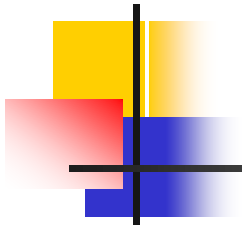


Waterloo North Hydro Perspectives on Regional Planning

RRFE Conference March 28-30, 2012



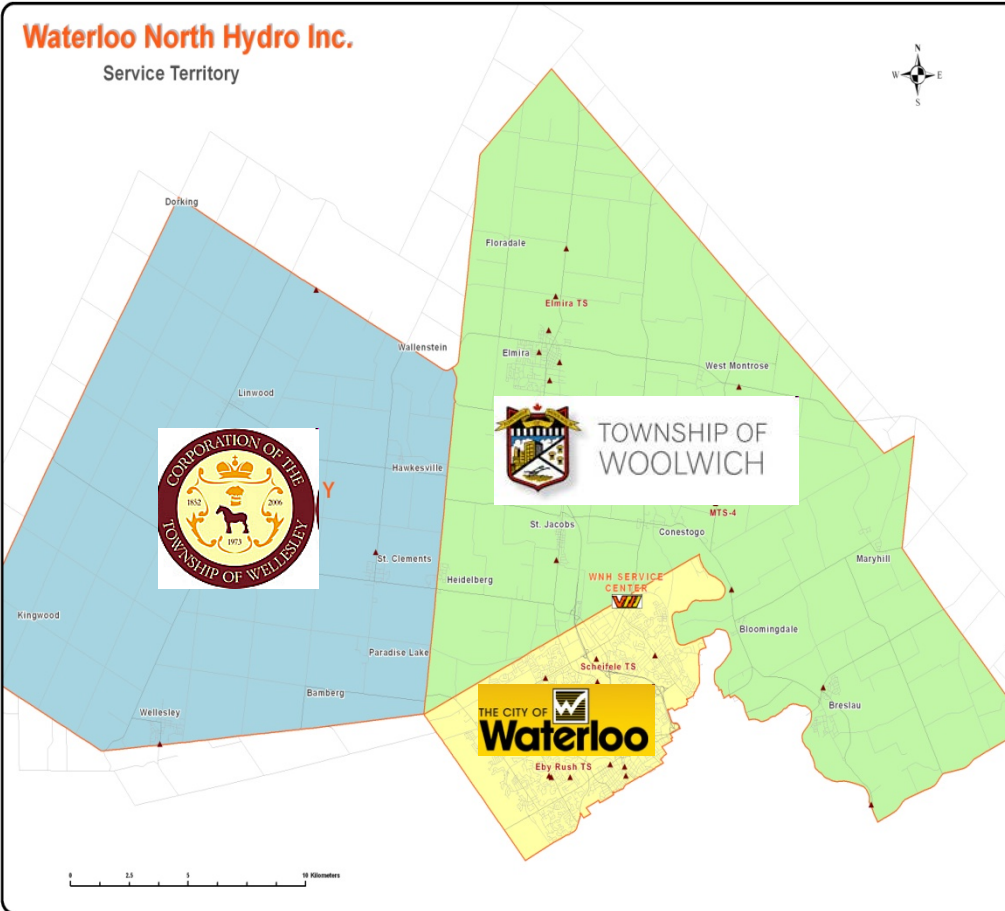
Presentation Overview

- WNH Facts
- LDC Capex Planning
- Regional Planning in KWCG
- Cost Allocation
- Summary of Comments

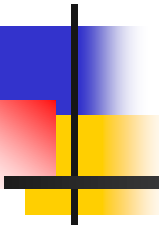
Waterloo North Hydro Key Facts

Waterloo North Hydro Inc.

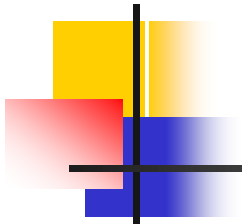
Service Territory



- **672 Sq. KM**
- **Over 53,000 Customers**
- **14th Largest Utility in the Province**
- **Thriving economy**
 - **high tech cluster and light manufacturing**
 - **top-ranked post-secondary institutions**
 - **prominent insurance industry**
 - **multitude of research centres**

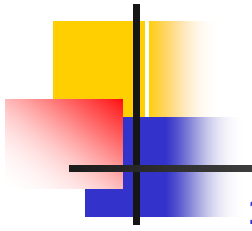


LDC Planning



Typical LDC Planning

- Confirm or adjust forecast of load studies
- Determine expansion requirements for new development plus other initiatives - smart meters, smart grid, renewable generation connection
- Review asset management to determine depreciated assets that must be rebuilt
- Determine if adequate upstream capability exists – feeders, breakers, T.S., transmission



Possible Source Data for a Ten year Study Period

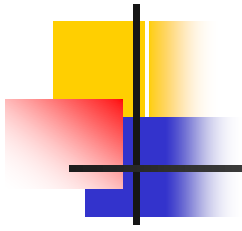
- 1) **Historical Load Growth**
 - a) **Projection of 1, 3, 5, 10 year growth trends**

