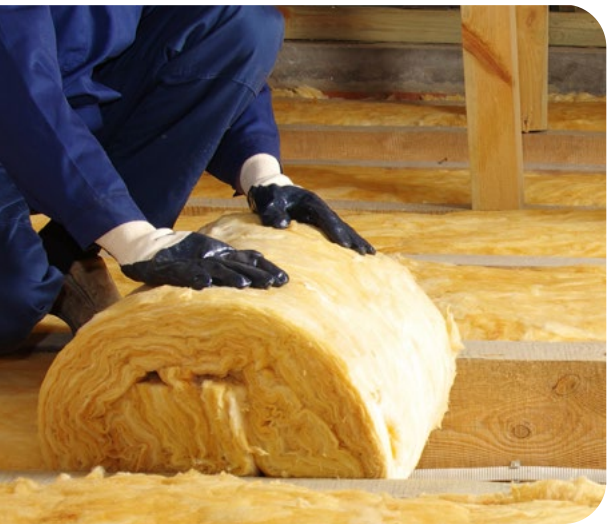
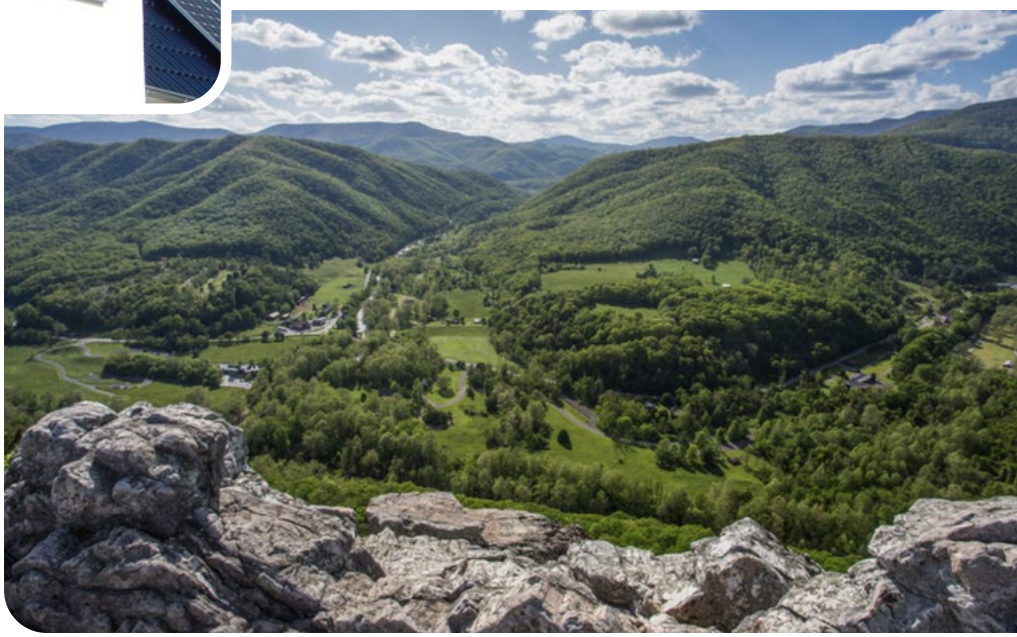
Making a Difference

