Update from Load Data Team

Stan But
Hydro One
June 15, 2005

Topics to be covered

- Update on generic load shapes
- Update on load data requirements
- Update on weather normalization methodology
- Update on utility-specific load shape methodology

Update on test cases

- Provided load shape analysis for 3 test LDCs (Newmarket, Lakeland and Waterloo North) using existing load shapes from Ontario Hydro
- Did testing for weather normalization analysis for Ottawa
- All analyses worked well

Update on Generic Load Shapes

- Generic load shape analysis is complete; Professor Dean Mountain agrees with the analysis; currently in the process of doing final analysis and checking
- Residential customers have generic profiles for 4 end-uses (electric space heating, electric water heating, space cooling and base load) in 4 regions (Central, East, West, North)
- Generic service customers have generic profiles by about 35 industry groups; also analyzed the profiles for different work shifts and regions
- LDCs wanting to use generic profiles but have not yet signed a contract should contact LoadResearch@HydroOne.com

Update on Load Data Requirements

- Load data requirements and templates updated (June 9 version)
- Minor adjustments reflecting experiences learnt to date
- Contract for utility-specific load shape analysis is available
- Contract covers support for Run 1 and Run 2; extra charges for Run 3, preparing appliance saturation estimates and other special rates
- About 5 LDCs to submit load data in May and another 10 in June
- 3 LDCs submitted data to date; 3 require data re-submission

Observations for Data Preparation

- Please follow the load data instructions and templates; data re-submission will cause delays
- LDCs are requested to define what rate classes will be included in Run 1, Run 2 and Run 3
- Sum of all rate classes by calendar month must equal to wholesale purchases with losses included; if they don't add up, data will be rejected
- Verification table is added in the template to check monthly and annual kWh totals by rate class
- Interval meter customers should not be included in general service >50 and <50 kW rate classes

Observations for Data Preparation

- Individual interval metered customers must add up to the sum of interval meter customers
- For general service customers, industry classification using NAICS-2002 (North American Industry Classification System)
- If LDCs don't want to use detailed NAICS-2002, use the 50 industry groupings from Hydro One; make sure industry description and codes are consistent
- For residential customers, LDCs with appliance surveys will tabulate results using coding instructions provided; need detailed billing information if seasonal customers are included in the rate class and are significant (>10-15% of customers)

Observations for Data Preparation

- LDCs need to provide number of customers by 6 kWh group with one complete year of kWh for checking validity of survey; sum of customers for 6 groups is different from the rate class total
- LDCs not doing appliance survey need to provide 2 years of monthly billing information for each customer
- Make sure all rate class kWh will add up to the monthly and annual totals. LDCs must do necessary accrual analysis in order to make the numbers consistent
- If numbers do not add up or if data formats are not followed, data will be rejected

Sample Industry Classification

531111	Multi-residential Buildings	
531120	Office Buildings	Including all businesses located in office buildings: • Finance and Insurance (52) • Offices of Real Estate Agents and Brokers (5312) • Offices of Real Estate Appraisers (53132) • Legal Services (5411) • Accounting, Tax Preparation, Bookkeeping and payroll services (5412) • Management ,Scientific and Technical Consulting Services (5416) • Management of Companies and Enterprises (55) • Office Administrative (5611) • Employment Services (5613) • Business Support Services (5614) • Travel Arrangement and Reservation Services (5615) • Government office buildings under Public Administration (91); but excluding Defence Services, Police Services, Fire-Fighting Services
611110	Education – Elementary & Secondary Schools	
61	Education – All Others	Excluding: • Elementary & Secondary Schools (611110)

