Treating Energy Efficiency As A Resource
Three Decades of Northwest Experience

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ACEEE Energy Efficiency As A Resource
Nashville, TN
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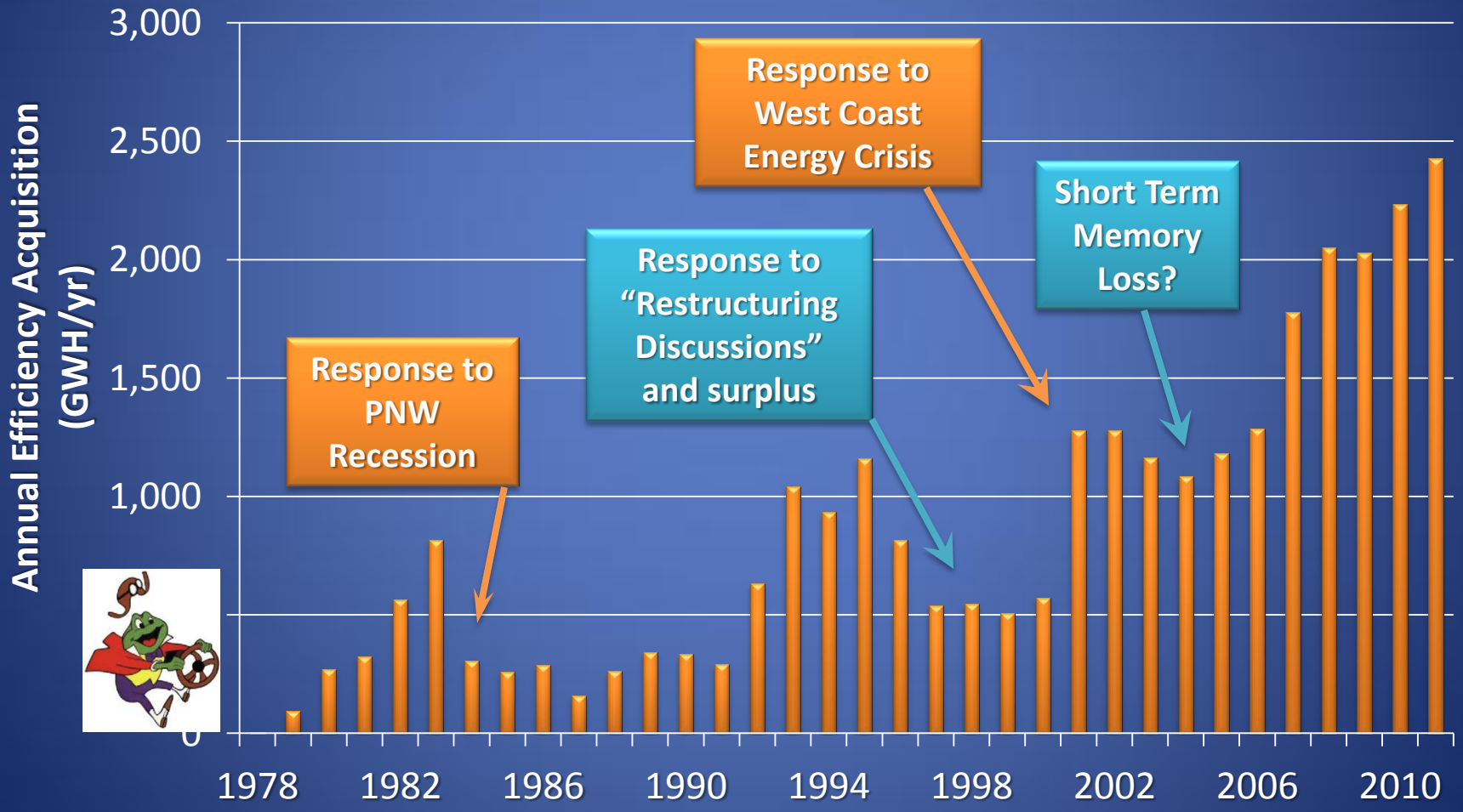
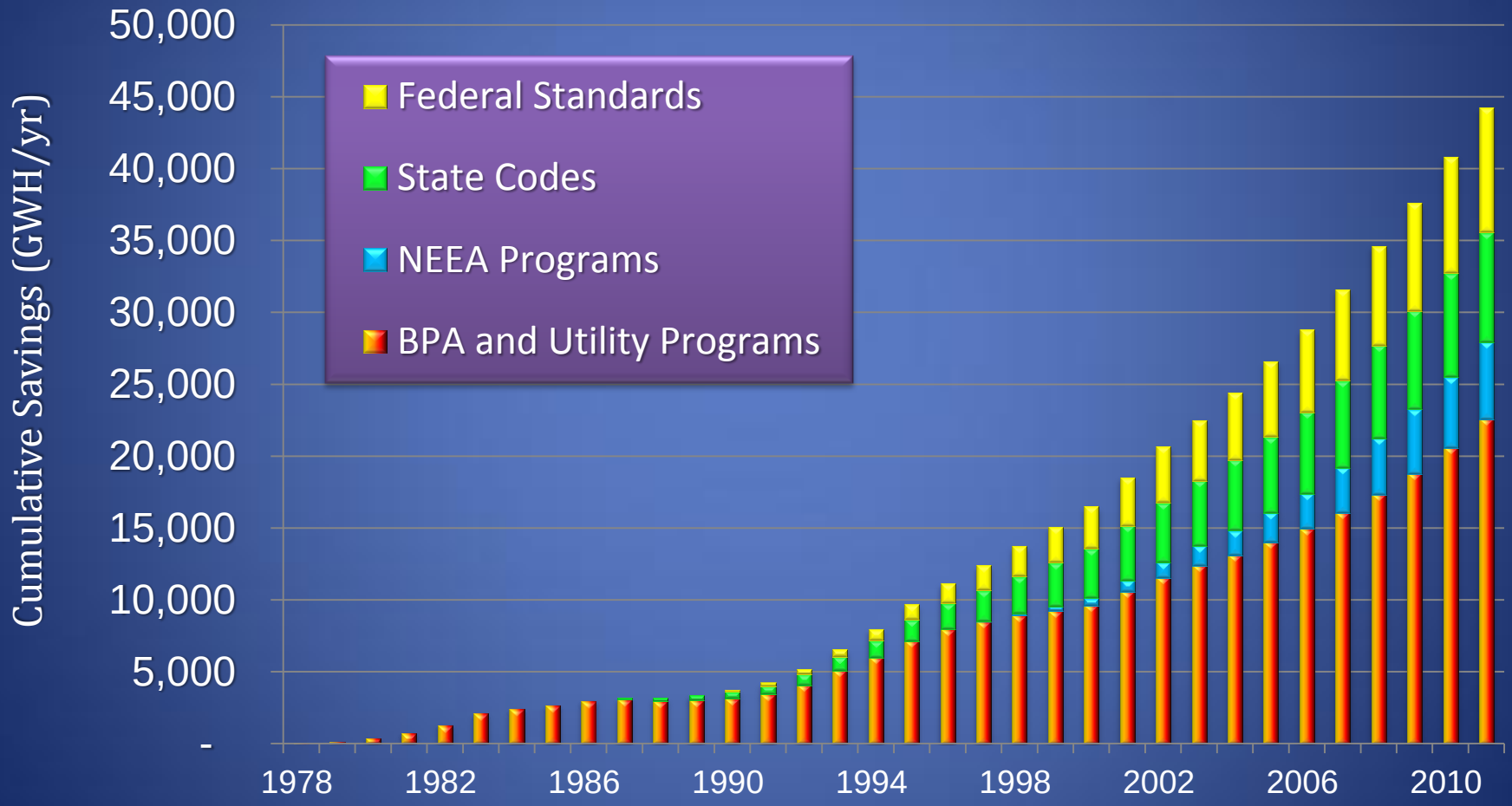
Northwest Efficiency Development Has Historically Been Tied To Current Market Conditions

