



Electric Utilities in Transition: Threats and Opportunities

Steve Kihm, Chief Economist
Energy Center of Wisconsin

Solar Powering Michigan Conference
Traverse City, Michigan

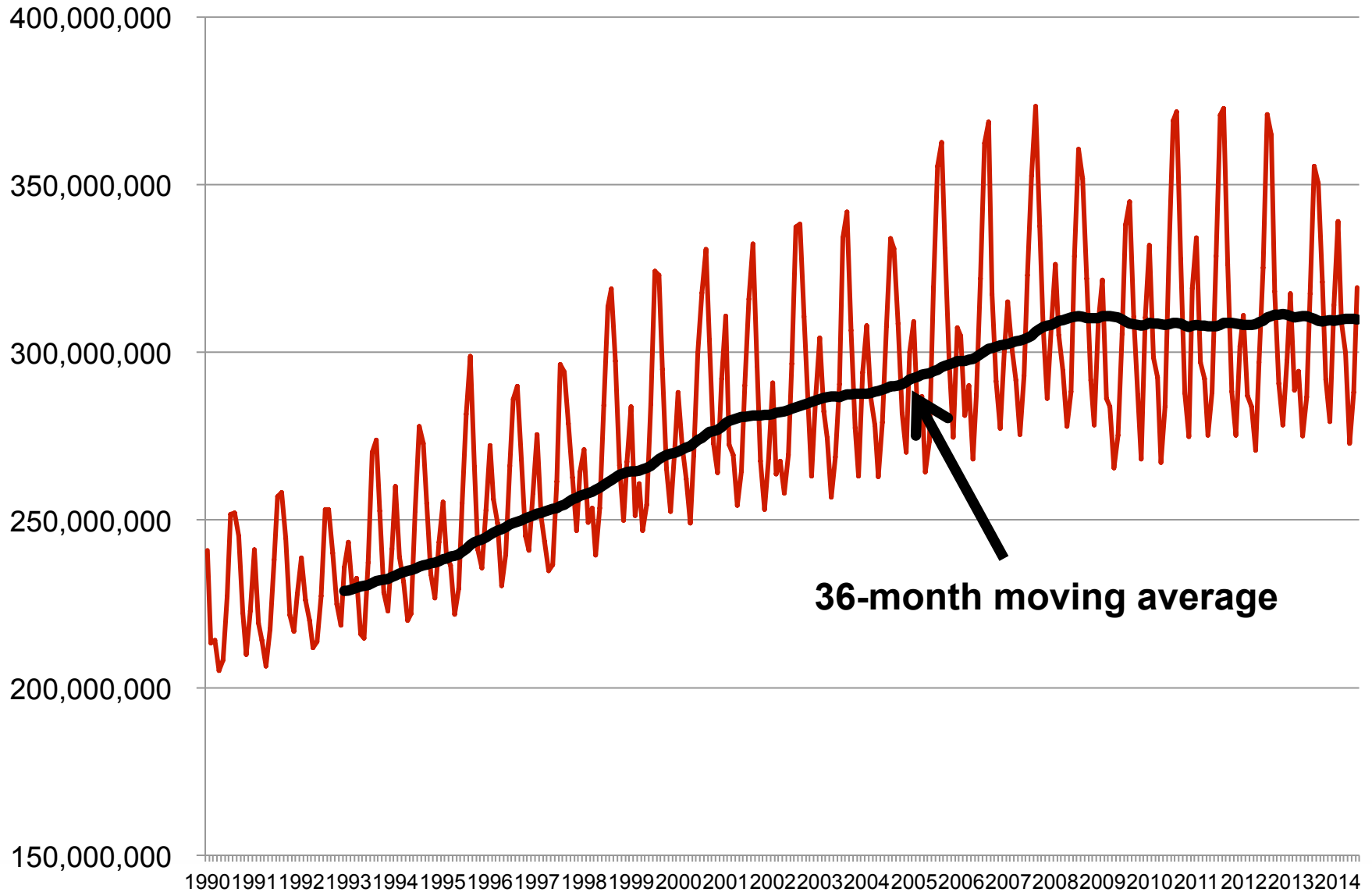
September 12, 2014

Energy Center clients/partners



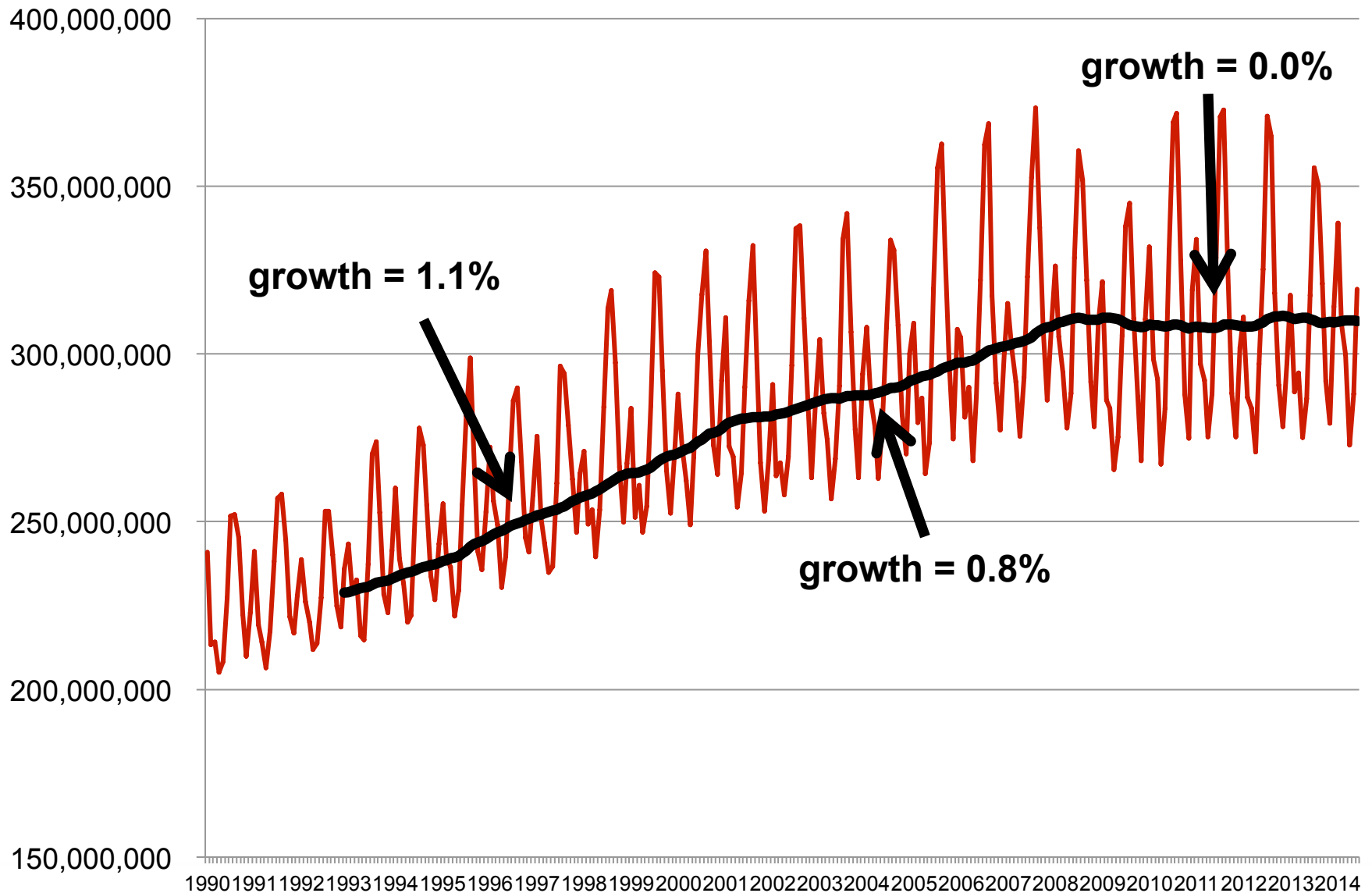
U.S. Retail Electric Sales

Source: Energy Information Administration

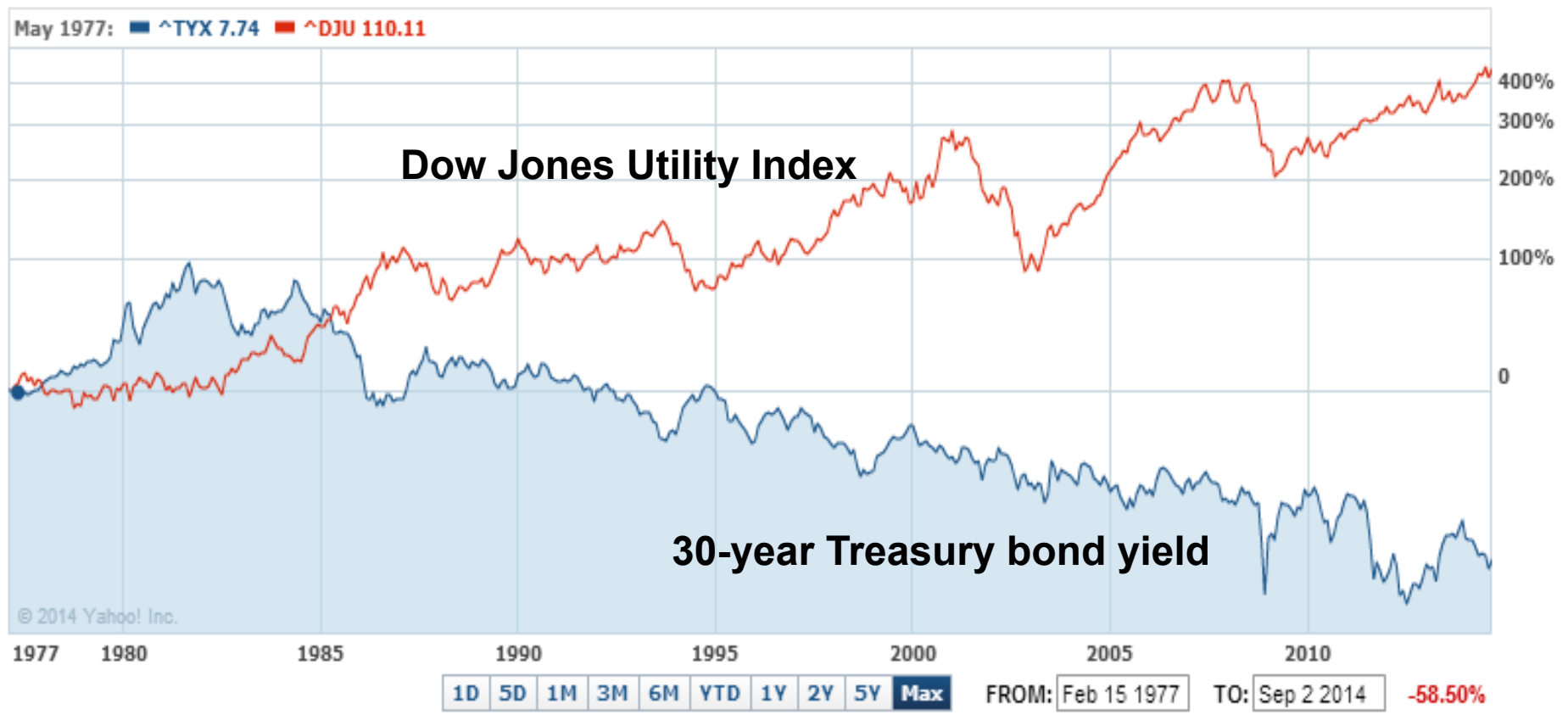


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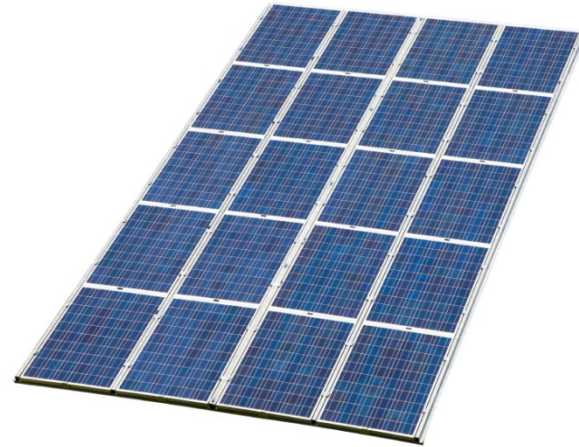