Verification Table in Data Template

LDC name	Year	Month	Total wholesale purchase (kWh) (Section B-2)	Total embedded generation purchase (kWh) If applicable (Section B-3)	Total interval meter class (kWh) (Section B-4)	Total street lighting and sentinel lighting class (kWh) (Section B-5a&5b)	Total USL class (kWh) (Section B-5c)	Total residential class (kWh) (Section B-6a or B-6b)
Hydro One	2004	01	974,200.43	4,955.55	417,790.17	955.94	2,962.94	124,418.96
Hydro One	2004	02	973,679.62	4,765.27	417,381.23	953.36	2,961.36	124,352.44
Hydro One	2004	03	904,143.48	4,351.13	387,540.61	840.87	2,749.87	115,471.71
Hydro One	2004	04	833,652.51	4,445.22	357,706.40	824.59	2,535.48	106,469.03
Hydro One	2004	05	779,361.92	4,564.35	334,707.11	880.36	2,370.36	99,535.37
Hydro One	2004	06	839,372.06	4,264.54	360,330.50	872.21	2,130.14	107,199.50
Hydro One	2004	07	851,562.23	4,983.98	366,252.34	854.34	2,161.08	108,756.35
Hydro One	2004	08	879,933.45	4,865.82	378,187.67	867.24	2,233.08	112,379.75
Hydro One	2004	09	895,463.30	4,795.49	384,287.97	850.53	2,723.47	114,363.13
Hydro One	2004	10	1,079,483.14	4,481.59	462,142.69	853.58	3,283.15	137,865.02
Hydro One	2004	11	1,167,444.94	4,578.85	499,586.36	873.36	3,550.68	149,098.97
Hydro One	2004	12	1,184,260.82	4,468.54	506,601.55	891.25	3,601.82	151,246.59