The Result Has Been Mr. Toad's Wild Ride



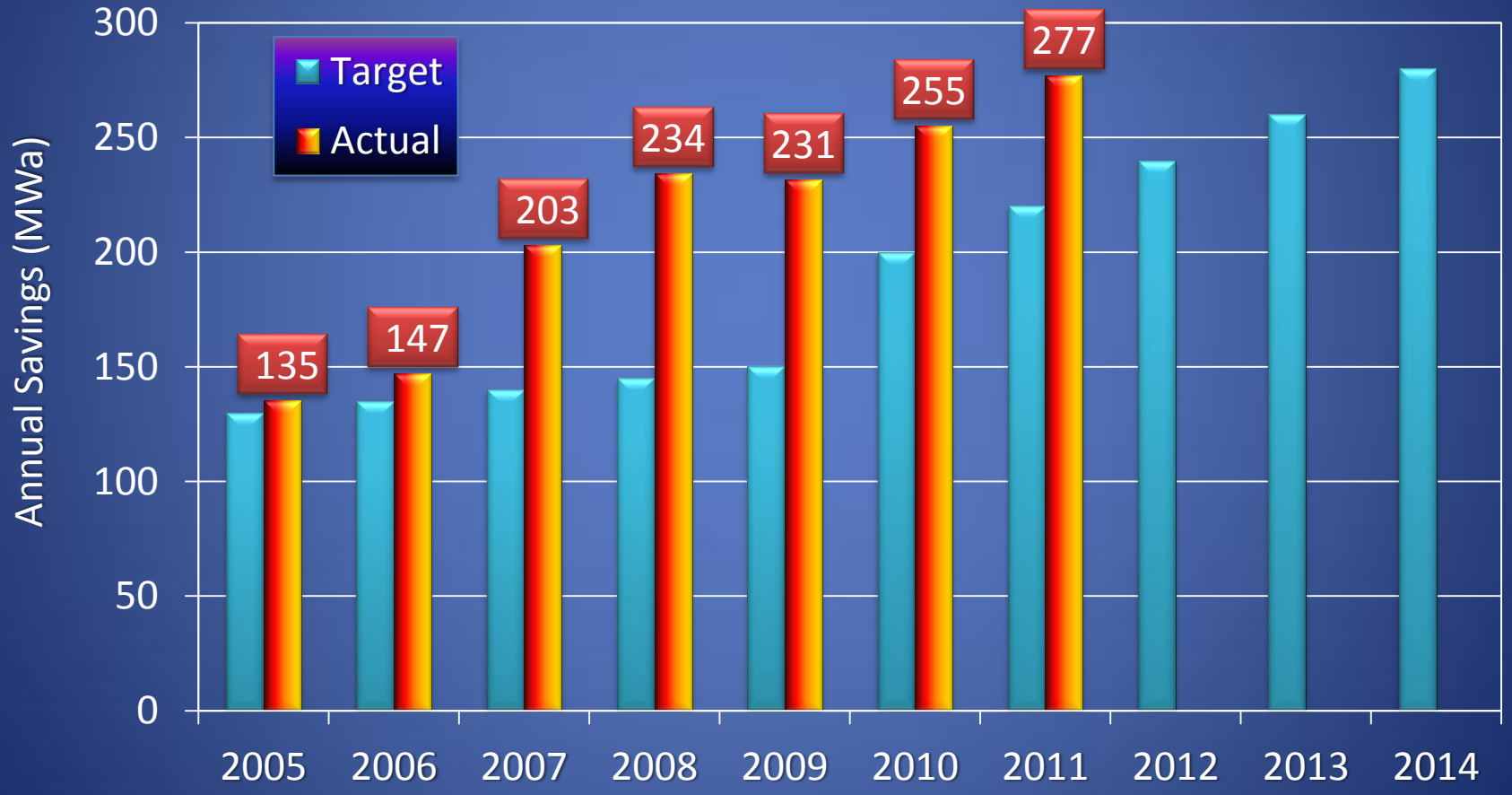
Nevertheless, Since 1978 Utility & BPA Programs, Energy Codes & Federal Efficiency Standards Have Produced Over 45,000 GWH/yr of Savings



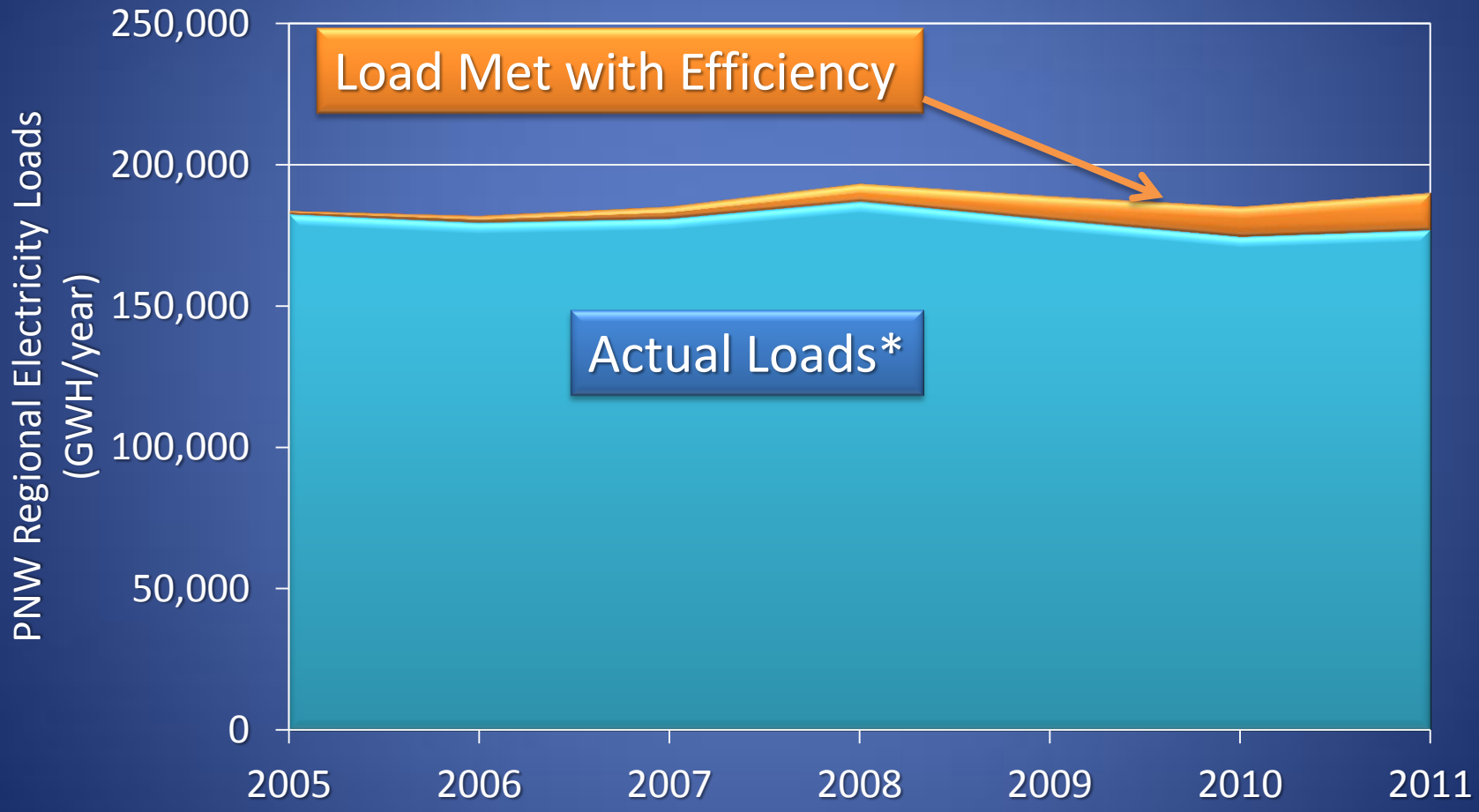
So What's 45,000 GWH/YR?

- It's enough electricity to serve nearly the ***entire state of Oregon***
- It saved the region's consumers nearly *$3.1 billion* in 2011
- It lowered 2011 PNW carbon emissions by an estimated *19.8 million* MTE.