PRACTICAL ACTIONS THAT INDIVIDUALS CAN TAKE TO REDUCE THEIR IMPACT ON CLIMATE





WEST VIRGINIA HIGHLANDS CONSERVANCY
Since 1967

April 2023

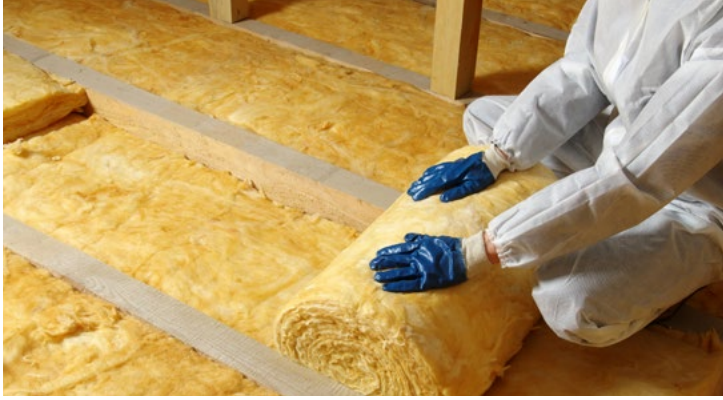
Making a Difference

PRACTICAL ACTIONS THAT INDIVIDUALS CAN TAKE TO REDUCE THEIR IMPACT ON CLIMATE

In passing the Inflation Reduction Act (IRA), the United States Congress made the largest investment in clean energy ever. This historic legislation is projected to invest almost $370 billion in clean energy — solar, wind, battery storage, geothermal, etc. — over the next ten years. As historic as the IRA is, and it has the potential to be transformational, it does not require individuals to make their homes energy efficient or require utilities to switch from using coal to renewables. The IRA does provide generous incentives or carrots, but few requirements or sticks. So, if the IRA is going to achieve its objective of reducing greenhouse gas emissions to meet the U.S. commitment under the Paris Climate Agreement, each of us will need to take action.

This booklet suggests ways that individuals can take advantage of the benefits in the IRA as well as other measures that individuals can take to reduce greenhouse gases that cause global warming. As important as individual responsibility is, it is not the only means of reducing greenhouse gas emissions. In the section entitled Be Involved, we make recommendations on how individuals can support policy changes to reduce greenhouse gases.

Here is our list of practical actions that individuals can take to help preserve the Earth's climate. It is not an exhaustive list, but a starting place for action.



MAKE YOUR HOME ENERGY EFFICIENT

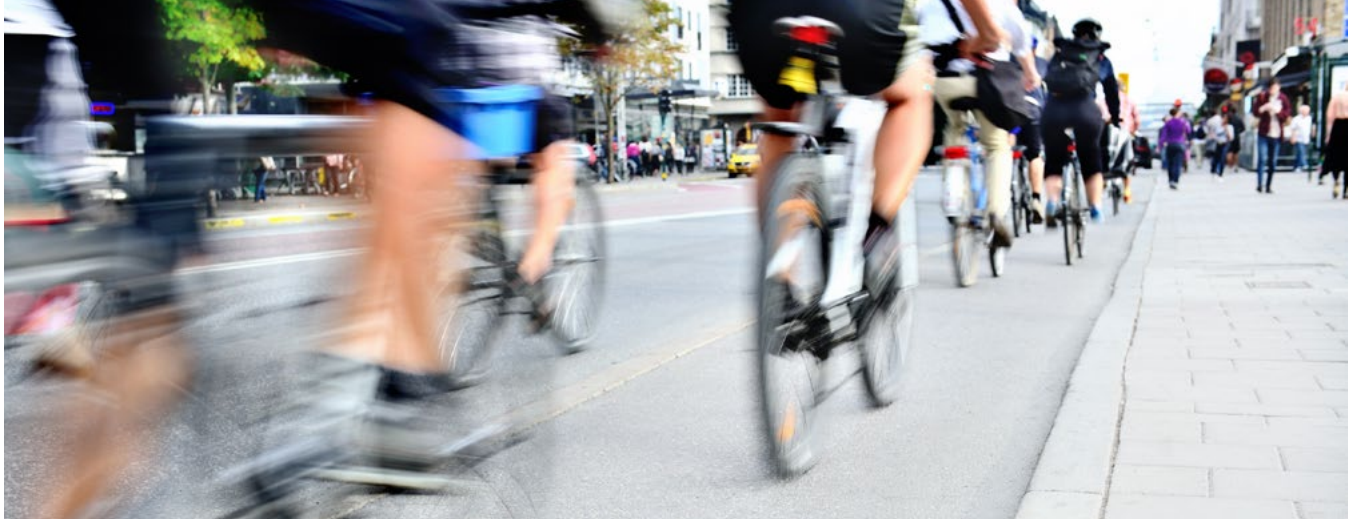
Making your home energy efficient is one of the most cost-effective means of reducing your carbon and methane footprint. Suggestions include:

- The IRA provides a 30 percent tax credit for installing many home energy efficiency measures, such as replacing windows and adding insulation. Tax credits are available to everyone regardless of income, but the tax benefits can take time: you don't receive the payment right away, instead, you will have to wait until next year's tax return.

  The IRA also established two new rebate programs. One helps homeowners to electrify their homes (for example, adding heat pumps or upgrading your electrical service). The other does not provide rebates on individual energy efficiency measures, but provides rebates based on reduction in energy use for the whole home. These two rebate programs, where there's no need to wait for next year's tax return, will likely be unavailable until 2024 and are limited to low- and moderate-income individuals and families.

