#### www.eewv.org



Advancing Energy Efficiency in the Mountain State

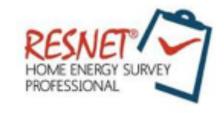
Energy Efficient West Virginia is a group of concerned West Virginia residents, businesses and organizations who have come together to promote energy efficiency among residential, agricultural, commercial, and industrial customers in our state.



#### XAVIER WALTER

BPI BPI CERTIFIED PROFESSIONAL

- 10+ Years in Energy Efficiency
- Completed thousands of residential and commercial EE retrofits
- Trained hundreds of energy auditors, workers, and interested parties.
- Participated in the design and implementation of Utility programs in the Northeast
- Designed residential energy efficiency for local colleges and technical schools
- Recently moved to WV from NJ in search of mountains and opportunity.







#### **Deep Hole**

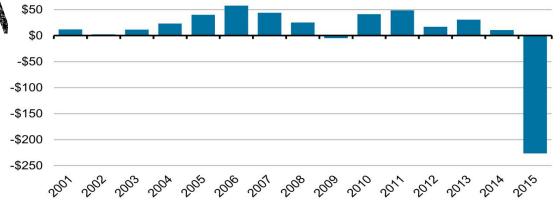
\$100

After-tax profit or loss for U.S. mining corporations, including oil drillers, with assets of \$50 million or more.

■ After-tax income (in billions)

#### THE PROBLEN





Source: Commerce Department | WSJ.com

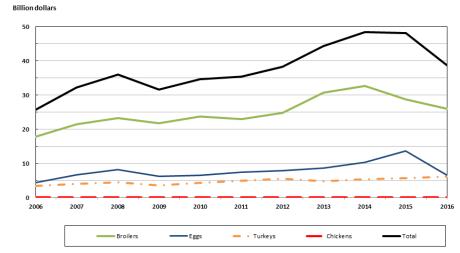
04/28/2017

"94 coal-fired power plants were closed across the country (in 2015 and this year (2016) 40 more are expected to close by the end of December.

It is most unlikely that Mr. Trump could do anything to bring those plants back online."

NYTimes, Nov. 20, 2016

#### Broilers, Eggs, Turkeys, Chickens and Total Value of Production, United States 2006-2016







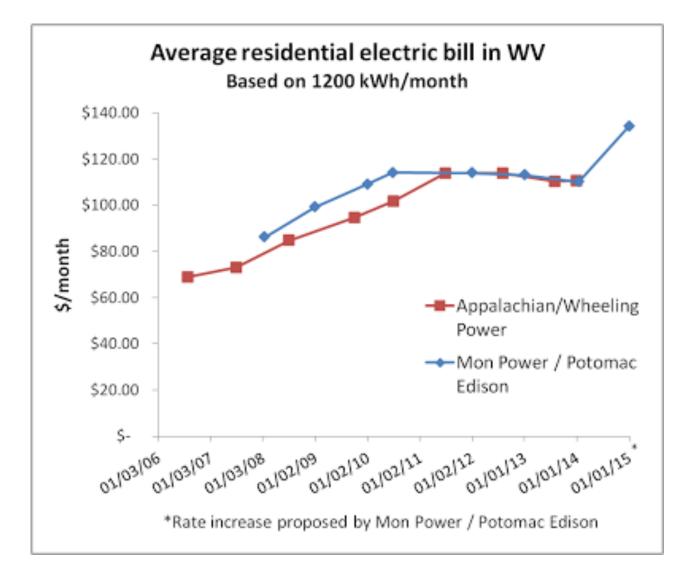
## #44 IN ENERGY EFFICIENCY POLICIES AND PROGRAMS





#### RATES KEEP GOING UP!!!









## IS THE ANSWER SOLAR ELECTRIC?

"More energy from the sun falls on the earth in one hour than is used by everyone in the world in one year." <a href="https://www.nrel.gov/workingwithus/re-solar.html">https://www.nrel.gov/workingwithus/re-solar.html</a>

#### It is a GREAT IDEA!!!!

Personal
Sustainability
Financial Freedom
Security

Cheaper than buying from the electric company







#### SOLAR BASICS

YOU CREATE THE POWER!

You don't have to pay them for the power.



Great long term plan.

Excellent Tax advantages.

Batteries for backup power.

Power in remote places. Pumps, lights, etc....





