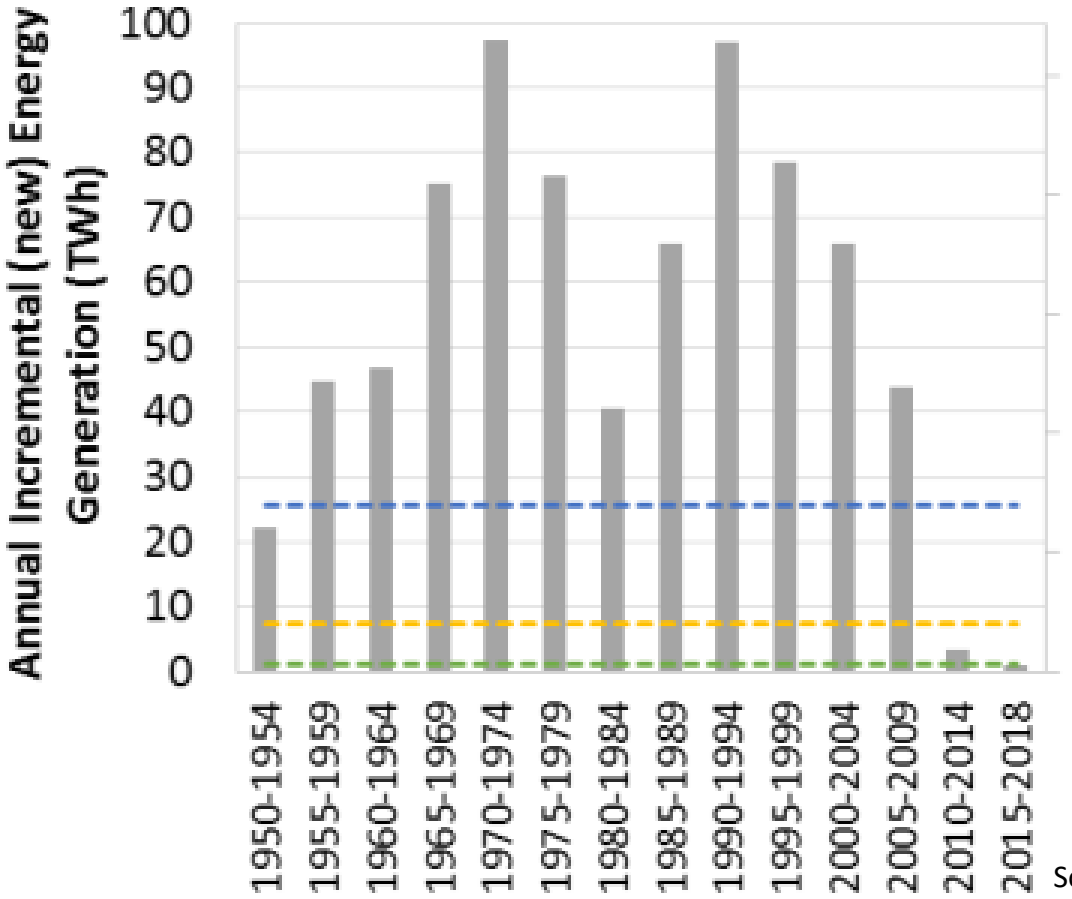
Beneficial Electrification

Impact of Electrification on Utility Delivery Infrastructure and Customer Costs

February 9, 2022

THE OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF ILLINOIS
GRANT S. SNYDER, *ASSISTANT ATTORNEY GENERAL, PUBLIC UTILITIES BUREAU*
E-MAIL: Grant.Snyder@ilag.gov
PHONE: (773) 590-7853

Load Growth Over Time



Source: U.S. DRIVE, Summary Report on EVs at Scale and the U.S. Electric Power System (2019)

