

# Do Potential Studies Accurately Forecast What is Possible in the Future? Are we Mislabeling and Misusing them?

Presented at the ACEEE Energy Efficiency as a  
Resource Conference  
Little Rock, Arkansas  
September 21, 2015

Philip Mosenthal  
Optimal Energy



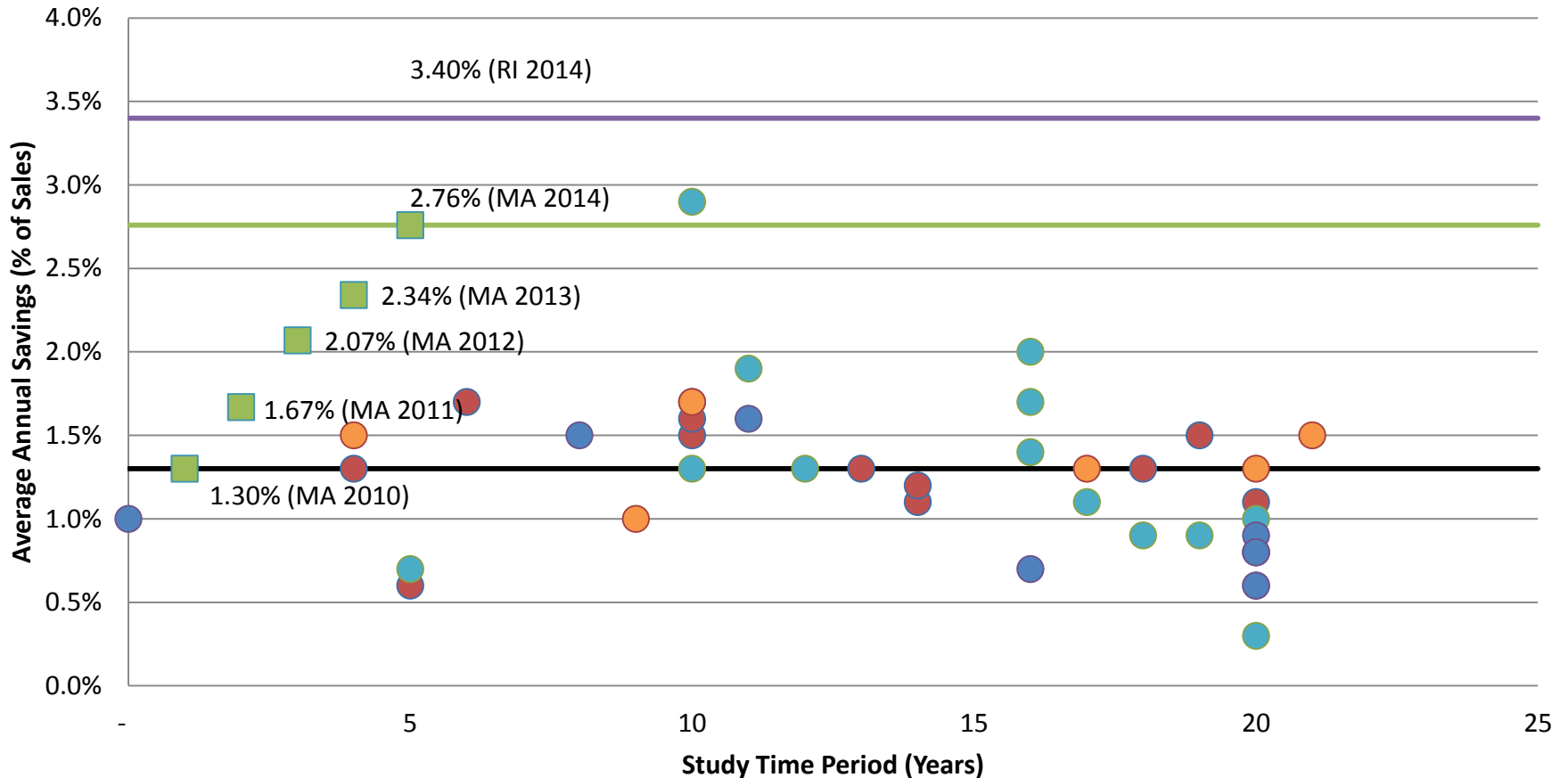
Prediction is very difficult, especially if it's about  
the future.

