



Analytics Use Cases Using Smart Meter Data

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AMI and Smart Meters

- One of the largest measurement data source by volume
- For a single measurement, smart meters generate 2800 times the data from manual read meter
- Measurements:
 - Interval measurements (kWh, kVARh, current, voltages, peak demand)
 - Events: Outage/restoration, momentaries, voltage sag/swell, tampering, overheating
- Local intelligence, programmability



Use Cases



Meter Analytics



Meter to Cash
Analytics



Customer
Analytics



Grid Analytics

Meter Data can be utilized in multiple groups of analytics use cases

Meter Analytics

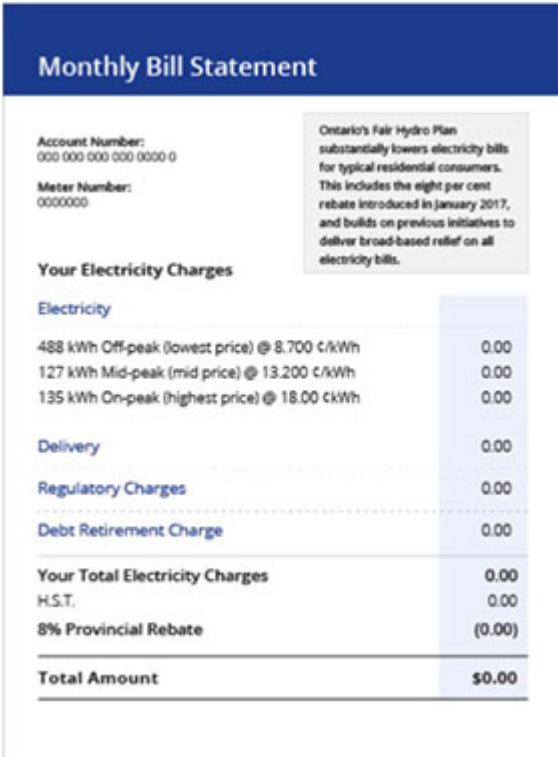
- AMI communication network analytics
- AMI network SLA reporting
- Meter configuration error detection
- Defective meter detection
- Tampering analytics
- Measurement visualization



Meter to Cash Analytics

Smart Meters record information required for billing

- Data validation, estimation & editing (VEE)
- Customer billing determinant calculation
- TOU billing
- Revenue protection & theft detection
- Rate design



Monthly Bill Statement

Account Number:
000 000 000 000 000 0

Meter Number:
0000000

Ontario's Fair Hydro Plan substantially lowers electricity bills for typical residential consumers. This includes the eight per cent rebate introduced in January 2017, and builds on previous initiatives to deliver broad-based relief on all electricity bills.

Your Electricity Charges

Electricity	
488 kWh Off-peak (lowest price) @ 8.700 c/kWh	0.00
127 kWh Mid-peak (mid price) @ 13.200 c/kWh	0.00
135 kWh On-peak (highest price) @ 18.00 c/kWh	0.00
Delivery	0.00
Regulatory Charges	0.00
Debt Retirement Charge	0.00
Your Total Electricity Charges	0.00
H.S.T.	0.00
8% Provincial Rebate	(0.00)
Total Amount	\$0.00

Smart Meters record customer consumption patterns

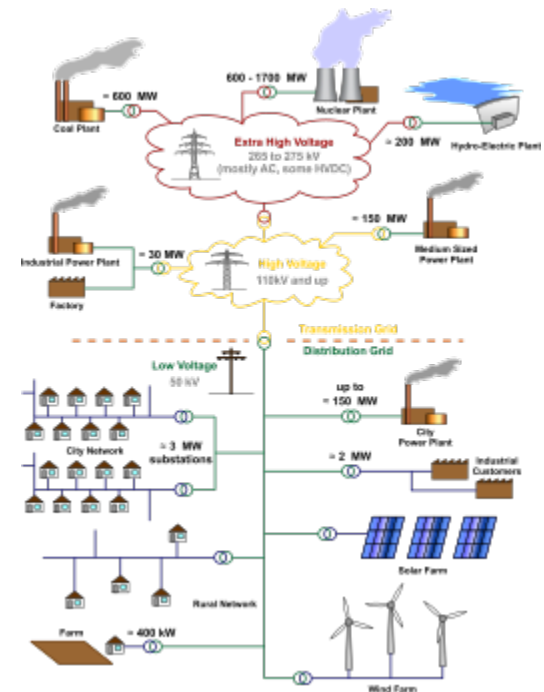
- Load forecasting at customer level
- Load disaggregation
- Energy efficiency programs
- Customer segmentation



Grid Analytics

Smart Meters are near real-time sensors at the edge

- Asset health and risk analysis
- Fine grained reliability index calculations
- Grid topology analytics
- Outage prediction and analytics
- Downed conductor location analysis
- Power quality analytics
- DER integration analytics



Thank You!