Macro financial trends for investor-owned utilities



Potential threats to all utility types

- Rising interest rates
- Competition

Customer options



Generac stock price



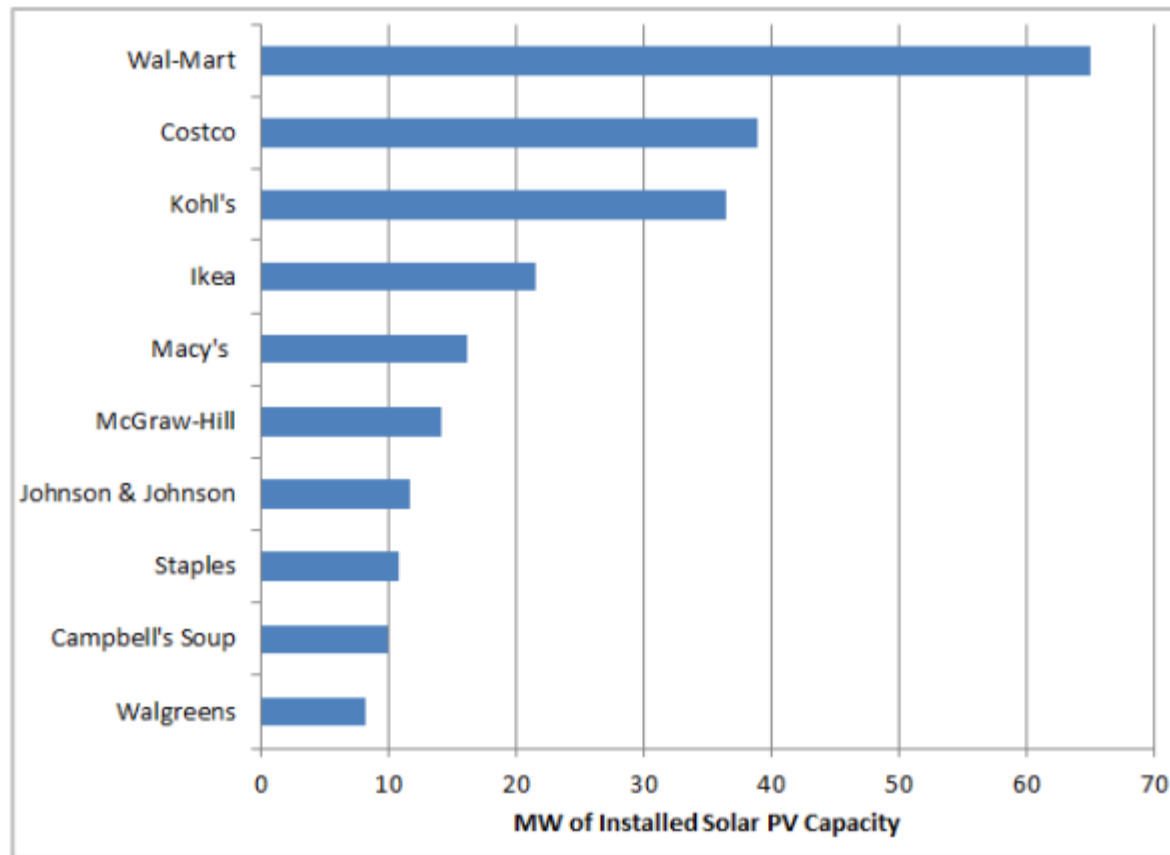


Figure 1: Commercial entities add solar capacity.¹⁹

14. Rebecca Smith & Cassandra Sweet, *Companies Unplug from the Electric Grid, Delivering a Jolt to Utilities*, WALL ST. J. (Sept. 17, 2013, 11:05 PM), <http://online.wsj.com/news/articles/>.