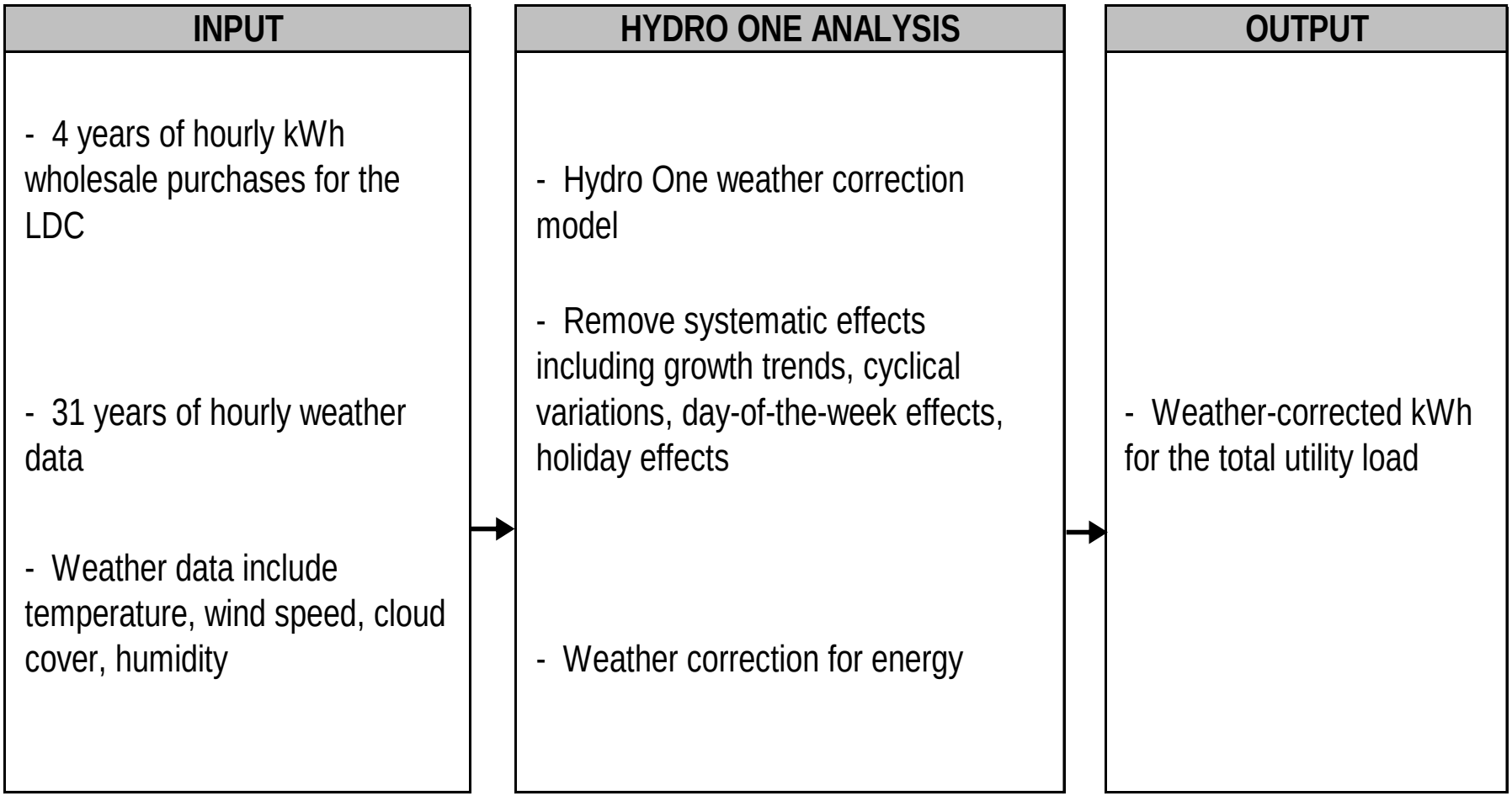
Sum of Rate Classes Must add Up

Total GS>50 kW class (kWh) (Section B-7)	Total GS<50 kW class (kWh) (Section B-8)	Total Back-up or standby class consumption (kWh) If applicable (Section B-9)	Other specialized class (kWh). If applicable (Section B-10)	Column O	Column P	Column Q
				Sum of Section B-2 and B-3	Sum of Section B-4 to B-8	Make adjustments If each field in this column is not zero
108,244.49	324,783.48	0.00	0.00	979,155.98	979,155.98	0.00
108,186.62	324,609.87	0.00	0.00	978,444.89	978,444.89	0.00
100,460.39	301,431.16	0.00	0.00	908,494.61	908,494.61	0.00
92,628.06	277,934.17	0.00	0.00	838,097.73	838,097.73	0.00
86,595.77	259,837.31	0.00	0.00	783,926.27	783,926.27	0.00
93,263.56	279,840.69	0.00	0.00	843,636.60	843,636.60	0.00
94,618.03	283,904.08	0.00	0.00	856,546.21	856,546.21	0.00
97,770.38	293,361.15	0.00	0.00	884,799.27	884,799.27	0.00
99,495.92	298,537.77	0.00	0.00	900,258.79	900,258.79	0.00
119,942.57	359,877.71	0.00	0.00	1,083,964.73	1,083,964.73	0.00
129,716.10	389,198.31	0.00	0.00	1,172,023.79	1,172,023.79	0.00
131,584.54	394,803.61	0.00	0.00	1,188,729.36	1,188,729.36	0.00

