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Energy solutions
for a changing world

Why Are We Talking About the "Utility of the Future?"

...and how does it differ from the utility of today?

Presented by John Shenot

August 25, 2016

The Regulatory Assistance Project (RAP)[®]

Introduction

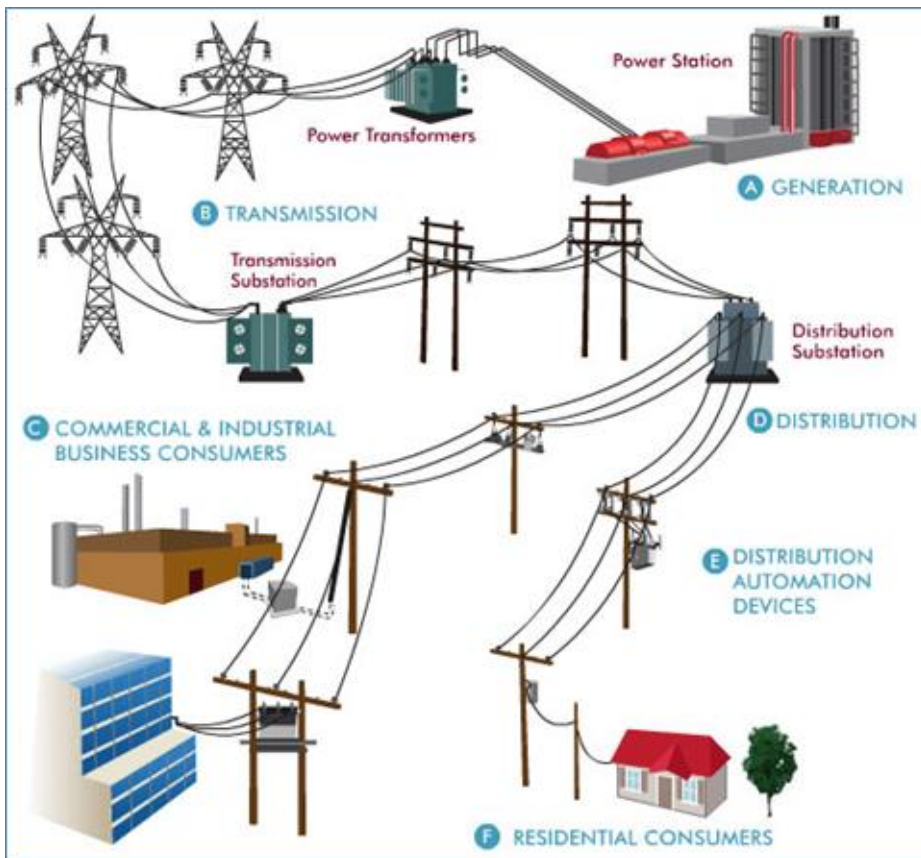


- The Regulatory Assistance Project (RAP) is a global, non-profit team of energy experts, mostly veteran regulators, advising current regulators on the long-term economic and environmental sustainability of the power and natural gas sectors. (www.raonline.org)
 - *Non-advocacy; no interventions*



- John Shenot is a Senior Associate at RAP. He previously served 3 years as policy advisor to the Public Service Commission of Wisconsin and 15 years with the Wisconsin Department of Natural Resources as an air pollution regulator and electric utility specialist.

