



RAP™

Energy solutions
for a changing world

Energy Efficiency and 111(d): When Non-Energy Benefits and Carbon Value are Included, Energy Efficiency Meets the Full Obligation

Presented by Jim Lazar
RAP Senior Advisor

June 25, 2015

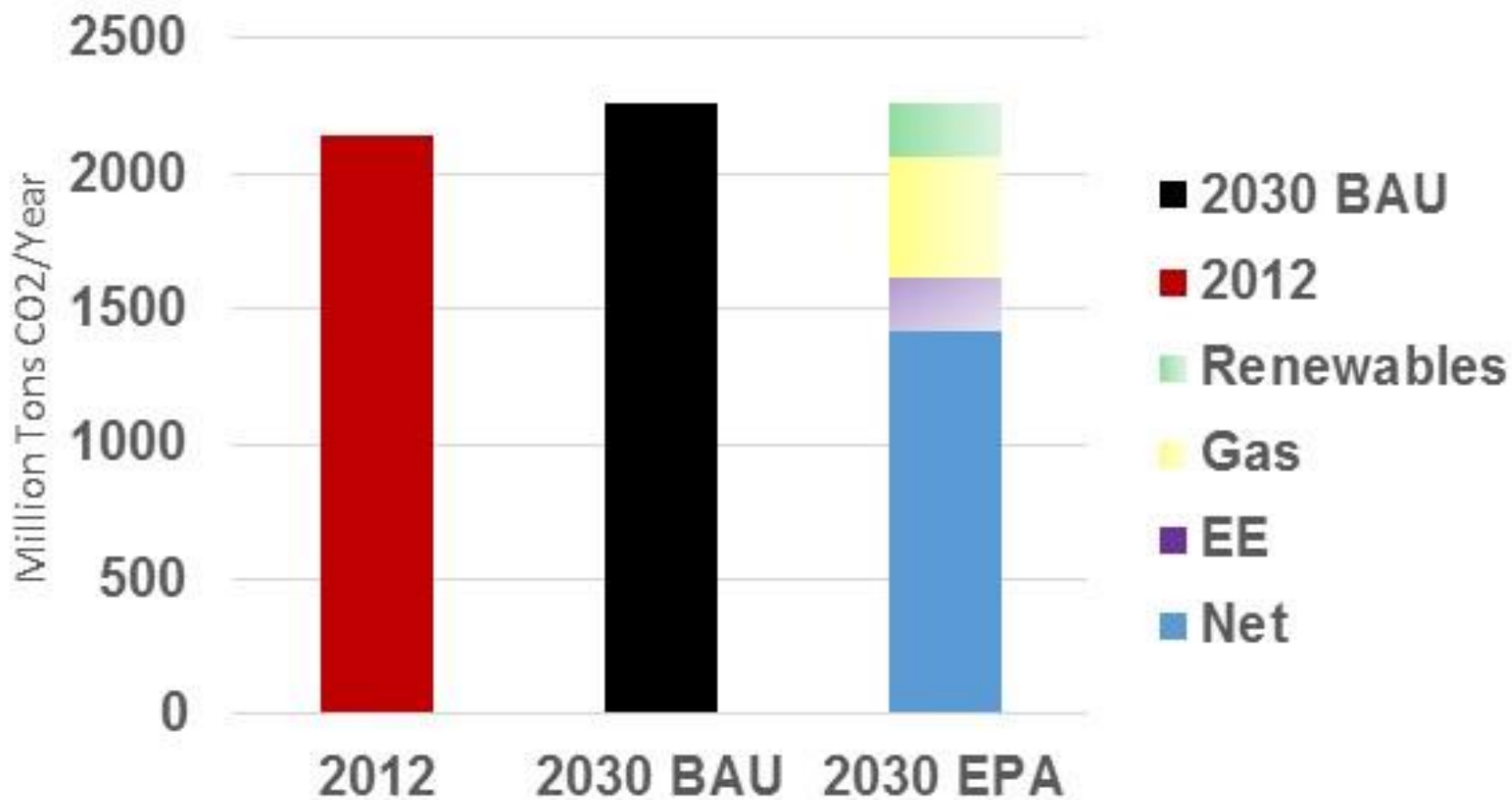
The Regulatory Assistance Project (RAP)™

Overview

- Laitner paper identifies, but does not count non-energy benefits (NEBs)
- Laitner paper identifies, but does not value the carbon emissions reductions
- When these are included, the “optimal” level of energy efficiency goes up.
- In rough terms, cost-effective energy efficiency can meet the 111(d) obligation.