Since 2005 Energy Efficiency Resource Acquisitions Have Exceeded Plan Targets Every Year



Since 2005 Energy Efficiency Has Reduced Northwest Load Growth by 1.2%/year
Result = No Net Load Growth for *Seven* Years



* Approximate impact only, since PNW Actual Loads are not weather adjusted.

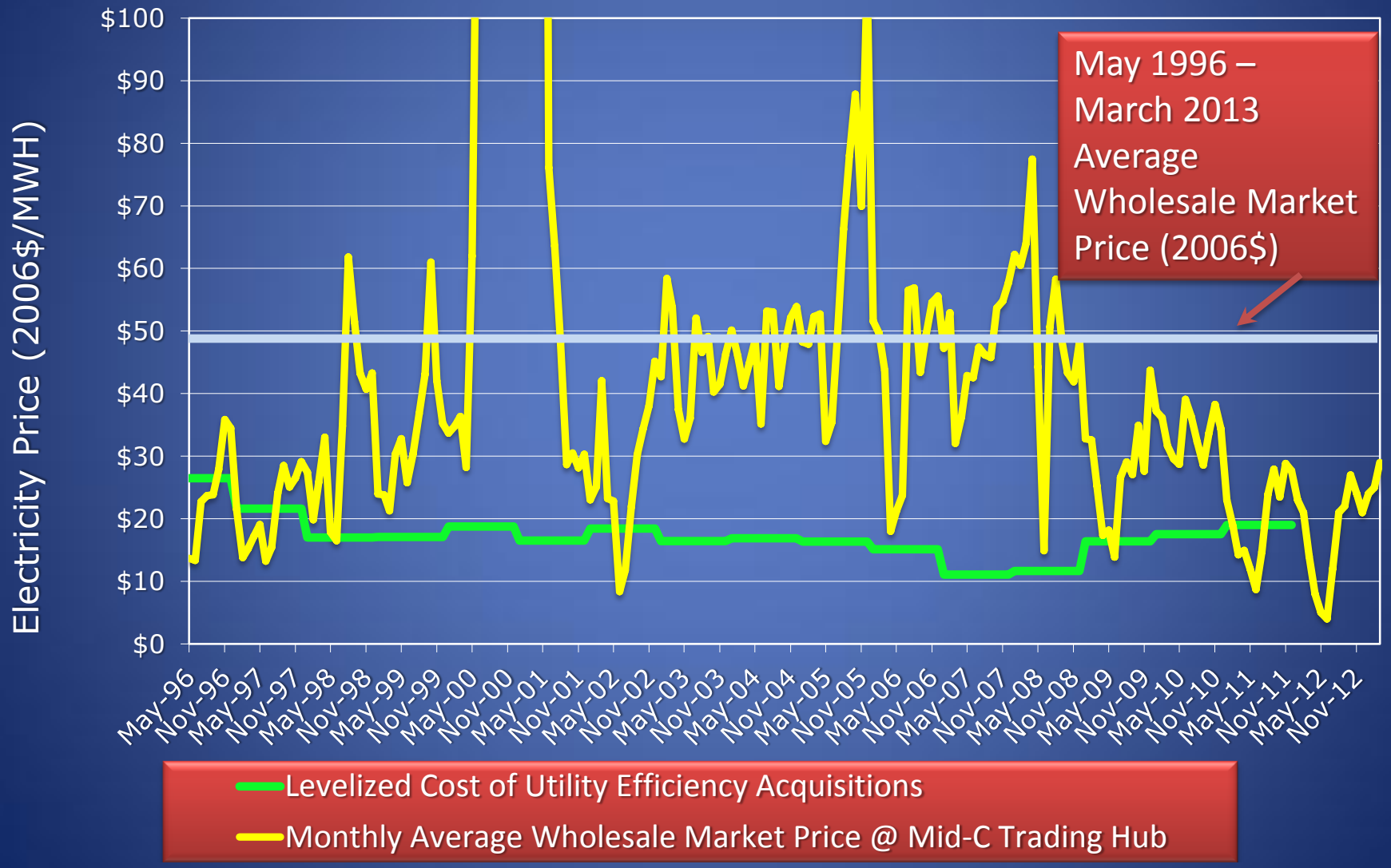
Northwest Ratepayer Funded Energy Efficiency Investments Per Person Are Slightly More Than *Double* the US Average

Source: ACEEE 2012 State Energy Efficiency Scorecard

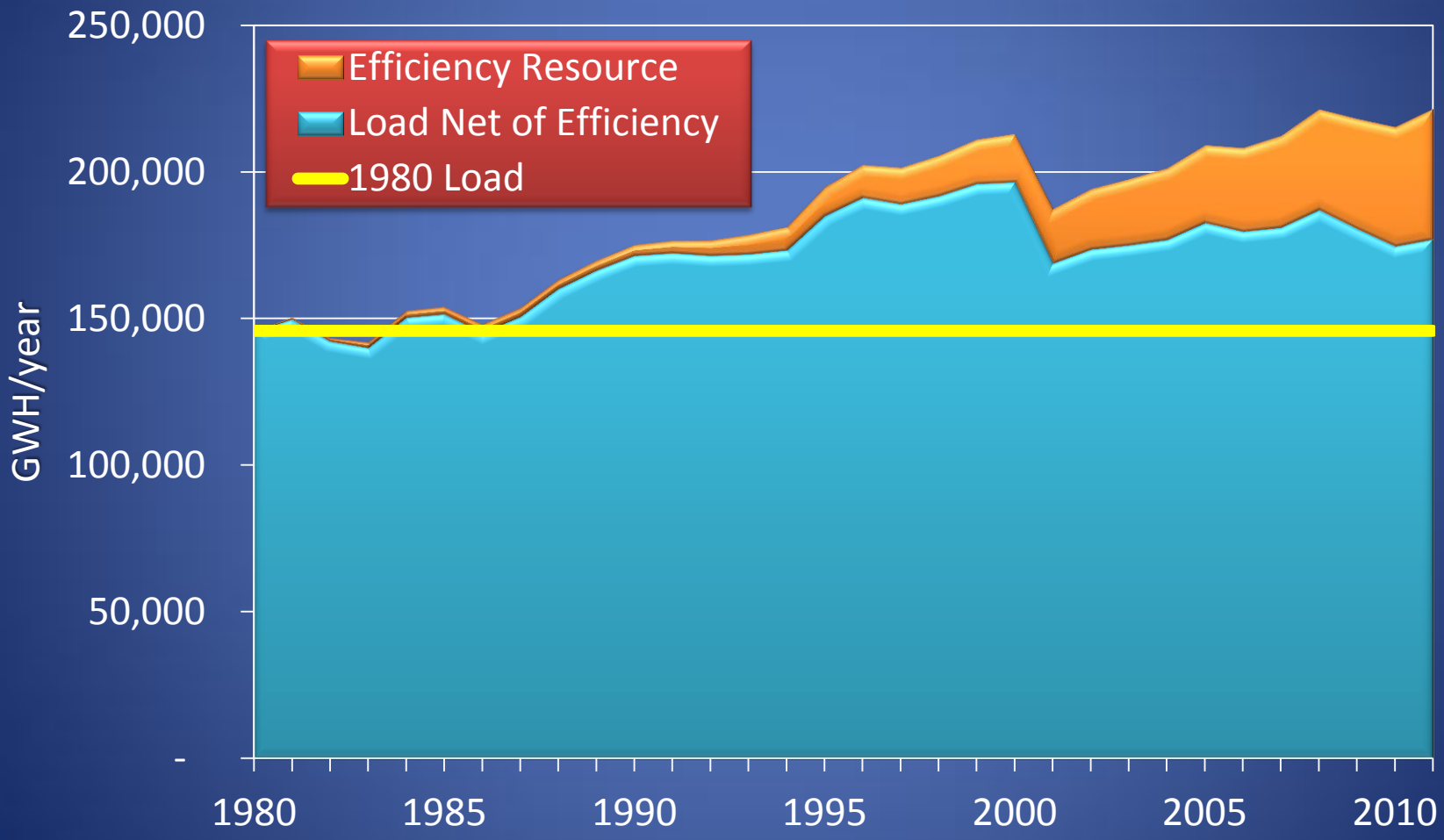
Northwest Ratepayer Funded Savings Equaled Just Under 1.4% of Regional Electricity Sales in 2011 Almost *Three* Times the US Average