- § Be sure your installer is Certified, Registered, Properly Licensed and Insured.
- § Poorly designed and installed panels waste money and opportunity. Or it could be dangerous.



### QUESTION???:

## Is it better to EARN a dollar or SAVE a dollar?

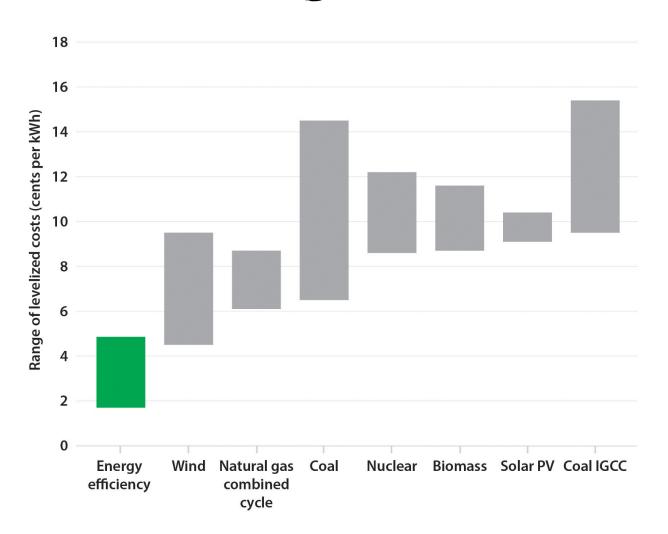








### ENERGY EFFICIENCY IS LEAST EXPENSIVE





Energy costs are getting higher, and the cheapest energy is the energy you don't use

Paul Pettipas, Nova Scoria Home Builders' Association



## LOOK TO SEE HOW &WHERE YOU USE ENERGY

- Heating and Cooling
- 2. Lighting
- 3. Water Heating
- 4. Appliances
- 5. Refrigeration
- 6. Motors
- 7. Water pumping
- 8. Washing Clothes
- 9. Feeding
- 10. Cooking



BEWARE:
PHANTOM DRAW





Kill-o-watt EZ meter



#### GET A HOME ENERGY



BPI

- § A "whole house approach" detailing a priority list of improvements.
- § Inspect the air leakage, insulation levels around the home and in the attic.
- § Check for health and safety issues like moisture and combustion gasses.
- § Review efficiency of heating and cooling systems.
- § Check operability of windows and doors – Low Priority



### TOOLS FOR RESIDENTIAL S Blower Door AIDITOR

§ Duct Blaster

§ Combustion analyzer

§ Gas Leak Detector

§ Personal CO monitor

§ Laser Measuring Device

§ Drill with multi bit

§ Smoke Pencil

§ Thermal Camera





Takes about two hours. Costs about \$300. with full diagnostics.





Health and Safety is the #1 Priority



### TYPICAL RESIDENTIAL RETROFIT

§ New HVAC System \$4,000

§ New Water Heater \$1,000

§ Air Sealing \$1,000

§ Insulation \$1,500

§ Duct Sealing \$250

§ Health and Safety \$250

Project Total: \$8,000

COMPOUNDED SAVINGS

Average customer pays \$106 month. <a href="http://www.electricitylocal.com/states/">http://www.electricitylocal.com/states/</a> <a href="http://www.electricitylocal.com/states/">west-virginia/</a>

Propane/Oil Customers pay more...

25% to 50% reduction in utility cost by doing the project on a whole.

Payment should be less than or equal to savings.

Don't just swap the box!!!!



Improve indoor air quality and reduce allergies. Live better..... Save money.



### OTHER LOW HANGING FF

- § Any lighting on for 6hrs or more TURN IT OFF, Use a timer.....
- § Define the line between inside and out. Airtight and Insulated
- § Close and LOCK windows, Remove AC
- § New Refrigerators use 50% Less than those > 10yrs
- § Water leaks
- § NOT windows and doors.







#### HOW TO SAVE ON TH

- § Lighting to LED
- § Building Tightness
- § Insulation
- § Motors
- § Water/Food Delivery
- § Automation





#### THINK:

What uses energy on your farm? What uses the MOST?

Year Round -or- Seasonal



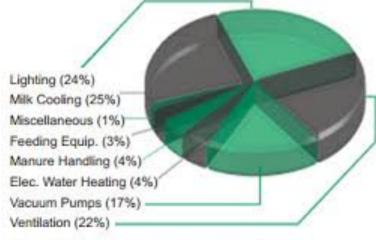


Figure 1. Energy use by equipment category.