  Appendix A lists more details for these important energy efficiency measures. Additionally, Rewiring America, a nonprofit that promotes electrification, has a very handy calculator. You can enter some information (ZIP code, family size and income levels) and they will provide a list of what IRA benefits you are eligible for and whether you currently qualify for these benefits. *See rewiringamerica.org/app/ira-calculator*

- Other suggestions for making your home more energy efficient include:
  - Caulk all cracks and leaks in your house (eligible for tax credits).
  - Add insulation, particularly in your attic (eligible for tax credits).
  - Low-income individuals and families can get help weatherizing their homes through the regional Community Action Agencies (*see wvcad.org/sustainability/weatherization-assistance-program*). Appalachian Power and Wheeling Power offer free home energy assessments at *takechargewv.com*
  - Don't set your thermostat too high in the winter or too low in the summer and install a programmable thermostat.
  - Add or replace weather stripping on all exterior doors.
  - Periodically change the air filter in your furnace.
  - Replace old single-pane windows (eligible for tax credits).
  - When a gas-fired furnace, central air conditioner or hot water tank needs replaced, replace them with high-efficiency heat pumps. The IRA currently provides a tax credit of 30 percent up to $2,000 for adding a heat pump or heat pump water heater and up to $600 for installing an energy efficient HVAC system. Even greater benefits (e.g., up to $8,000 rebate for a heat pump for low-income households) will be available in the future. *See Appendix A for details*.



TRANSPORTATION

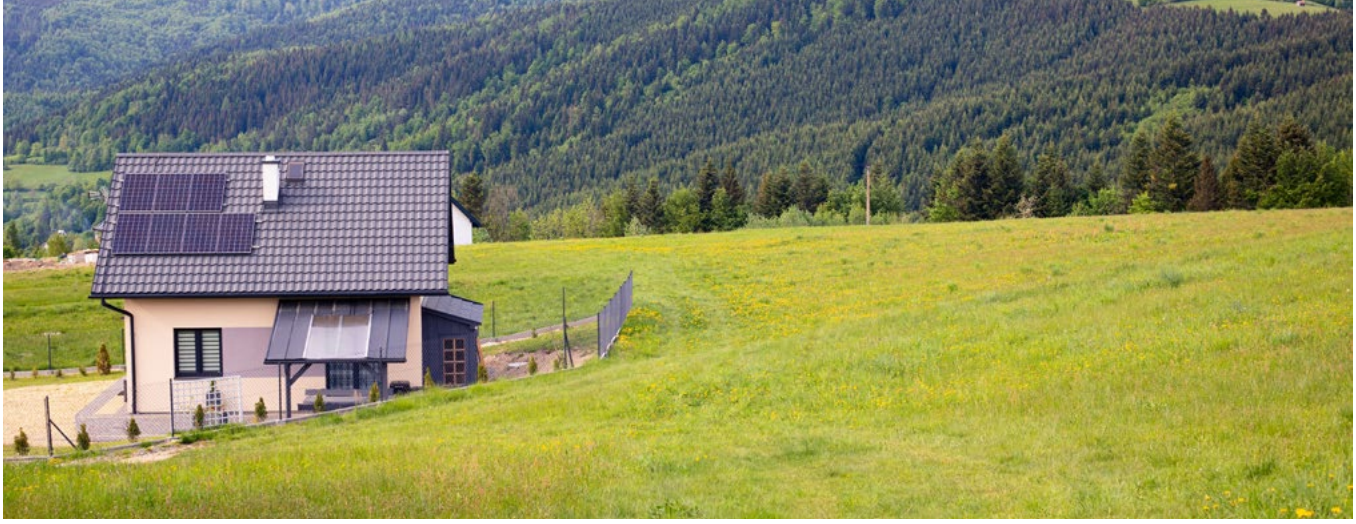
Transportation is the largest source of greenhouse gases in the U.S., accounting for 31 percent of all greenhouse gas emissions. Here are a few suggestions on making changes:

- Walk, bike, take mass transportation or carpool whenever you can.
- When you need to replace your car, buy an electric vehicle, a plug-in hybrid, or a hybrid car. The IRA provides up to $7,500 tax credit for purchasing an electric vehicle (EV). The EVs must be assembled in North America and there are requirements for where the battery is made and where the battery's minerals are mined in order to qualify for the full tax credits. Not all EVs are going to qualify for these tax credits. *Appendix B has details on the EV tax credits*.
- When driving a car avoid quick acceleration and control your speed, which can increase gas mileage by 33 percent. Make sure that your tires are properly inflated, use the correct oil grade, keep your engine tuned up, combine errands to make fewer trips, remove excess weight from your car, and use cruise control when appropriate.
- Minimize air travel and buy carbon offsets when you do travel by air (*see, for example burnstoves.com/carbon-credits*).