(Niels Bohr)

[izquotes.com](http://izquotes.com)

# Is This Really “Maximum Achievable”?

## Electric Savings Maximum Achievable Potential (% of Sales)



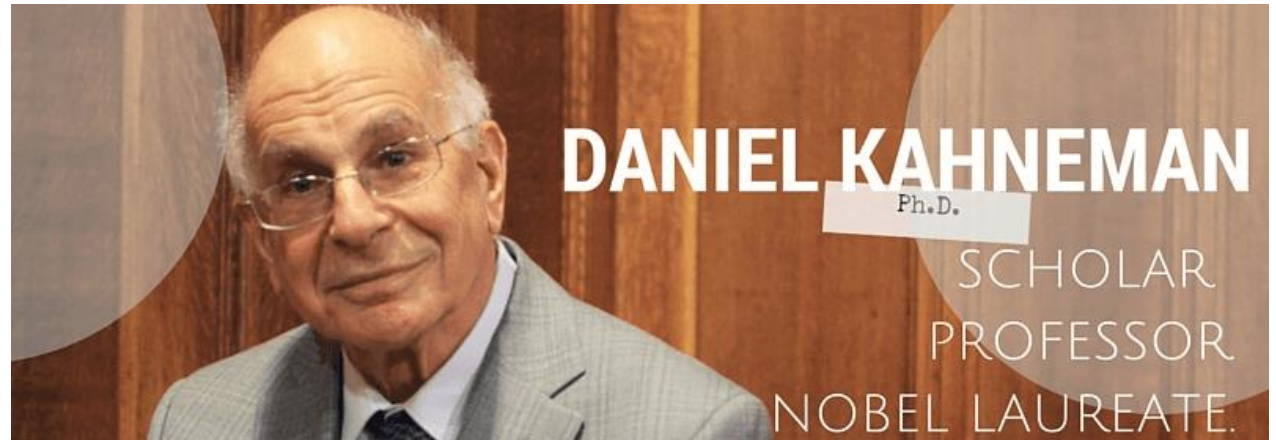
● Midwest   
 ● Northeast   
 ● South   
 ● West   
 — Median   
 — MA 2014   
 — RI 2014   
 ■ MA

# Sir Roger Bannister—May 6, 1954



# Anchoring Effect

Anchoring effect. It occurs when people consider a particular value for an unknown quantity before estimating that quantity. What happens is one of the most reliable and robust results of experimental psychology: the estimates stay close to the number that people considered.