Source: ACEEE 2012 State Energy Efficiency Scorecard

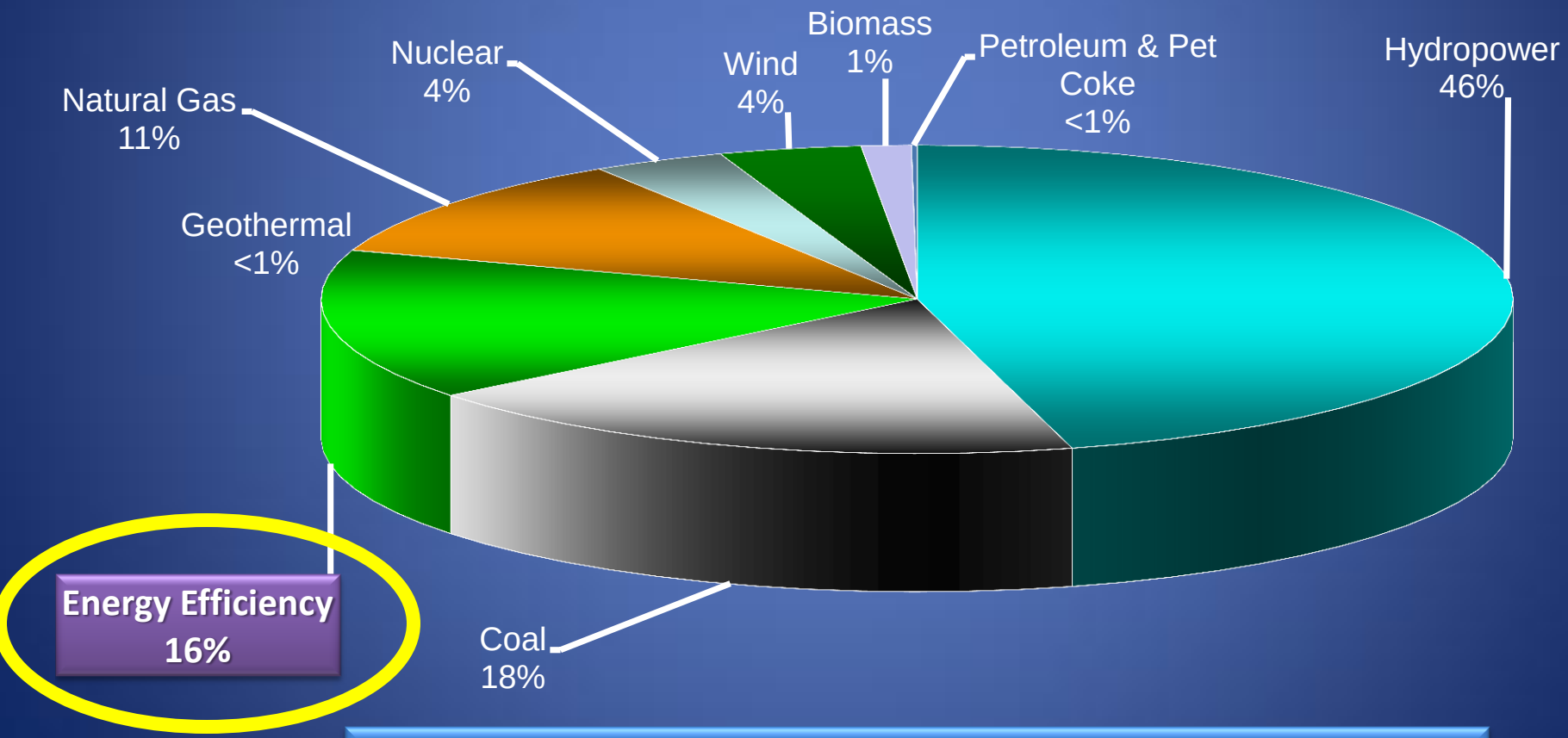
Average Cost of Utility Acquired Savings Continues to Be Lower and Less Volatile Than Wholesale Market Electricity Prices



Since 1980 Efficiency Has Met Almost 60% of Northwest Load Growth



Energy Efficiency is Now the Northwest's Third-Largest Resource



Based on Estimate of 2010 Actual Resource Dispatch/Contribution

Why We Do What We Do: Events

- 1970's > *Irrational ly Exuberant* load forecast lead to the overbuilding of coal and nuclear generation
- Mid-1990's – 2000 > *California Market Dreamin'* reduces resistance to *ENRON fever* which infects entire West Coast Electricity Market

Why We Do What We Do: Policies

- Under federal statute energy efficiency is defined as a "resource" and is the first priority for acquisition
- State laws and commission orders require utilities to 1) prepare and submit integrated resource plans (IRPs) and 2) treat energy efficiency as a resource in their IRPs
- Cost-recovery for IOUs is available for prudent investments in energy efficiency
- De-coupling "experiments/pilots" have been and are being tried, but are not the "norm"
- Oregon has an System Benefits Charge covering all IOU service areas (80% of state) & Washington has a "acquire all cost-effective efficiency" resource standard (EERS) for all utilities serving more than 25,000 customers

