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SABIN CENTER FOR CLIMATE CHANGE LAW

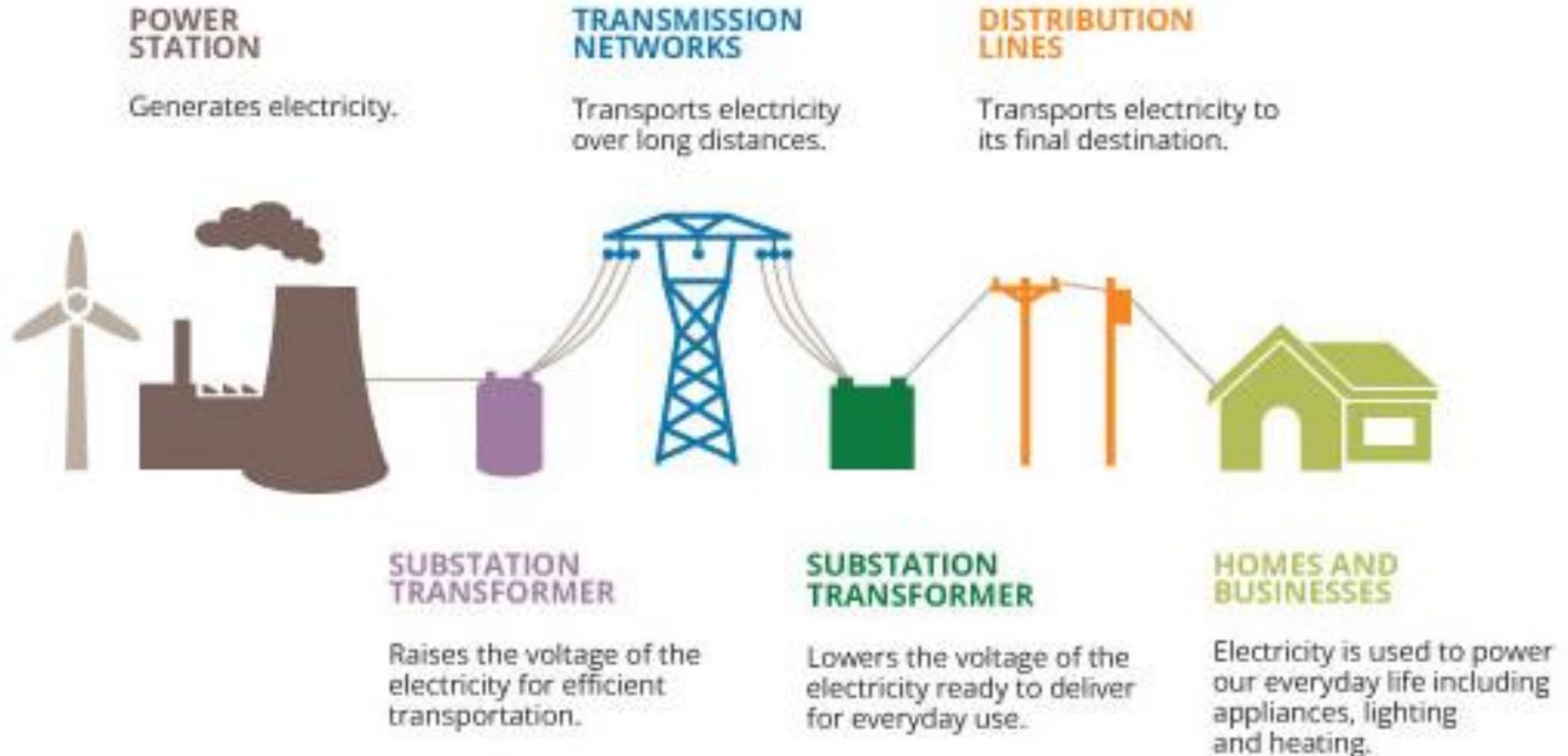
# The Basics of Renewable Energy Finance

## Ratemaking 101

Romany Webb

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# Components of the Electricity System





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# Localized Electricity Supply