- 2) **Future Development**
 - a) **Municipal / Government**
 - i. Official Plans
 - ii. Planning & Development Staff consultations
 - iii. Council Direction
 - iv. Regional / Provincial Government initiatives
 - v. Municipal Growth Studies
 - vi. Height and Density Studies
 - vii. Smart Growth Study
 - viii. Staging of Development Plans

 - b) **Developer /Builder**
 - a) Developer consultations
 - b) Builders Associations
 - c) Construction Permit Activity

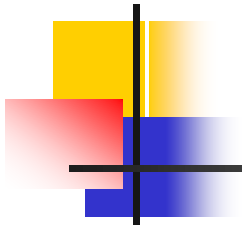
 - c) **Community**
 - a) Economic Outlook Reports
 - b) Local Drivers
 - c) Local Economic News





Replacing Existing Infrastructure

- Utilities must replace some aging infrastructure every year
- Whatever is not replaced this year gets one year older
- Currently replacing plant from 1960's & 1970's
- More than depreciation – building at today's standards and today's prices

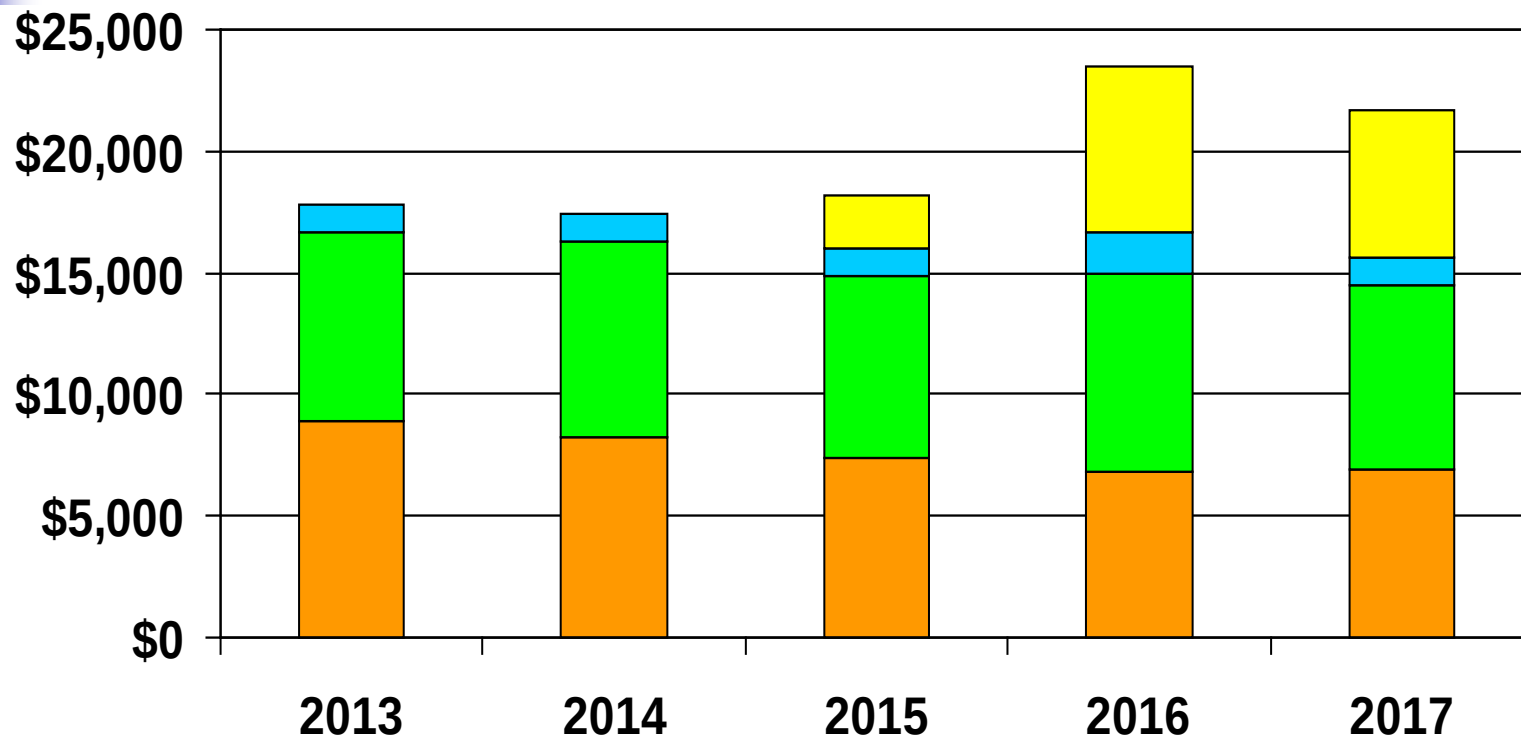


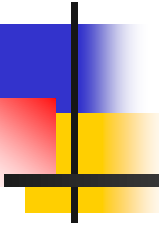
Budget and Planning Horizons

- Budget for current year in detail
- Generally forecast up to 5 year plan for capital in lesser detail (“buckets”)
- Load forecast at lesser detail up to 10 years for upstream capability planning
- Flexibility to move projects between years and between “buckets” as local conditions change
- Some years have additional requirements – mandated programs, transformer station, new buildings. Need a mechanism to handle these above normal capital requirement levels