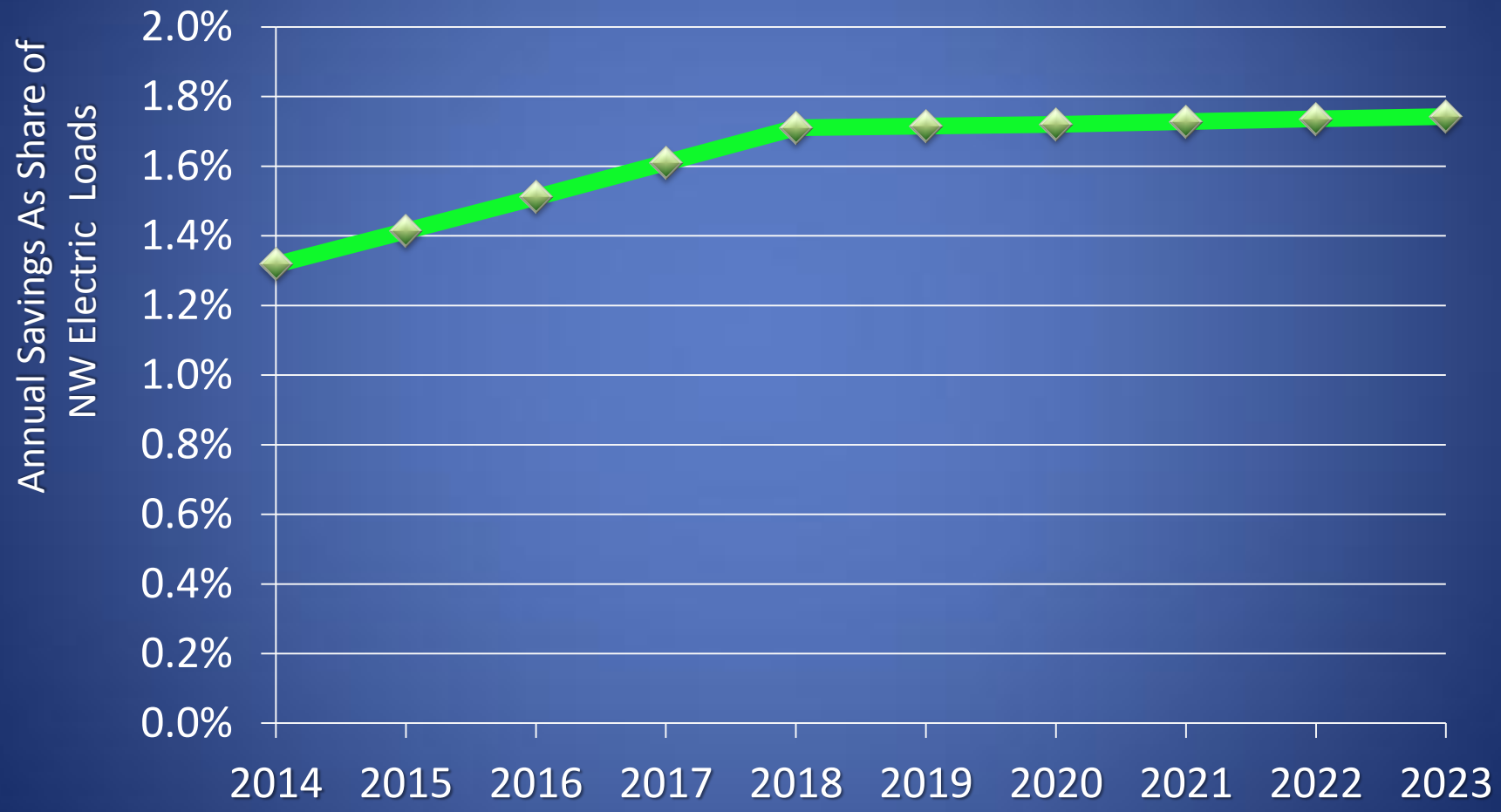
Why We Do What We Do

- The Northwest Has Some of the Lowest Electricity Cost In The Nation
- We Want To Keep It That Way!

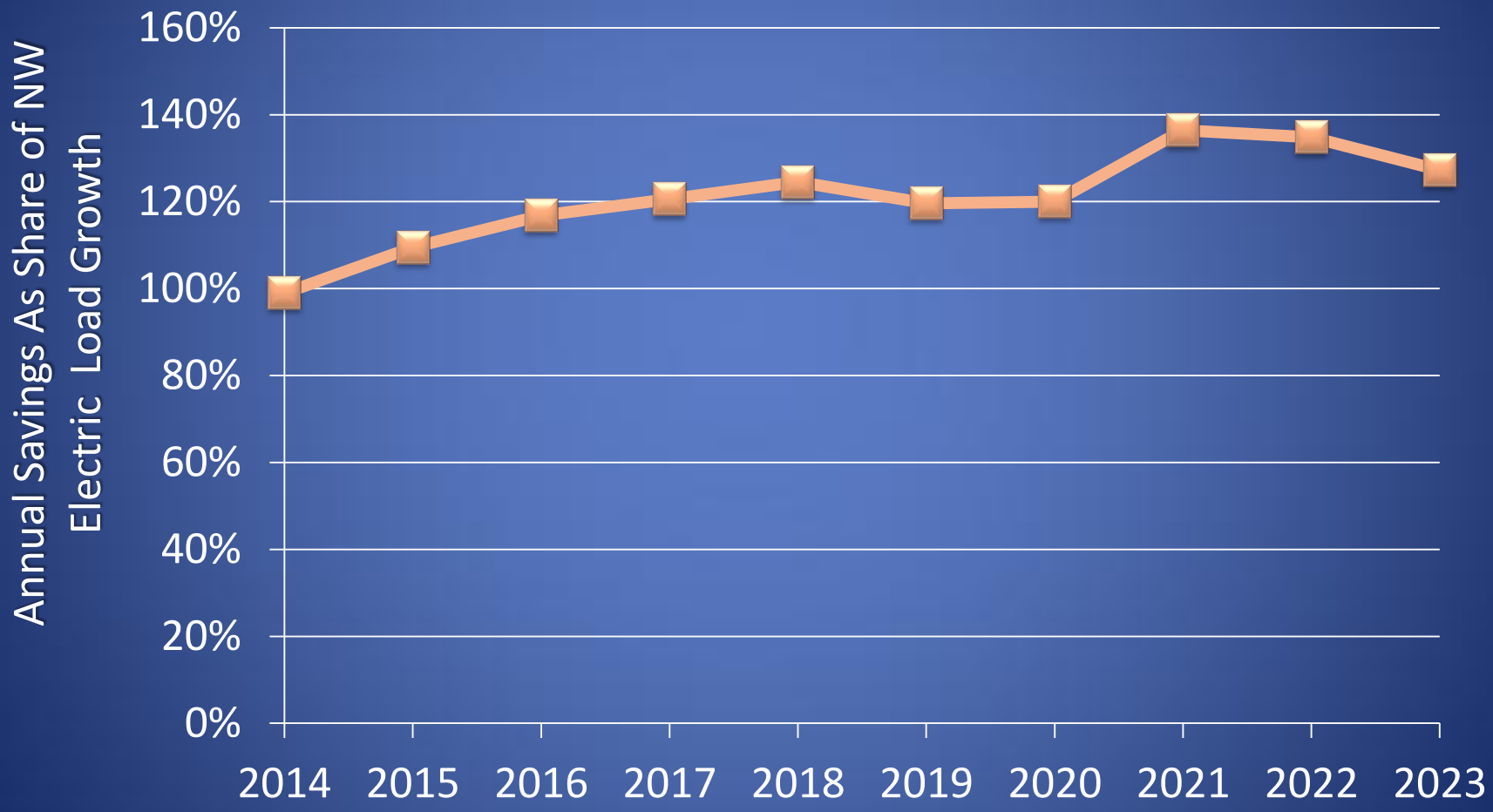
State	Average Monthly Bill/Customer Rank (1=Lowest)
Idaho	2
Montana	5
Washington	6
Oregon	7

The “Marker”

Energy Efficiency Development As A Share Northwest Loads

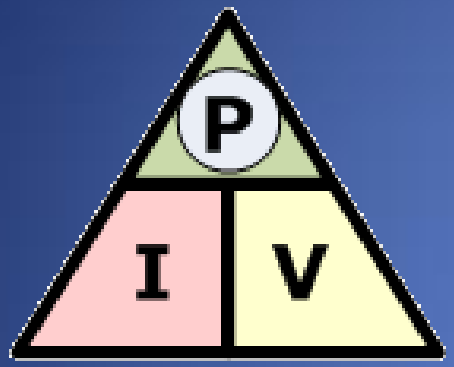


Energy Efficiency Development As A Share of Load Growth

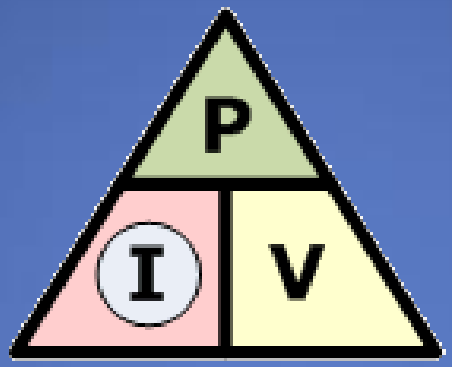


Getting’ There

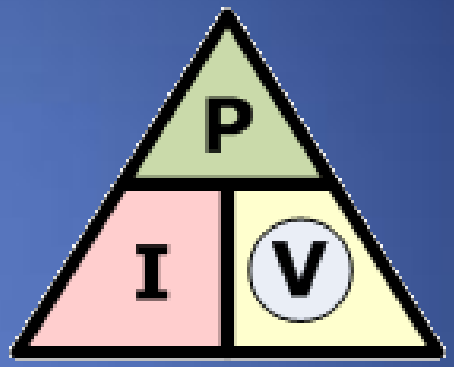
Ohm's Law - The Power Triangle



$$P = I \times V$$



$$I = \frac{P}{V}$$



$$V = \frac{P}{I}$$

To find the Power (P)

[P = V x I] P (watts) = V (volts) x I (amps)