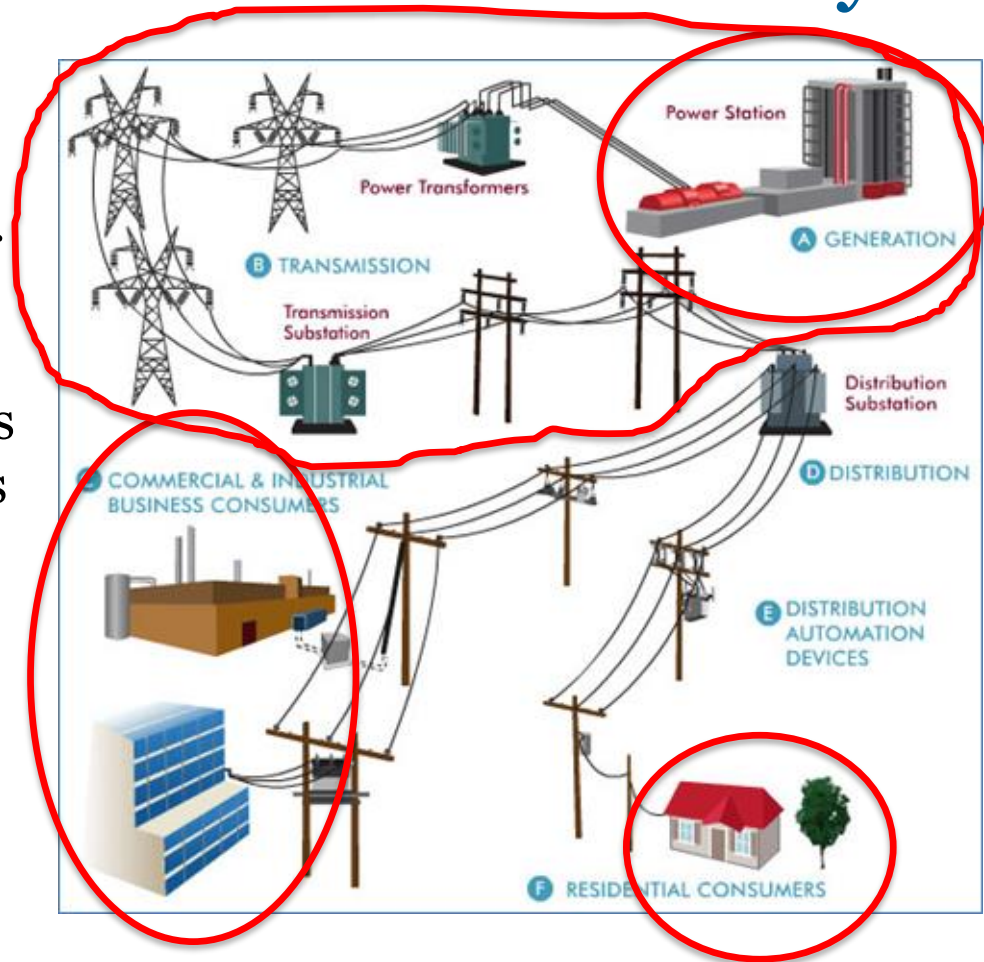
The Utility of the Past: Vertically Integrated Utilities



- Utility owned & operated virtually all generation, transmission, and distribution infrastructure
- Monopoly franchise within a defined service territory – and an obligation to serve
- Government-owned, customer-owned, or economically regulated to protect the public interest

The Utility of Today: Smaller Role in a Restructured Industry

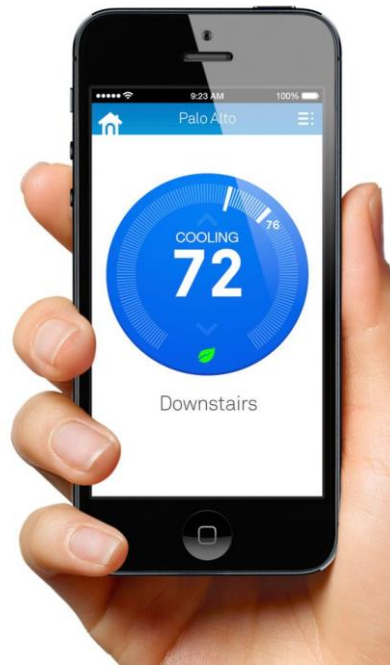
- Changes in public policy have driven changes in ownership and operation of generation & transmission:
 - Independent power producers can sell bulk power to utilities
 - Customers can generate electricity (e.g. solar) and sell excess power to their utility
 - Two-thirds of bulk power supply in US is dispatched by independent “regional transmission organizations”