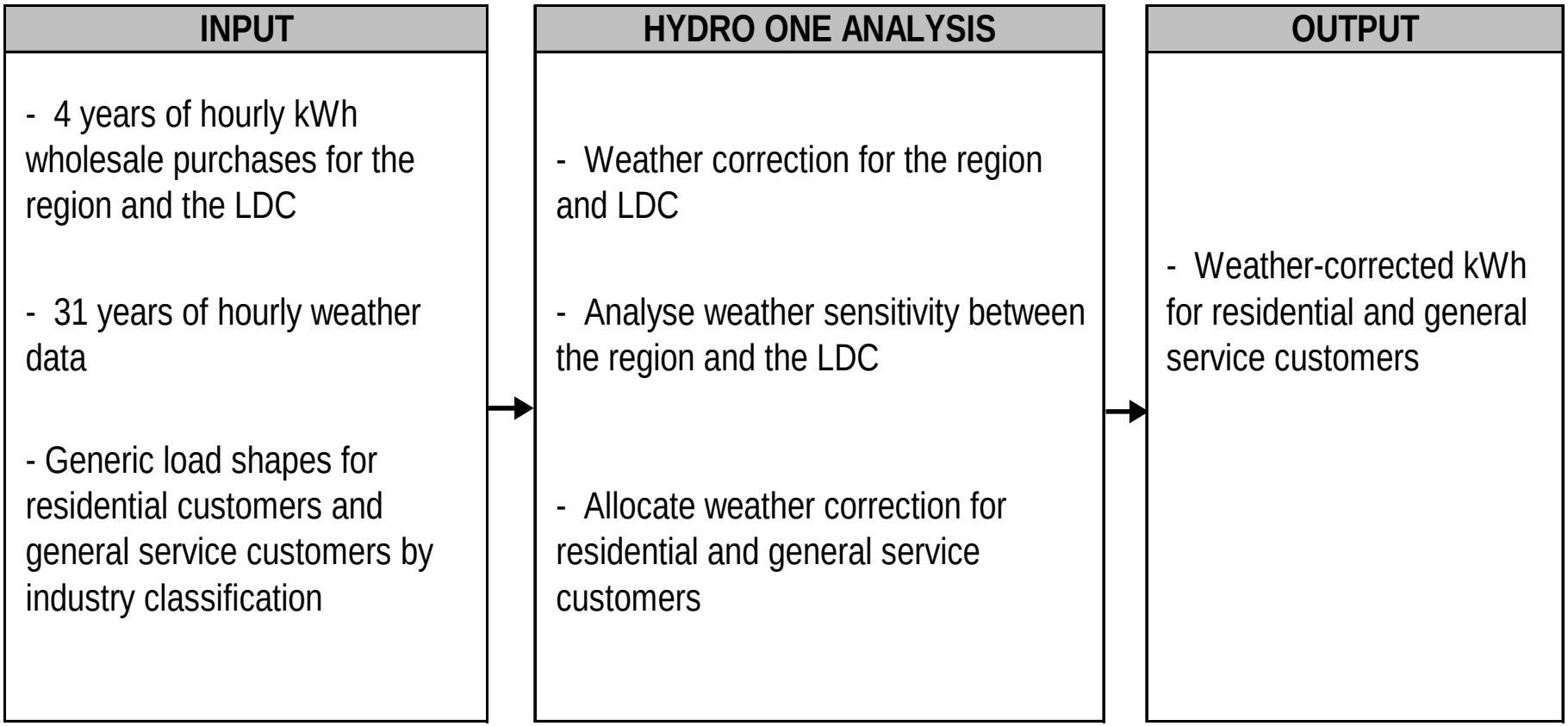
Define Run 1, Run 2 & Run 3

Rate Class	Name of rate class	RUN-1	RUN-2	RUN-3	Detailed Description
1	e.g. Interval Meter				
2	e.g. Street Lighting				
3	e.g. Sentinel Lighting				