**BONNEVILLE POWER ADMINISTRATION  
Hood River Conservation Project**

**Sector:** Residential

**Measures:** Insulation, window and door retrofits, infiltration reduction, hot water heating improvements.

**Mechanism:** Energy audits performed and measures installed as part of a large research and demonstration project.

**History:** Measures installed between 1983 and 1985, data collected through 1989.

**Program Data**

1st Year Energy savings: 2,600 kWh/house

Lifecycle energy savings: 341.9 GWh

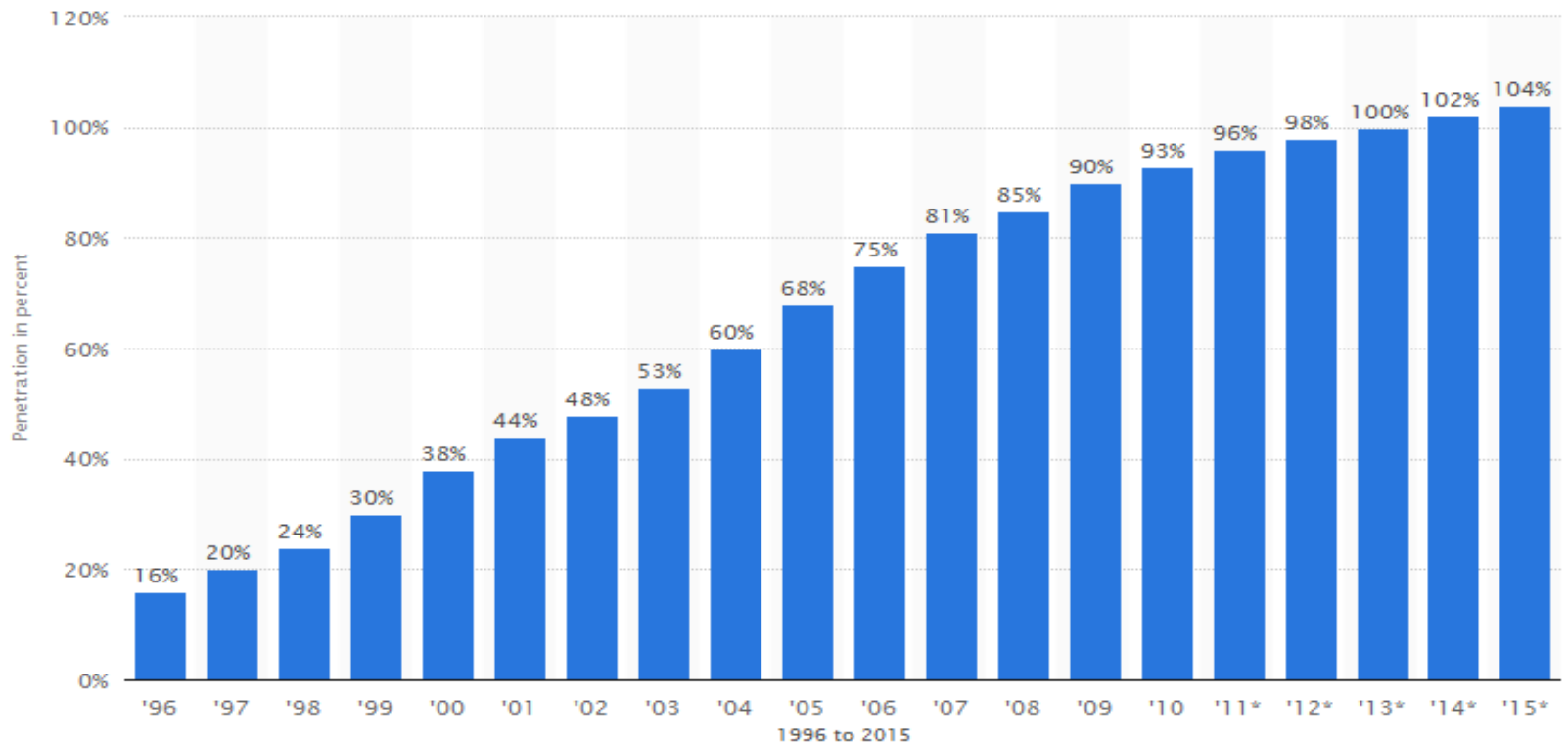
Peak capacity savings: 1.76 kW/house

Cost: \$22.5 million

Participation: 85%

## Handset penetration per capita in North America from 1996 to 2015 (in percent)

The statistic depicts the handset (subscriptions) penetration per capita in North America from 1996 to 2015. In North America, the handset penetration per capita was 38 percent in 2000. In 2015, the handset penetration per capita is projected to reach 104 percent.



