



BRIEFING PAPER

EMPLOYMENT AND ECONOMIC RESPONSE TO COVID-19

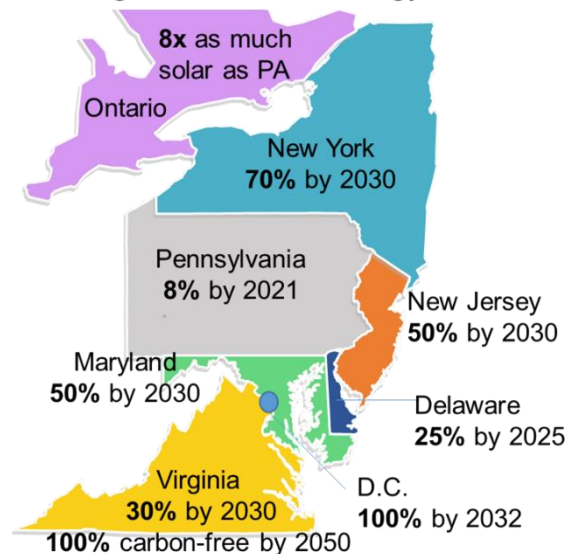
Increase the Alternative Energy Portfolio Standard (AEPS) Tier I Goals to 18% with 5.5% In-state Solar

- Create Tens of Thousands of Jobs
- Attract Billions of Dollars in Private Investment
- Increase Local and State Revenues
- Save Family Farms
- Diversify the State's Energy Mix
- Requires No State Funding

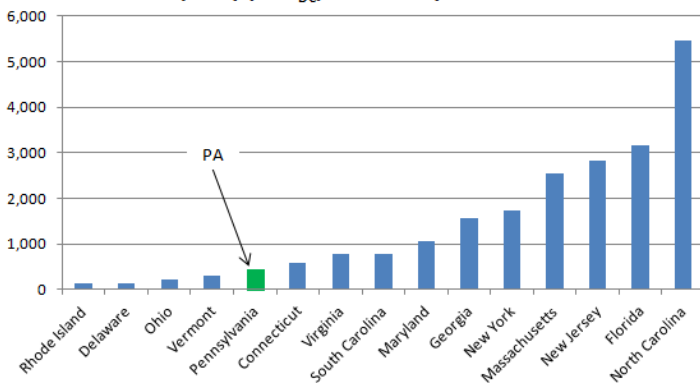
The COVID-19 pandemic has caused an unprecedented health and economic crisis in Pennsylvania. Renewable energy can play an important role in creating jobs and attracting private investment that contribute to local and state revenues – if we get the policy right now. Currently, the AEPS requires that just 8% of our electricity come from renewable sources with 0.5% from in-state solar by May 2021.

A measured increase to at least 18% by 2025 with 5.5% in-state solar is a rationale goal that makes sense for Pennsylvania.

Regional Renewable Energy Goals



Total Solar Capacity (MW_{DC}) Installed by State on the East Coast



Nat. Solar Energy Industries Assoc. Q1 - 2019

Pennsylvania's neighbors have much higher goals than we do, and therefore, they are attracting more private investment and are creating more jobs. **Pennsylvania Ranks 25th and 19th in the nation for both solar and wind energy, respectively; and the state will rapidly fall further behind unless we increase our goals to keep pace and stay economically competitive.**

RENEWABLE ENERGY = JOBS

Currently, **Pennsylvania has almost 10,000 renewable energy jobs** across the whole supply chain – from solar installers, wind turbine technicians to engineers, sales people, manufacturers, construction workers, financing and beyond, but we're only 39th in renewable jobs per capita in 2018 for both solar and wind. States such as Massachusetts –with half of our population- has more than twice the number of renewable energy workers because of their policies.



According to the Finding Pennsylvania Solar Future [project](#), moving PA to **10 percent solar by 2030 would create upwards of 100,000 jobs** throughout the supply chain and result in a net **economic benefit of \$1.6 billion annually**.¹ Another [study](#) found that **10% solar would result in 66,500 jobs**.

U.S. Labor & Industry reports that **solar installer and wind technician are the nation's top two fastest growing jobs in America** for the past several years.