Milk Farm www.milkproduction.com

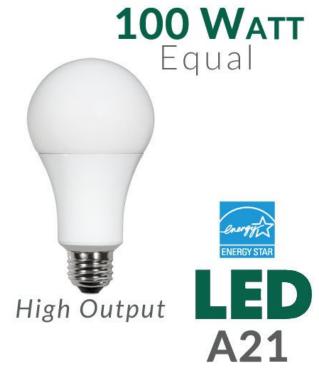


## LED LAMPS COME IN ALL SHAPES AND SIZES

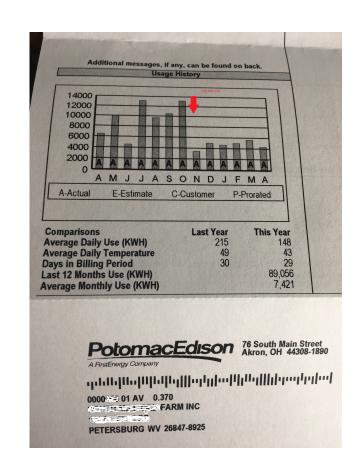


Typical Dimmable A bulb costs \$3-\$5

Common Sense = 100watts to 11watts



ACTUAL Chicken House>>>>>>





#### LED RETROFIT



Replace 110 existing 8ft 75watt tube lights with 55 40watt Magnilumen LED.

Existing Tubes: 110bulbs x 75w = 8,250watts per hour 8.25kwhr @ \$0.10 per for \$.825hr 9 hrs a day is \$7.43 day

NEW LEDS: 55bulbs x 40w = 2,200watts per hour 2.2kwhr @ \$0.10 per for \$.22hr 9 hrs a day is \$1.98 day

#### \$5.45 Savings Per Day

\$60.75 per turnkey kit at a total cost of about \$3,500

642 days = 1.75 years

Intertek





#### POWER FACTOR CORRECTION

§ Utility companies charge higher commercial rates for buildings with poor power factors.

§ Fan Houses have fans with motors that draw a large inductive load all at once.

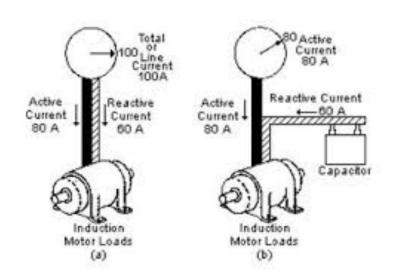
§ Capacitor units before the motors stem initial demand.

§ Laymen's terms: Motors pull a lot of juice when they start, then once moving, they pull much less power. Utility companies charge you a sliding scale, but the needle

gets stuck at the higher initial price.



Residential \$500 - \$750 Commercial \$1500-\$5000





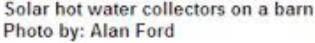
#### SOLAR THERMAL

- § Great product for buildings that use a lot of hot water. Hotels, Laundry mats, Etc
- § Off grid hot water needs. (outbuilding, farm stand, etc.)
- § Natural gas on demand units have a better ROI but not SIR § Return on Investment = Breakeven Savings to Investment = Life of unit













## REBATES – INCENTIVES – LOANS

- § Help drive down the costs and out of pocket expenses.
- § Reduces the time for a return on investment.
- § Allows for monthly payments LESS THAN the savings
- § Be Prepared They are not always easy to get.
- § Trust your advisors. Ask your accountant.









### APPALACHIAN POWE

Residential Program

www.takechargewv.com





A unit of American Electric Power

Attic Insulation R-49 \$0.50 per sq. ft. up to \$500 Crawl Space Insulation R-19 \$0.30 per sq. ft. up to \$300 Air Sealing >40% reduction 50% of cost up to \$400 Duct Sealing >10% reduction 50% of cost up to \$200 Ductless HP replacing EF/EBB SEER 19 \$400 per ton up to \$1,200