© Statista 2015



# Do Codes and Standards Eliminate Potential?

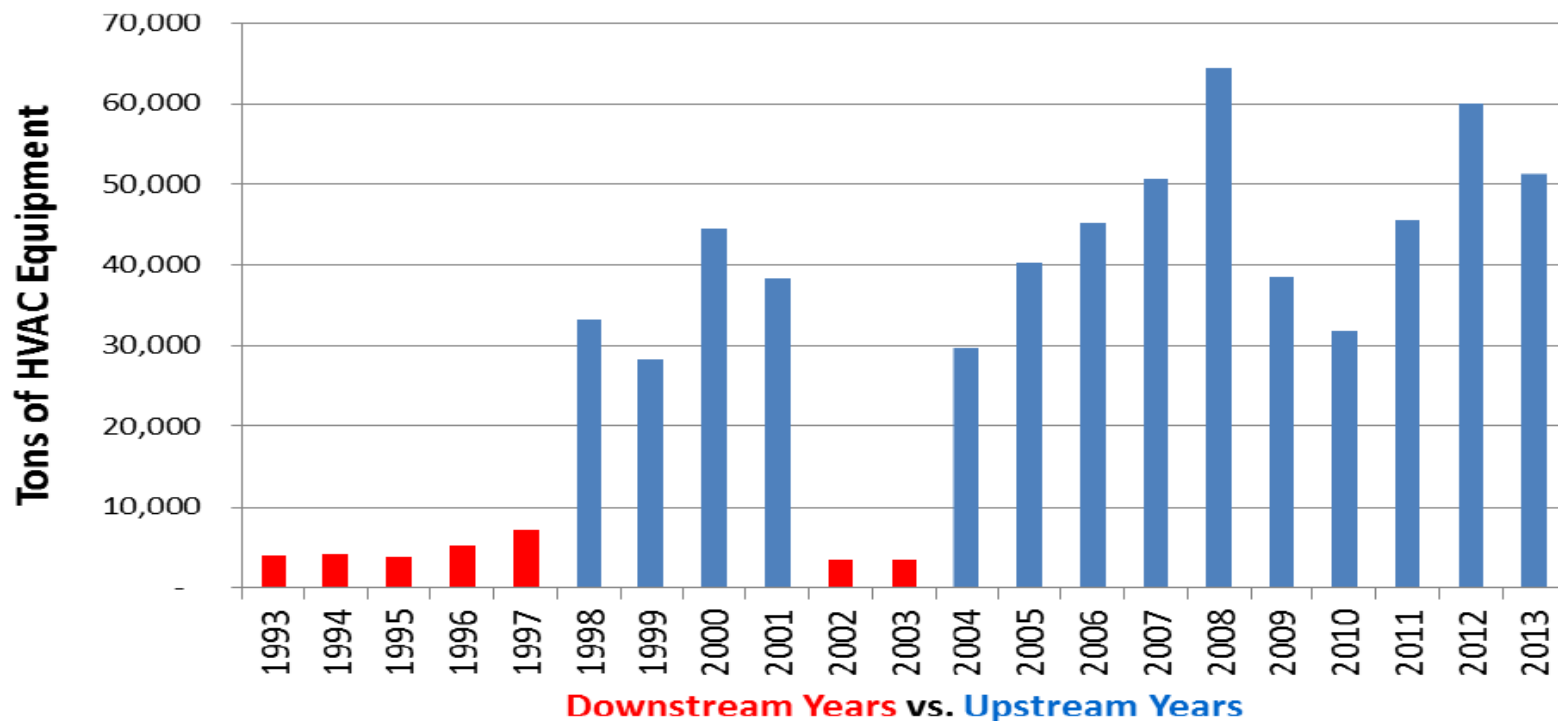


