toronto hydro
electric system

Presentation to the IESO Revenue Metering Subcommittee

May 10, 2005

- There are 35 Transformer Stations serving the Toronto Hydro distribution territory

- At market opening, Toronto Hydro was the MMP for 108 registered wholesale meter points, with Hydro One serving as the MSP

- Just prior to the market opening, the present Toronto Hydro-Electric System was created by the amalgamation of the six Metropolitan Toronto area utilities into one

- As a result of the amalgamation, some of the stations that formerly supplied multiple utilities now supply only Toronto Hydro

- One of the current issues that we are dealing with is changing the seal expired meters
- At present, we have more than 40 installations where the registered meter point is seal expired
- We are currently working with Hydro One to change the meters using a like-for-like strategy
- Hydro One typically replaces two power transformers each year, each resulting in two new fully compliant meter installations

- The scope of the current issue increases with the expiry of IT dispensations starting in 2006
- At last count, there were 428 instrument transformers installed in Toronto stations where the IT did not have Measurement Canada approval
- Although we realize that a number of these IT will turn out to be either approved or approvable, we have to plan for the known volume of 428 at this time

Instrument Transformer Dispensation Expiry

	2006	2007	2008	2009	2010	2011	Total
Current Transformers	23	41	17	107	90	21	299
Voltage Transformers	12	34	9	47	18	9	129
Totals	35	75	26	154	108	30	428

- Other important factors for Toronto Hydro planning:
  - a number of IT have type approval but not at the accuracy class of new compliant installations
  - there are many summed CT installations, which when separated will result in a substantial increase in the number of meter points
  - many stations, especially downtown, are space restricted by walls and ceilings, limiting relocation and expansion options
  - many of the CT are bushing type, making it difficult to get information about type, ratio, and accuracy

- Our proposed solution
  - there are two major transmission circuits that run across Toronto
    - a 230 kV "network" type transmission circuit from Cherrywood TS to Richview TS, referred to as the "north" circuit
    - a 230 kV "radial" type transmission circuit from Cherrywood TS to Leaside TS, stepped down to 115 kV from Leaside TS to Manby TS, referred to as the "south" circuit
    - the "south" 230/115 kV circuit from Cherrywood TS to Manby TS is configured and operated with "normally-open" points in the middle of the 115 kV circuits so that power is not "wheeled" through these 115 kV circuits
    - the south circuit feeds only Toronto Hydro stations, with no other distributors connected

- essentially, we are proposing to “bulk meter” a large portion of Toronto by installing 6 meter points on the 230 kV circuit from Cherrywood, and 8 meter points on the 115 kV circuit from Manby
- remaining stations across the north part of the city will continue with replacement and/or upgrade of seal expired meters