Energy Center of Wisconsin: recent research

Third-Party Distributed Generation

Issues and Challenges for Policymakers

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**DOES DISRUPTIVE COMPETITION MEAN A DEATH
SPIRAL FOR ELECTRIC UTILITIES?**

*Elisabeth Graffy, PhD**

*Steven Kihm, CFA***

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**How big is
the threat?**

Third-Party Distributed Generation

Issues and Challenges for Policymakers

March 2014

**How can
utilities
adjust?**

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**Are there
opportunities?**

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Investor-owned utilities: **investors** want to own the plant

Our Commitment to Clean Energy

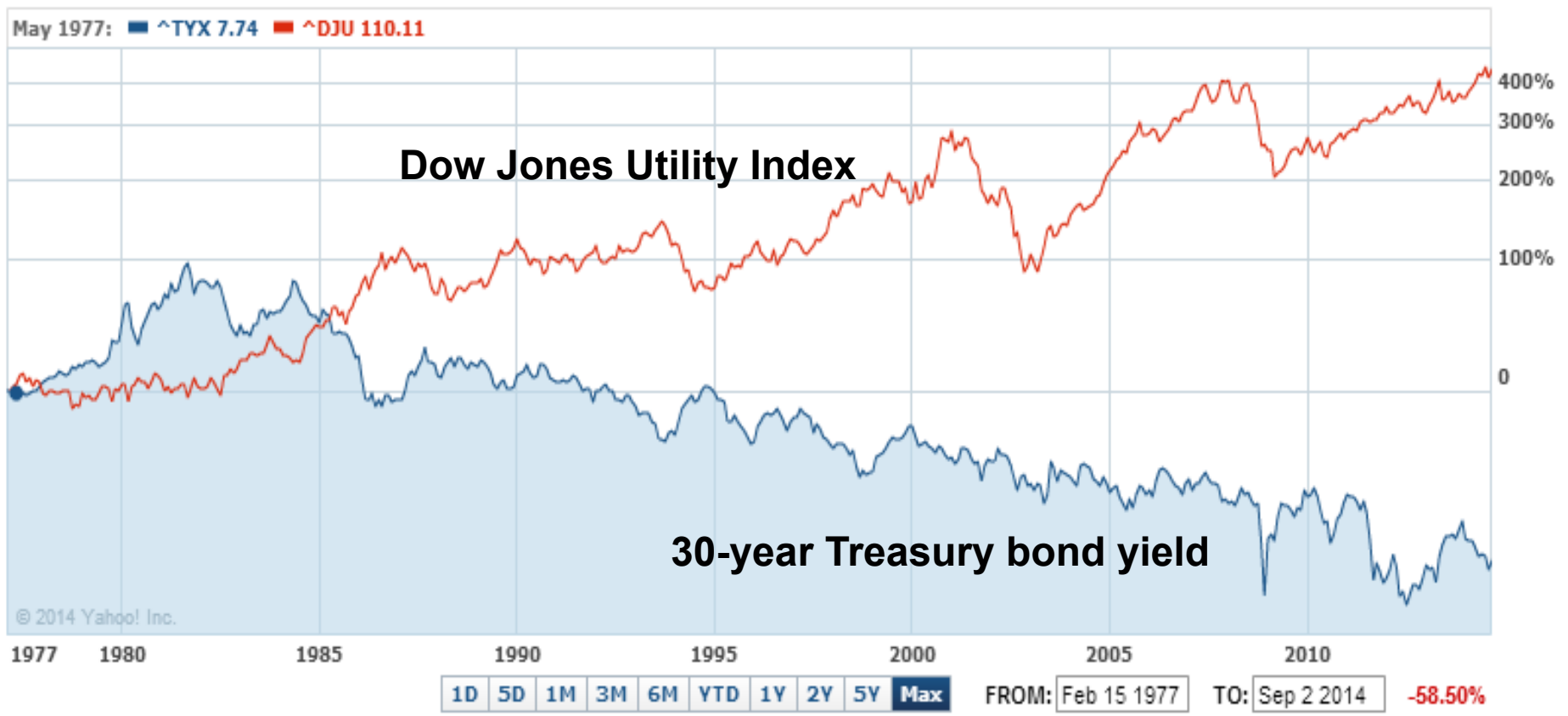
- **Biomass plant just completed**
 - 50 MW
 - Investment of \$269 million
 - Commercial operation began in November of 2013
- **Renewable fleet in place**
 - Glacier Hills Wind Park (162 MW, in service since 2011)
 - Blue Sky Green Field Wind Park (145 MW, in service since 2008)
 - Montfort Wind Energy Center (30 MW, purchased in 2012)
- **Future Solar.** We are seeking approval to construct a new 7.5 MW solar installation.



Our Renewable Investments total nearly \$1 billion



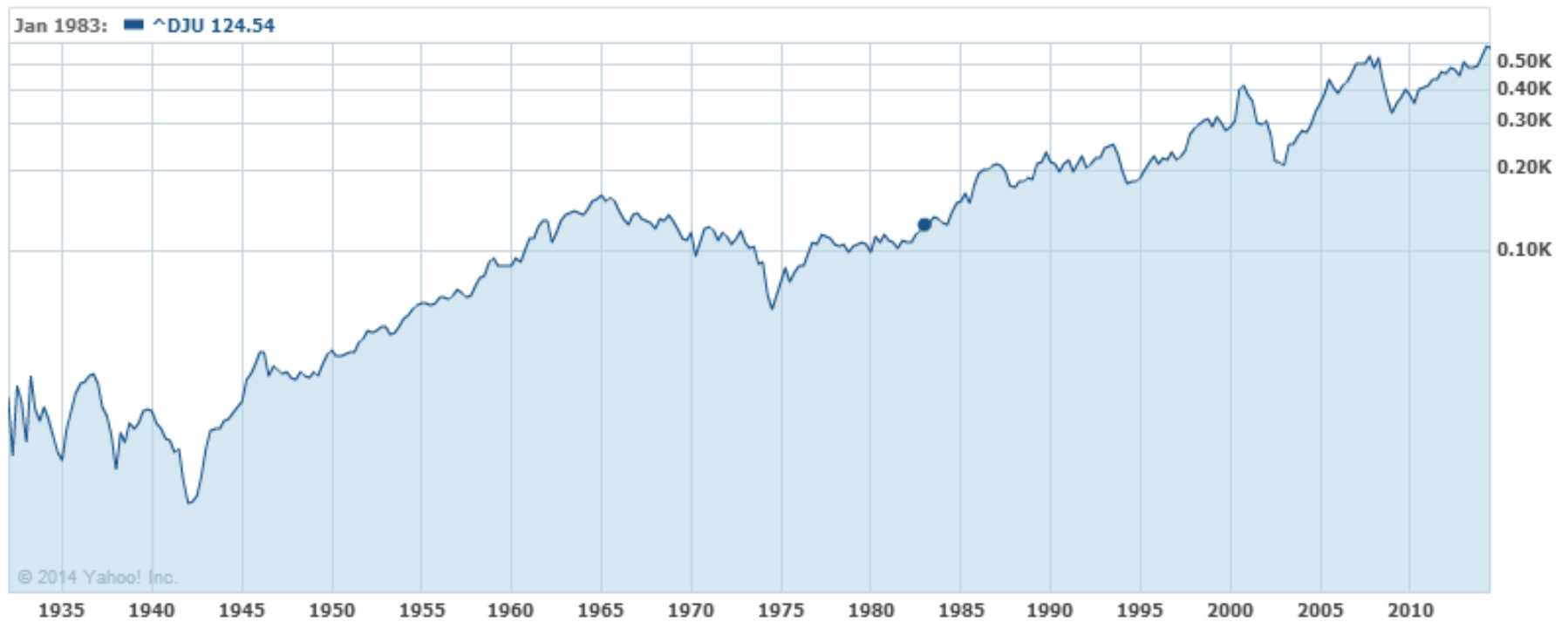
Macro financial trends for **investor-owned** utilities



