

# Regulatory Education and Outreach for Distributed Energy (and fuel)

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# The Historic Utility Business Model

Was designed to guarantee every constituent and ratepayer:

- ✍ universal service
- ✍ at a minimum level of reliability
- ✍ at an affordable cost.

**Resource efficiency/optimization  
were not operational goals**

# Result: Stasis

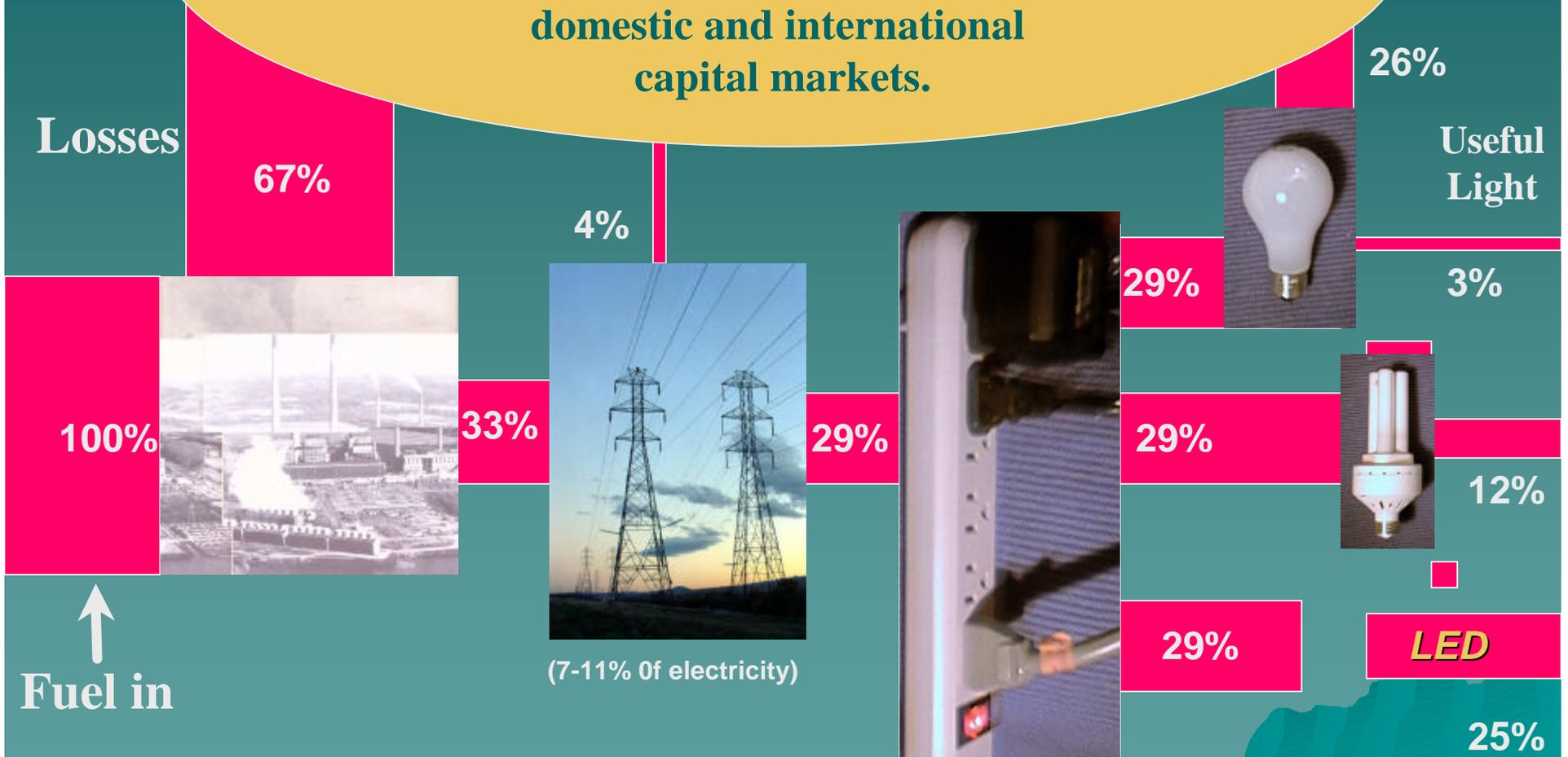
- † Same “Three nines,” same voltage fluctuations for all customer classes;
- † R&D aimed at optimizing existing architecture from a supply-side perspective;
- † Metered consumption (kW hrs.) x regulator-established multiplier = utility’s annual revenue (i.e., the more kW hrs. metered, the greater a utility’s gross income)