RENEWABLE ENERGY = ECONOMIC DEVELOPMENT AND REVENUE GENERATION

Renewable development can benefit farmers, land owners and municipalities with millions of dollars from land leases, increased property and wage taxes and development fees. A [study](#) using the Jobs and Economic Development Impact (JEDI) Model developed by the National Renewable Energy Laboratory (NREL) showed that 10% in-state solar by 2030 would result in:

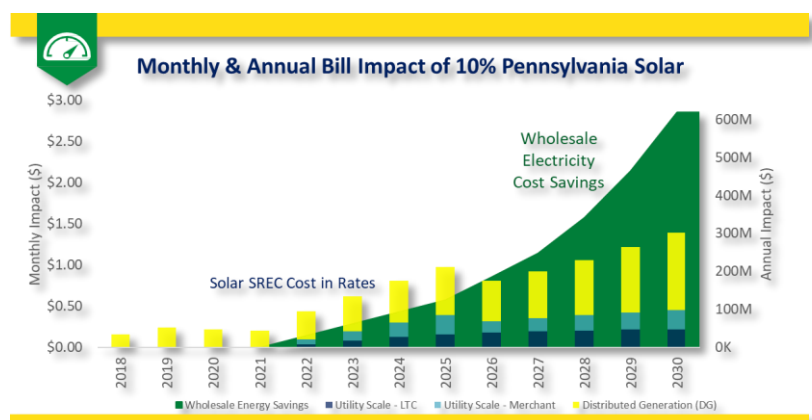
- \$9.2 billion in private capital investment
- \$5.3 billion in local economic benefit
- \$4.1 billion in wages
- \$2.3 billion in farmer lease payments
- \$228 million in local tax revenue from grid scale solar projects.



*EXAMPLE: Microsoft Corporation will purchase the power from a 90-megawatt (MW) wind farm that is under construction in **Hector Twp., Potter County**. The project will pay \$135,000 in pre-construction payment and an annual payment of \$202,500 to the municipality and 160 on-site employees during construction.*

RENEWABLE ENERGY = LOWER RATEPAYER COSTS

Power Grid Engineering & Markets (PowerGEM) consultants (commissioned by Community Energy) found in their [study](#) that **replacing 10% of Pennsylvania's electric generation with solar would result in more than \$300 million in net savings annually**. Since solar is generating the most energy in the middle of the day it displaces expensive peaker plants used to meet peak demand hours. This expensive energy is passed along to customers throughout the year, so shaving peak demand with solar lowers all customer costs as more solar is added to the grid. Increasing energy storage for all renewables will help make this even more feasible.



RENEWABLE ENERGY SAVES PENNSYLVANIA FARMS

Pennsylvania is losing farms. More than 6,000 closed between 2012 and 2017. Lancaster County alone lost more than 500 farms, about a 10% drop. However, some farmers are starting to lease a portion of their land to renewable development and continuing to farm the remaining land.

The Philadelphia Channel 10 [NBC video](#) highlights farmer Gerald Kreider in Lancaster County who leased about a third of his land for the Keystone solar project enabling him to keep his farm. Solar and wind projects pay rent at 3 - 5 times the annual income from farming, guaranteed for twenty-five years. With the land lease payments from renewable development, farmers can continue farming and a decommissioning bond will ensure that the technology will be removed at the end of its life – about 25 to 30 years.



Sheep grazing at Susquehanna University's 3.9-megawatt solar array that supplies 30 percent of the university's electricity needs, Selinsgrove, PA (Snyder County)



Kling Family Focus Farms, EIS Solar;
West Milton (Union County)

Cover crops like deep-rooted fescue grass or pollinator friendly native grasses and flowers can be planted beneath and around the renewable projects. This ground cover improves the organic content of the soil over the 20 to 30-year life of the project as the farmland lies fallow, allowing microorganisms and soil fauna to recover after years of intensive compaction, pesticide and fertilizer application. The land can then be returned to farming.



Penn State University will purchase power from a 70-megawatt (MW) solar project installed on 500 acres leased from three landowners in Franklin County. The project will provide 25% of Penn State's statewide electricity over 25 years while maximizing the impacts of sustainable solar development and providing a living laboratory for students. The project is estimated to save Penn State at least \$14 million over the contract term, will employ more than 250 people during the construction period and provide farmers with an additional source of income. The facility is being constructed in a regenerative fashion - steps are being taken to minimize damage to the land, improve soil health and create wildlife habitat.

THE INDUSTRY IS READY AND WAITING TO BUILD.

There are more than 103 grid-scale solar applications that are active in the PJM queue - projects in the planning phase – totaling more than 5.0 gigawatts (GW) of energy or greater than 4% of our state's energy needs. However, many of these projects are waiting for changes to state policy before investors will move forward. The AEPS provides a predictable market signal that attracts private investment.