EPA 111(d) Assumptions

EPA Clean Power Plan Base Strategy



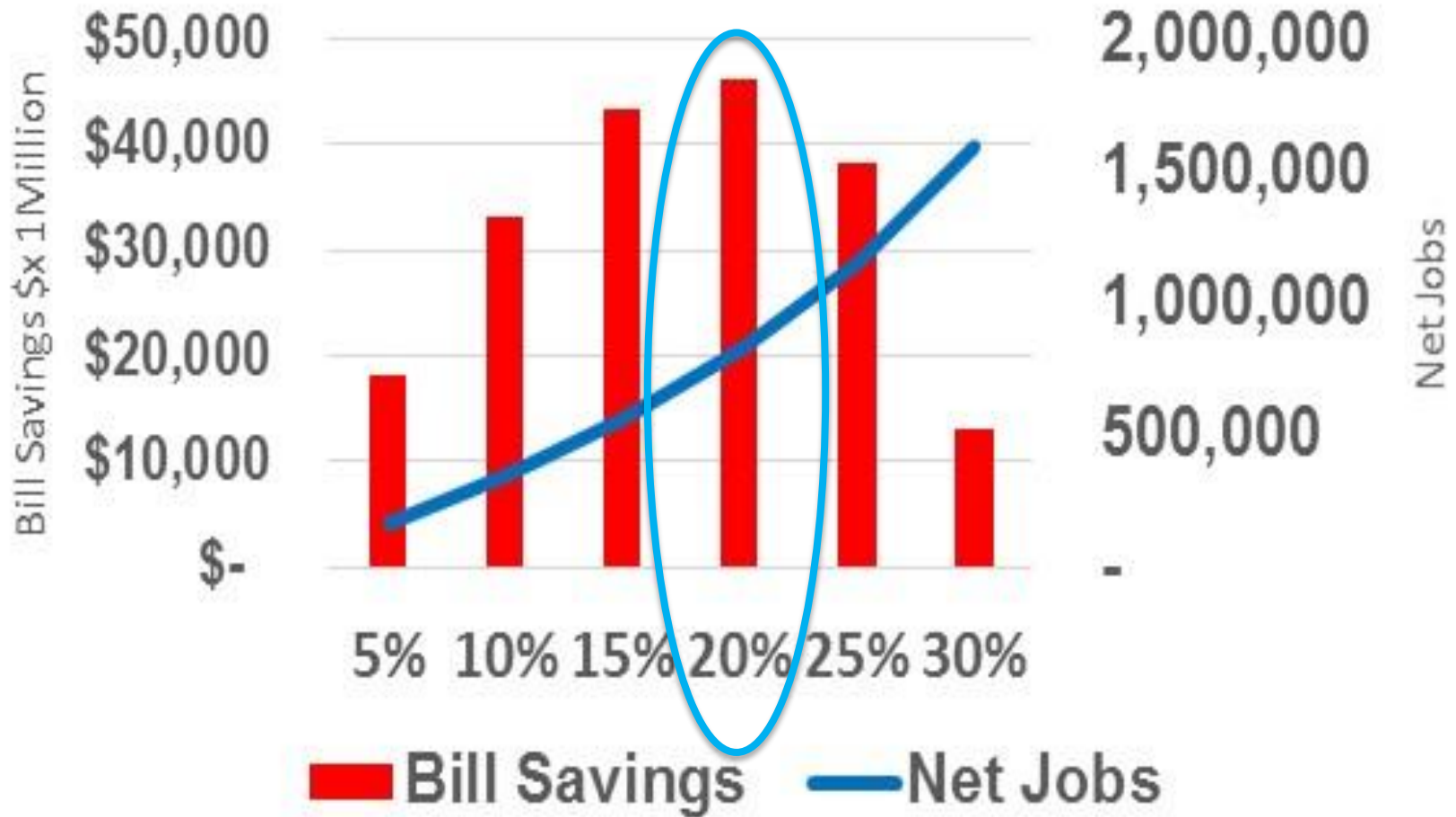
Foundation: Laitner Table 6

Table 6. Net Benefits as a Function of Efficiency Target

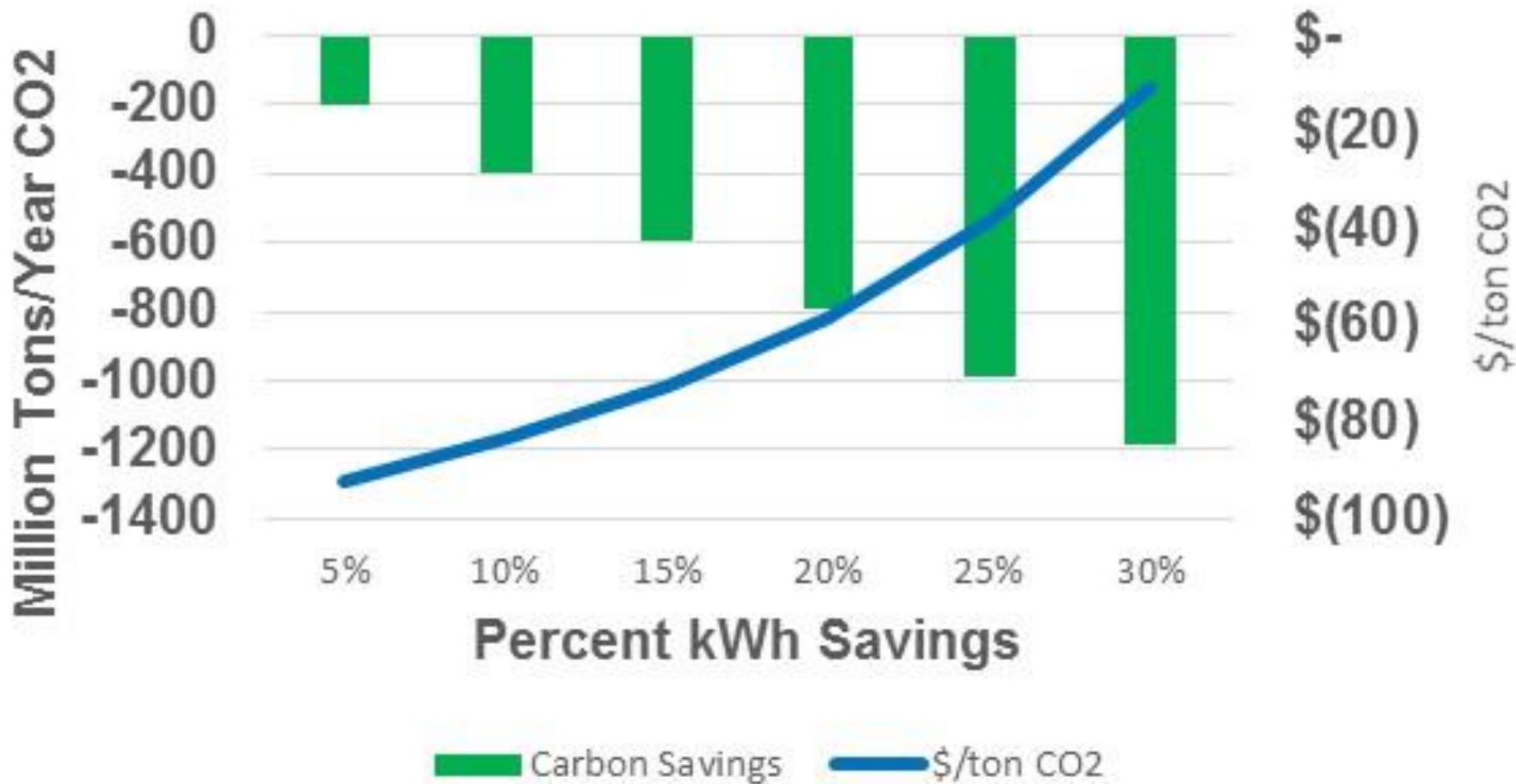
2030 Target	BCR	Average/HH	Net Savings	Net Jobs
5%	4.2	72	18,217	169,112
10%	3.3	127	33,036	350,199
15%	2.6	157	43,194	563,013
20%	2.1	147	46,185	818,827
25%	1.7	73	38,089	1,145,333
30%	1.3	-101	12,986	1,590,403

Source: Analysis as described in the text of the working paper.