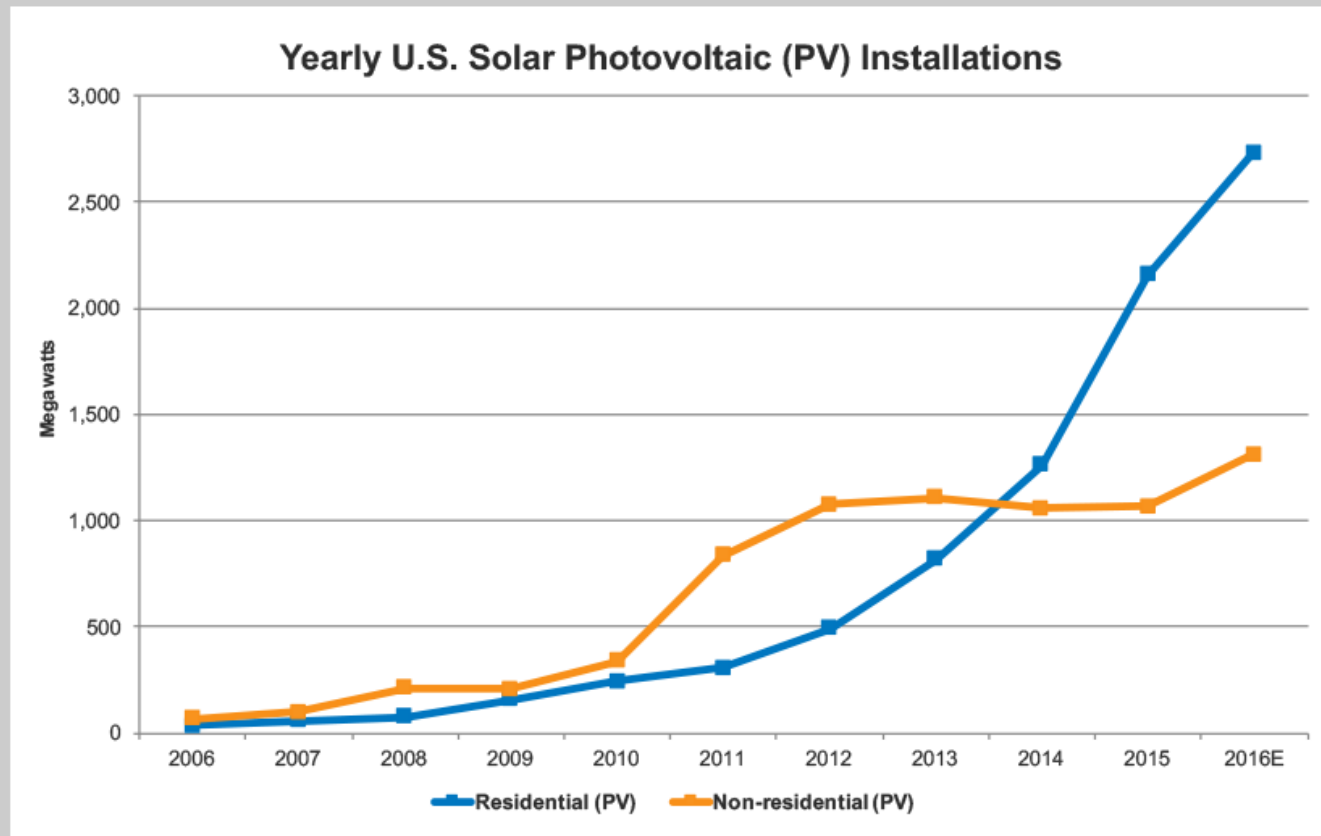
More Change is Coming and the Trend Lines Are Colliding



Customers Have More Control Over their Consumption and Increasingly Realistic Alternatives to Utility Service



Distributed Generation (especially Solar) is Growing Rapidly



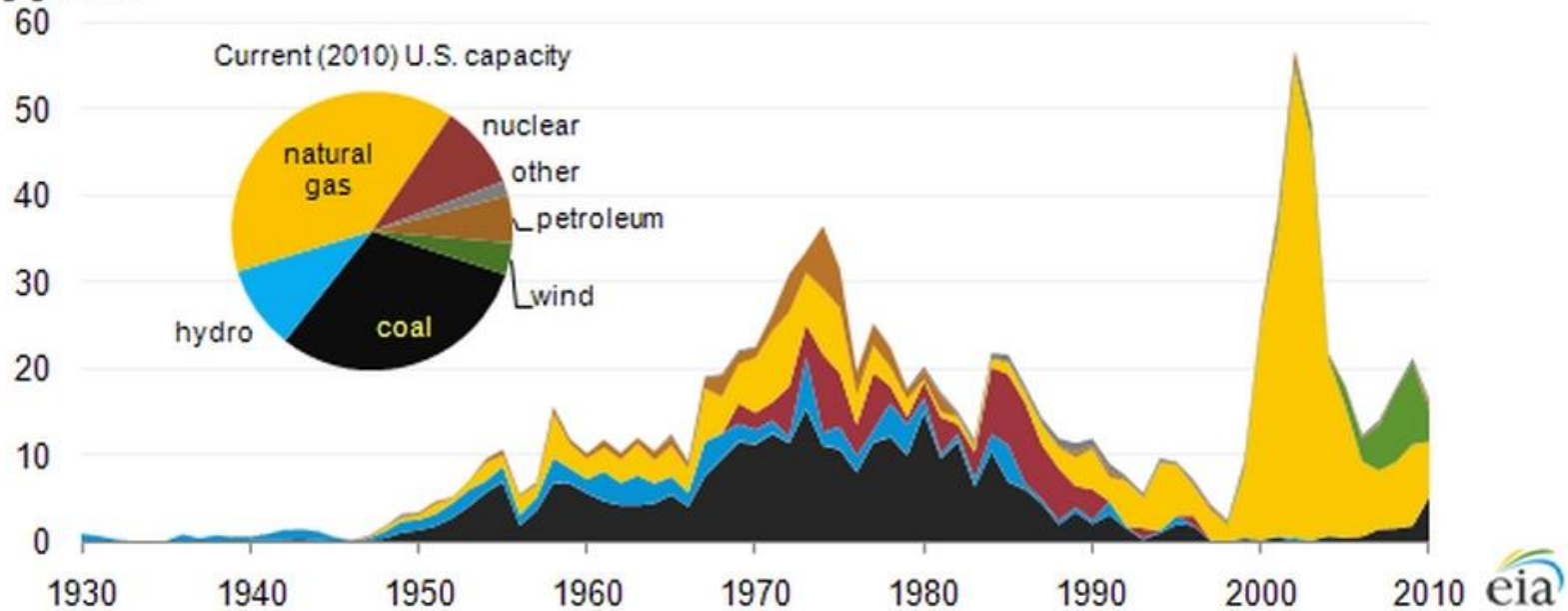
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SEIA
Solar Energy
Industries
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Aging Infrastructure

