identified productivity and efficiency enhancements to change and reduce cost structure

Managing Costs



Move to Mobile



Mobility

Paper to Tablets

- Elimination of ~40 forms
- Reduction in work completion processing time
- Visibility of crews
- Real-time status indicators



Dispatching & Scheduling

Upgraded Tool

- Increased efficiency for Field Business Centers
- Auto-scheduling and auto-leveling of crews
- Improved Customer interactions



Scalability

Applicable to all LOBs

- Solutions are scalable for ease of application
- Leverages past SAP & GIS enterprise system investments

Managing Costs



Vegetation Management

- Use lower cost temporary workers to complete low-skilled work
- Targeted clearing frequency commensurate with reliability risk



Managing Costs



Cable Locates

- Outsource work at lower cost
- Part of *Locate Alliance Consortium* enabling single contractor to perform locates for many utilities simultaneously – make 1 trip instead of many



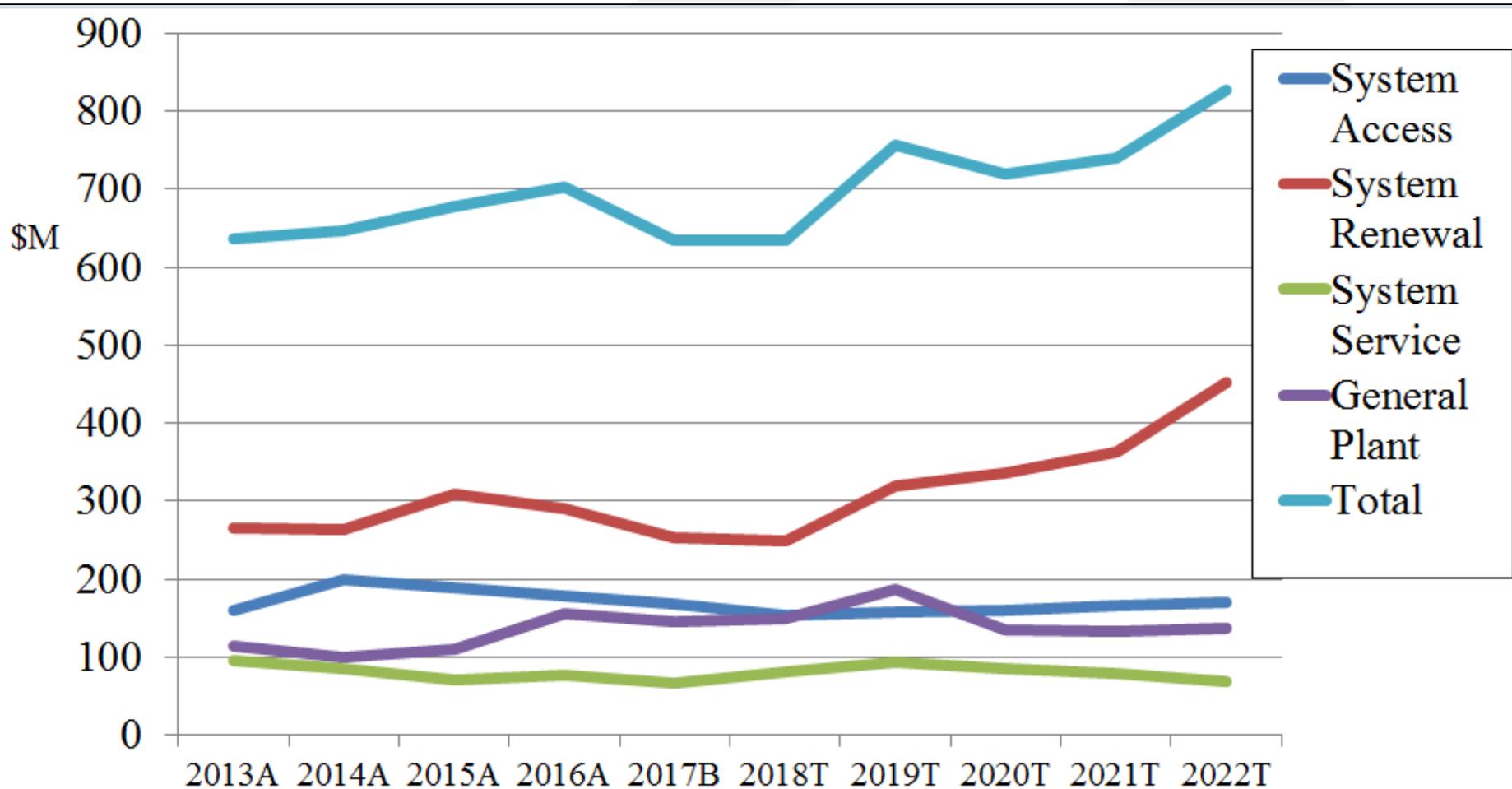
Capital Work Programs



Managing Rate Impacts

- Paced investments to manage rate impacts and offset effects of reduced load forecast
- Asset replacement rates reduced for a short but manageable period, accepting limited and short term reliability impacts to defer capital spending

Capital Work Programs



Capital Work Programs: System Access



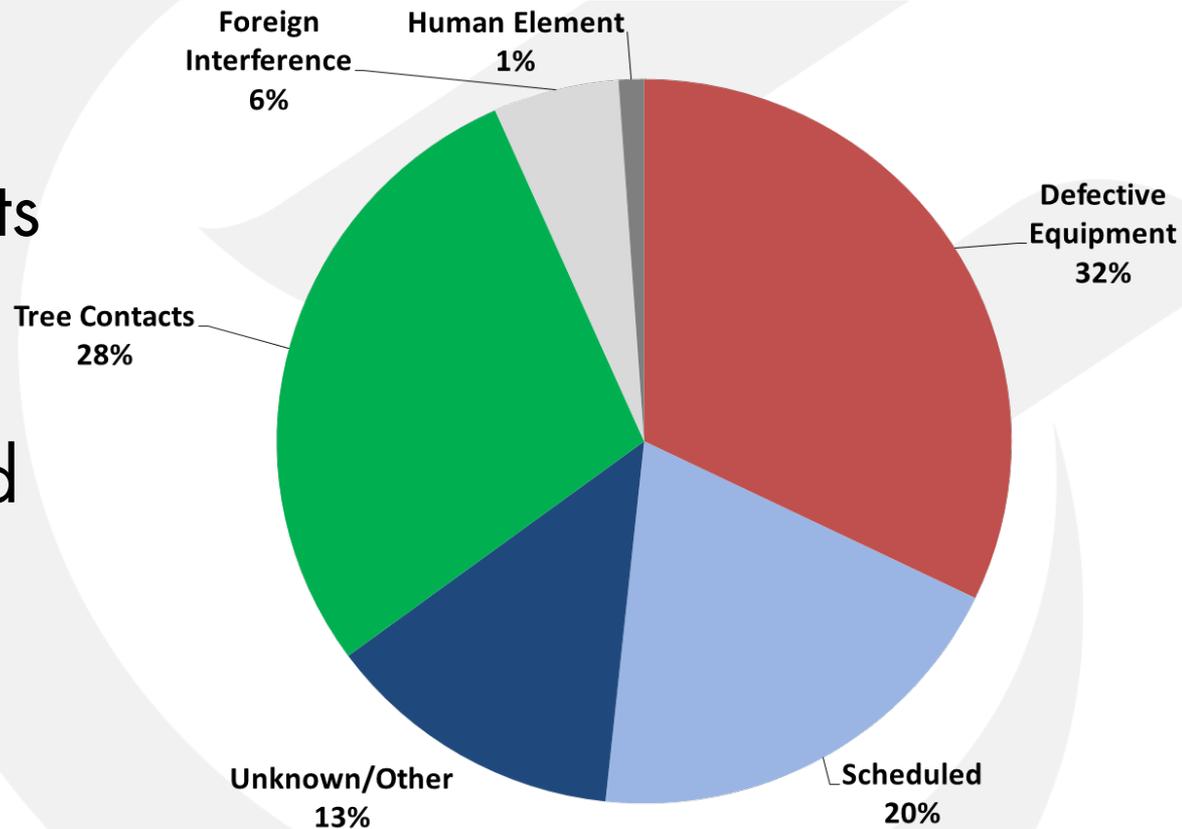
- System Access investment costs are projected to decline in 2017:
 - Completion of the metering CDMA replacement project
 - Decrease in distributed generation connections
- 2018-2022 cost increases in line with inflation:
 - New connections, line relocations, and service upgrades make up bulk of activities