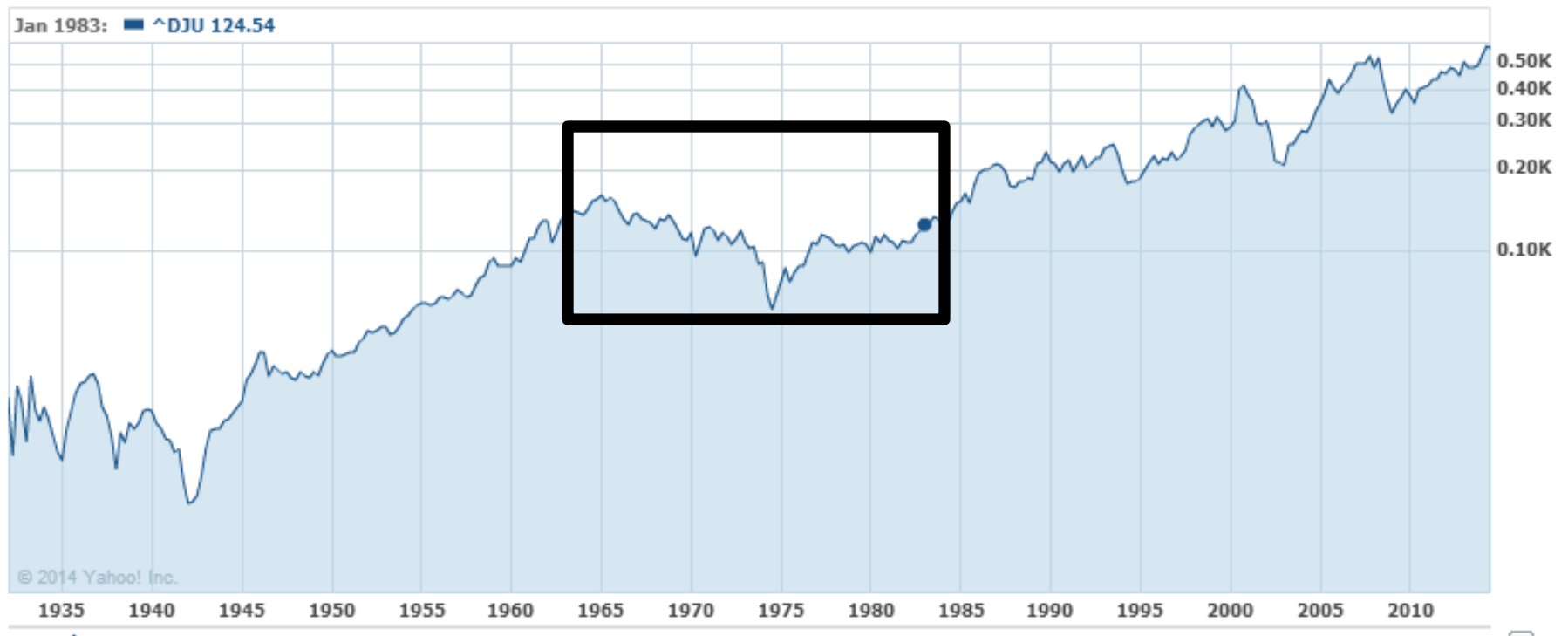
Creating (destroying) investor value

- If a utility earns 10% and it costs it 8% to raise capital, value is **created** by investing
- If a utility earns 12% and it costs it 14% to raise capital, value is **destroyed** by investing

Dow Jones utilities



Dow Jones utilities



Co-ops: offer solar resources to **customers**

WH Solar

A simple, affordable new way to own solar panels

With WH Solar, you can purchase solar power:

- Without installing equipment on your property
- Without worrying about maintaining the system

Lock in your future price of power

Several pricing options are available, including:

- \$0 down
- Full up-front purchase

You get all the benefits of owning solar panels, but with none of the hassle.

Choose as few as one, or as many panels as you need to power your entire home.



Extreme challenges

Well-established companies are not immune from **long-run** competitive threats



**15 years ago Eastman Kodak
stock sold at \$76 per share**

But opportunities often emerge in transitions



During the transition to a streaming model, Netflix stock initially lost about 80% of its value before soaring

Utility-like examples

Street car companies didn't adapt

In 1920 street car companies served 14 billion riders.

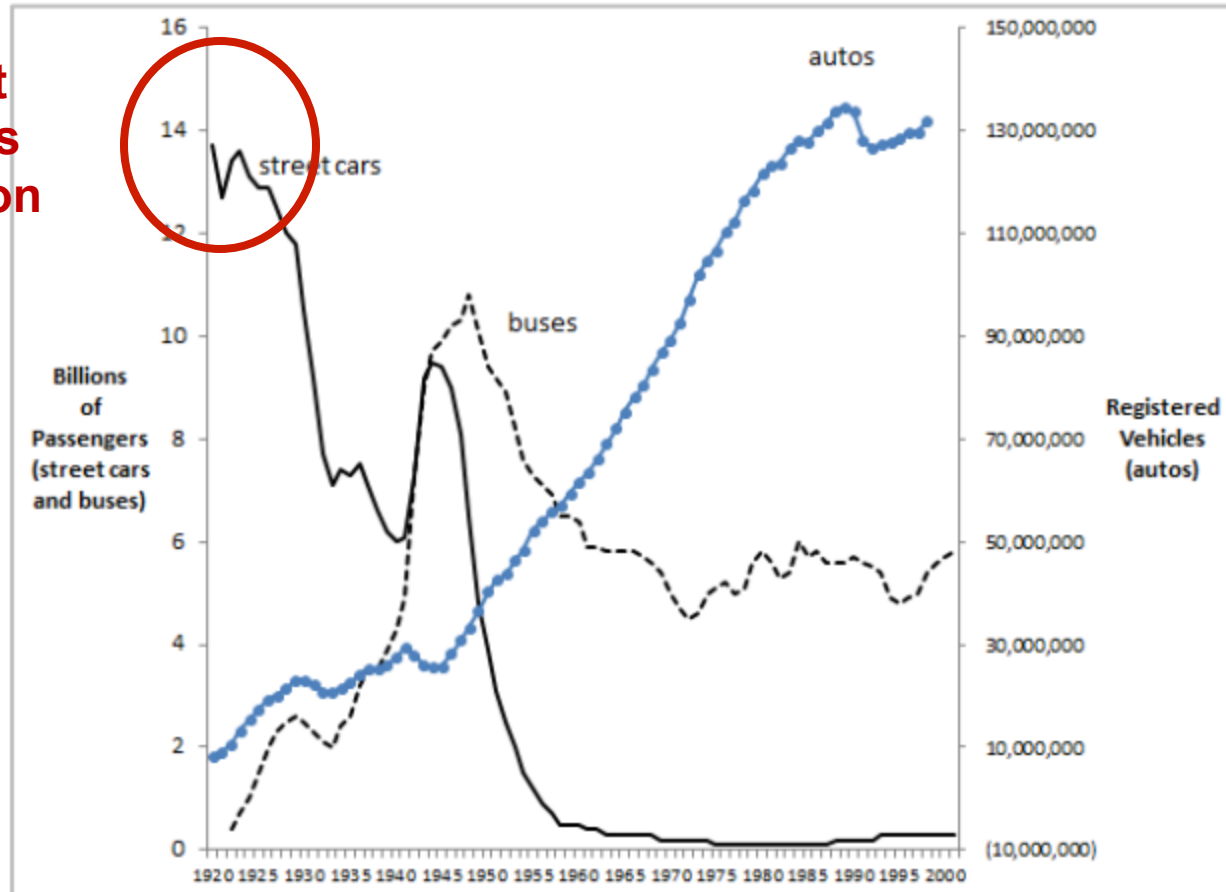


Figure 5: Modes of Transportation. Streetcar ridership in the United States peaked in 1920 and then declined as buses and automobiles gained dominance as preferred modes of transportation.¹⁰⁵