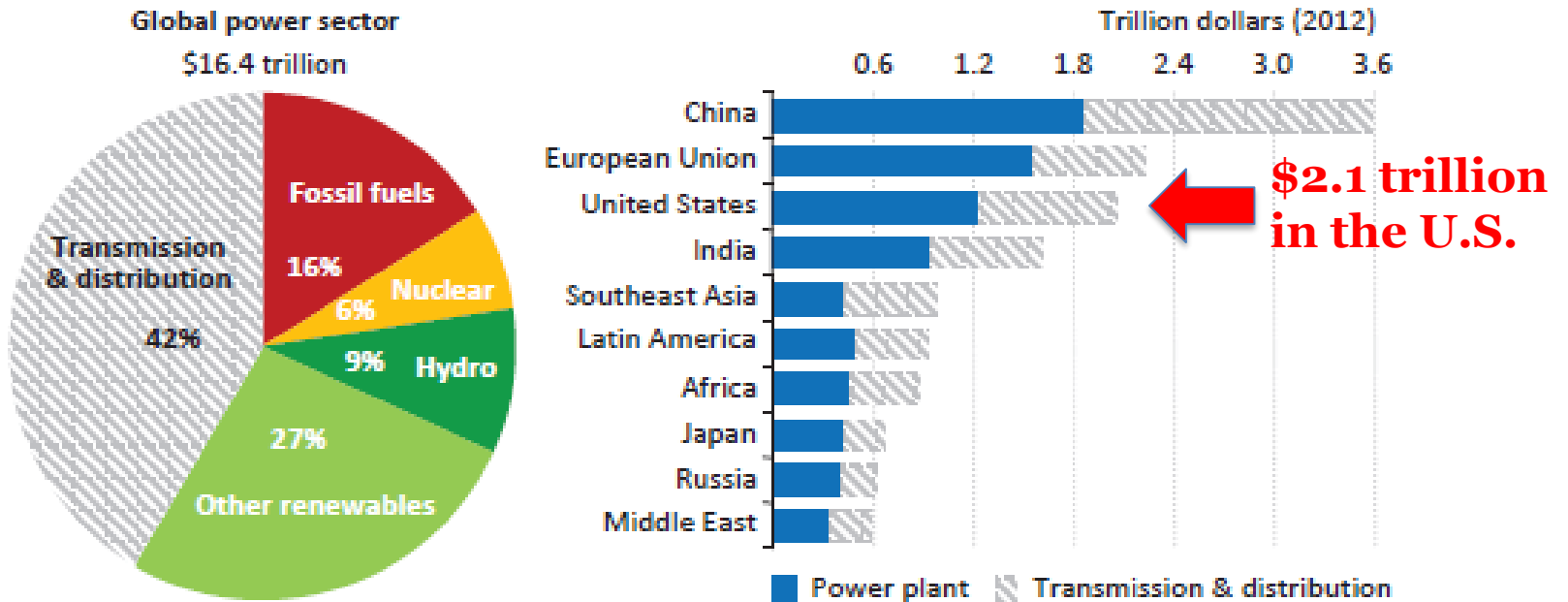
Current (2010) capacity by initial year of operation and fuel type
gigawatts



Source: U.S. Energy Information Administration, Energy in Brief article, *How old are U.S. power plants?*, August 8, 2011.