ELECTRICITY

The electricity generation sector is the second largest source of greenhouse gas emissions in the U.S. Reducing energy produced by the burning of fossil fuels and promoting clean energy sources is central to our ability to impact climate change. Here are a few suggestions:

- Turn off lights when not in use and replace incandescent light bulbs with LED lights.
- Buy ENERGY-STAR appliances. To earn ENERGY-STAR ratings, products must meet strict energy efficiency criteria set by the U.S. Environmental Protection Agency (EPA) or the U.S. Department of Energy.
- Replace a gas range with an electric range. By 2024, the IRA will provide a $840 rebate for low-income households and a $420 rebate for moderate-income households for the purchase of a new electric stove. *See Appendix A for details*.



- Consider going solar. The IRA provides a 30 percent investment tax credit for installing solar and a 30 percent tax credit for installing batteries. These tax credits offset the significant upfront cost for going solar. Generally, in West Virginia, it will take 10 to 12 years to recover your initial investment in solar through reduced energy cost. Solar panels are generally guaranteed for 25 years and can last longer than that, providing "free" electricity for years. Solar United Neighbors, a nonprofit solar cooperative, brings together families interested in going solar with solar installers. They can also help your small farm or rural business go solar with a USDA REAP grant. *See solarunitedneighbors.org/westvirginia*. Additionally, if you'd like to go solar on your own, there are several solar installers in West Virginia, and include:
  - Advancing Solar Solutions in Ripley. *See facebook.com/AdvancingSolarSolutions*
  - Appalachian Renewable Power in Stewart, Ohio. *See cleanenergyauthority.com/ohio-solar-installers/appalachian-renewable-power-systems-ltd*
  - DT Solar in French Creek. *See dtsolarllc.com*
  - Milestone Solar. See *milestonesolar.com*
  - Mountain View Solar in Martinsburg. *See mtvsolar.com*
  - PIMBY Energy in Thomas. *See cleanenergyauthority.com/west-virginia-solar-installers/pimby*
  - Pickering Energy Solutions in Parkersburg. *See sesllc.us*
  - Revolt Energy in Nitro. *See https://revolt-energy.com*
  - SolarGreen in Charleston. *Call 304-300-8470*.
  - Solar Holler in Shepherdstown. *See solarholler.com*

There is an alternative for residential customers who cannot afford the upfront cost of installing solar. Residential customers may be able to purchase solar power from either the Appalachian Power Company (APCo), Monongahela Power Company (Mon Power) or Potomac Edison. These utility companies are developing solar facilities in West Virginia and are likely to make solar available in 2023 or possibly later. However, purchasing electricity through the utility solar programs is oftentimes more expensive than non-solar electricity offered by utilities.