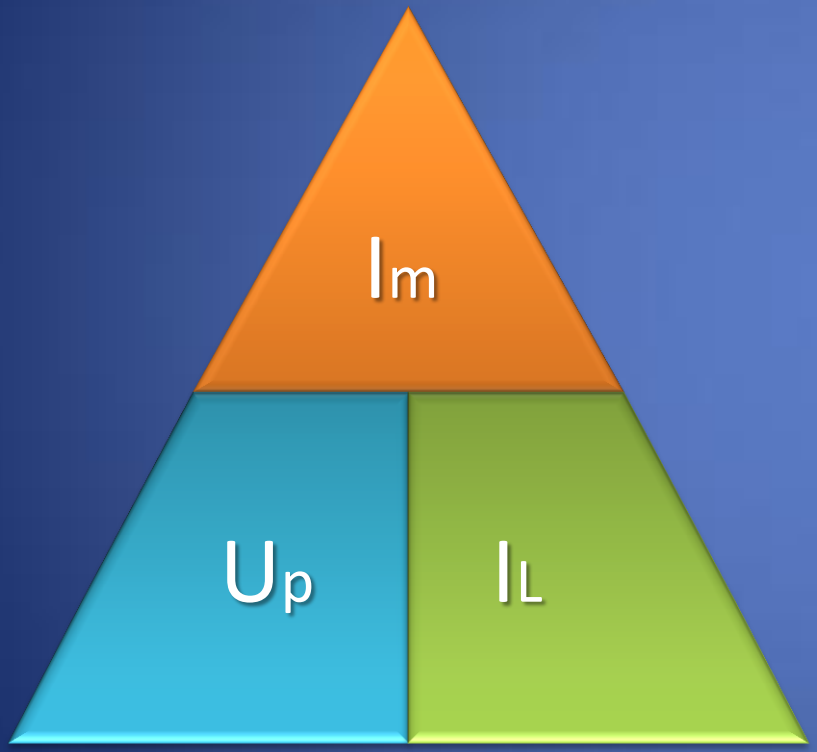
To find the Current (I)

[I = P ÷ V] I (amps) = P (watts) ÷ V (volts)

To find the Voltage (V)

[V = P ÷ I] V (volts) = P (watts) ÷ I (amps)

Eckman's Law: The Efficiency Triangle



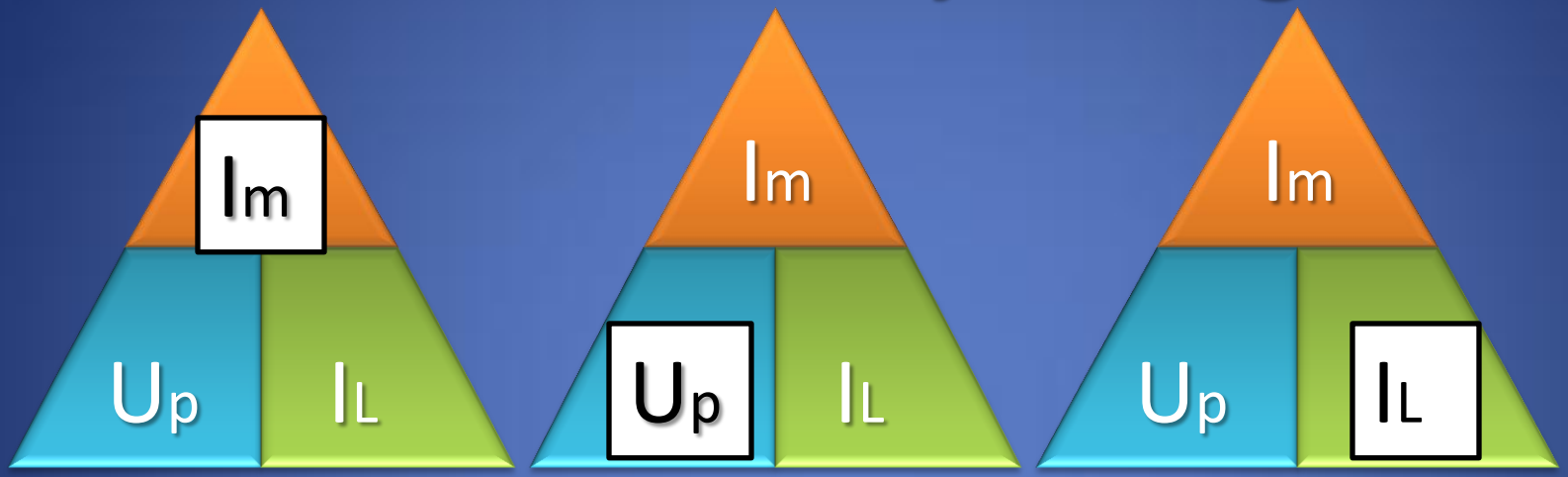
Where:

I_m = Immoral
(units = guilt)

I_l = Illegal
(units = time served)

U_p = Unprofitable
(units = money)

Eckman's Law: The Efficiency Triangle



To find the Immoral (I_m)

[$I_m = U_p \times I_L$] I_m (guilt) = U_p ($) x I_L (yrs) = Wasted Time and Money

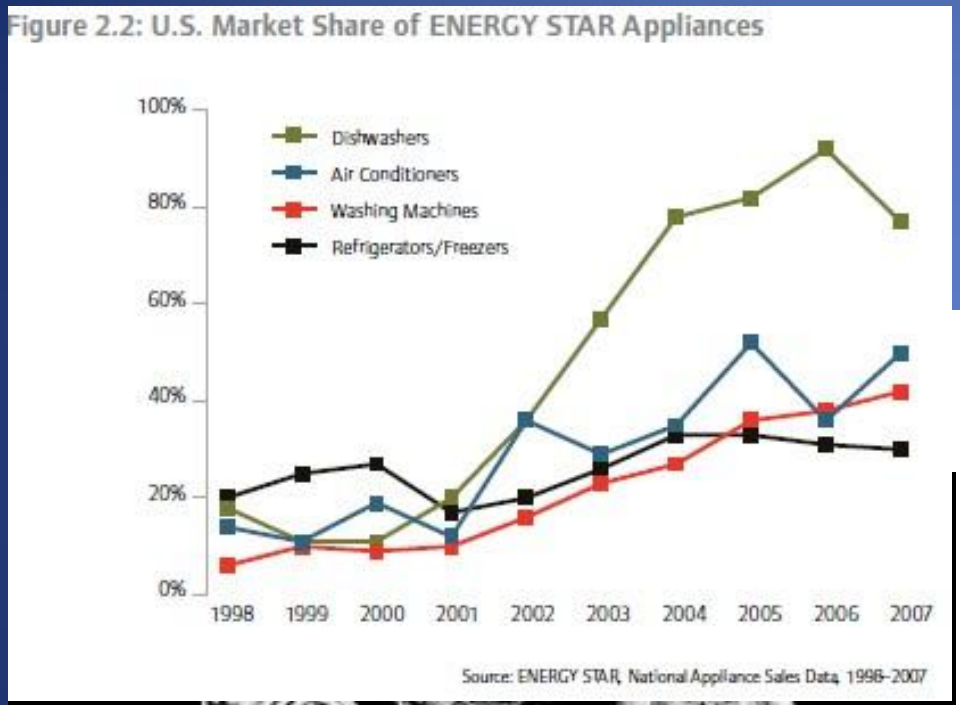
To find the Unprofitable (Up)

[$U_p = I_m \div I_L$] U_p ($) = I_m (guilt) ÷ I_L (yrs) = Guilt per Unit of Time

To find the Illegal (I_L)

[$I_L = I_m \div U_p$] I_L (yrs) = I_m (guilt) ÷ Up ($) = Guilt per Unit of Money