Street car companies didn't adapt

Within a few decades the industry had essentially disappeared.

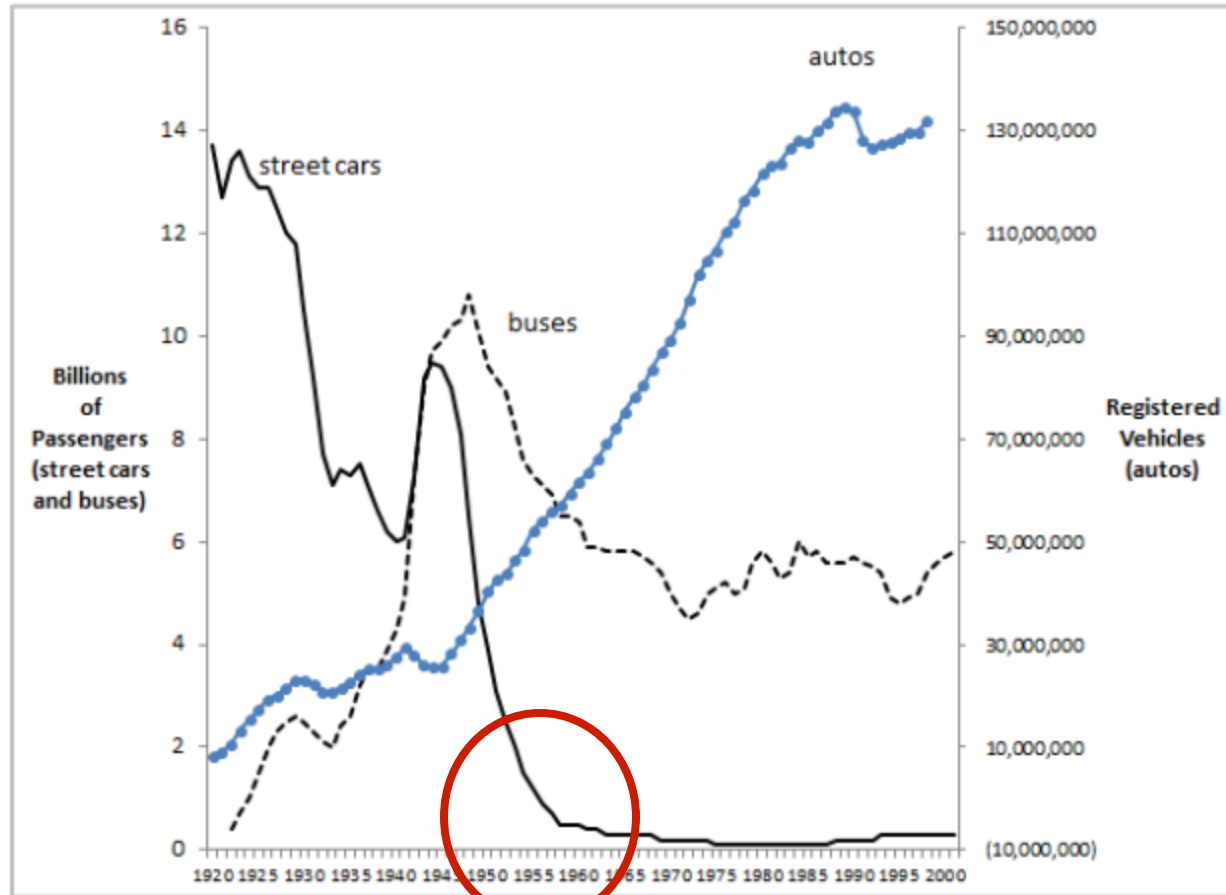


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Street car companies didn't adapt

Offered the same service in 1950 as it did in 1920.

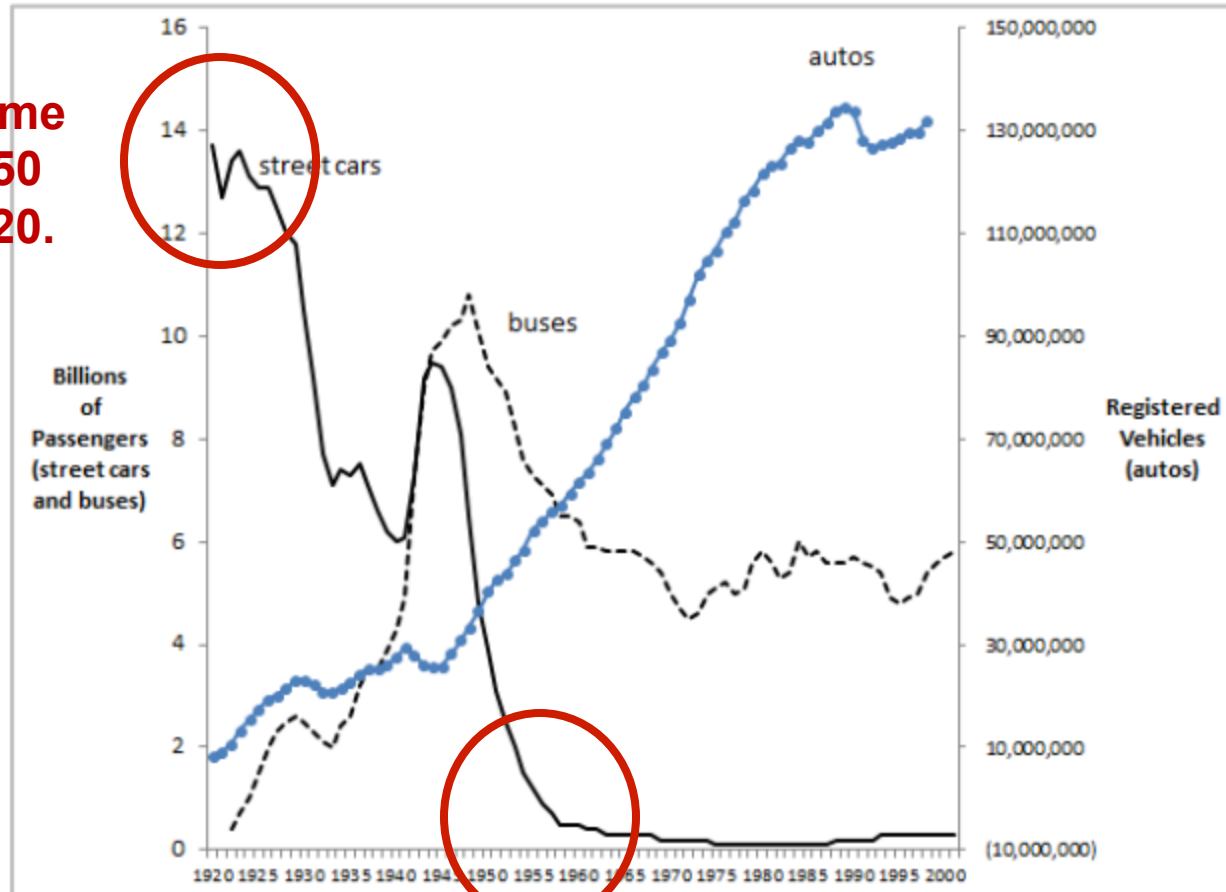


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Satellite TV posed a threat to cable companies