Source: David Goldstein, NRDC, SF



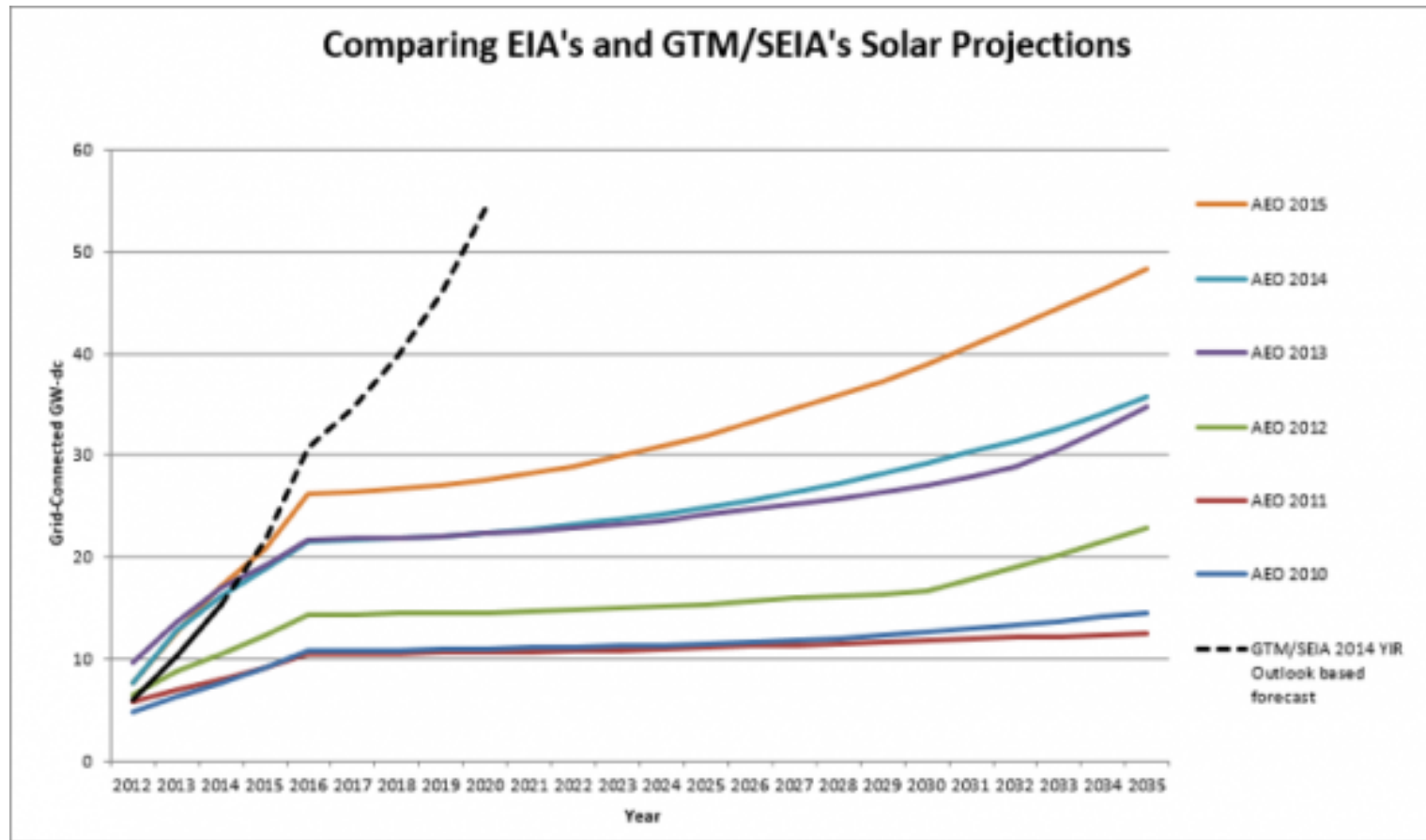
# Why are we Assuming Suboptimal Programs?

