

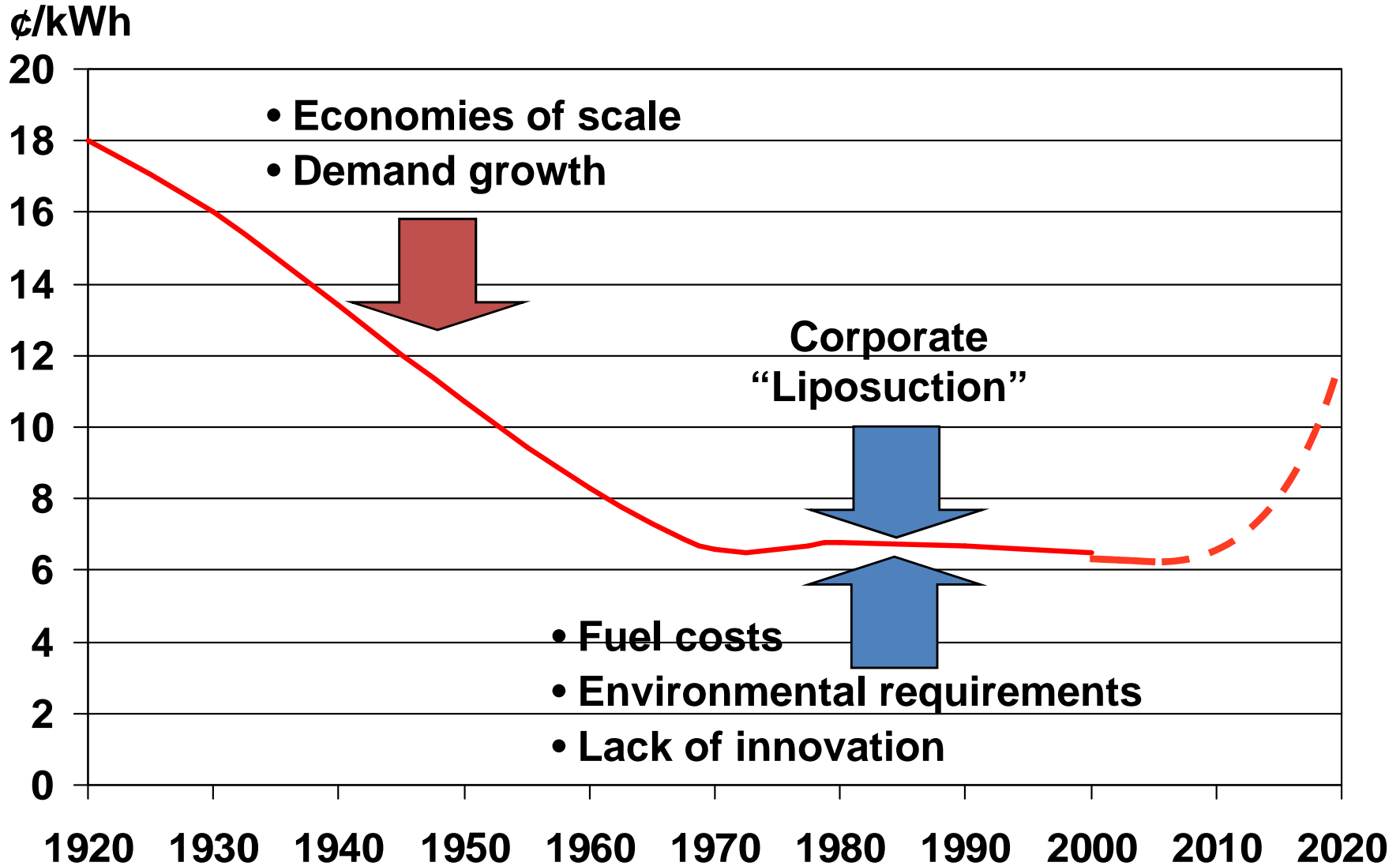
# Electricity for the 21<sup>st</sup> Century