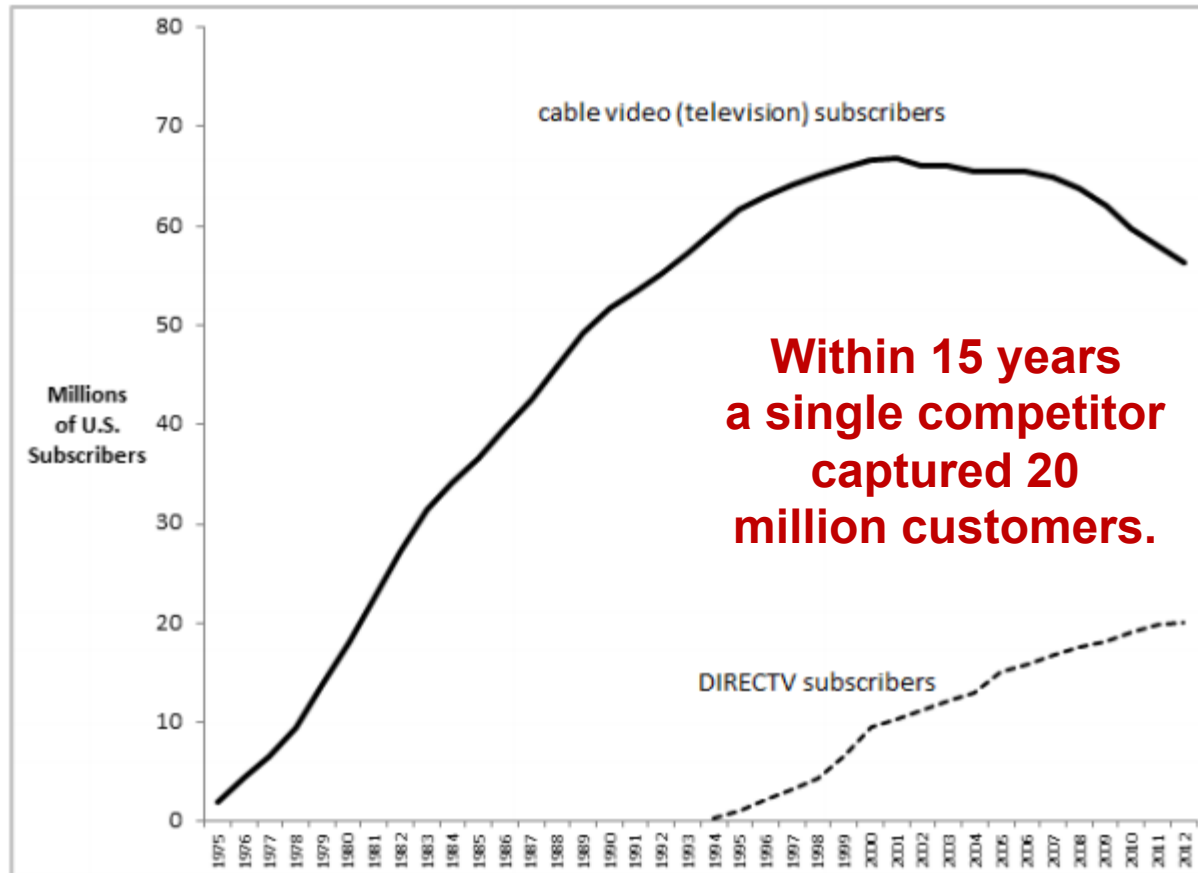


Figure 7: Impact of DIRECTV on cable subscriptions. The advent of satellite television providers posed a decisive challenge to the dominance of cable television firms, which were vulnerable to customer defections.