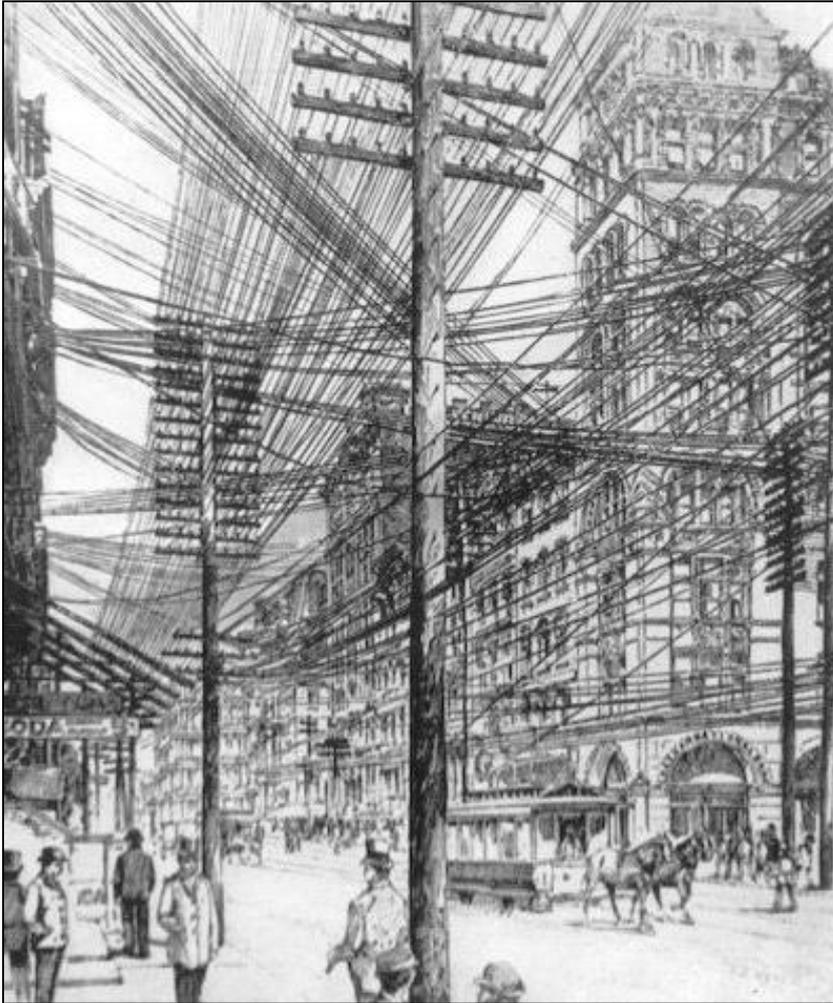


*Artist sketch of the Pearl Street station, New York, c.1882*



*Pearl Street Station distribution area, New York, c.1883*

# Competing Electricity Suppliers



New York City, c.1890

“The early years of the electric industry were chaotic. Cities often had competing electricity suppliers . . . For instance, in Chicago in the late 1800s, 29 franchises had been granted to electricity providers.”

- *Virginia Corporation Commission (2007)*

# State Regulation of Electricity Supply



# Justifications for State Regulation

## 1. Public service

Property “becomes clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large.” The owner of such property must “submit to be controlled by the public for the common good.”

- *Munn v. Illinois* (1877)

***Mother ... come out and play!***



**The GRAYBAR Ironer**  
Does everything from a baby's dress to a sheet. Electrically heated and driven. Runs on ordinary electric light circuit.



**The MANNING-BOWMAN Tableware**  
Electrical Silverware that is famous everywhere for its surpassing beauty.



**The GAINADAY Washer**  
The fastest washer made washes a tubful in five minutes. No moving parts inside. Power driven wringer.



**The OHIO Vacuum Cleaner**  
Cleans by powerful air suction alone. Assures normal life to rugs and carpets.

THE sun is shining ... the days are long ... all the world is pleasure bent. Housework? Do as other women do, who are daily escaping from the shadow of the four walls. Let Northern Electric Appliances and Hydro Power do the work.

It is all very simple. Stop at the Northern Electric booth and see how a day's work is done in a couple of hours. The attendants will be glad to tell you all about it.

**Electricity on the Farm.**  
Hydro power lines are bringing a host of comforts to country dwellers. Northern Electric has special equipment for rural installations.  
*Ask About It*