Asset Performance



- Hydro One is making highly targeted investments to improve Reliability Outliers, Power Quality, and Capacity for Large Customers

Breakdown of power Interruptions Causes SAIDI (2013-2015)



Capital Work Programs: System Renewal

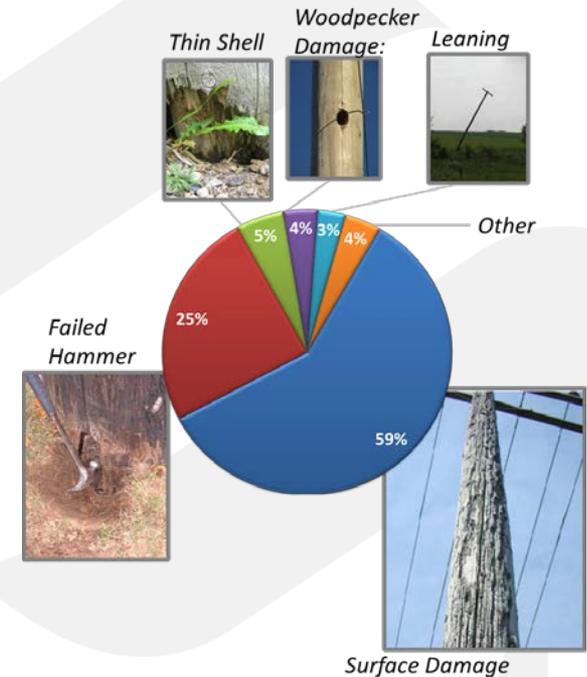


- System Renewal investment costs projected to increase by an average of 12.3% annually from 2017 to 2022
 - Storm damage restoration costs expected to remain flat
 - Pole replacements expected to increase until 2020 to address poles that will reach end of useful life, then level off
 - Station refurbishments expected to increase over time to reflect the growing number of assets expected to reach end of useful life
 - Line Sustainment and Life Cycle Optimization investments increase together with the increase in assets reaching end useful life
 - PCB line equipment replacement increase to meet 2025 deadline
- 2022 significant increased projected spending
 - Anticipated commencement of smart meter replacement, as population reaches expected service life

System Renewal Focus Areas:



- Pole Replacement
- Station Refurbishments
- Lines Sustainment Projects
- Smart Meters
- Power Quality Improvement



Capital Work Programs: System Service



- While System Service investment costs are projected to fall slightly over the Distribution System Plan period, Hydro One expects variability from year-to-year based on specific investment needs
- Most of these investments accommodate increases in pockets of load growth which will constrain the system's ability to provide consistent service. To alleviate this constraint, a number of investments are planned to upgrade capacity of Hydro One's distribution assets
- Notable change is the new Worst Performing Feeders targeted at improving system reliability for poorly performing supply feeders

