

APPALACHIAN POWER RENEWABLE ENERGY PLANS

Renewable Energy in West Virginia Conference

Jim Fawcett

Manager Energy Efficiency & Alternative Energy

Appalachian Power

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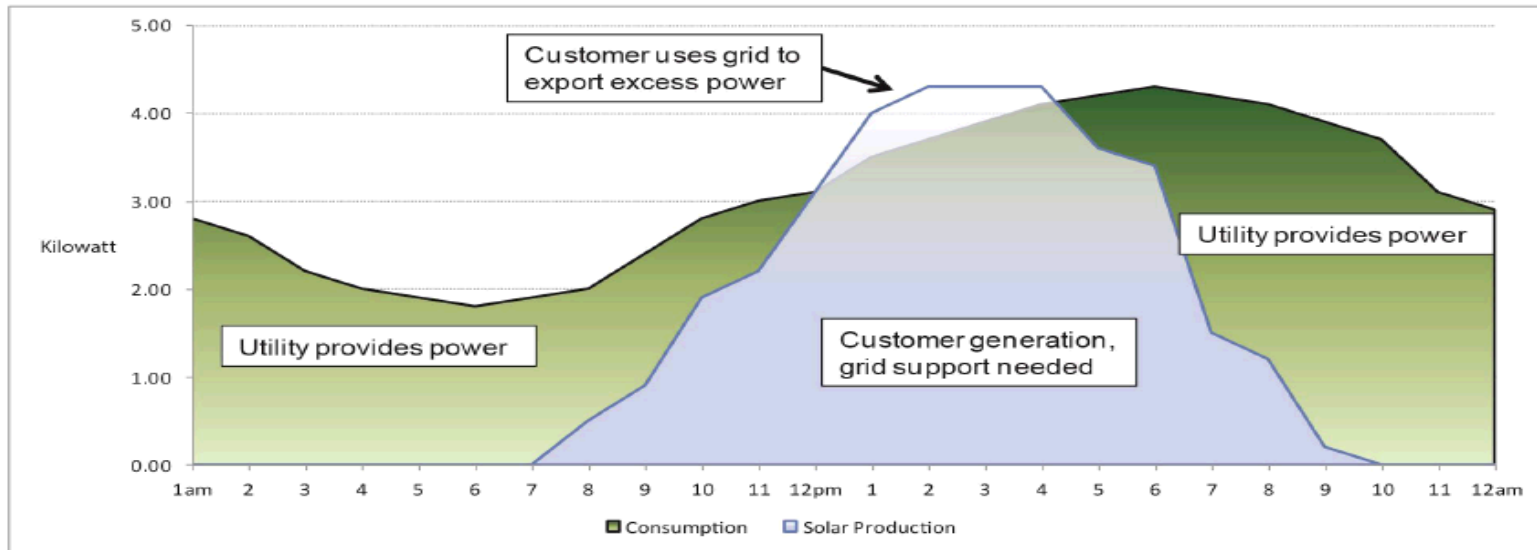
TWO DISTINCTLY DIFFERENT OPTIONS FOR RENEWABLES

- Universal Scale Renewables
 - Renewable energy sources will be a key part of APCo's generation of the future but it is not an either/or proposition but a balance of base-load, peaking, & renewables
 - Today's consumers demand reliability
 - Renewables can a good source of energy but base-load is still needed
 - Battery storage is the key to larger quantities of renewable generation
 - A large footprint is required for substantial deployment
- Distributive Renewable Generation
 - DG requires a sustainable rate structure to be fair to all consumers
 - We have seen the issues created in other states and need to learn from them

DISTRIBUTIVE GENERATION/NET METERING

- DG customers using the grid but not paying for it pushes costs to other customers
- It doesn't make sense to purchase energy at the price of bundled retail service
- Unlike tax subsidized efforts, rate subsidies push the cost to those that can least afford it