**Northern Electric**  
COMPANY LIMITED  
Head Office for Ontario

Electrical Building 131 Simcoe St., Toronto  
Booth Nos. 140-141

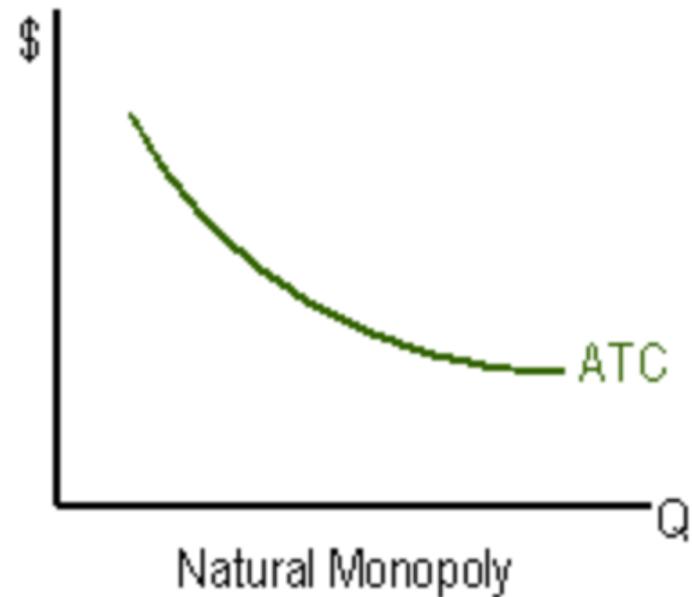
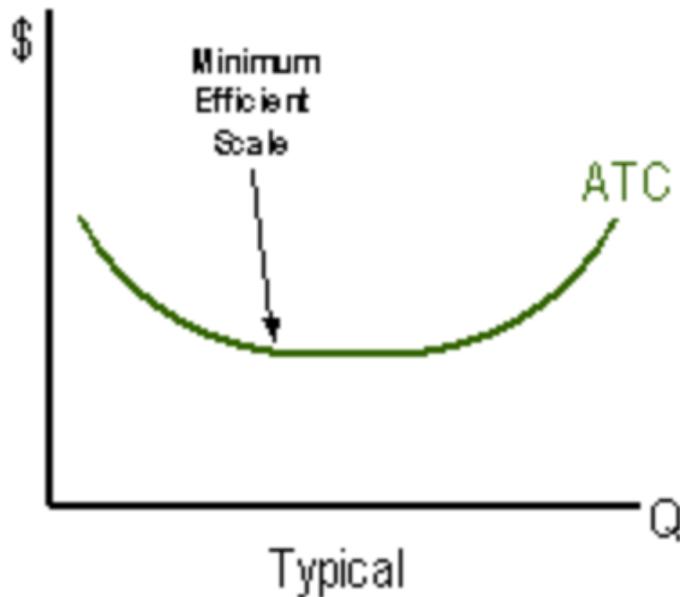
Electrical Building  
Booth Nos. 146-148

Advertisement for Northern Electric, c.1920

# Justifications for State Regulation (cont.)

## 2. Natural monopoly characteristics

Electricity suppliers face high fixed capital requirements, but can take advantage of substantial economies of scale



# Industry Support for Regulation



“[T]he best service at the lowest possible price can only be obtained . . . by exclusive control of a given territory being placed in the hands of one undertaking . . . In order to protect the public, exclusive franchises should be coupled with the conditions of public control.”

- *Samuel Insull, 1898*

# The Regulatory Compact

“The utility business represents a compact of sorts; a monopoly on service in a particular geographical area . . . is granted to the utility in exchange for a regime of intensive regulation, including price regulation.”

- *Jersey Central Power & Light v. FERC* (D.C. Cir. 1987)

Utilities:

- Monopoly status
- Reasonable rate of return



Consumers:

- Universal service
- Reasonable prices

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# Goals of Rate Regulation

- *Capital Attraction:* Rates should give the electric utility an opportunity to earn sufficient revenues to attract new capital and avoid financial difficulties.
- *Efficiency Incentives:* Rates should encourage the utility to operate efficiently and control costs.
- *Fairness for Consumers:* Rates should fairly allocate costs and risks among customer classes and between utility shareholders and customers.
- *Stability and Predictability:* Rates should change gradually over time. Rate shocks should be avoided.