Capital Work Programs: General Plant

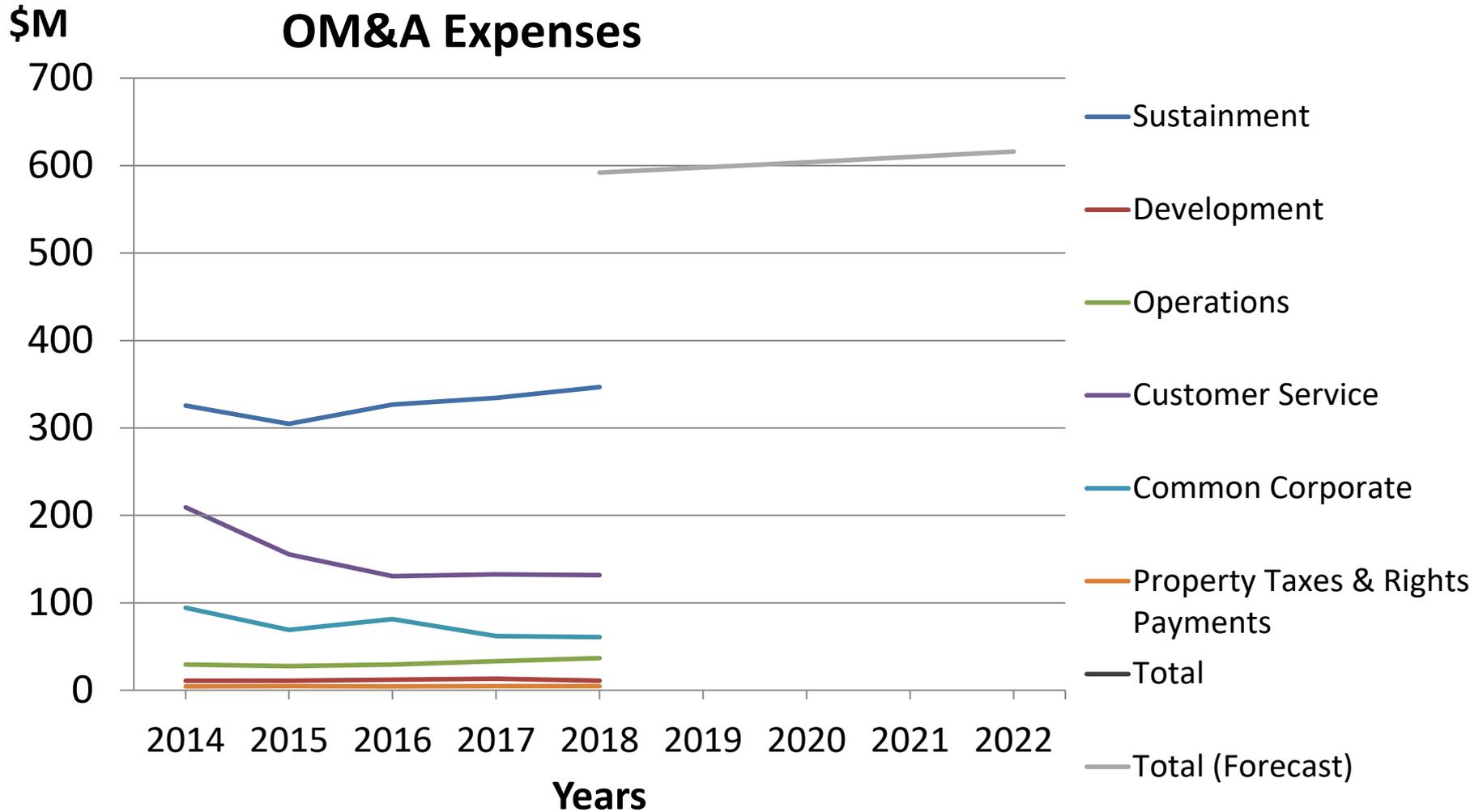


- General Plant: expected to decline modestly over plan
- Largest portion: transport and work equipment investments
Second largest: accommodation facility improvements



- Significant forecasted increase in General Plant spending between the years 2017 to 2020
 - Integrated System Operations Centre, replacing existing backup power system control and telecommunications centers and a new security operations center

OM&A Expenditures: Summary



OM&A Expenditures: Sustaining



Sustainment OM&A expenditures are required to maintain existing components of the distribution system to ensure they will continue to function as designed

OM&A Expenditures: Sustaining



- Stations – work required to inspect, repair or maintain distribution stations or station components and carry out remedial work to reduce environmental site contamination
- Lines – work required to inspect, repair or maintain distribution line sections or individual line components
- Meters, Telecom, Control – work required to inspect, repair and maintain metering and control equipment, perform meter verification, and telecommunication leasing costs
- Vegetation Management – work required to keep assets clear of unwanted vegetation

OM&A Expenditures: Development



- Engineering and Technical Studies;
- Distributed Generation Connections;
- Distribution Standards & Technology;
- Research Development & Documentation;
and
- Customer Power Quality Program.