Laitner: Table 6

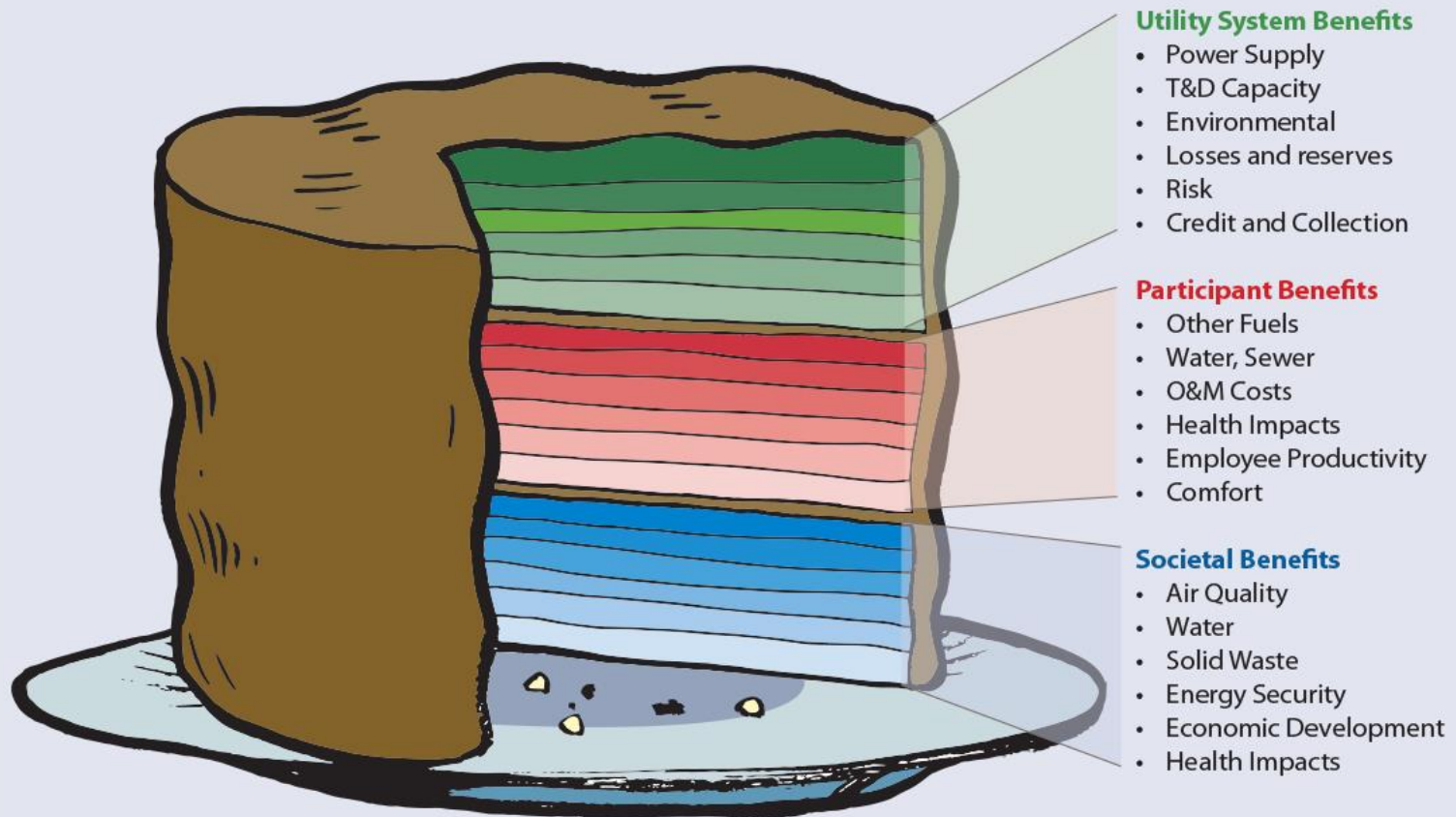


CO2 Savings As Presented

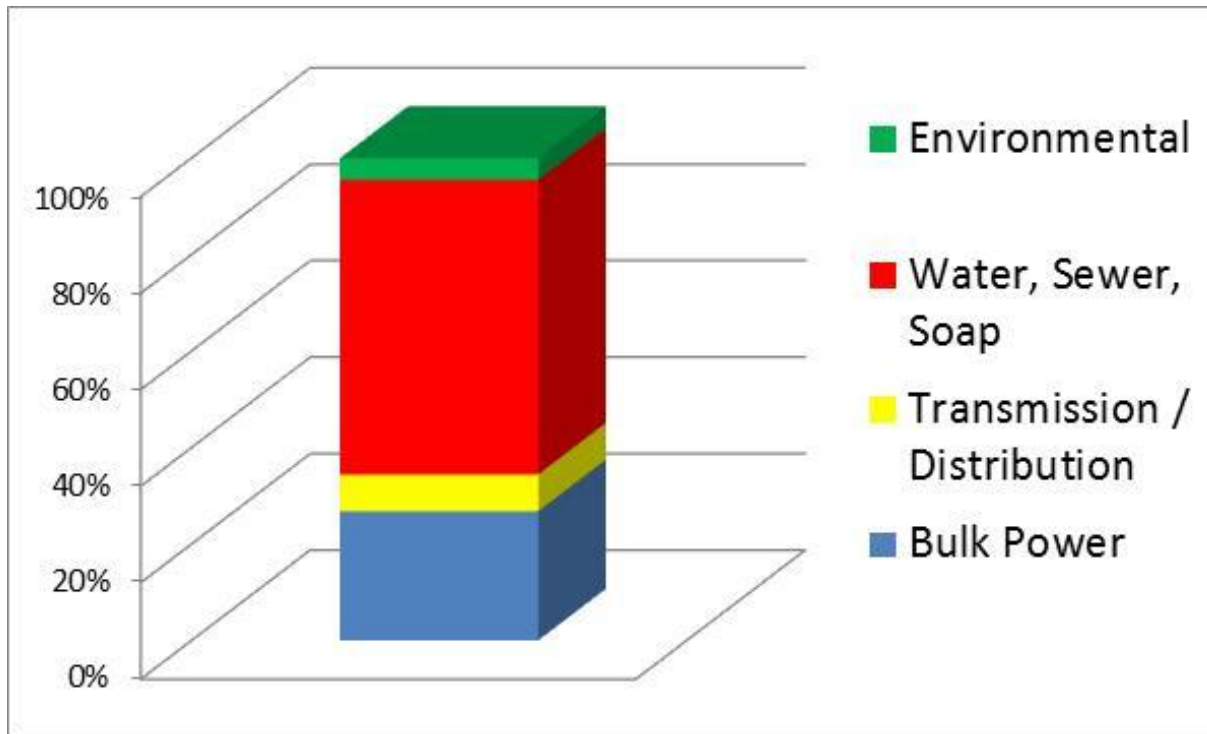


Energy Efficiency Provides a Layer Cake of Multiple Benefits