Sample Time and Electricity Usage

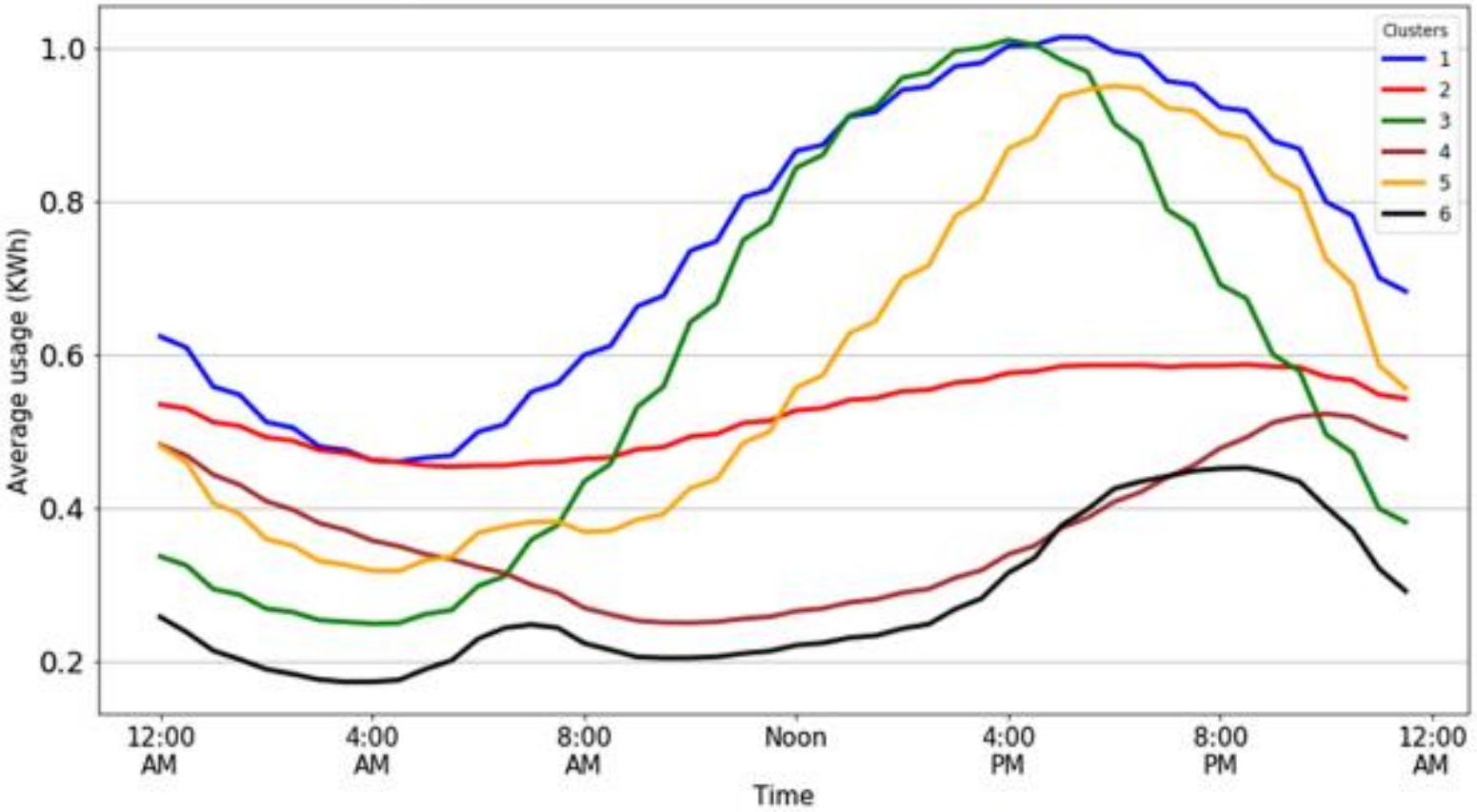


Fig. 2. Average volume usage, in kWh.

Source: CUB, Charging Ahead: Deriving Value from Electric Vehicles for All Electricity Consumers (2019)