Distribution Feeder Profile (annualized)



**T&D required to transport every electron needed by customers**

The current electric delivery system is up to 97% “inefficient” (Btu loss from primary fuel to plug load); this has implications for U.S.-based energy consumers in both domestic and international capital markets.



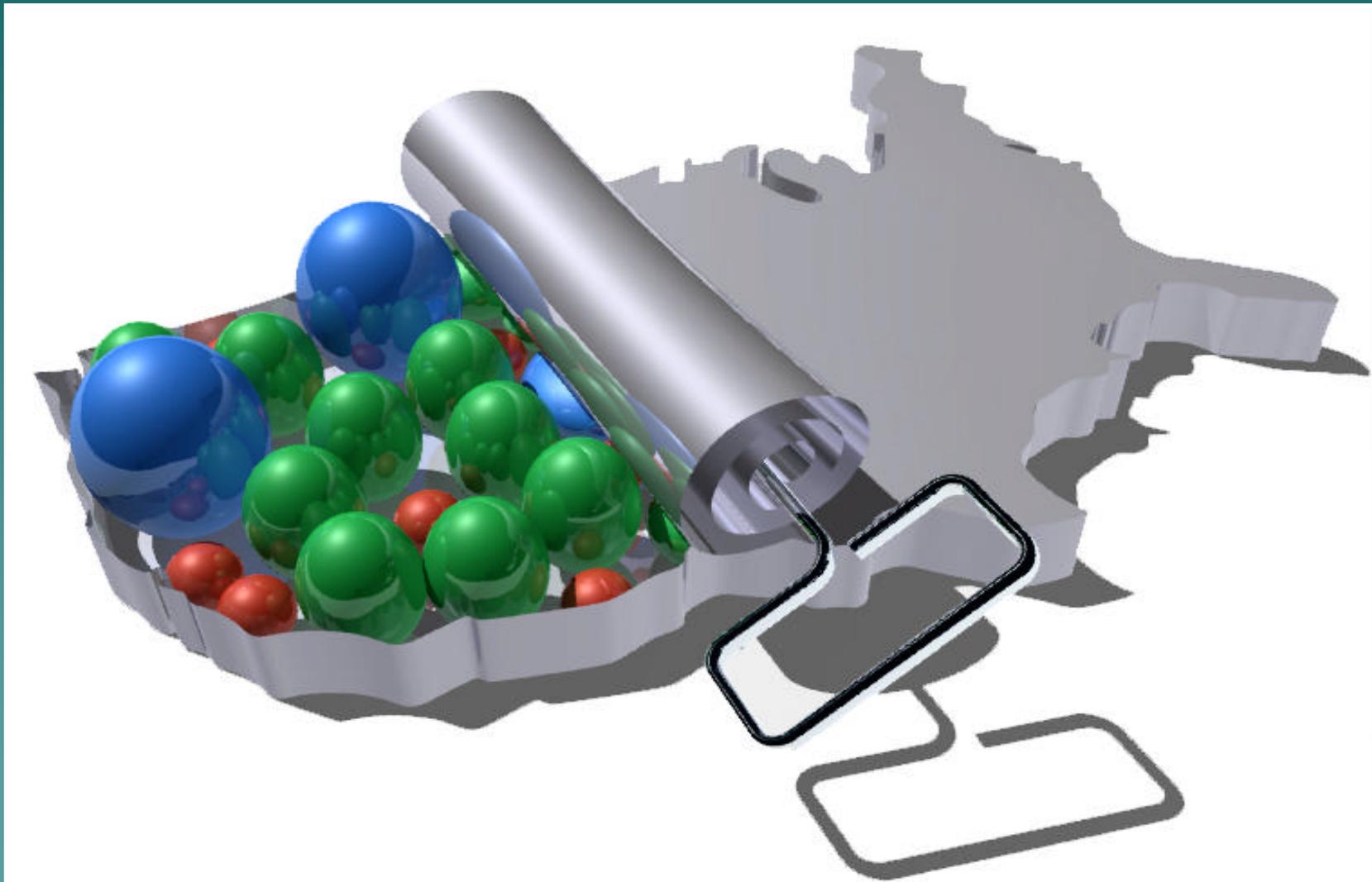
# Meanwhile.....