A "Layer Cake" of Benefits from Electric Energy Efficiency



Non-Energy Benefits: Water, Sewer, Soap



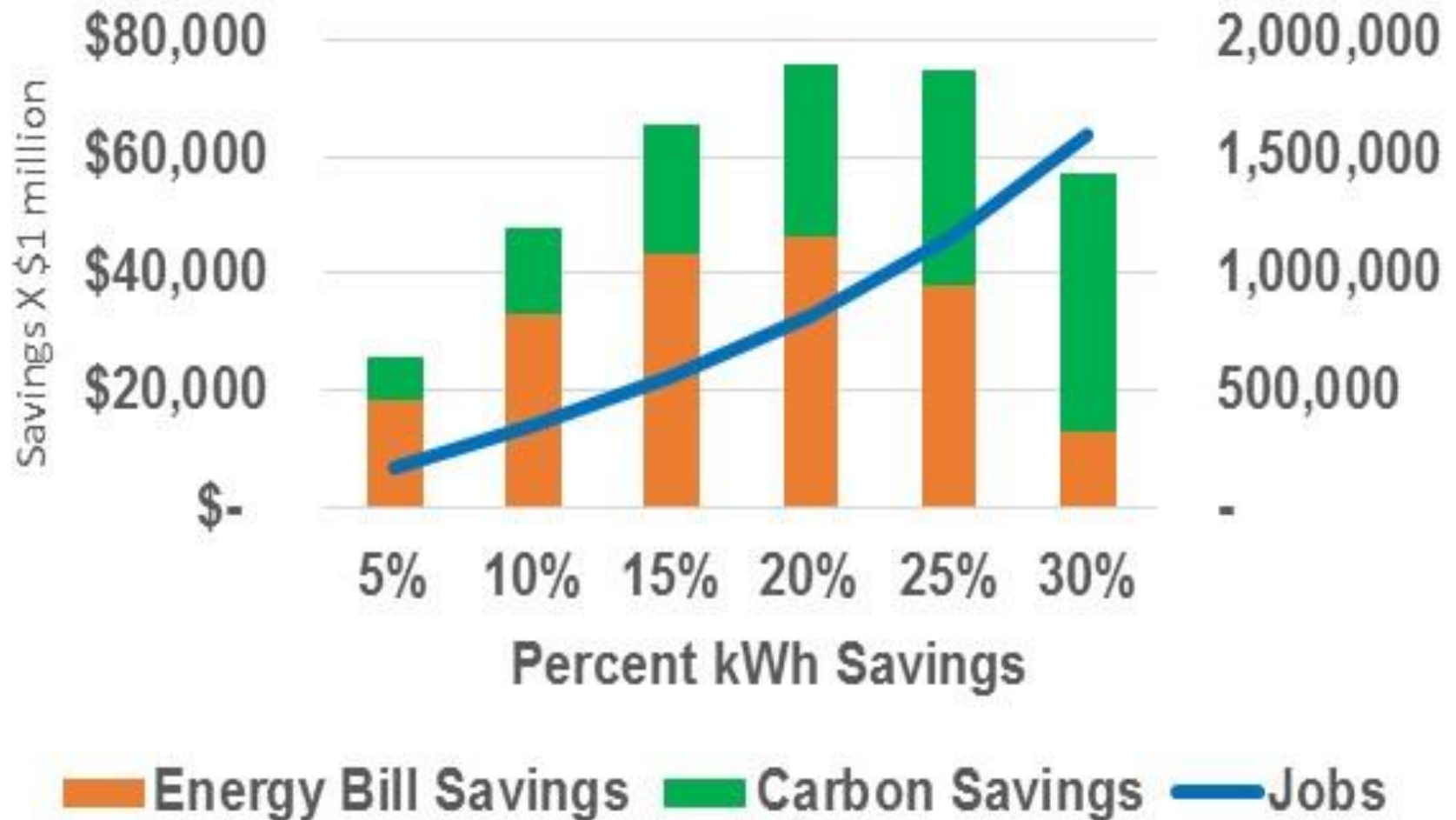
Participant Benefits: Health

New Zealand “Heat Smart” Low-Income