OM&A Expenditures: Operations



- Coordinates and dispatches crews as required
- Plans for and reacts to system contingencies
- Schedules and coordinates planned outages
- Provides customer notifications
- Monitors and reports on the performance of the distribution electricity system.
- Ontario Grid Control Centre (OGCC) monitors the distribution system at the transformers for voltage, power quality, equipment loading, and equipment alarms

OM&A Expenditures: Customer Service



Customer-facing activities for distribution system customers:

- call center
- obtain meter readings
- issue timely and accurate bills
- process customer payments
- manage a collections program to recover revenue
- financial assistance to low-income customers through Low-Income Energy Assistance

OM&A Expenditures: Common Corporate Costs



Common corporate functions and services, asset management planning, information technology, cost of sales for external work, and other OM&A expenses.

OM&A Focus Area: Vegetation Management



- Restructured vegetation management plan
- Sub-transmission feeders will be cleared on fixed frequency cycle
- All other feeders will be managed according to reliability performance and criticality



OM&A Focus Area: Station Maintenance



- Will continue to be needs based
- Conditions that cause concern result in more frequent testing and increased maintenance program spending
- Stations in good condition require low frequency testing



Plan Aligns with Customer Preferences



- **Keeping Costs Low**
Greater fiscal management before asking for rate increases
- **Maintain Reliable Service**
Implement Investments to maintain reliability
- **Large Customers**
Targeted investments to improve reliability and capacity
- **Manage Rate Impacts**
Paced investment plan to manage rate increases

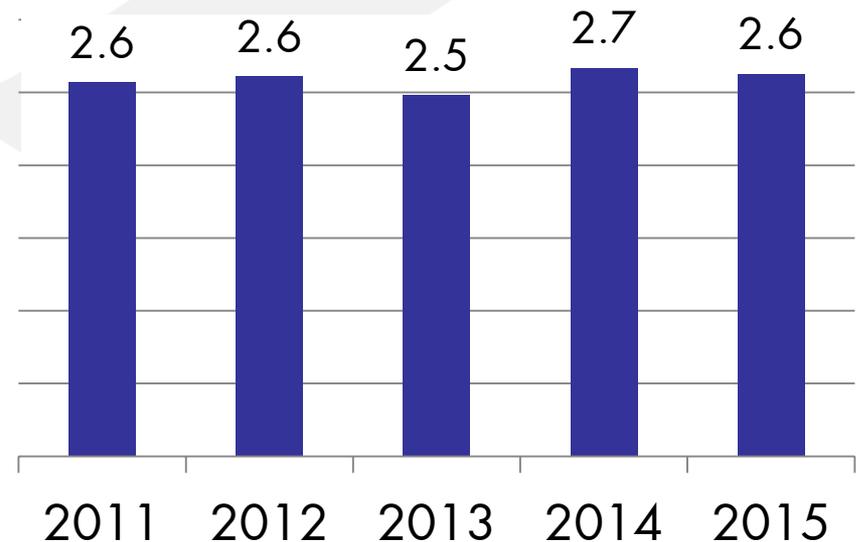
Plan Meets Asset Needs



- Hydro One's overall business plan was optimized such that asset condition and reliability will not deteriorate