4	e.g. USL				
5	e.g. Residential				
6	e.g. GS>50 kW				
7	e.g. GS<50 kW				
8	e.g. Standby or Back-up				
9					
10					
11					
12					

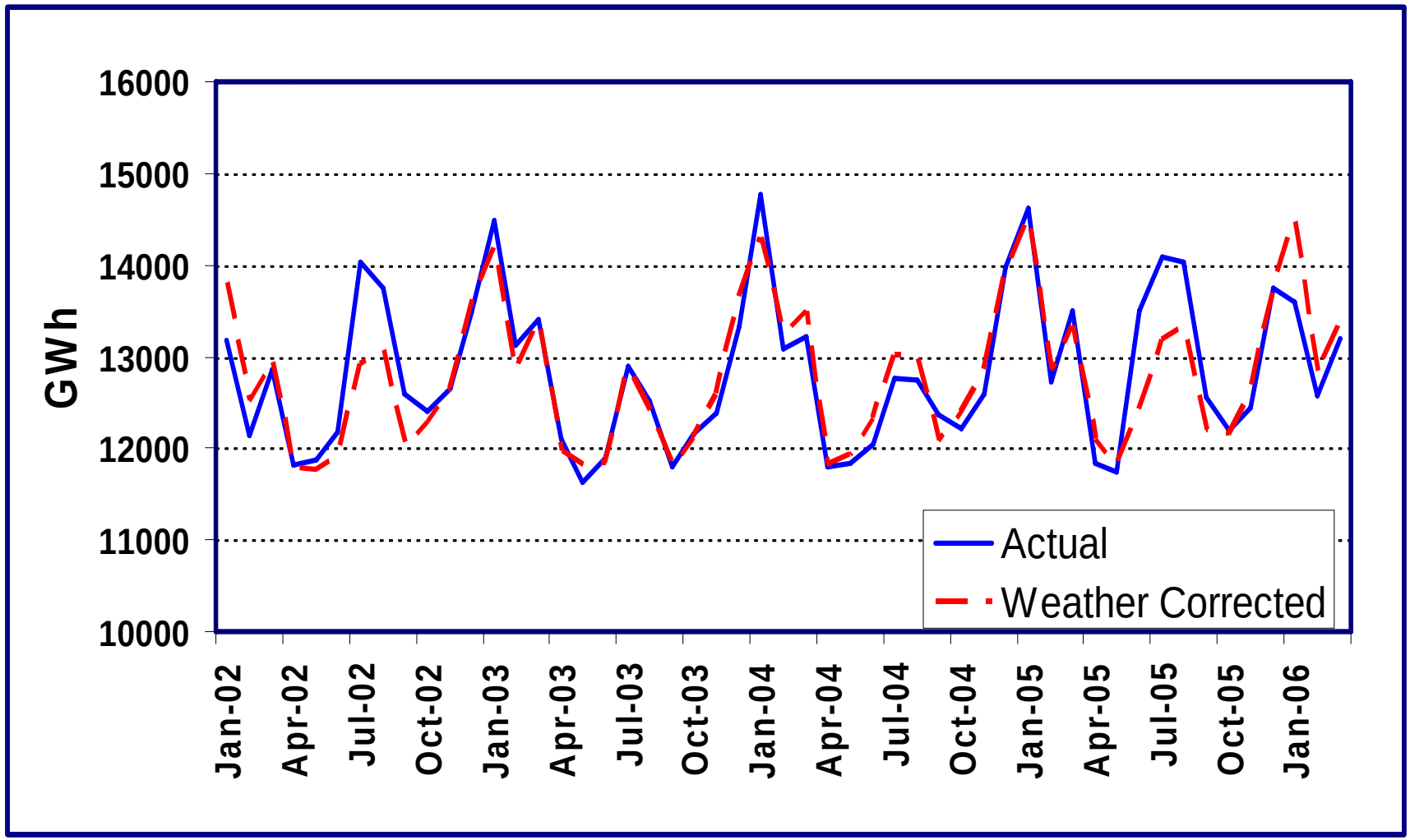
Weather Normalization for Total Utility Load