Satellite TV posed a threat to cable companies

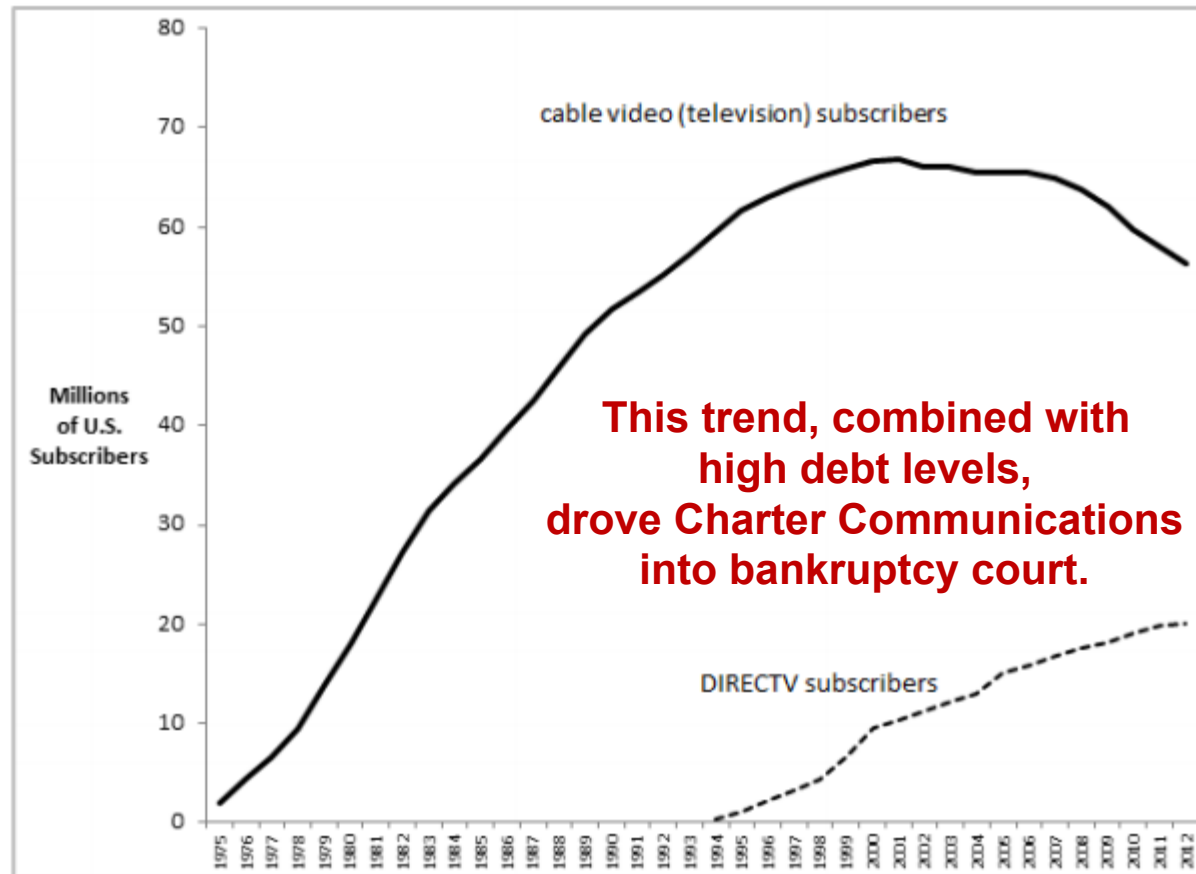


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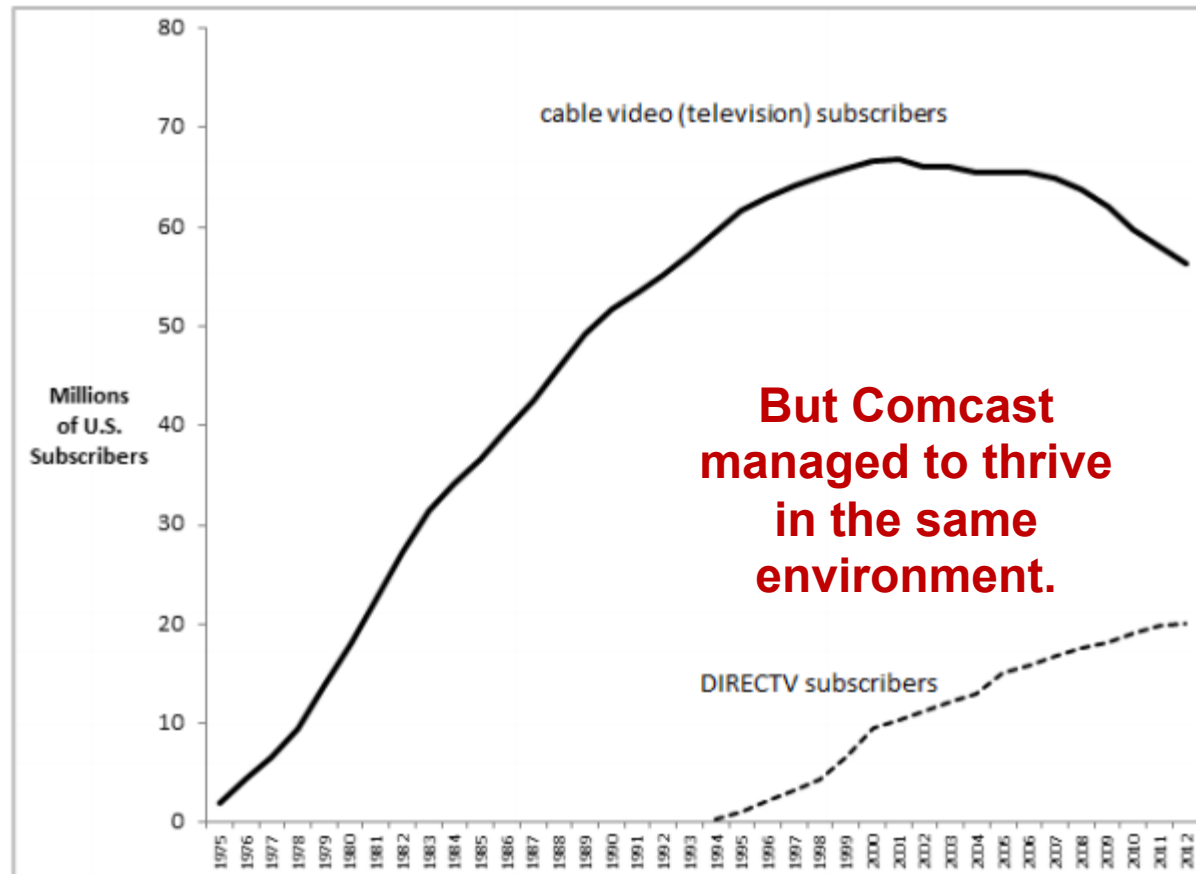


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But the satellite companies adapted

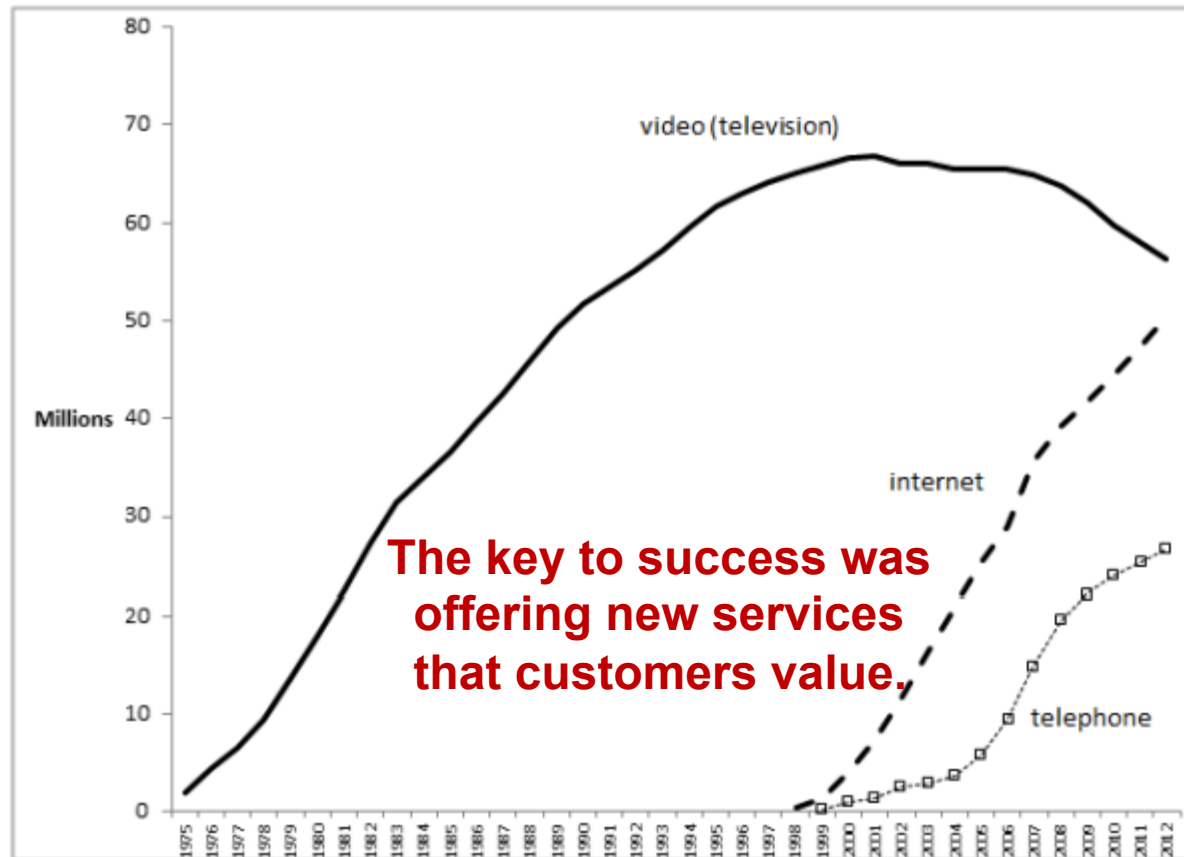
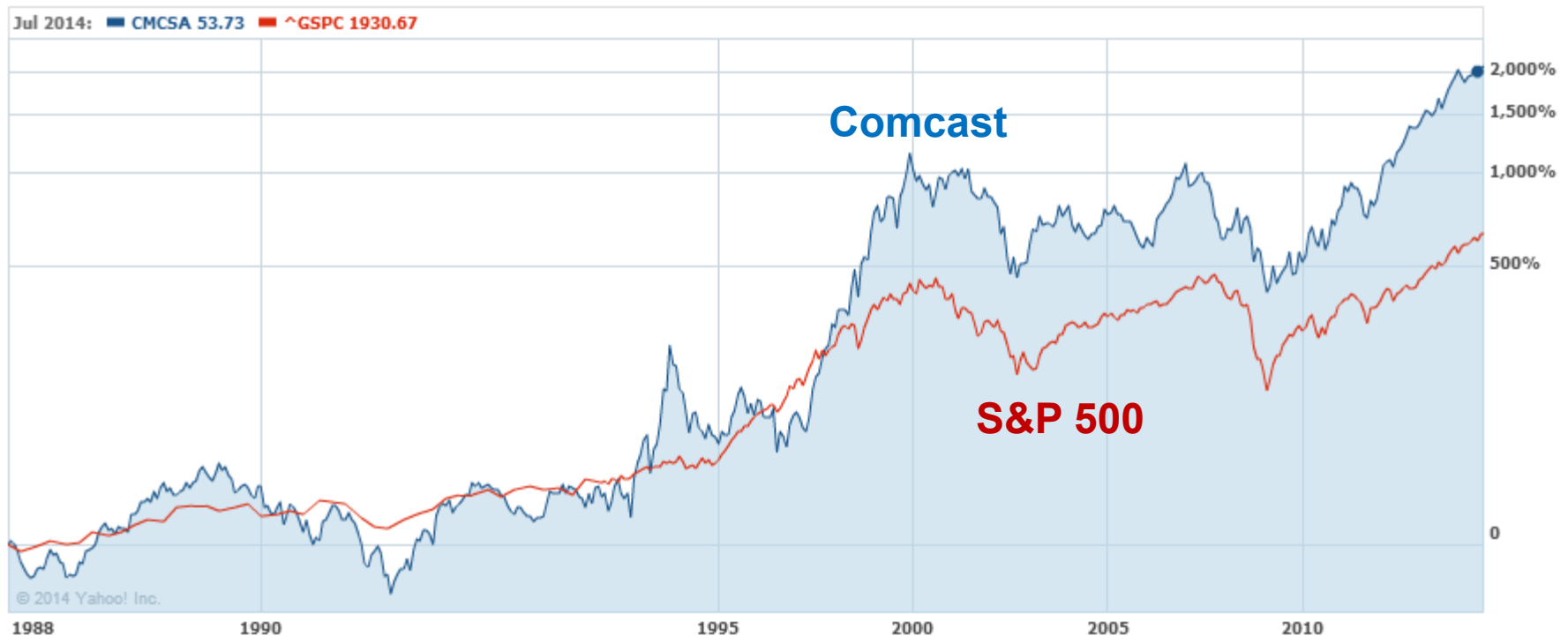