Immoral – All Efficiency Programs Are Intended to Change "Bad" Behavior

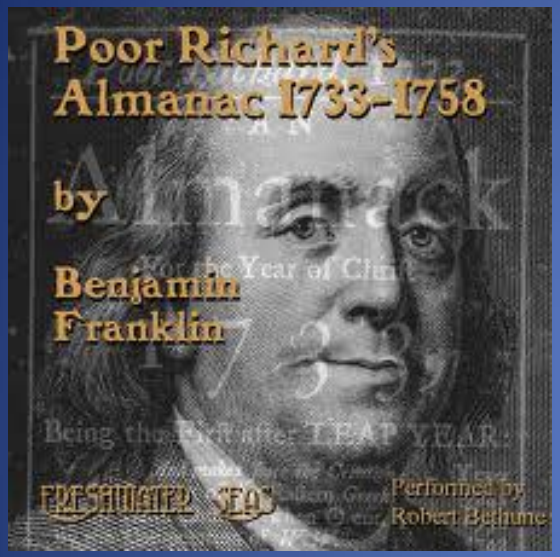


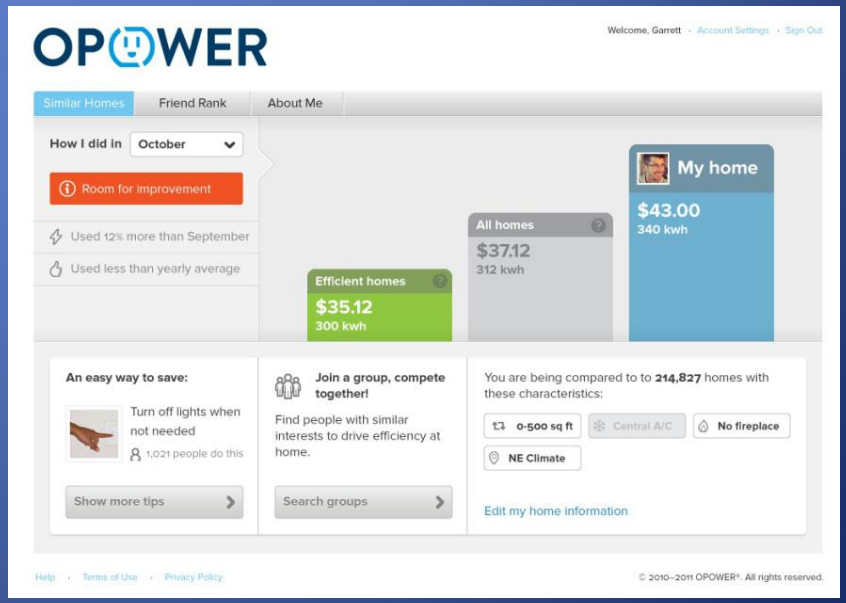
If consumers were already choosing the efficient option we wouldn't be trying to alter their decisions

"Right and Wrong" are generally defined by social norms (i.e., behaviors)

"Immoral behaviors" are actions that do not conform to social norms

The Message Hasn't Changed, but Our Ability to Target Message Has

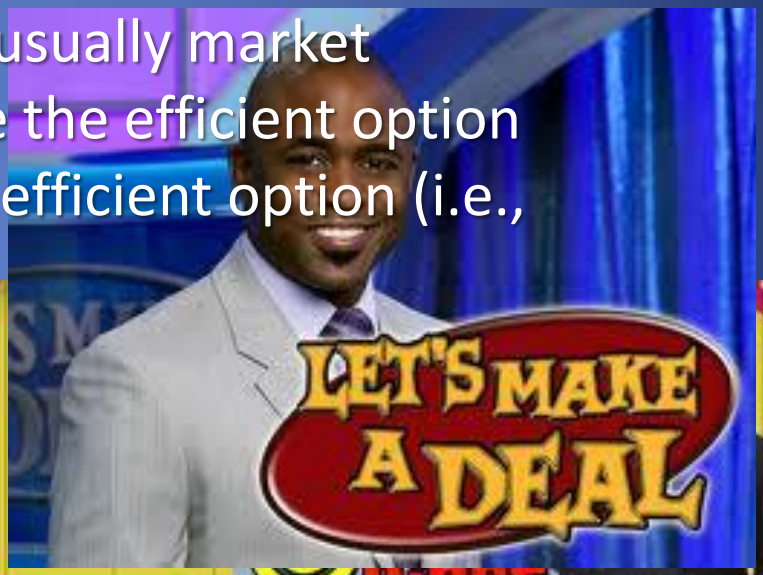


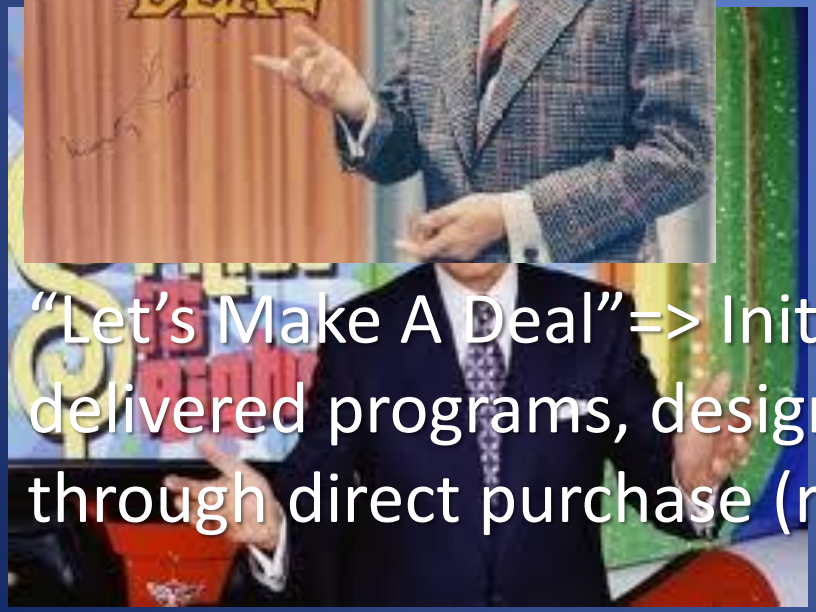


Unprofitable – It's Gotta Be More Affordable Than The Alternative

Two Broad Program Strategies Are Used Overcome Economic Barriers:

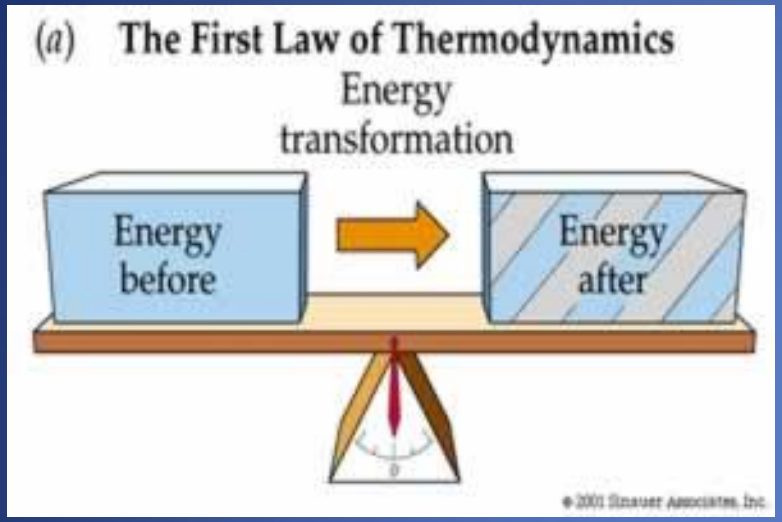
"The Price is Right" => Initiatives, usually market transformation, designed to make the efficient option more cost-competitive than the inefficient option (i.e., lower its cost)

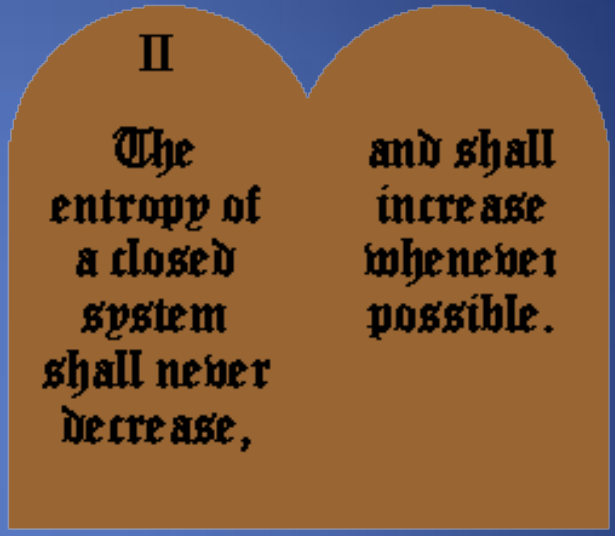




"Let's Make A Deal"=> Initiatives, usually locally delivered programs, designed to acquire the savings through direct purchase (remember it's not a subsidy)