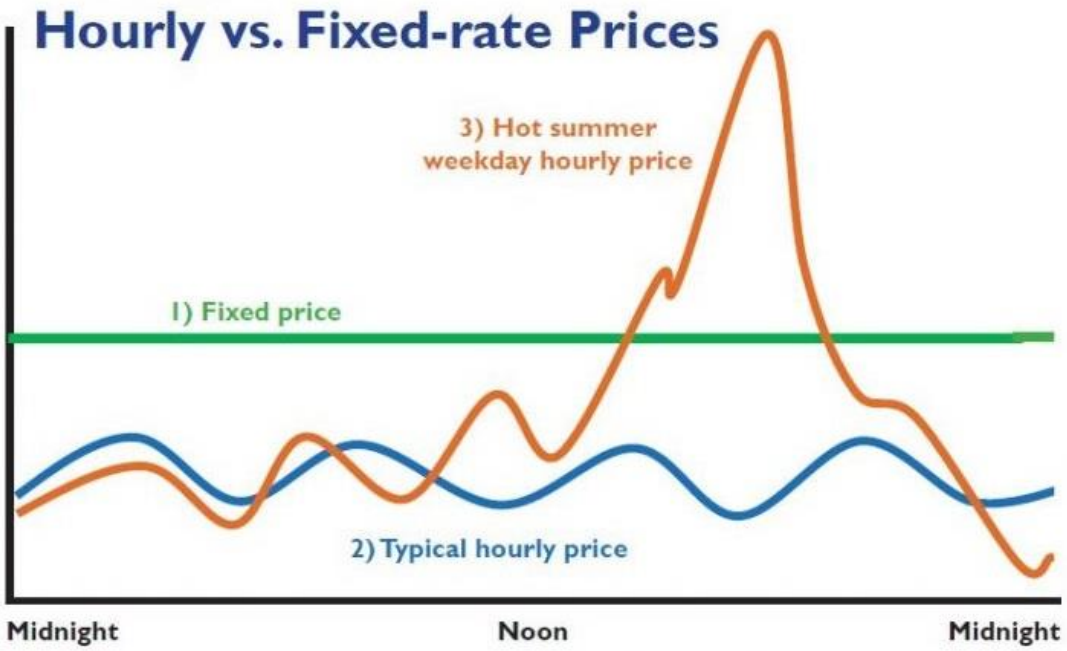
Impact on Low-Income Customers

- Equity Concerns
  - Wealth transfer ***away*** from low-income customers
  - Potential higher electricity charges
  - Continued operation of marginal, dirtier generation

Beneficial Electrification Plan Priorities

- Two Priorities
  - Develop rate structures and other programs that shift EV load off-peak
  - Investment in transportation electrification should prioritize equity and low-income EV adoption

Rate Design to Reduce Load



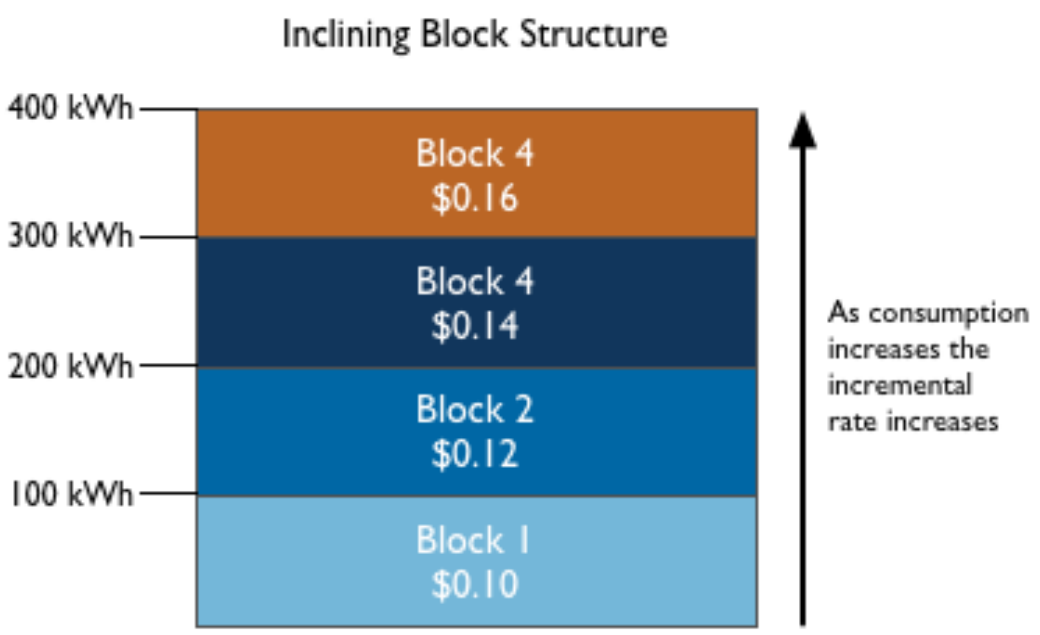
1) Fixed price: Most ComEd customers pay a fixed electricity supply rate that changes only twice a year. But ComEd's Hourly Pricing Program charges customers the actual market-based price, which can change hourly.