Creating a Smart, Efficient Power System

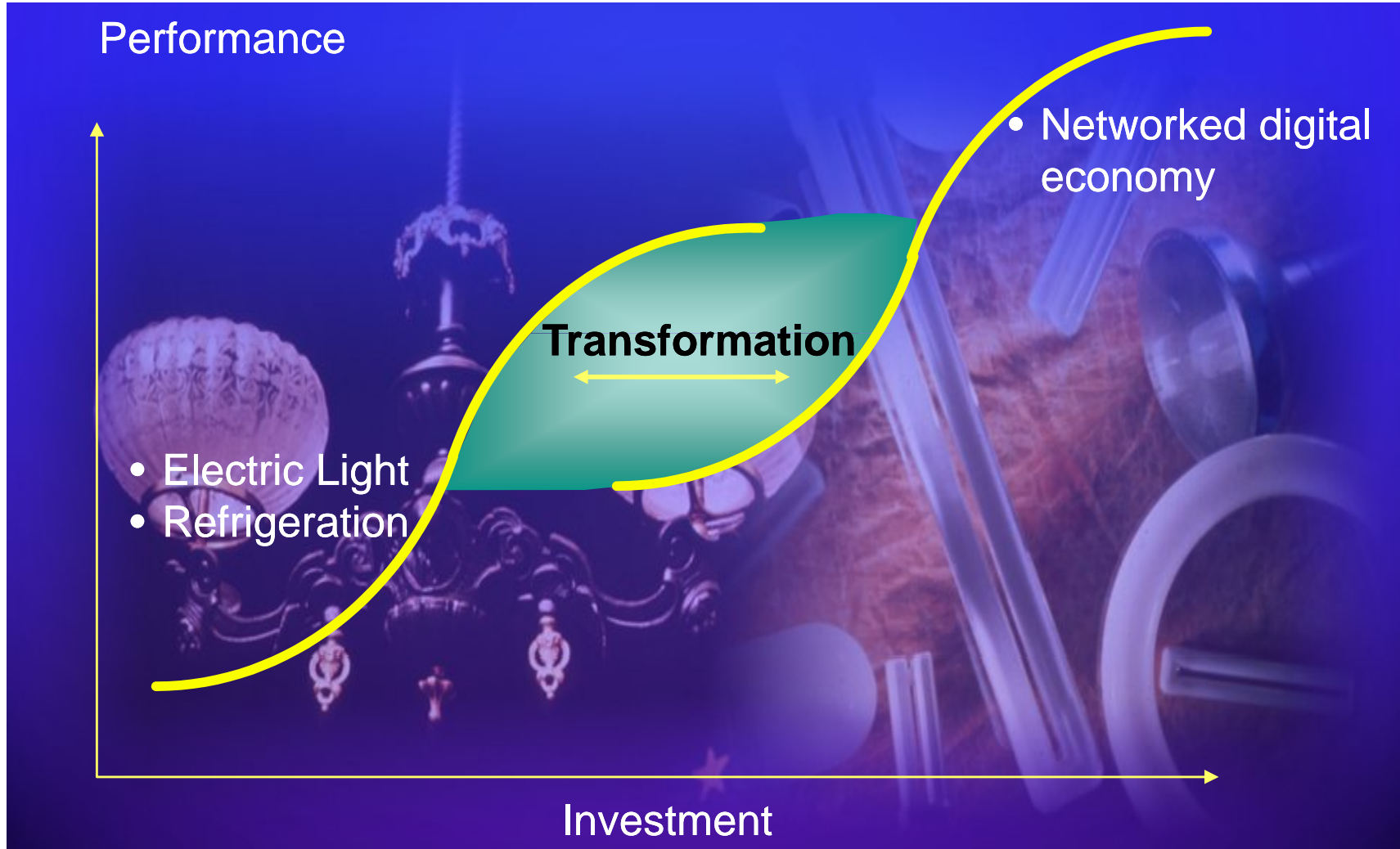
Kurt Yeager

[www.galvinpower.org](http://www.galvinpower.org)

# Average Price of Retail Electricity Service



# Breaking the Limits on Electricity Value



# GOAL: A Power System That Will Not Fail Consumers

- Eliminate service interruptions
- Meet individualized consumer needs
- Enable DG and energy smart appliances
- Achieve universal demand response & power market participation
- Minimize the cost of smart electric service

## AVOID THE PERFECT STORM

# Key Findings

- The electricity industry is transitioning to a demand-driven, dynamic-priced business
- Utility economics are driving AMI & DR – must reduce supply cost & protect income, not revenues
- Consumer-convenient “killer applications” are emerging and new players are entering
- Both the commercial and residential markets will become web-enabled and consumer controlled
- Widespread real-time energy management will significantly improve efficiency and reliability

# New Business Opportunities

- Turnkey Smart Buildings
- Web-enabled Energy Systems
- Residential DR
- Turnkey Perfect Power Retailing
- Turnkey AMI
- Commercial Perfect Power Retailing
- Enhanced Distribution Reliability Zones
- Entrepreneurial Microgrids

# Reaching the Tipping Point

- Intelligence built into majority of new commercial buildings
- Home automation systems are a staple offering
- Active DR programs are widely used
- > 40% of aggregate load is AMI served
- Grid interoperability is broadly (85%) activated

# Constraints to Transformation

- Lack of Consumer Knowledge
- Dysfunctional Building Design & Construction Processes
- Utility and Regulatory Resistance
- New Entrant Barriers – Discriminatory Rules & Tariffs
- CONCLUSION – These constraints will be overcome by cost and quality pressures. RATE CASES!

# 21<sup>st</sup> Century Policy Solutions

- Provide all customers with time-of-use rates & incentives
- Raise distribution reliability standards
- Compensate utilities based on their quality of service
- Enable truly competitive retail markets
- Open the door to smart, entrepreneurial microgrids
- Benefit consumers, communities and utilities alike

# Sad Socket Gets Smart



**You'd be sad, too, if you had to power digital-age businesses on 1950s technology**