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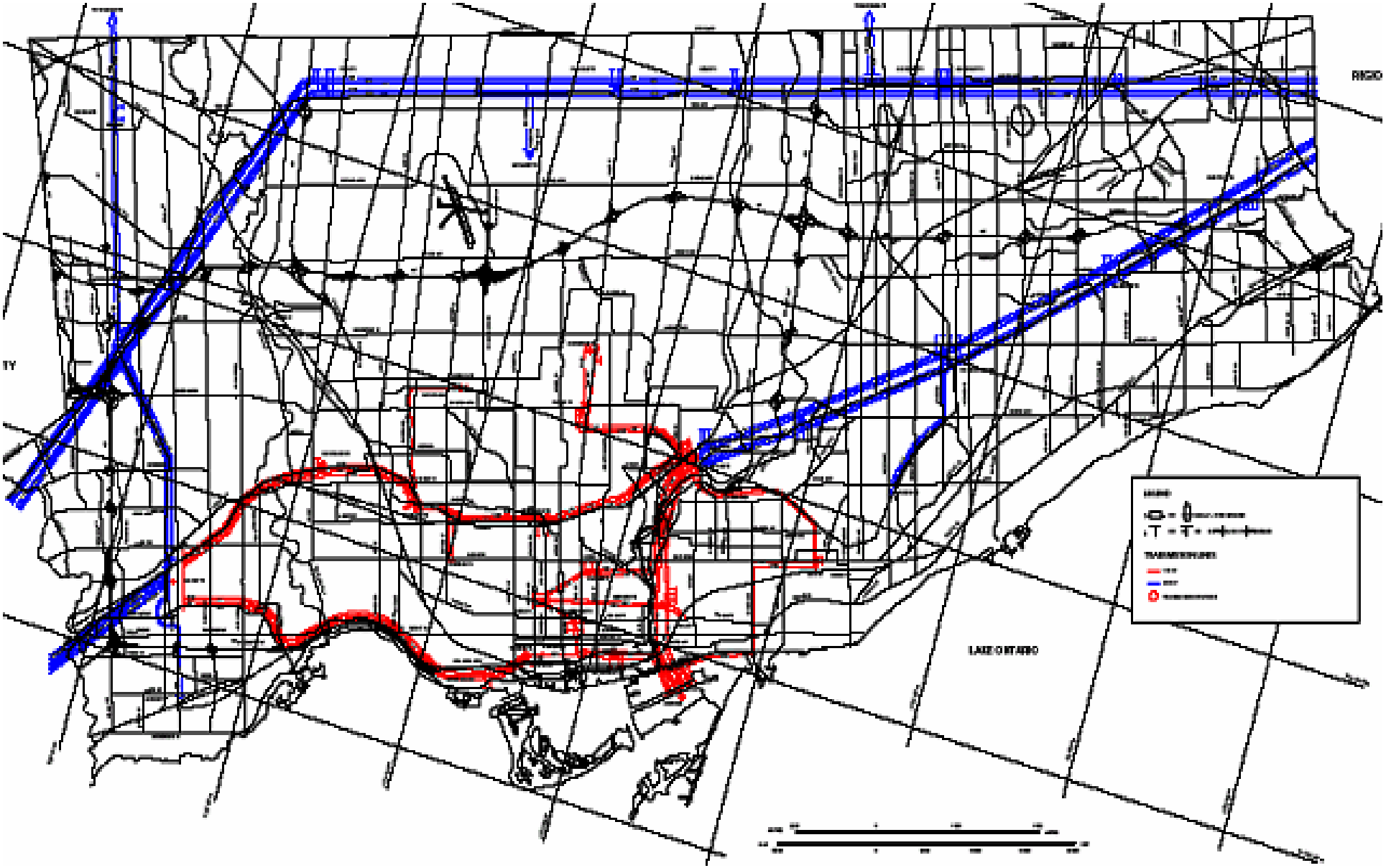