Retrofit Program Evaluation:

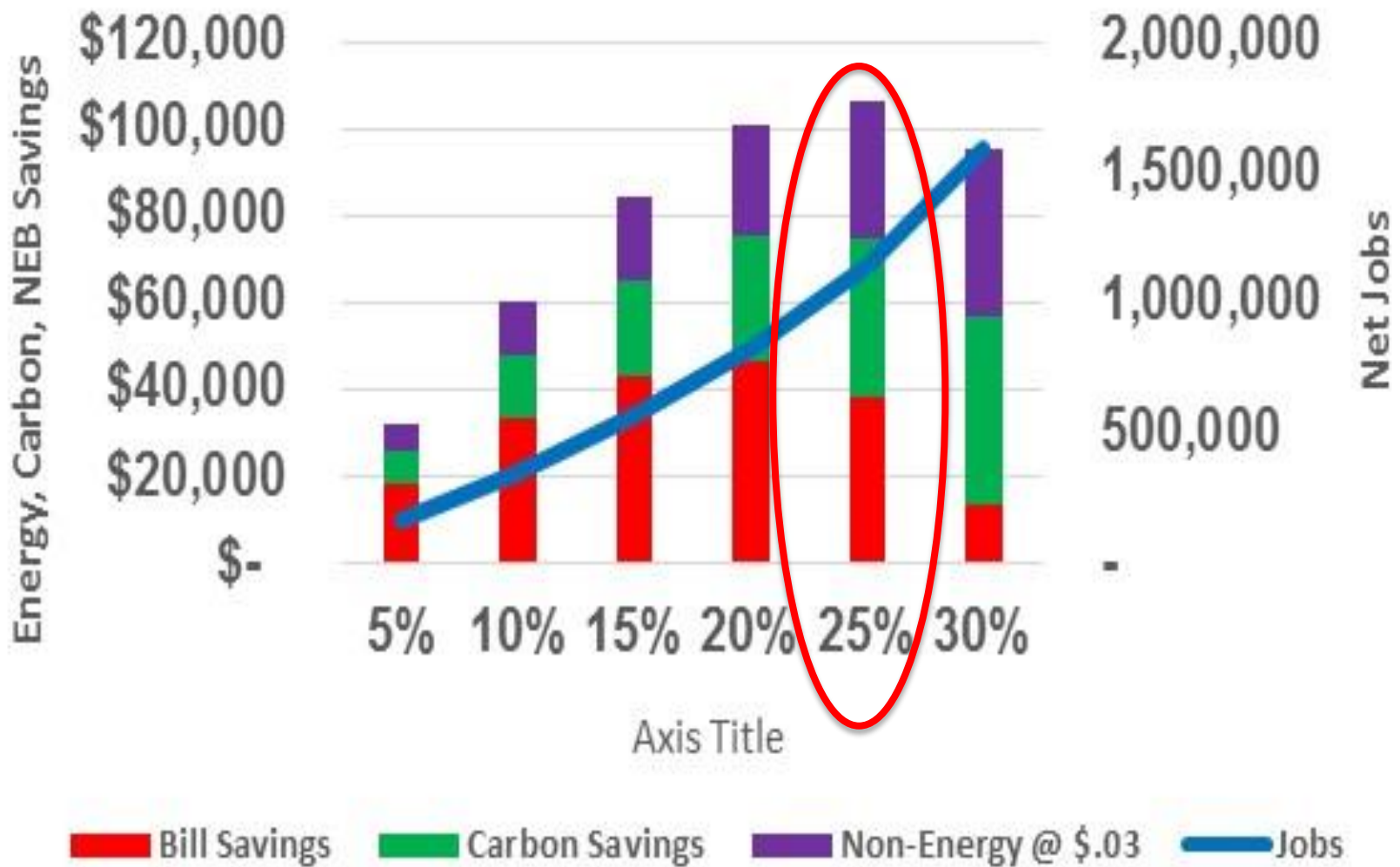
- Hospital Admissions for Respiratory Ailments **Down 43%**
- Days Lost At Work **Down 39%**
- Days Lost At School **Down 23%**