Huge Level of Investment Needed

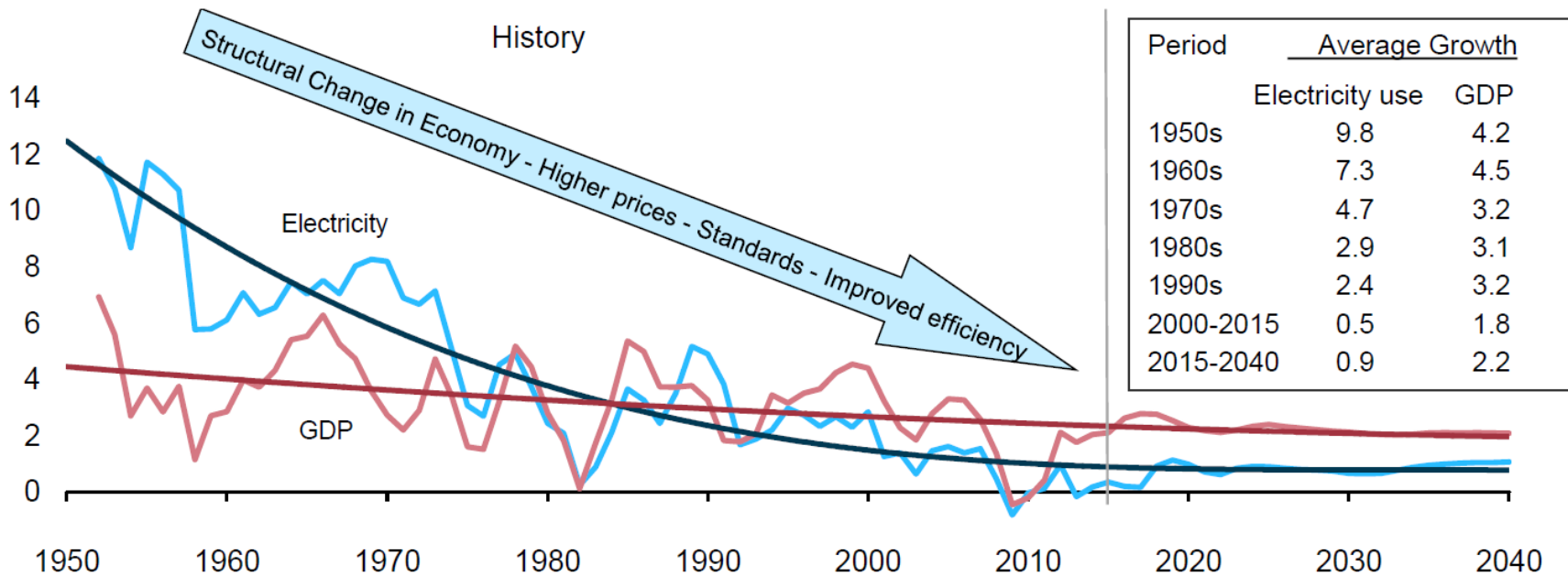
Figure 3.7 ▶ Cumulative global power sector investment by type and selected region in the New Policies Scenario, 2014-2035



Source: International Energy Agency, *World Energy Investment Outlook*, 2014

Utilities Used to Make Investments with an Assurance of Strong Growth in Electricity Use, but No Longer Can

U.S. electricity use and GDP
percent growth (rolling average of 3-year periods)



Source: EIA, Annual Energy Outlook 2016

What Will the Utility of the Future Look Like?

- What essential public services are needed?
- Which services can be provided by competitive markets, and which are best served by a monopoly franchise?
- How do we define the public interest?
- How can economic regulators protect the public interest?

Potential Utility Business Models

- Status Quo – but is it viable?
- Energy Service Provider – not focused on commodity sales
- Distribution System Operator (dispatcher of resources)
- Platform Service Provider (a la Google)

Rate design may need to change under any of these options

Examples of Where This Discussion Is Happening

- NY - Reforming the Energy Vision
- MN - e21 Initiative
- RI - Systems Integration Rhode Island
- CA – Distribution Resource Planning and Integrated Distributed Energy Resource dockets



About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raonline.org

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