Illegal – First, We Must Obey The Laws We Don't Control

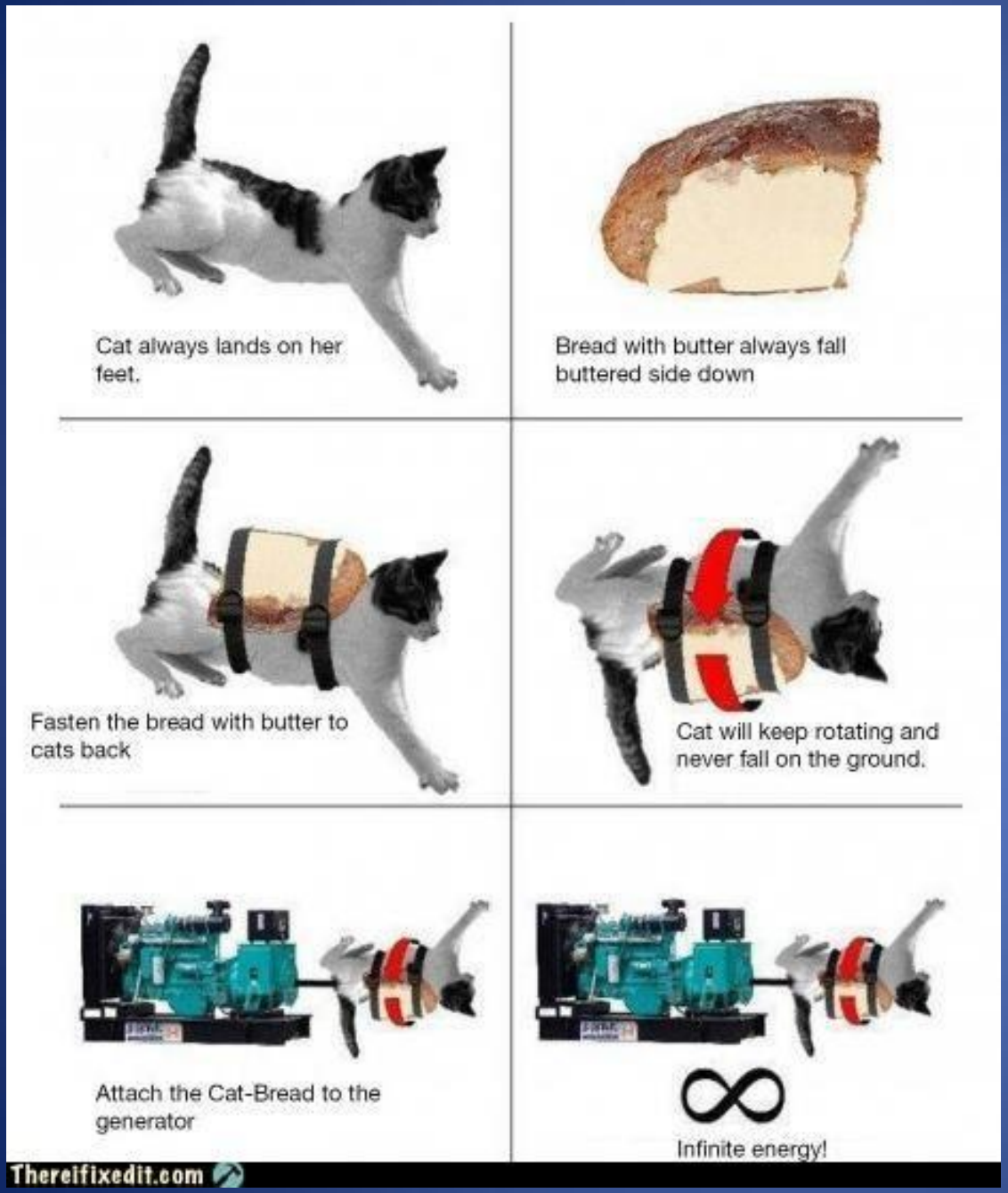




1. You Can't Win, You Can Only Break Even

2. You Can Only Break Even At Temp = Absolute "0" (273.15° C)

3. You Can't Reach Absolute "0"

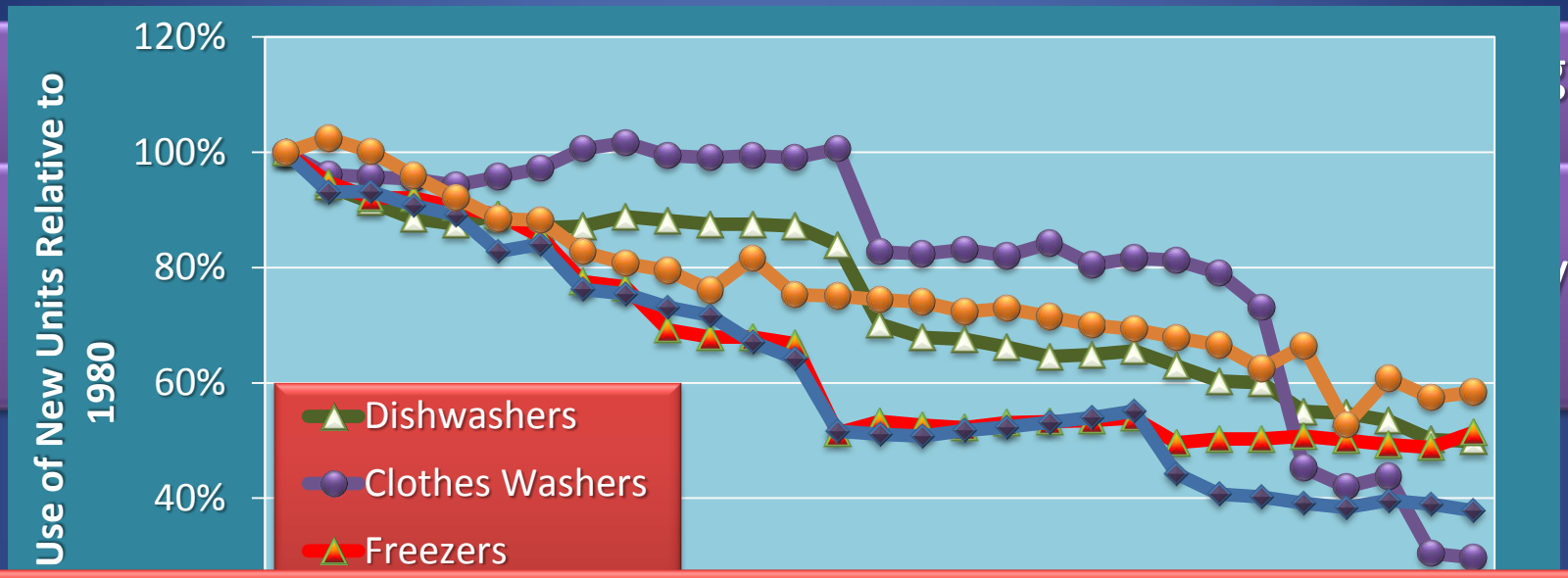


To Be Credible We Must Enforce Those Laws

Why Can't This Be True?

Because You Must feed the Cat!

Illegal – Second, We Must Take Advantage of The Laws We Do Control



124 Wn.2d 381, MANUFACTURED HOUSING ASS'N v. PUD 3
Aug. 1994
[No. 60790-7. En Banc. August 25, 1994.]
MANUFACTURED HOUSING ASS'N v. PUD 3
WASHINGTON MANUFACTURED HOUSING ASSOCIATION, ET AL, Appellants, v. PUBLIC UTILITY DISTRICT NO. 3 OF MASON COUNTY, Respondent.

The Lesson:
It's Not Just A Good Idea, It's The Law!