Exploring PSBN in Electric Utilities

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Who We Are

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Together we're better

- Enersource, Horizon Utilities and PowerStream merged to become Alectra Inc. on January 31, 2017; The company acquired Hydro One Brampton on February 28, and merged with Guelph Hydro on January 1, 2019.
- The consolidation of the four utilities created the second largest municipally-owned electric utility by customer base in North America (second only to Los Angeles Department of Water and Power)
- Alectra Inc. is the holding company for several subsidiaries including Alectra Utilities and Alectra Energy Solutions

Alectra’s family of companies

- Alectra’s family of energy companies distributes electricity to nearly one million customers in Ontario’s Greater Golden Horseshoe area and provides innovative energy solutions to these and thousands more all across Ontario. Our employees are allies in helping customers discover the possibilities of energy conservation and new technologies for enhancing their quality of life. We create sustainable value for our customers, communities and shareholders.

Alectra’s family of companies

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energy solutions
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Our name & signature line

- The Greek meaning of the name Alectra means brilliant. Our name also conveys energy... the energy of our people and the millions of customers we serve.
- Alectra identifies us with the energy sector today and for the future—and sends the message that we are the customer's ally.
- Our signature line, 'Discover the Possibilities' is an invitation—to our customers, employees and communities—to come with us on this journey. It says we aspire to something bold for the future, but we're also about practical choices that improve daily life.

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alectra utilities

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Alectra by the numbers

(As of January 1, 2019)

- Distributes electricity to more than 1,000,000 customers across a 1,921 square km service territory in the Greater Golden Horseshoe Area
- 2nd largest municipally-owned utility in North America
- Regulated distribution company serves customers in 17 communities (see map)
- 8 shareholders – 7 municipalities and Borealis
- Approximately1500 employees
- 11 offices and service centres
- 1 regulated and 5 non-regulated businesses
- $4.7 billion in total assets

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The Changing LDC

- Expecting current large generator model to shift to consumer to consumer energy sales
  - DER continue to decline in price
    - Blockchain technology for energy sales
    - Virtual Power Plants

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- Automation, Automation, Automation
  - Greater use of automatic restoration to minimize outage duration
    - AFR, FDIR

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    - AFR, FDIR
    - Underground plant automation being moved closer to the customer
- Local distribution / global competition

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Preferred RF Coverage

1.8 GHz WiMAX for IP based communication

400 MHz serial radio for extended coverage

Limitations

- Lack of available licensed frequencies (400, 900)
- Expand WiMAX coverage?
- Lack of tower availability
  - NIMBY
  - High cost to co-locate
    - Shift to smaller towers with less attachment options
- Increased requirement for IP based communication
  - AFR – peer to peer communication
  - Leveraging available field data to drive reliability centred maintenance (PI, Cascade)
  - Available bandwidth of IP communication on licensed frequencies (400/900)
    - 9600 Kbps
    - Much more limited range vs serial

Communication Alternatives

- Wireline
  - $$$ for installation
  - High OPEX cost per month
    - High reliability for Fiber but high monthly cost
    - Lower reliability for copper based infrastructure

- Commercial Cellular
  - Concerns over coverage during mass events
    - Traffic priority not available
    - Coverage during outages?
  - Used extensively for bulk meter data backhaul
    - Meter data now being used for Outage Management fault reporting