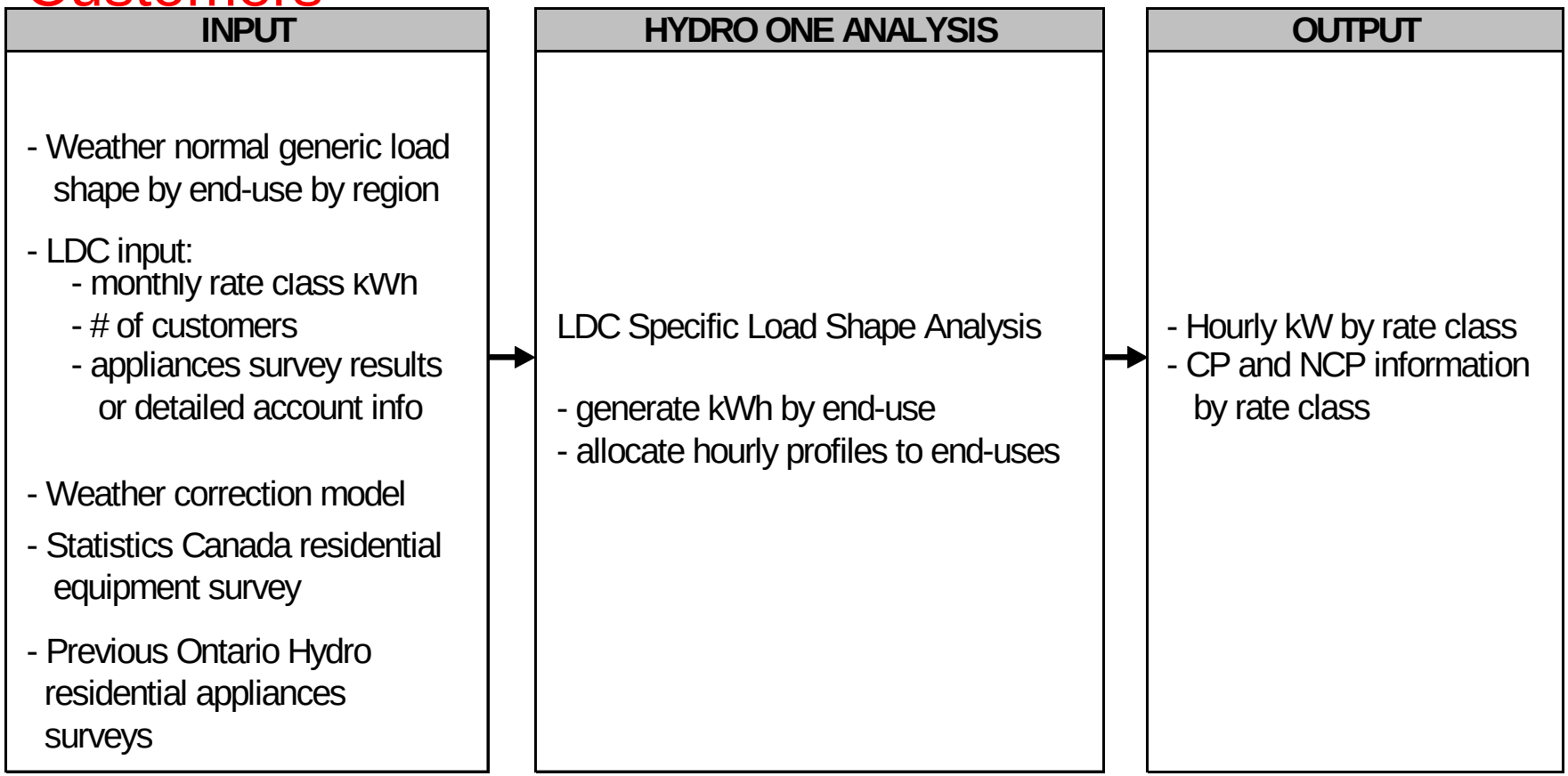
Weather Normalization by Rate Class



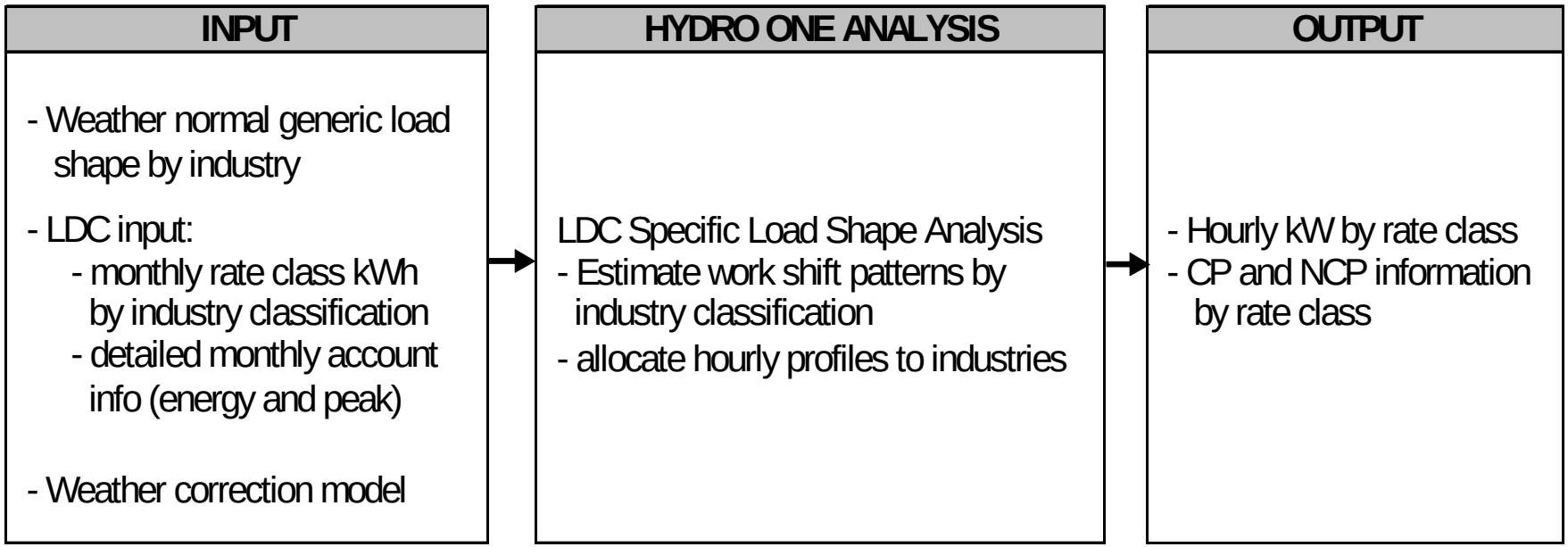
Actual & Weather Corrected Energy