Figure 2 | PG&E Commercial HVAC Program Results: 1993-2013

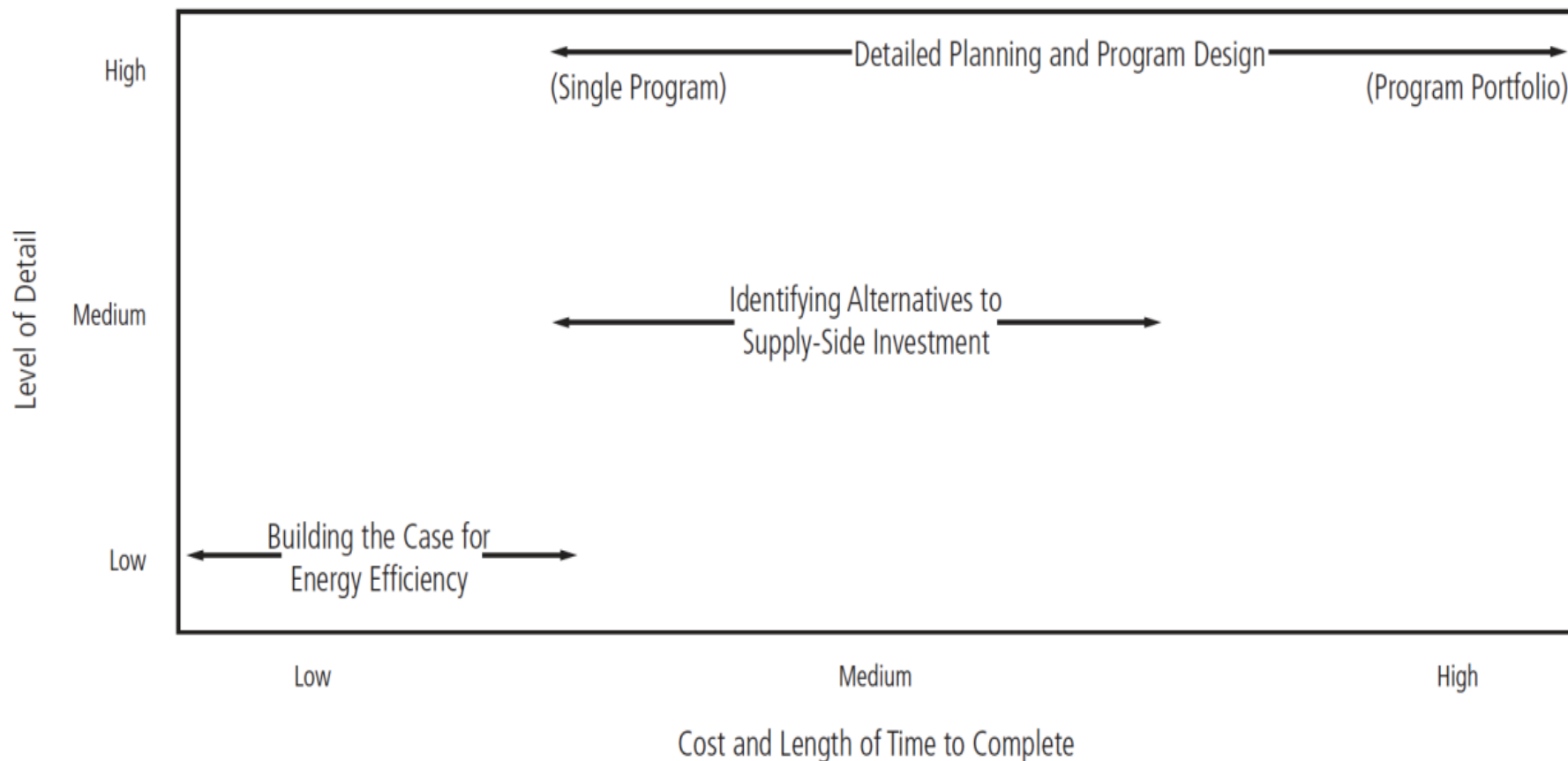


Source: Graphic provided by Jim Hanna, Energy Solutions (Hanna 2014).