2) Typical hourly price: Typically, the average hourly market price over the year is lower than the standard utility fixed rate.

3) Hot summer weekday hourly price: While the market price can shoot high above the traditional fixed rate when demand is high, such as hot, summer, weekday afternoons, it often stays below the fixed price, such as in winter.

Source: *ComEd Hourly Pricing Program*, CUB, https://www.citizensutilityboard.org/comed-hourly-pricing-program/ (last visited Feb. 4, 2022)

Time of Use Rates for Commercial Chargers



Source: Energy Policy Initiatives Center

Other Rate Structures to Reduce Load

- Active Managed Charging
  - Utility takes direct role in limiting on-peak charging
  - Ex. Static Optimization Program
- Automated Load Management
  - Utility distributes charging capacity among multiple charging ports to limit total buildout

Benefits of Off-Peak Pricing

Table 5: Total Net Benefits with Optimized Charging ($ million)

	Added Distribution Revenue		Capacity Costs Net Benefit		Energy Market Price Benefit		Total Benefits	
Year	Market Expansion	Decarbonization Path	Market Expansion	Decarbonization Path	Market Expansion	Decarbonization Path	Market Expansion	Decarbonization Path
2019	$1.3	$1.5	$0.06	$0.07	$4.3	$21.8	$5.7	$23.30
2020	$1.8	$2.3	$0.07	$0.13	$4.0	$50.6	$5.9	$53.02
2021	$2.5	$3.6	$0.09	$0.19	$3.7	$56.0	$6.3	$59.78
2022	$3.5	$5.6	$0.13	$0.29	$8.6	$86.7	$12.2	$92.55
2023	$4.9	$8.7	$1.1	$2.3	$9.6	$141.5	$15.6	$152.42
2024	$6.9	$13.5	$1.5	$3.5	$18.4	$190.8	$26.8	$207.78
2025	$9.8	$21	$2.0	$5.3	$14.5	$184.8	$26.3	$211.09
2026	$14.1	$32.7	$2.7	$8.1	$21.3	$210.7	$38.1	$251.49
2027	$20.3	$51	$3.7	$12.2	$30.9	$228.2	$54.9	$291.36
2028	$29.3	$79.6	$4.9	$18.5	$35.6	$252.1	$69.8	$350.09
2029	$42.4	$123.7	$6.6	$27.9	$40.3	$269.8	$89.3	$421.41
2030	$61.6	$192.7	$9.3	$45.2	$47.1	$300.0	$118.0	$537.88
Total	**$198**	**$536**	**$32**	**$124**	**$238**	**$1,993**	**$469**	**$2,652**

Source: CUB, Charging Ahead: Deriving Value from Electric Vehicles for All Electricity Consumers (2019)

Investments Must Promote Equity

- Promoting Low-Income EV Adoption:
  - How do we get EVs into low-income communities?
    - Point of Sale Discounts & Rebates
    - Develop used vehicle market
  - How can we ensure those customers charge off-peak at comparable rates?
    - Garage v. No Garage

Public Charging

Investment in Commercial Charging & Range Anxiety

- Limit Investment in Commercial Charging Stations in Plan Cycle
  - 80% of charging done at home
  - Federal investment can be used to support commercial charging
  - Utilities should not own charging stations, revenue not guaranteed to exceed costs to ratepayers

Public Transit Investment

Reporting

- Critical Metrics
  - 1. Are rate design structures and investment promoting electrification?
    - Incremental adoption
  - 2. What is the impact of EV adoption and charging on distribution infrastructure?

Thank you!

GRANT S. SNYDER, *ASSISTANT ATTORNEY GENERAL, PUBLIC UTILITIES BUREAU*

THE OFFICE OF THE ATTORNEY GENERAL
OF THE STATE OF ILLINOIS
100 WEST RANDOLPH STREET
CHICAGO, ILLINOIS 60601

E-MAIL: Grant.Snyder@ilag.gov
PHONE: (773) 590-7853