Utility-Specific Load Shape for Residential Class Customers



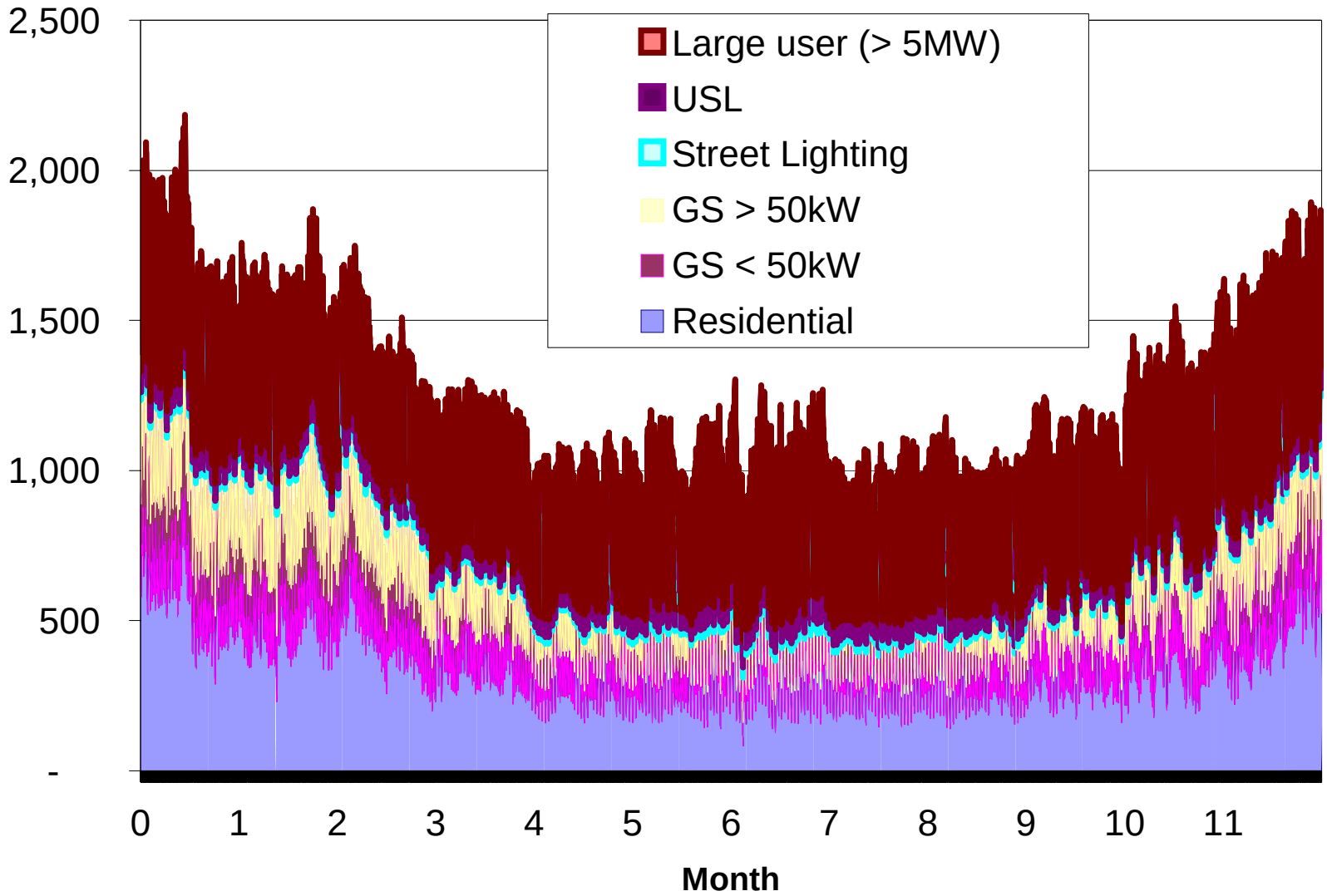
Utility Specific Load Shape for GS > 50kW Class Customers