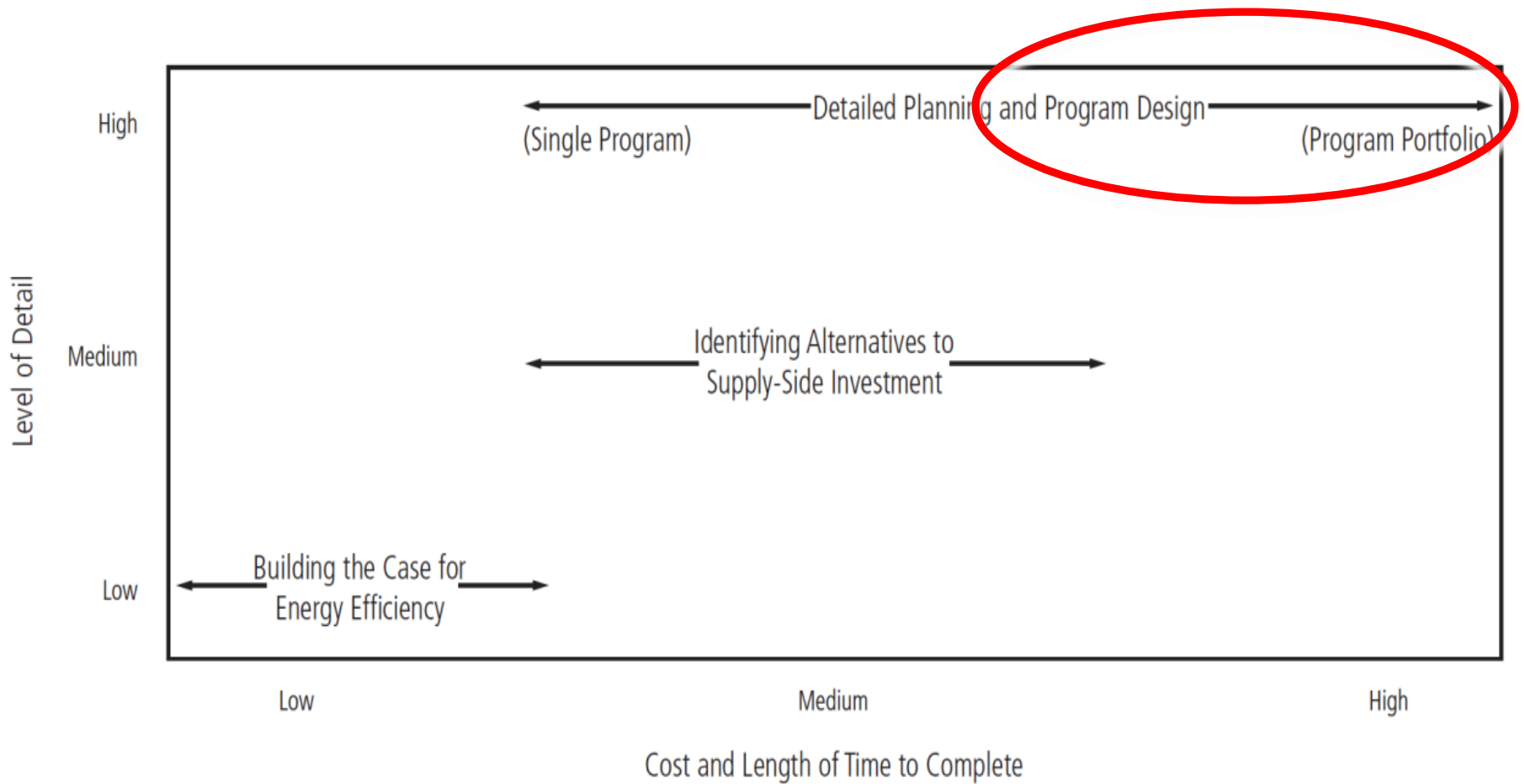
# Recent Solar Forecasts—Chasing Reality