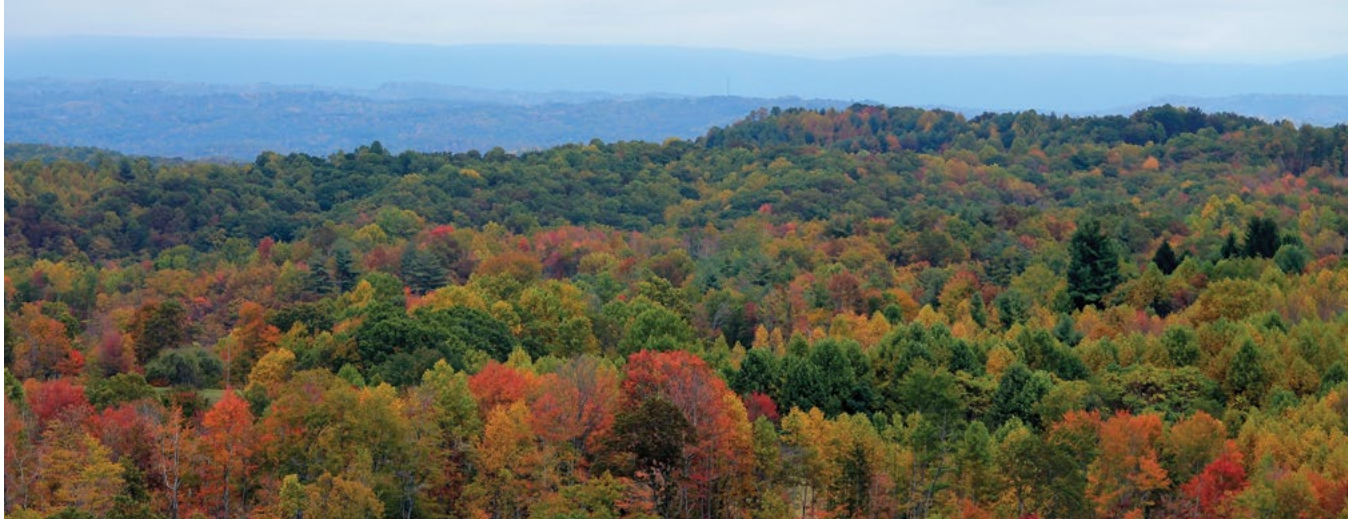
FOOD

While estimates vary, as much as 30 percent of food produced is not eaten. Any organic material that ends up in a landfill will decay and without oxygen it will produce methane, a very powerful greenhouse gas (25 times more potent than carbon dioxide over 100 years). Here are some suggestions:

- Don't waste food: This is one of the activities that we can all do to ensure that food is not wasted and thrown away.
- Compost: Compost scrap food, grass clippings and other yard waste. This organic material forms methane when landfilled.
- Eat locally produced and organically grown food whenever possible.
- Eat less red meat and dairy: Cows are a ruminant and like all ruminants have several stomachs. In the first stomach, their food ferments producing methane. When the food is transferred to the second stomach, methane is released into the atmosphere. The U.S. Environmental Protection Agency estimates that "enteric fermentation" is the largest source of methane emissions in the U.S. (more than the natural gas industry, although this data is disputed by the Environmental Defense Fund, a nonprofit environmental organization, and others).
- Support local farmers and regenerative farming whenever possible.

REUSE AND RECYCLE

It has been estimated that 29 percent of U.S. greenhouse gas emissions result from the "provision of goods," which means the extraction of resources, manufacturing, transport, and final disposal of "goods" which includes consumer products and packaging, building components, and passenger vehicles, but excludes food (*See neefusa.org/nature/land/reduce-and-reuse-through-recycling*). By buying used products and reselling or recycling items you no longer use, you dramatically reduce your carbon emissions from the "provision of goods."



FORESTRY

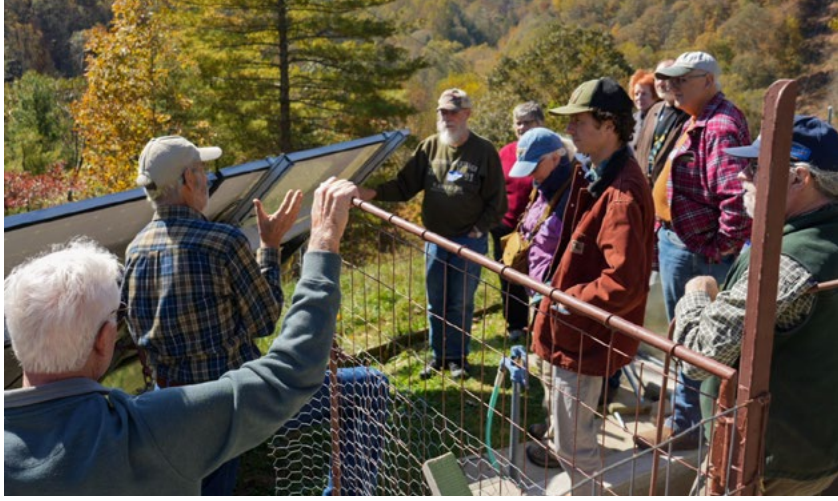
Protecting old growth forest and planting trees are some of the most effective means of keeping and pulling carbon dioxide out of the atmosphere. The West Virginia Highlands Conservancy has been in the vanguard of protecting old growth forest in the Allegheny Highlands and is an active member of Central Appalachian Spruce Restoration Initiative (*CASRI, restoreredspruce.org*) and their efforts to plant red spruce trees in Central Appalachia.