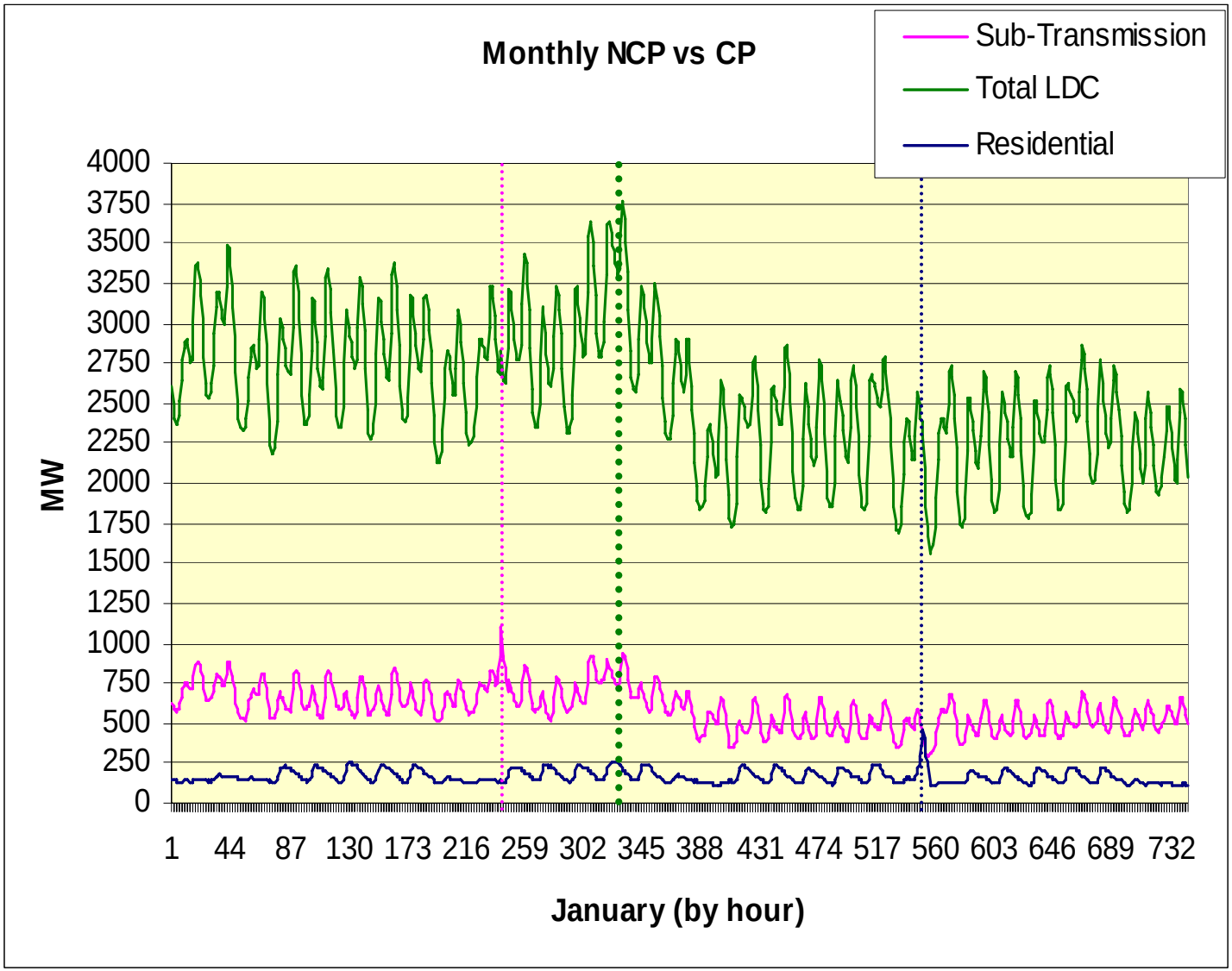
Utility Specific Load Shape for Other Classes

- Interval Metered Customers
  - Weather correction analysis as appropriate
- Street Lighting, Sentinel Lights and USL
  - Photo-sensitive loads: OEB deemed profiles
  - Non photo-sensitive loads: Flat
  - Weather-sensitive load: Use weather normal battery mat load shapes
- GS < 50 kW Customers
  - Residual load shape
  - Additional checking as appropriate

Utility-Specific Load Shapes



CPs and NCPs by Rate Class



TOTAL LDC peak:
Jan 14, hour 18 3753 MW

Residential CP:
Jan 14, hour 18 926 MW
Sub-Transmission CP:
Jan 14, hour 18 236 MW

Residential NCP:
Jan 11, hour 17 1100 MW
Sub-Transmission NCP:
Jan 24, hour 15 450 MW

Output from HONI Load Shape Analysis

- Feeds into cost allocation model input sheet

	1	2	3	4	5	6	7
	Residential	GS <50	GS>50-Regular	GS> 50-TOU	GS >50-Intermediate	GS >5 MW	Street Light
Co-incident Peak							
1 CP	X	X	X	X	X	X	X
4 CP	X	X	X	X	X	X	X
12 CP	X	X	X	X	X	X	X
Non Co-incident Peak							
1 NCP	X	X	X	X	X	X	X
4 NCP	X	X	X	X	X	X	X
12 NCP	X	X	X	X	X	X	X
Annual Weather Normalized kWh							
kWh	X	X	X	X	X	X	X