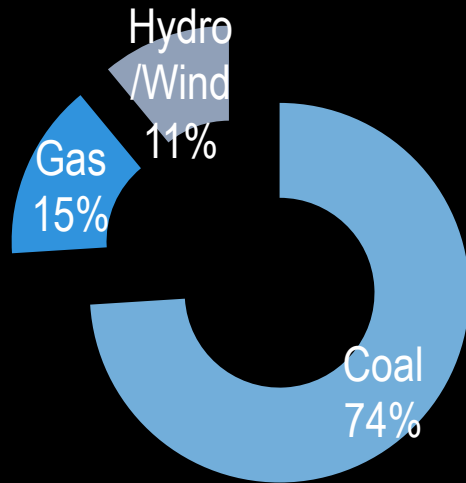
Typical Energy Production and Consumption for a Small Customer with Solar PV



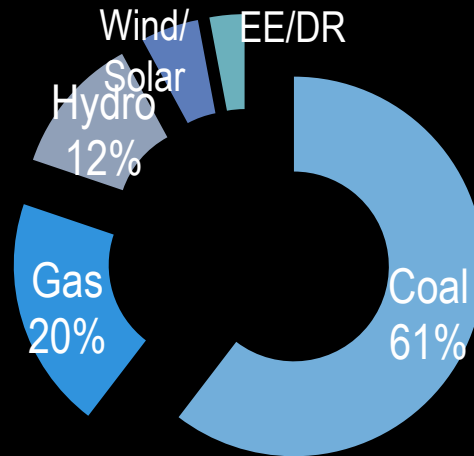
Source: *Value of the Grid to DG Customers*, Institute for Electric Innovation, October 2013