Figure 8. The impact of the bundle. The strategic decision by cable companies to expand from legacy television service to bundled internet, television, and telephone packages turned a crisis into a growth opportunity.

By offering services that customers want, Comcast did quite well



Understanding customer value

A value proposition



- Brand A
 - Price = \$346 per year

- Brand B
 - Price = \$1 per year

A value proposition (one-year supply)

- **Bottled water**

- Price = \$346 per year

- **Tap water**

- Price = \$1 per year



***Consumer Reports* recommendations**

- Drink tap water
- Buy a reusable bottle

Source: “Bottled doesn’t mean better,”
Consumer Reports, 2011.



Fun fact

25% to 40%

The estimated amount of bottled water that is tap water.

Source: Natural Resources Defense Council





Per-capita U.S. bottled water consumption in 2013

32 gallons
(and growing)

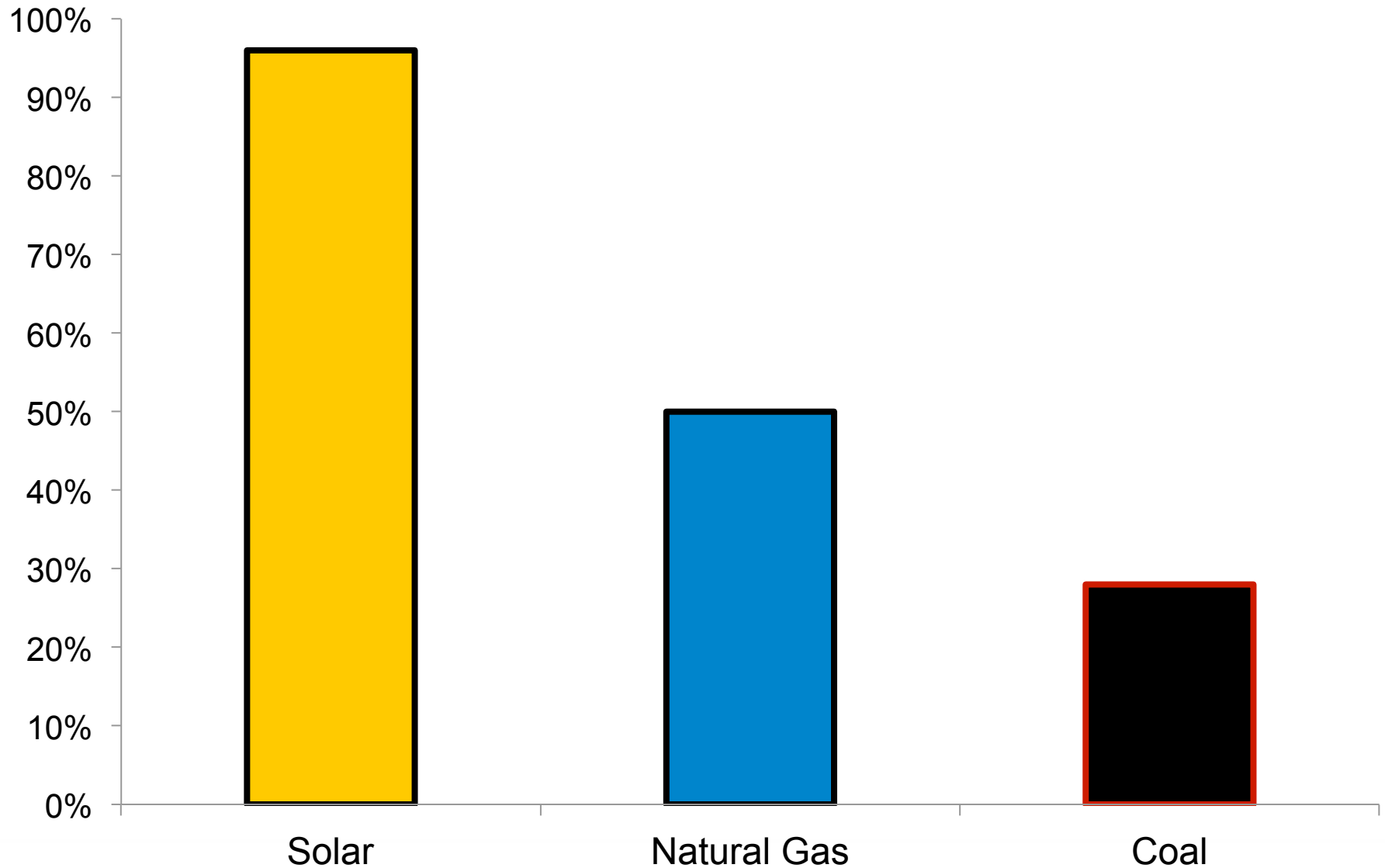


Source: Chris Hogan, "Bottled Water Trends for 2014," *Food Manufacturing Magazine*, January/February 2014.



Preference for Fuels Used to Generate Electricity

Source: Stanford University



Challenge-if utilities don't offer customers what they want, competitors will

- solar pv plus back-up generator
- solar pv plus batteries

NRG, however, has a strategy to deal with what it expects to be the demise of its core business. The Princeton, New Jersey-based company intends to increasingly focus on what it views as high growth opportunities like home energy services and off-grid resources.

Source: *Utility Dive*, March 4, 2014

Strategic analysis

- **How can I allocate my costs to customers?**
- **Treats customers as passive ratepayers, not consumers with options.**

Strategic analysis

- **What do customers want (what do they value)?**
- Competitor analysis
 - How big is the potential loss of load?
 - What technologies pose the biggest threat (opportunity)?
 - Who are your competitors?
 - How competitive are they?
 - Not just in terms of cost, but value created
 - Do you have the home field advantage?

Contact information



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