TOTAL POSSIBLE REBATES: \$2,600



### APPALACHIAN POWE

Commercial
Program
www.takechargewv.com



A unit of American Electric Power

Up to \$.06 Per Kwh saved

**CLEAResult** 

PROJECT	UNIT <sup>.</sup>	EST. YEARLY ENERGY SAVINGS <sup>1</sup>	EST. YEARLY COST SAVINGS <sup>2</sup>	REBATE <sup>3</sup>
Replacing 400-watt metal halide parking lot lamps with 100-watt exterior LED lamps	Per fixture	1,372	\$137	\$80
Installing an occupancy sensor in a grocery store break room to control four, 4-lamp fluorescent fixtures	Per sensor	722	\$72	\$40
Replacing a 2-lamp, 8' T12 high output light fixture with a 4-lamp, 28-watt high output T8 fluorescent in 1-shift industrial plant	Per fixture	243	\$24	\$15
Replace neon channel sign with LED lighting	Per 12-letter, 2' high sign	4,324	\$430	\$260

Pennsylvania's 2014 Technical Reference Manual (TRM) Appendix C, Lighting Audit and Design Tool. Prescriptive measure for relevant building type



<sup>&</sup>lt;sup>2</sup> Estimated energy cost savings based on \$0.10/kWh.

<sup>&</sup>lt;sup>3</sup> Rebate Amount based on \$.0.06/kWh saved.

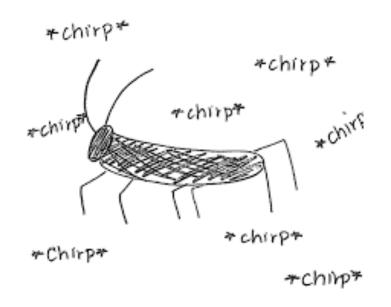
Note: Rebates will vary based on facility type and hours. Consult a program engineer for information.

### FIRST ENERGY (MONPOWER/POTOMAC EDISON)

§ Residential "Energy Savings Kit" <a href="https://www.wvenergykit.com/">https://www.wvenergykit.com/</a>

§Commercial Lighting Program \$.05 per kwh saved <a href="http://www.energysavewv-business.com/">http://www.energysavewv-business.com/</a>

§ That's all.....







#### USDA REAP GR

- § Grants up to 25% of project cost
- § Loans up to 75% of project cost
- § Discounted Energy Assessments
- § Personalized Service
- § Grants funded on a rolling basis with deadlines
- § Must get SAMS/DUNS numbers
- § Hire a grant writer
- § Have all estimates of cost







# NRCS Environmental Quality Incentives Program FQIP

- Agricultural producers
- \$20k Per Year max
- Apply year after year
- Must have a plan
- Must have an engineering audit performed.
- May not be funded in 2019.

Natural Resources Conservation Service

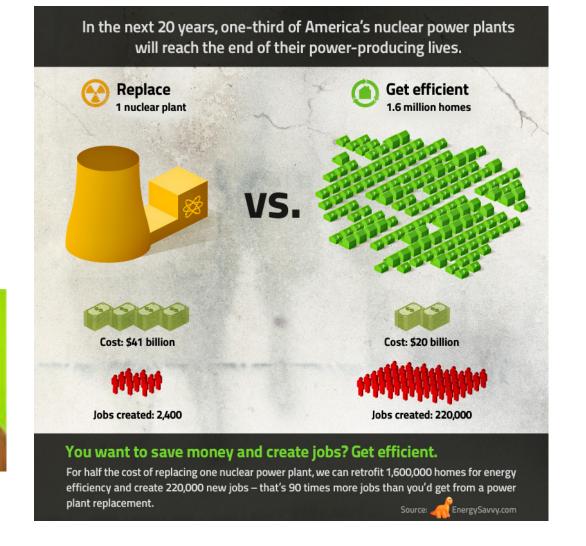




### ITS NOT JUST ABOUT THE ENVIRONMENT

Lower your utility bills, Health and Safety, Comfort and Air Quality, Building Durability, Personal Independence, The list goes on.....

"..the greenest power is the power you don't have to produce.."





#### PLEASANTS POWER PLAI

JOIN THE FIGHT AGAINST
FIRST ENERGY

- § First energy wants to transfer ownership of its albatross of a power plant from its unregulated Ohio based subsidiary into the regulated market of West Virginia.
- § This means they pass along a bad debt from an unregulated market onto the backs of WV ratepayers who live in a regulated market.
- § This already happened once with Harrison Power Plant and so far it has cost WV ratepayers over \$160 million dollars.
- § Sign a petition against it today!







### EEWV IVIEWBERSHIP HAS Great discounts | ILEGES



Good for all things Energy Efficiency. Here for you.

Corporate Membership \$250
Personal Membership \$50
Free energy audit with membership.

Please
Join
US!

**EEWV.org** 

on,