APPALACHIAN POWER'S GENERATION MIX

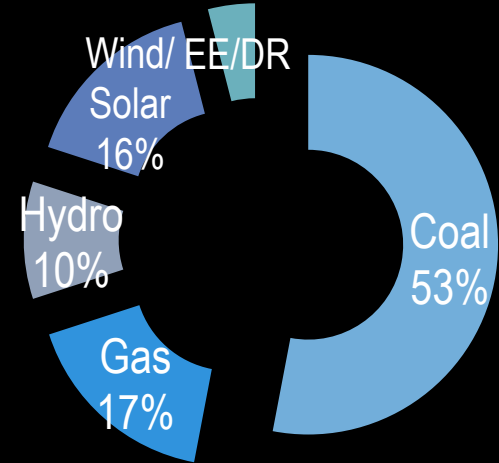
2012



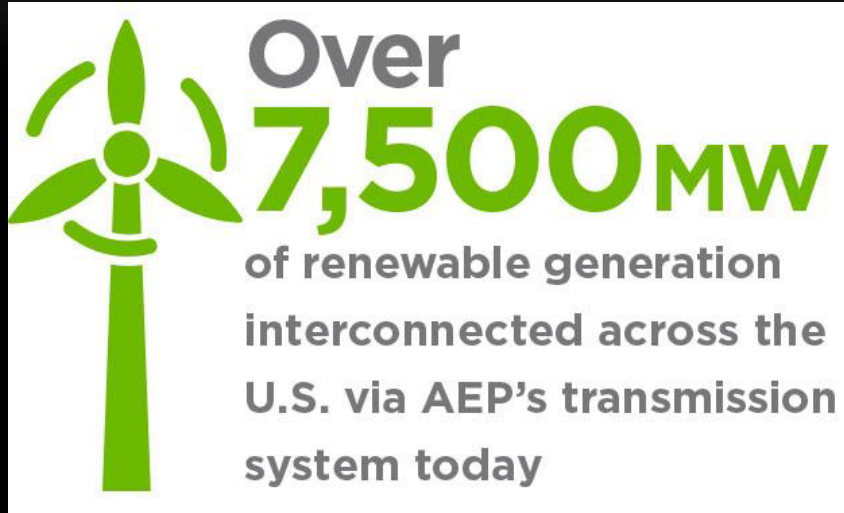
2016



2025



DELIVERING CLEAN ENERGY RESOURCES

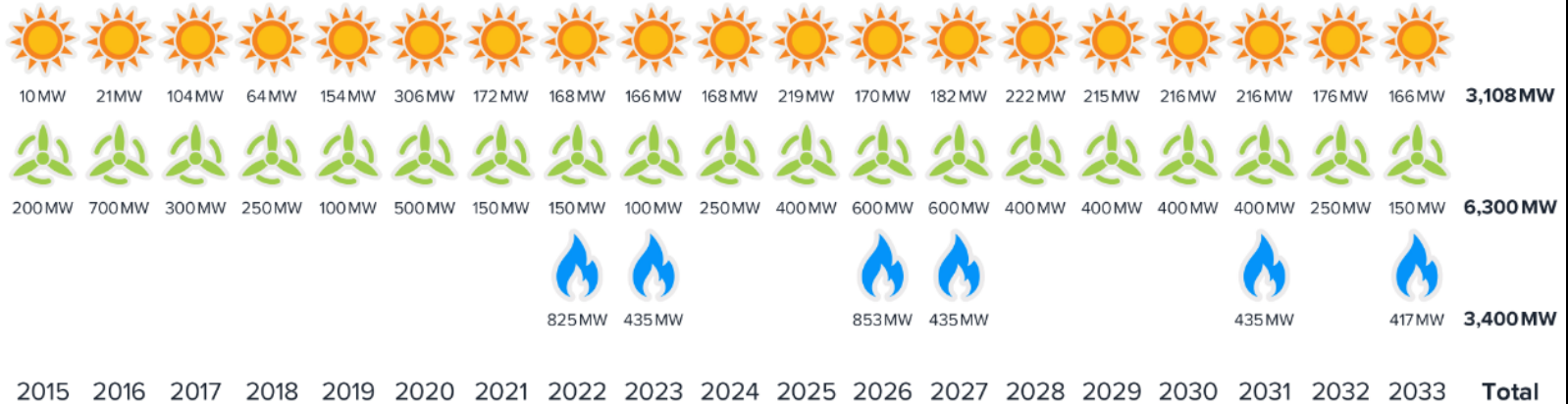


AEP's 2016 Wind & Solar	MW
AEP Ohio	209
Appalachian Power	374
Indiana-Michigan Power	466
PSO	1,138
SWEPCo	470
Competitive Wind/Wind PPAs	488
Total	3,145

LARGE-SCALE RENEWABLE OPPORTUNITIES

AEP SYSTEM PLANNED GENERATION RESOURCE ADDITIONS

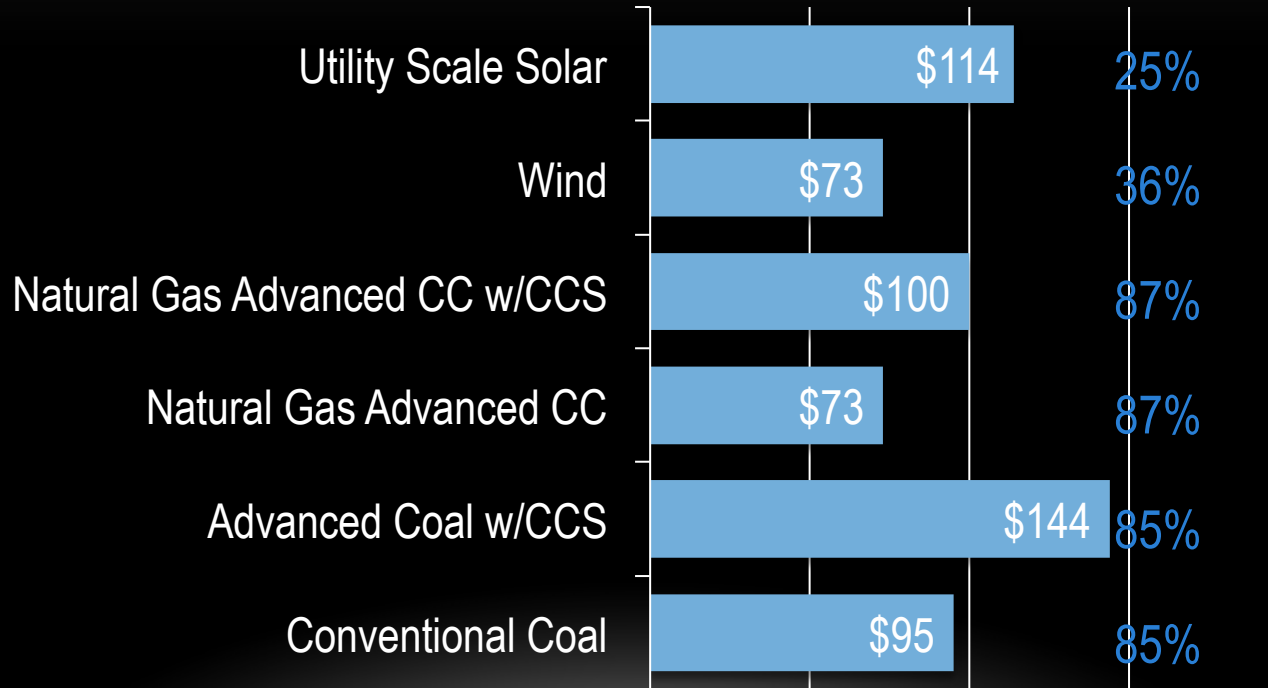
regulated and AEP Ohio Purchase Power Agreement