- ✍ U.S. Businesses have rationalized operating margins, supply chains with IT management.
- ✍ Virtually all other elements of the supply chain have been rationalized in last 20 years (including risk management)....

**Real-time processes,  
J-I-T manufacturing**

....Except Energy.

# The Emergence of Granularity Among Energy Customers



# The Advent of A New Business Model

- ✍ Demand Exchanges
  - Apogee Interactive, Inc.
  - Select Energy, UniGrid Energy
  - EnergyWeb (Bonneville Power Administration)
- ✍ Virtual Bi-lateral Exchanges
  - Enermetrix
- ✍ “Stock Brokers”
  - Celerity, Sixth Dimension, Silicon Energy, Engage Networks, PowerWeb, etc.

# The Federal Role

The DOE neither sets regulatory policy nor proscribes punitive actions, rather it furthers the Administration's goals via:

- ✍ long-term R&D

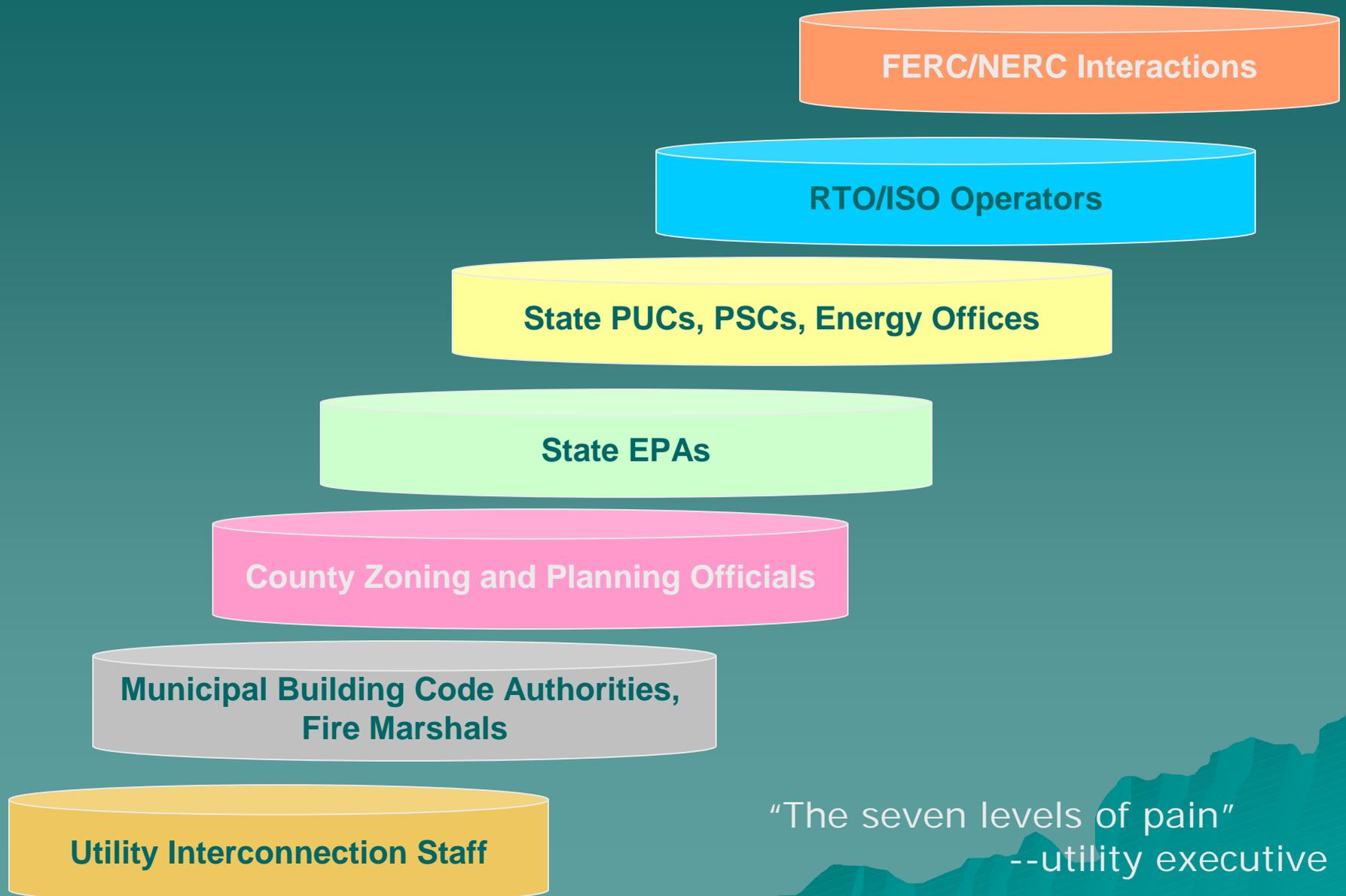
- ✍ state and national energy policy thru "friend-of" briefs, analyses, intellectual leadership

# #1 Manage the Cacophony

## The technical “Rules of the Road”

- ✍ Building & fire safety codes (for both the fuel and technology)
- ✍ Electrical interconnection
- ✍ Performance standards
- ✍ Communication protocols
- ✍ Measurement & verification

# #2 Empower the Regulators



"The seven levels of pain"  
--utility executive

# State Energy Challenges

- 1) Implement distributed intelligence for two-way power flow, automated management (reclosing, re-routing, etc.)
- 1) Enable RTO/ISO data transfer requirements to recognize DE “Stock brokers” in the wholesale market – this includes renewable energy resources (i.e., “intermittent”)
- 1) License demand exchanges (“nega-watts”) to operated in parallel with supply exchanges
- 1) License green trading floors (Chicago Climate Exchange, state-sponsored emissions programs for financing “draw-down” green projects

**Help energy consumers  
overcome stasis**

# DER Road Shows

- ✍ One 8-hour session
- ✍ Purpose: to introduce local building and fire code inspectors to DER technologies with a “hands-on” experience
- ✍ Manufacturers present on their product, the installation/permitting process, with or without specific reference
- ✍ Alt. fuels and electrical interconnection may also be covered
- ✍ State PUC, energy office, and EPA regulators generally participate as well.
- ✍ **IMPORTANT** – Local regulators indicate which technologies, applications and fuel sources they wish to hear about. Agenda is not fixed in advance.

# DER Road Shows, cont.

## 2001

- California (San Diego, San Jose, Sacramento)
- New York (Brooklyn, Long Island, Albany)
- Nevada (Las Vegas)

## 2002

- Illinois, Michigan
- Maine, Vermont, New Hampshire, Connecticut, Mass.
- Alaska, Hawaii

# For more information --

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