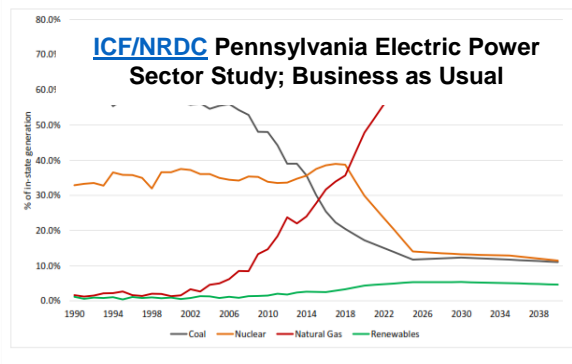


Frey Farm Wind Farm in Lancaster County along the Susquehanna River is located on a landfill and provides energy for Turkey Hill dairies nearby

RENEWABLE ENERGY WILL DIVERSIFY THE STATE'S ELECTRICITY MIX

If the state continues with business as usual and does not increase the renewable energy standards we can **expect that by 2035 - 70% of our energy mix will be dominated by natural gas**. Over-reliance on one extractive fuel source that is subject to volatile market forces is a precarious situation for grid reliability and for ratepayers, especially as more gas is directed toward petrochemical industries and exported. This is a troubling statistic given a recent [study](#) that concluded that **by 2035, it will be more expensive to run 90% of gas plants being proposed in the U.S. than it will be to build new wind and solar farms equipped with storage systems**. Pennsylvania should prepare for this situation by diversifying its energy mix with carbon-free renewable energy.

Putting forecasted generation into perspective

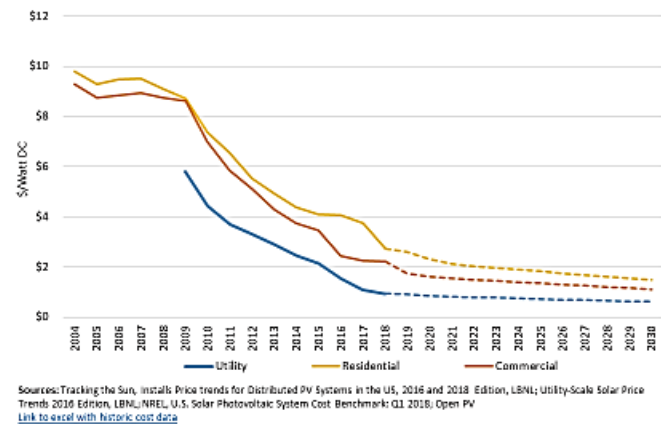


RENEWABLE ENERGY CAN PROVIDE LARGE PERCENTAGES OF RELIABLE ENERGY TO PENNSYLVANIA, PARTICULARLY AS STORAGE MARKETS GAIN TRACTION

Renewable energy and storage markets are growing at exponential rates across the country due to the demand for clean energy and the rapid cost declines. Both wind and solar costs have declined by about 70% since 2009 and energy storage markets are responding similarly. Renewable energy costs are confined primarily to the upfront capital purchase of the technology, and therefore, the levelized cost of energy is known and stable for the life of the technology – 25 years or more. The fuel resource (sun, wind, low-impact hydro) is free - unlike fossil fuel energy costs which rely on the always-fluctuating availability and pricing of the fuel source (coal, gas, nuclear). Renewable energy fuel costs will never increase.

Solar Cost Decline -- 70%+ Since 2010

U.S. Solar Historic Installed Costs and Cost Forecast



A NOTE ON SUBSIDIES

- Every coal, gas, nuclear and hydroelectric plant built before the Pennsylvania *Electricity Generation Customer Choice and Competition Act* in 1996 was paid in full by Pennsylvania ratepayers
- Between 2012-2013 **there were \$3.2 billion in state fossil fuel subsidies or \$256 per Pennsylvanian** [This does NOT include the \$1.6 *billion* tax deal for Royal Dutch Shell ethane cracker in Beaver County in 2012 or the **Coal Refuse Energy and Reclamation Tax Credit that was increased in June 2019 to \$20 million annually** to subsidize coal waste-to-energy electricity generation plants- extended until 2036.
- **Renewable energy receives no Pennsylvania tax credits**. Solar companies still pay sales and use tax when purchasing renewable equipment
- Approximately \$0.007 (seven-tenths of one cent) of every dollar was spent on AEPS compliance in 2017 or **only \$9.50 per Pennsylvanian**, which also includes waste coal in Tier II and other non-renewables resources.

Renewables Work for PA is a coalition of 100+ renewable businesses advocating for Pennsylvania to modernize its Alternative Energy Portfolio Standards by increasing the percentages of renewable energy. For more information, visit www.RenewablesWorkforPa.com, or contact Sharon Pillar at pillarsharon@gmail.com; Ron Celentano of PASEIA at celentanor@aol.com or Bruce Burcat of MAREC at marec@gmail.com.