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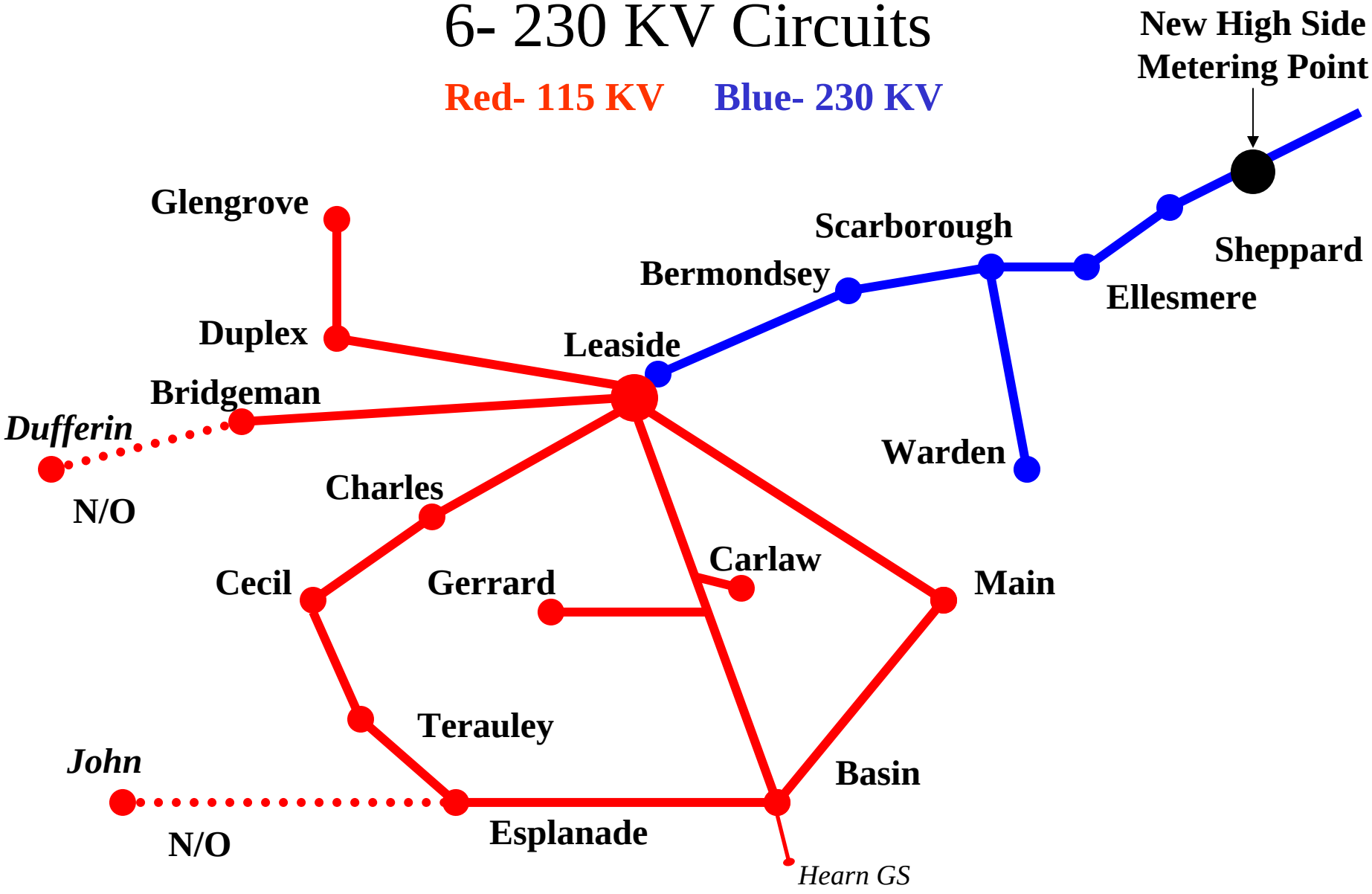
6- 230 KV Circuits