Health Benefits Exceeded Energy Benefits

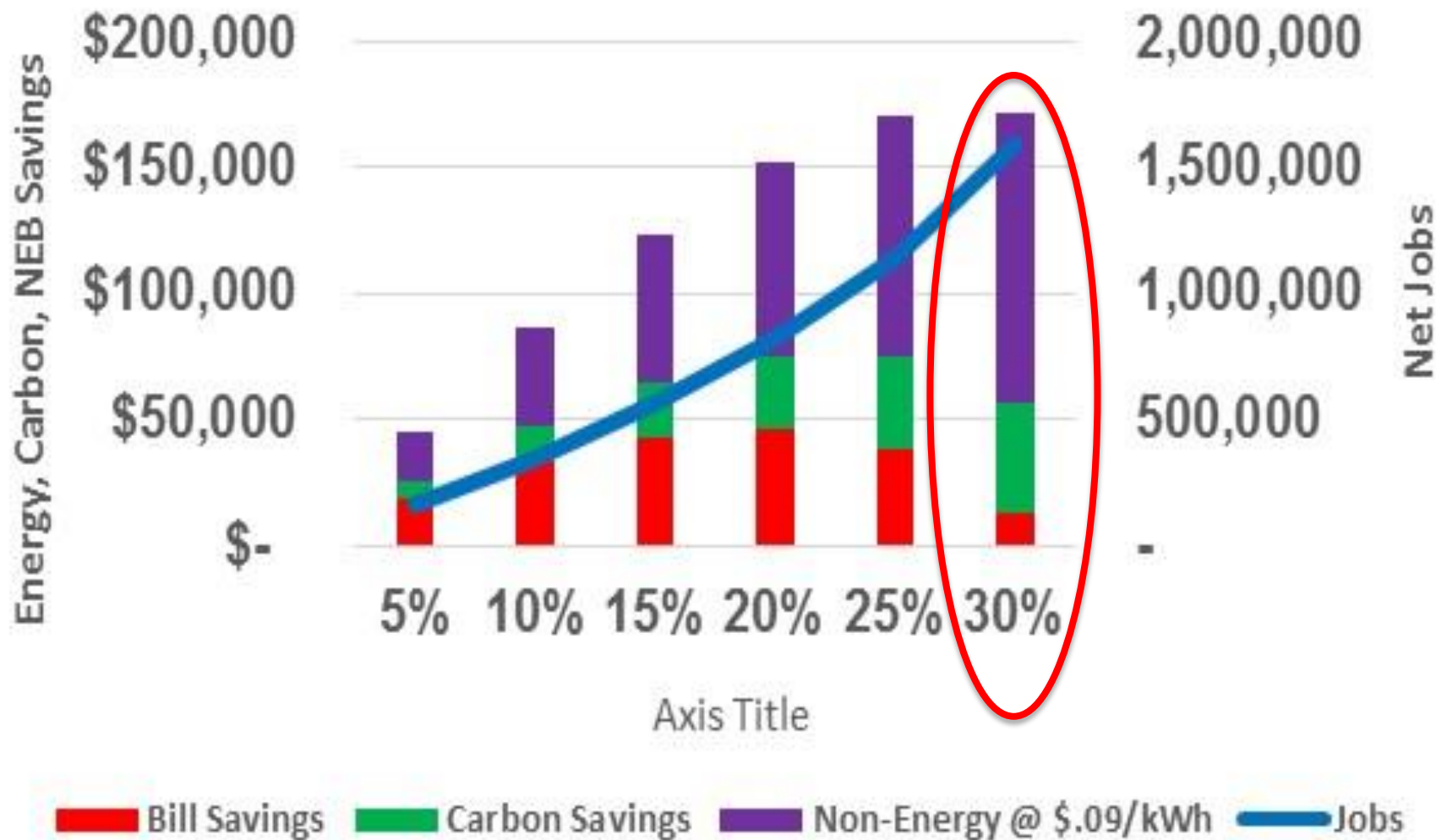
Laitner Table 6 + \$37/Ton CO2 Value



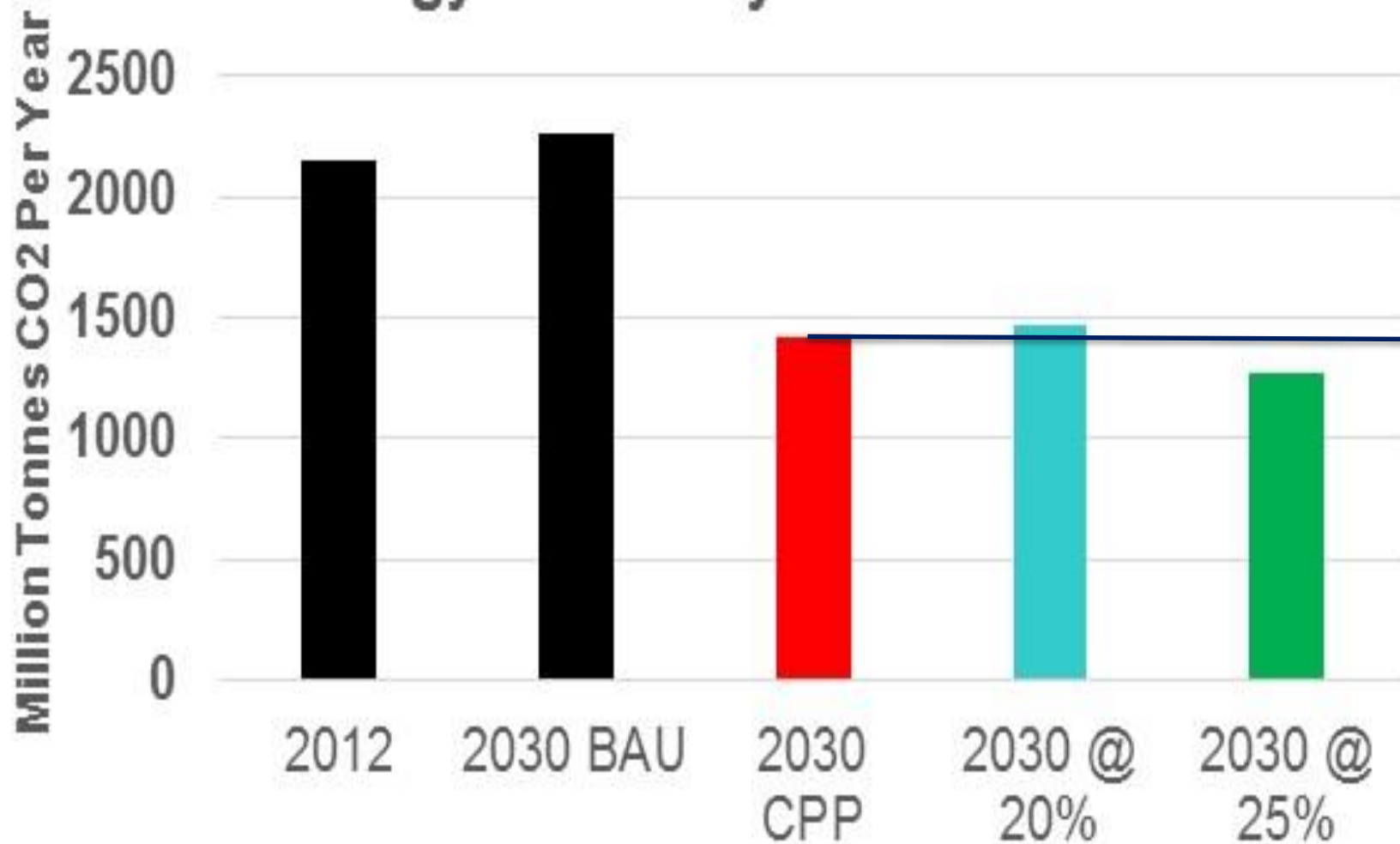
Add Non-Energy Benefits @ \$.03/kWh



Add Non-Energy Benefits @ \$.09/kWh



Power Sector Emissions / Energy Efficiency Reductions



Summary

- Non-Energy Benefits (NEBs) are real, and should be counted.
- A value of \$.03/kWh is conservative for NEBs.
- At that level, a 25% energy efficiency target is cost-effective.
- A 25% energy efficiency target meets the entire 111(d) obligation.



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

Jim Lazar, RAP Senior Advisor

jlazar@raonline.org



The Regulatory Assistance Project™

Beijing, China • Berlin, Germany • Brussels, Belgium • Montpelier, Vermont USA • New Delhi, India

www.raonline.org