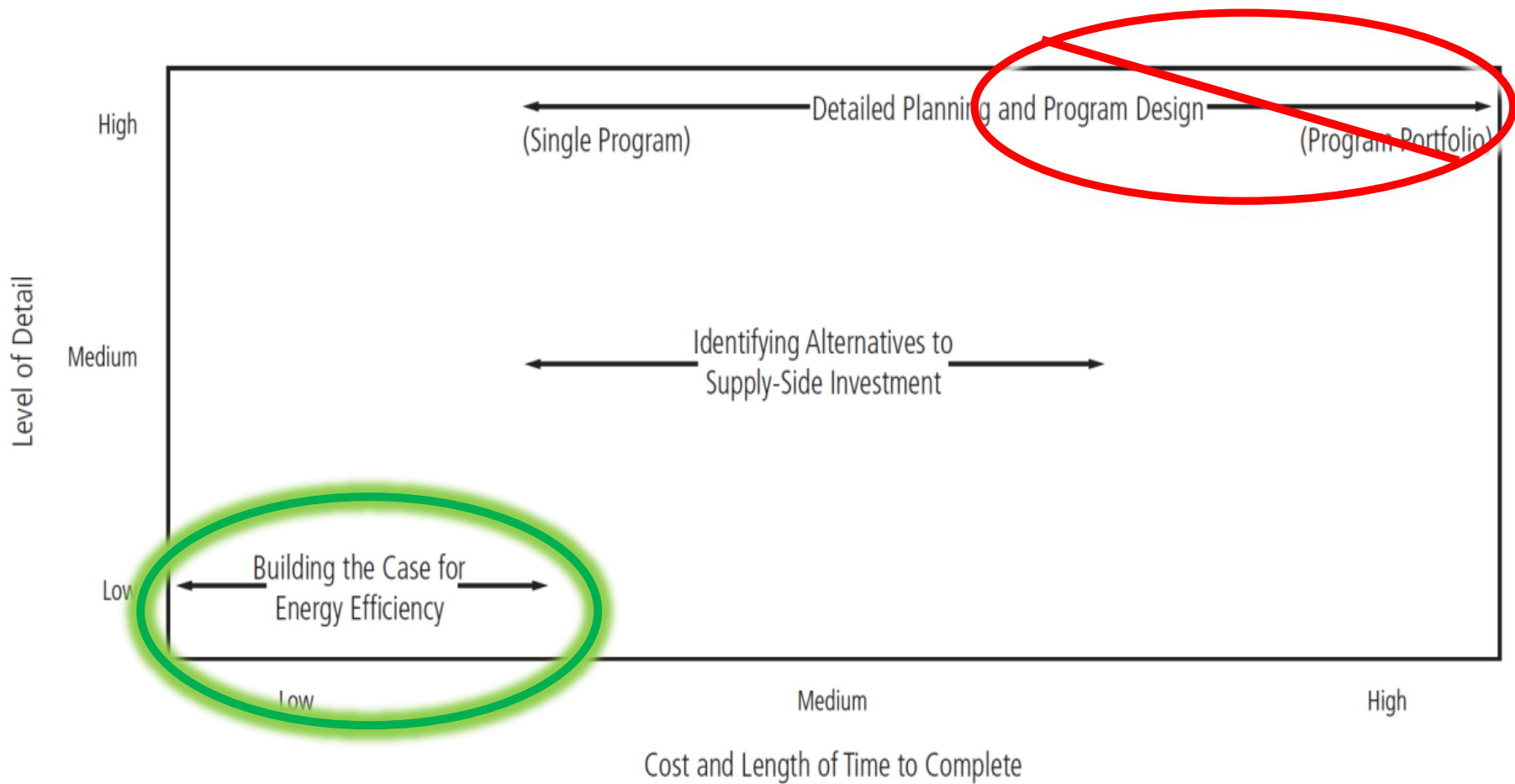
# Is there an alternative?



Mosenthal & Loiter, *National Action Plan for Energy Efficiency: Guide for Conducting Energy Efficiency Potential Studies*, U.S. EPA, 2007



Mosenthal & Loiter, *National Action Plan for Energy Efficiency: Guide for Conducting Energy Efficiency Potential Studies*, U.S. EPA, 2007



Mosenthal & Loiter, *National Action Plan for Energy Efficiency: Guide for Conducting Energy Efficiency Potential Studies*, U.S. EPA, 2007

# Pearl Harbor—December 7, 1941





*Integrated Energy Resources*

## Philip Mosenthal

Optimal Energy, Inc.  
10600 Route 116, Suite 3  
Hinesburg, VT 05461

802-482-5607  
Mosenthal@optenergy.com