LDC Scorecard SAIFI

5 year average

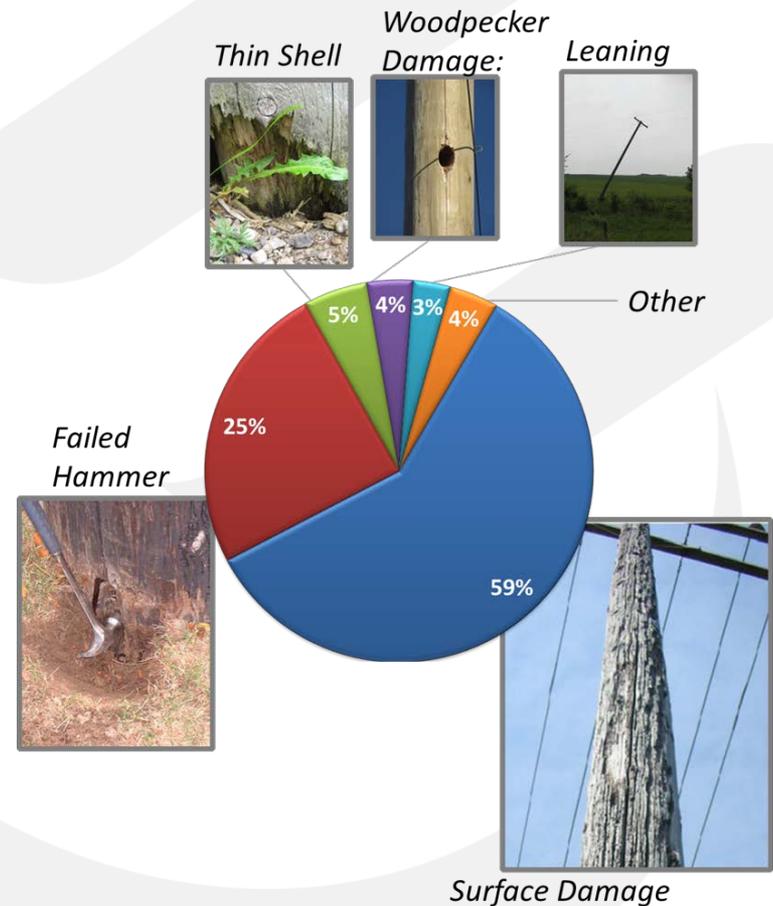


Appendix: Investment Focus Area Details

System Renewal: Pole Replacements



- 1.6 million poles
- Currently 106,000 poles in poor condition
- Replacing about 14,000 poles/year
- Pole population in poor condition is expected to remain constant or slightly decrease by 2022



System Renewal: Refurbishments



- 16 distribution station transformer failures per year
- Refurbishing 15 stations per year
- Station condition and reliability to remain stable



System Renewal: Line Sustainment Projects



- Looks at performance of all large customer feeders and determines outliers
- Root cause analysis, not just Vegetation Management
- Investments targeted at mitigating root cause

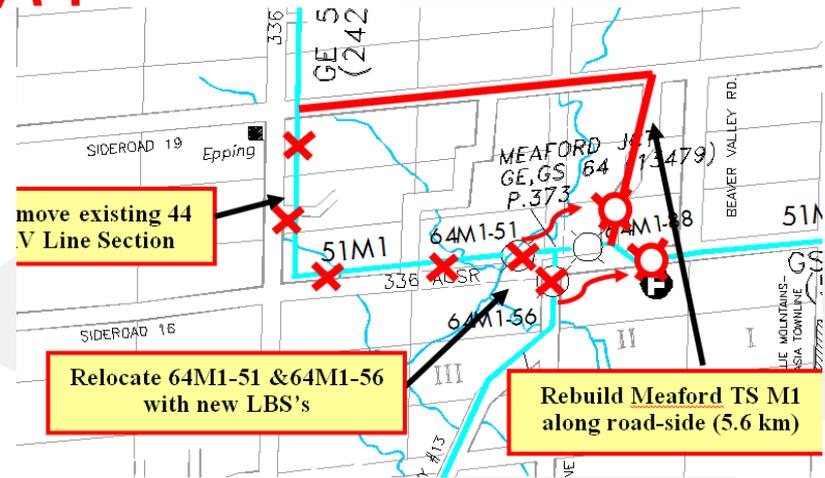


Tree outage – April 13, 2011
(caused by Beaver)

System Renewal: Line Sustainment Projects Example – Meaford M1



- Moving line to road side improves reliability, response time, lowers cost



Off-road line in a Swamp



Rebuilt Line on Roadside

System Renewal: Storm Response



- Storm response capital is budgeted based on a 5 year historical average and on average represents 10% of the provincial lines distribution capital program.



System Renewal and OM&A: Power Quality



- OM&A program assisting Large Distribution Accounts with investigations
- Capital power quality program installing power quality meters, surge arresters, or improve grounding



OM&A: Demand Driven Activities



- Demand driven activities such as trouble calls, customer locates & disconnect/reconnects funding have been set based off historical data and unit costs that include efficiency savings
- Line maintenance and repair will focus on the high risk of failure activities to preserve reliability
- The line inspection program will also review the opportunity to use new pole testing and maintenance technologies