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    - Greater use of controllable gear inside of hospitals, malls, high rise buildings
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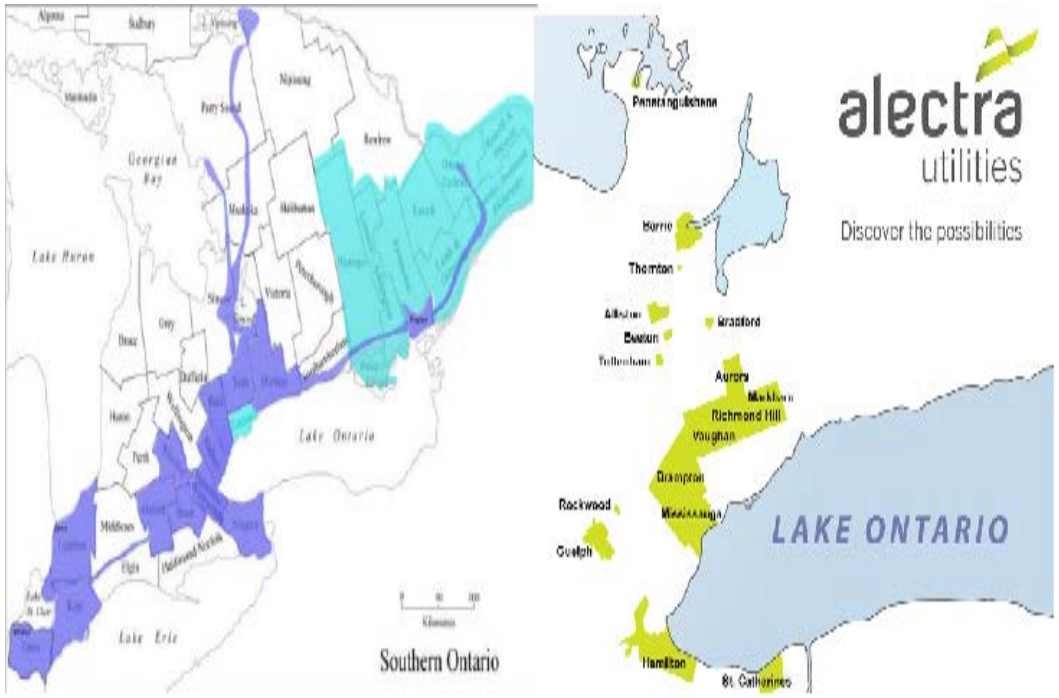
- Communication toolbox for field use
  - Licensed serial (400MHz/900MHz) / Unlicensed 900 MHz
  - WiMAX
  - Commercial Cellular
  - PSBN?

Why PSBN

- Security
- High availability
- Limited users (EMS, Public Works, Transit, Critical Infrastructure)
- No congestion
- Build quality and density greater than the utility can justify (By-Laws in place for in-building installations)
- Willing to meet utilities needs (Priority, availability)



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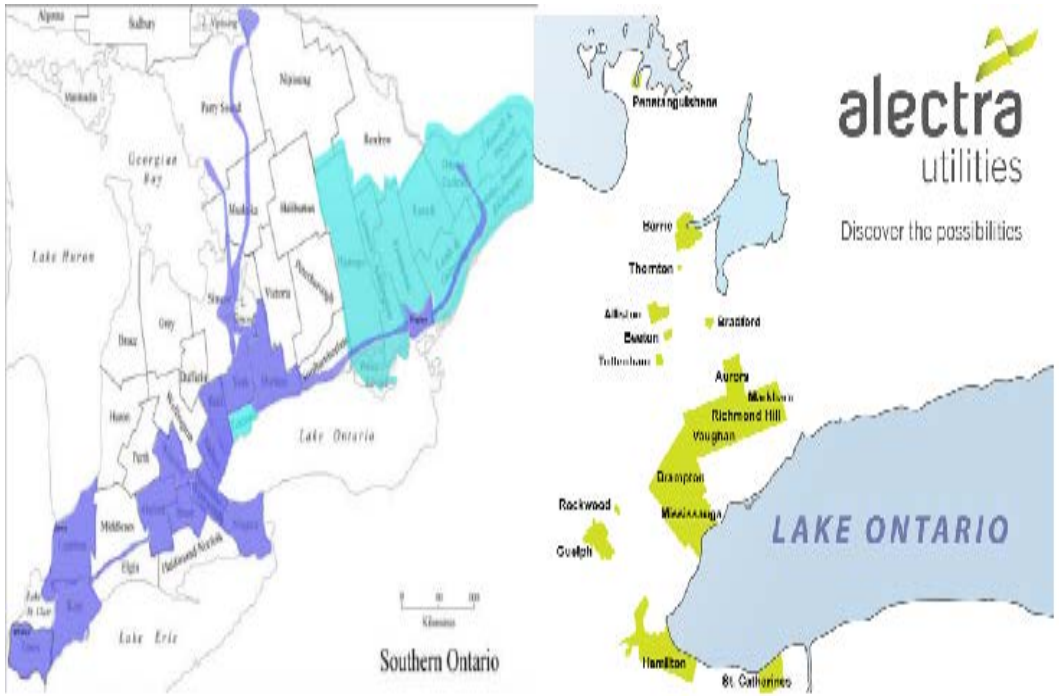
Why PSBN

Potential Drawbacks

- Emergency Prioritization/Pre-emption
- Regulation



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Questions?

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