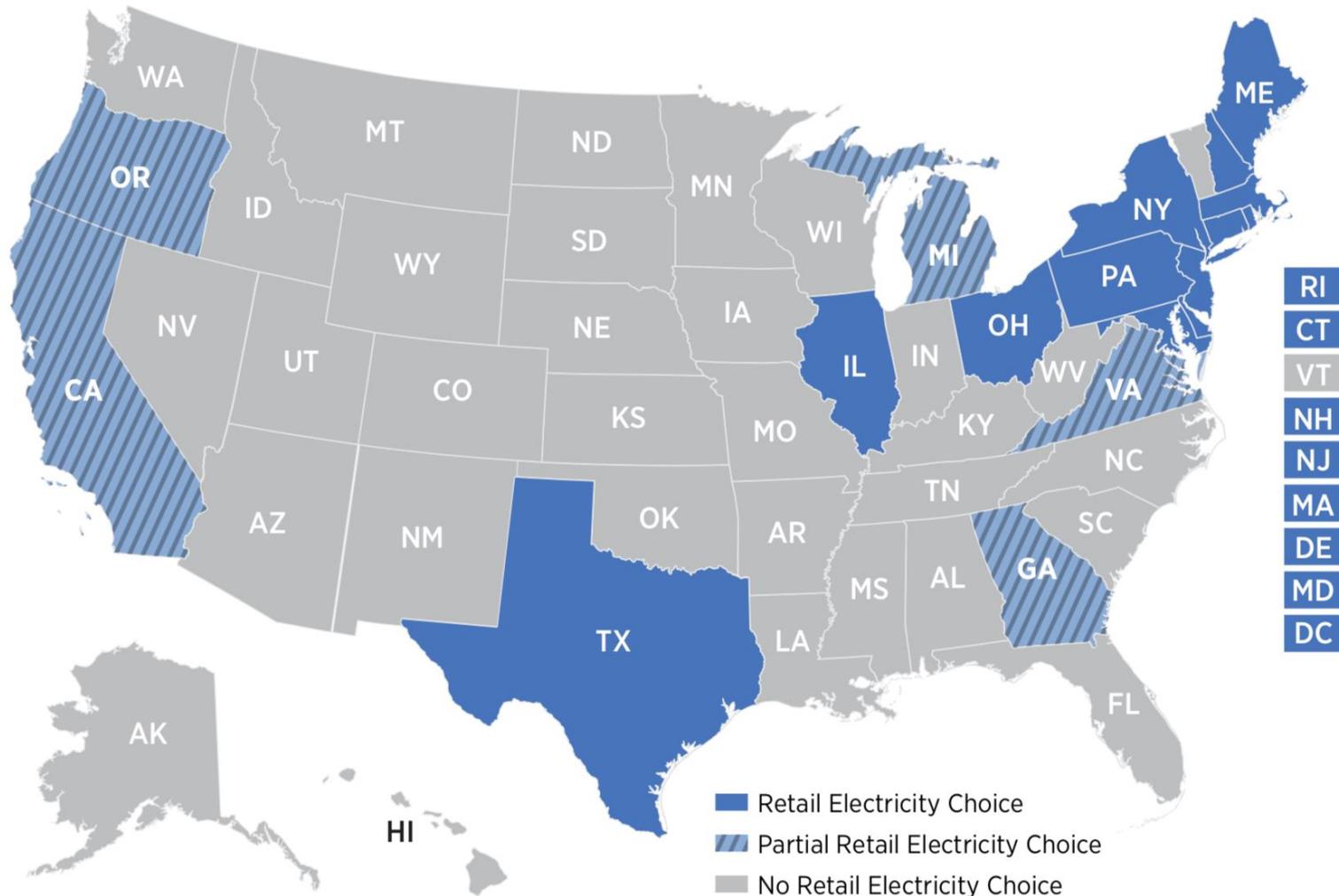
# Common Criticisms of Traditional Rate Regulation

Problem	Explanation
Averch-Johnson effect	Electric utilities have an incentive to over-invest or “gold-plate” their systems, leading to higher rates for consumers.
Throughput incentive	Electric utilities have an incentive to maximize sales and avoid implementing energy efficiency measures that could generate savings for consumers.
Regulatory lag	Electric utilities’ financial viability may be threatened by delays in adjusting rates following cost increases.

# Common Responses to the Criticisms

Problem	Possible Response
Averch-Johnson effect	<ul style="list-style-type: none"><li>• Prudence and used-and-useful review</li><li>• Competitive procurement</li><li>• Integrated resource planning</li></ul>
Throughput incentive	<ul style="list-style-type: none"><li>• Decoupling (“revenue regulation”)</li><li>• Performance-based (“price-cap”) regulation</li></ul>
Regulatory lag	<ul style="list-style-type: none"><li>• Cost tracking</li></ul>

# Going Further: Electricity Restructuring



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# New Challenges and Opportunities

- Rate regulation continues to be used, to varying degrees, in both traditional and restructured states
- Both traditional and restructured states are using rate regulation in new ways to achieve new goals
- Rate regulation can be used to shape the electricity system by influencing (among other things):
  - the types of generating facilities that are built;
  - the development of transmission and distribution grids; and
  - the use of electricity by consumers.



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### Important Links:



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