Red- 115 KV **Blue- 230 KV**



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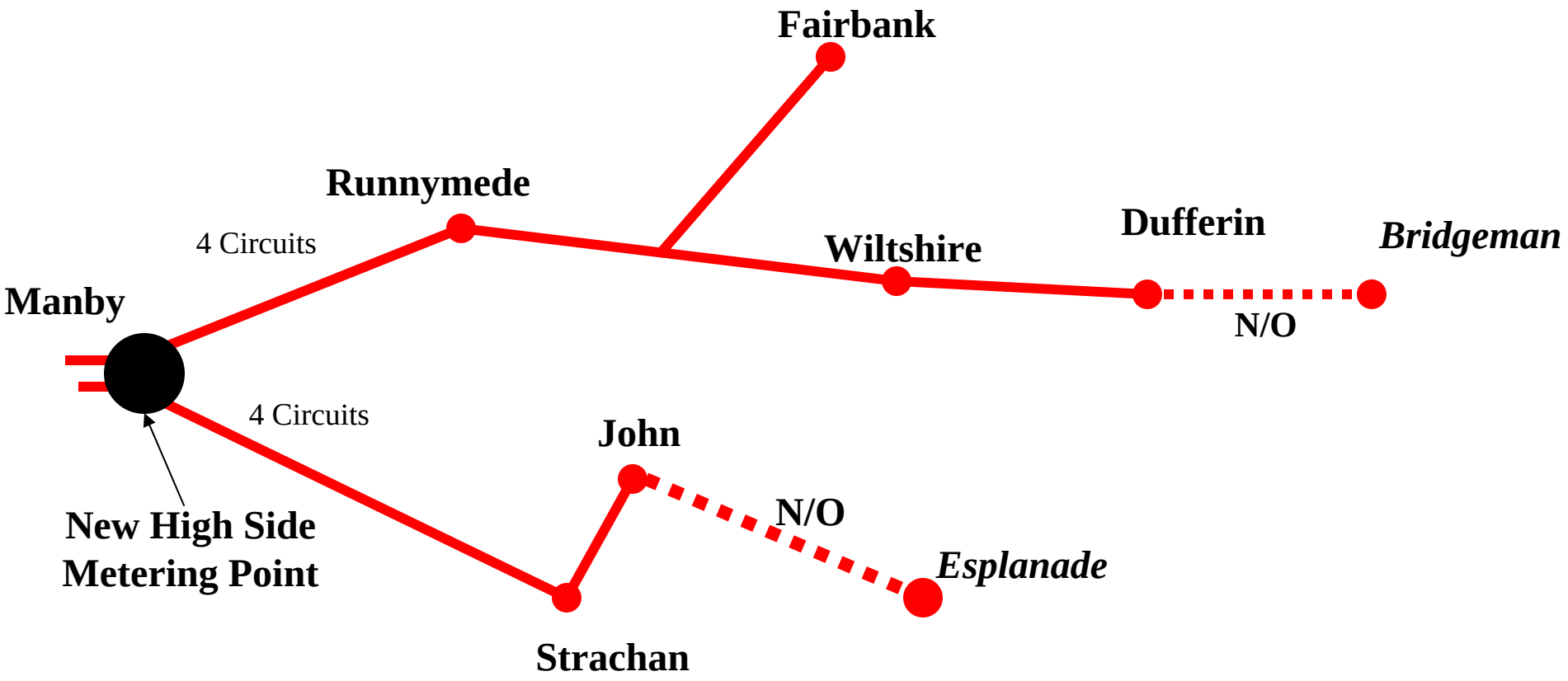
8- 115 KV Circuits



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2004 Demands

Sheppard 115/230 kV Circuit (Summation of 17 TS)

1500 TO 2000 MEGA WATTS

Manby Circuit 115 KV (Summation of 6 TS)

600 TO 800 MEGA WATTS

- Advantages to Toronto Hydro
  - significantly reduces the number of registered meter points
  - substantial cost avoidance for upgrading of stations, switchgear, IT, and meters
  - eliminates need to separate currently summed meter points and add IT
  - streamlines the data and invoice validation processes
  - eliminates many station access concerns
  - streamlines daily data collection requirements

- Advantages (con't)
  - all meter points will be fully compliant
  - IT will be high accuracy
  - EITRP and stand-by equipment will be common for all points
  - This arrangement may be suitable for other LDC that have amalgamated or combined service territories

    We have agreement in principle with Hydro One

    that the proposal must be transmission revenue neutral.

    The proposal is made to address metering concerns, and not with the intention of reducing costs by totalizing or aggregating multiple stations.

- The drawback:
  - although energy charges will be more easily determined, transmission tariffs will be a challenge, as they require settlement at each station
  - Toronto Hydro is working with Hydro One to develop a methodology which will adjust the demand at each station in a manner that produces the same result as if each station was still metered individually
  - the methodology will be used until the next rate submission, at which time a new methodology would be established for transmission rates

- existing metering would be left in place for use by Hydro One and Toronto Hydro for a number of purposes
  - the existing metering could be part of the methodology for determining the transmission tariff calculations

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- Discussion
- Questions