Source: Current Internal Integrated Resource Plan. Does not reflect ITC/PTC extension or Bonus Depreciation.

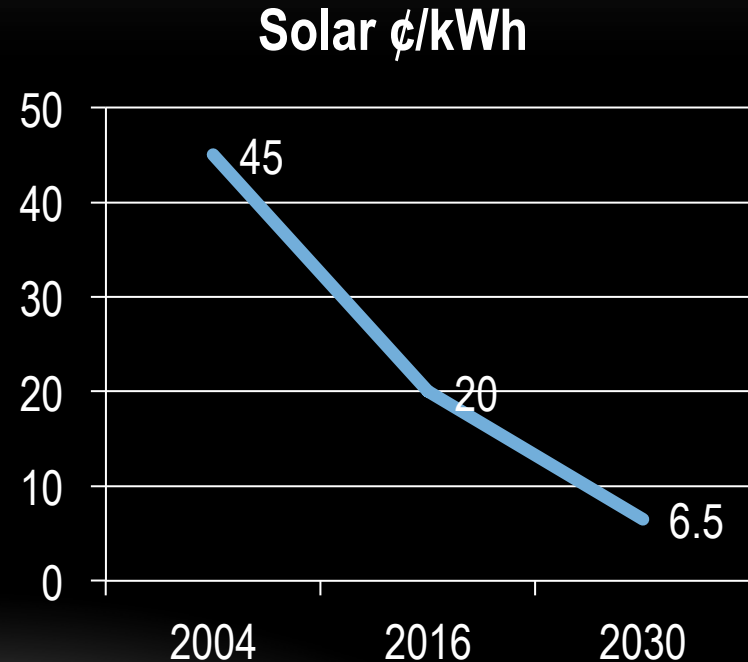
Wind and solar represents nameplate MW capacity.

LEVELIZED COST OF GENERATION PER MWH



RAPID TECHNOLOGY COST DECLINE

- Cost of new technologies like universal solar, wind rapidly decreasing
- Battery development game changer
- Old paradigms challenged



WHAT WILL APPALACHIAN POWER DO?

- Rely on Amos, Mountaineer and Mitchell as baseload coal plants at least until 2040
- Increasingly use Dresden, Clinch River, Ceredo
- Add 260 MW of universal solar energy by 2025
- Add 750 MW of wind energy by 2025
- Add 10 MW of battery storage by 2025

Remember, we will still be primarily a coal-powered company, because solar & wind are variable energy sources

QUESTIONS?

www.appalachianpower.com

www.takechargewv.com