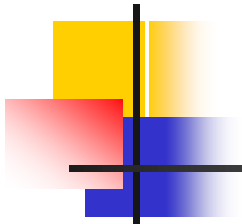
Mid-Size LDC Example

FIVE YEAR CAPEX



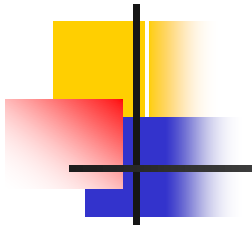


Regional Planning in Kitchener, Waterloo, Cambridge, Guelph



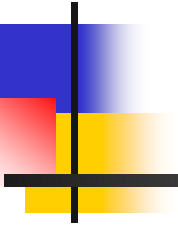
Regional Planning is happening....

- 1989 - Joint Report on the Future Supply to Waterloo North Hydro
- March 2003 – IESO 10 Year Outlook notes need for transmission reinforcement KWCG area
- April 2003 – An Area Transmission Supply Assessment of the Kitchener, Waterloo, Cambridge, Guelph and Surrounding Areas (study initiated 2002)
- Transformer capacity, line capacity and voltage issues identified
- Near-term and mid-term solutions
-but then there is cost allocation



...action from Regional Planning is not happening!

- The Integrated Power System Plan (IPSP) was prepared and filed with the OEB in 2007
- The review of the IPSP was subsequently placed on hold in September 2008
- Introduction of the Green Energy and Green Economy Act (GEGEA)
- Downturn in the economy
- Active CDM plans
- June 2010 – a new study is initiated
-**but** the economy, the expansion and the demand are coming back

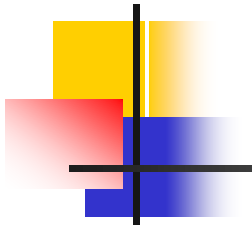


Cost Allocation

Waterloo Region/Guelph Adequacy of Supply

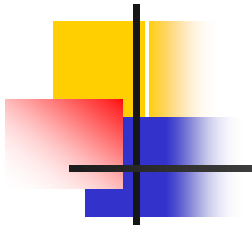
- The four LDCs and Hydro One Distribution have worked together on supply planning for many years
- Area is part of “Places to Grow” and future needs must be met. If we stall transmission system growth, it will negatively impact system capability, reliability and economic growth
- Option of gas-fired peaking generation or transmission system reinforcement urgently needed
- We all have long term supply concerns, but long term energy planning process will be too late for some
- We have been planning so long for optimization, that some less expensive alternatives are no longer available





Cambridge Security of Supply

- Cambridge is fed by a radial 230kV grid feed
- Whole city lost power for prolonged period in January 2003
- Supply arrangement does not meet IESO load restoration criteria
- 230kV - 115kV auto transformer at Preston TS provides some backup supply but limited
- The IESO has reported on their concerns for this area on multiple occasions in the past



Guelph/Kitchener/Cambridge Bulk Supply Reinforcement

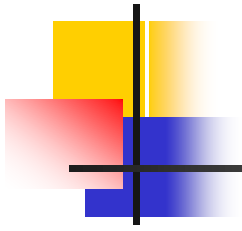
- Guelph Hydro connected a new TS in 2011 to service existing and new industrial customers along the Hanlon Parkway
- New load will be limited to 15.6MW (which is not much), until work is completed in Burlington TS in 2013
- Two feeder capacities are already committed in the new TS by existing growth to be connected in 2011
- Guelph has some data centres. The ability to supply new data centres, which range between 5 and 10MW each, is limited
- Reinforcement of the 115kV bulk supply system between Detweiler/Preston/Burlington TS's taking place now but needs to be accelerated. It was and still is transmission

Grid Expansion

Who Pays?

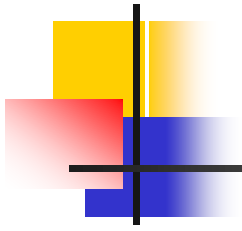
- OEB views on Transmission System Code Section 6.3.6
Where planning involves joint studies between Hydro One and one or more distributor(s) to meet different timing and supply needs such as load growth, would be viewed as customer driven, and a capital contribution would be required
- Capital contributions for transmission could create a serious financial hardship on LDC
- We are all growing, so which utility will get caught needing the next incremental capacity that requires an investment in transmission?
- It begs the question, should it be a pooled responsibility? “Postage stamp rates” should imply that expansion be included in “pool” costs and responsibility





Summary of Comments

- LDC planning to meet local growth and demand should be on a five year plan
- Less detailed load growth forecasts feed into upstream supply adequacy. Ten year is probable, 20 year may be helpful but not as easily done
- Regional planning occurs in the province and could be formalized, however, LDCs need action and results in a timely manner to meet customer demand



Summary of Comments

- Near-term solutions from studies require immediate decisions and implementation, not further studies
- We support that certain Line Connection Assets should have remained as part of the Network pool
- “Postage stamp rates” should imply that transmission expansion be included in “pool” costs and responsibility