Another organization that protects trees is The Nature Conservancy (*nature.org/en-us*). The Nature Conservancy has developed the Family Forest Carbon Program that pays family landowners who have at least 30 acres to sequester carbon by preserving trees. The Nature Conservancy provides a professional forester to develop a management plan that allows the landowner to manage his or her property and only allows sustainable timbering. *See familyforestcarbon.org*

Additionally, the West Virginia Land Trust protects forest and other special places. Their website and the website of other land trusts can be found at *findalandtrust.org/land-trusts*

WATER USE

We can lower the amount of energy used to pump, treat, and heat water by only running a washer or dishwasher when full, fixing water leaks promptly, washing your car less often, using climate-appropriate plants in your garden, installing drip irrigation so that plants receive only what they need, and making water-efficient choices when purchasing shower heads, faucet heads, toilets, dishwashers and washing machines.



BE INVOLVED

According to data from Princeton University, 30 percent of the reduction in greenhouse gases as result of the IRA will be individuals taking action: installing heat pumps, buying EVs, etc. That's important, but it leaves 70 percent that will need action from utility companies, oil and gas companies, and the state's Public Service Commission. Individually we can't achieve these changes, but collectively we can. Being a member of and contributing to organizations such as the West Virginia Highlands Conservancy (*wvhighlands.org*) is among the most important actions each of us can take. Other West Virginia organizations that are working on the climate crisis include the West Virginia Environmental Council (*wvecouncil.org*) that lobbies the state legislature on solar and other energy policies and the West Virginia Rivers Coalition (*wvrivers.org*).

Nationally, we need organizations that will advocate for the Environmental Protection Agency to develop strong regulations requiring the oil and gas industry to promptly fix leaks of methane, and requiring utility companies to drastically cut their emissions of carbon dioxide, and establishing strong fuel efficiency standards that promote EVs.

- Giving Green (*givinggreen.earth*), a nonprofit research organization, has identified national, nonprofit organizations that have a proven record of working to address the climate crisis. They have selected several organizations as being effective at promoting climate change solutions and are worthy of donations. These include:
- Evergreen Collaborative (*collaborative.evergreenaction.com*) a more liberal, climate action policy organization.
- Clean Air Task Force (*catf.us*) a more conservative climate action policy organization, and
- Carbon 180, (*carbon180.org*) an organization that focuses on carbon removal practices and technology.

Be Involved: Join and donate to these organizations so we can make systemic changes to reduce greenhouse gases.

We hope you find these suggestions helpful. We can all have an impact on climate either for the better or for the worse. Thinking about how the energy we use is produced and taking steps to reduce energy produced from burning fossil fuels is critical if we are going to mitigate the worst impacts of climate change. It is going to be a difficult transition from burning fossil fuels to producing clean energy. It is incumbent on all of us to adopt meaningful changes.

APPENDIX A: Energy Efficiency Measures

The IRA has one tax credit program that promotes energy efficiency and is currently in effect, as well as two new rebate energy efficiency programs that are still being developed.

Existing Tax Credit: The Energy Efficiency Home Improvement Credit provides a 30 percent tax credit for some energy efficiency measures for homeowners. These tax credits are available to anyone who pays federal income taxes with no income limitations. There is a $1,200 limit on the total amount of tax credits that a taxpayer can take in any one year and most energy efficiency measures are limited to $600. Examples of measures that qualify for income tax credit and the limit that a taxpayer can take for installing an energy efficiency measure include:

Energy Efficiency Measure	Annual Limit of Tax Credit
Heat pump or heat pump water heater	$2,000
Insulation and air sealing (materials only)	$1,200
Energy-efficient HVAC systems, including furnaces, boilers and central AC	$600
Electrical panel upgrades to at least 200 amp	$600
Exterior windows and skylights (materials only)	$600
Exterior door (material only)	$500

Future Rebate Programs: Two new energy efficiency rebate programs — not tax credit programs — are included in the IRA. These rebates will hopefully be provided at the point of sales unlike a tax credit.

Eligibility for both programs is tied to income with low-income households receiving the most benefits and moderate-income households receiving 50 percent of the benefits. These income thresholds have not been established yet, but preliminary data indicates that an individual earning less than $43,200 or a couple earning less than $48,600 will qualify for the following rebates.

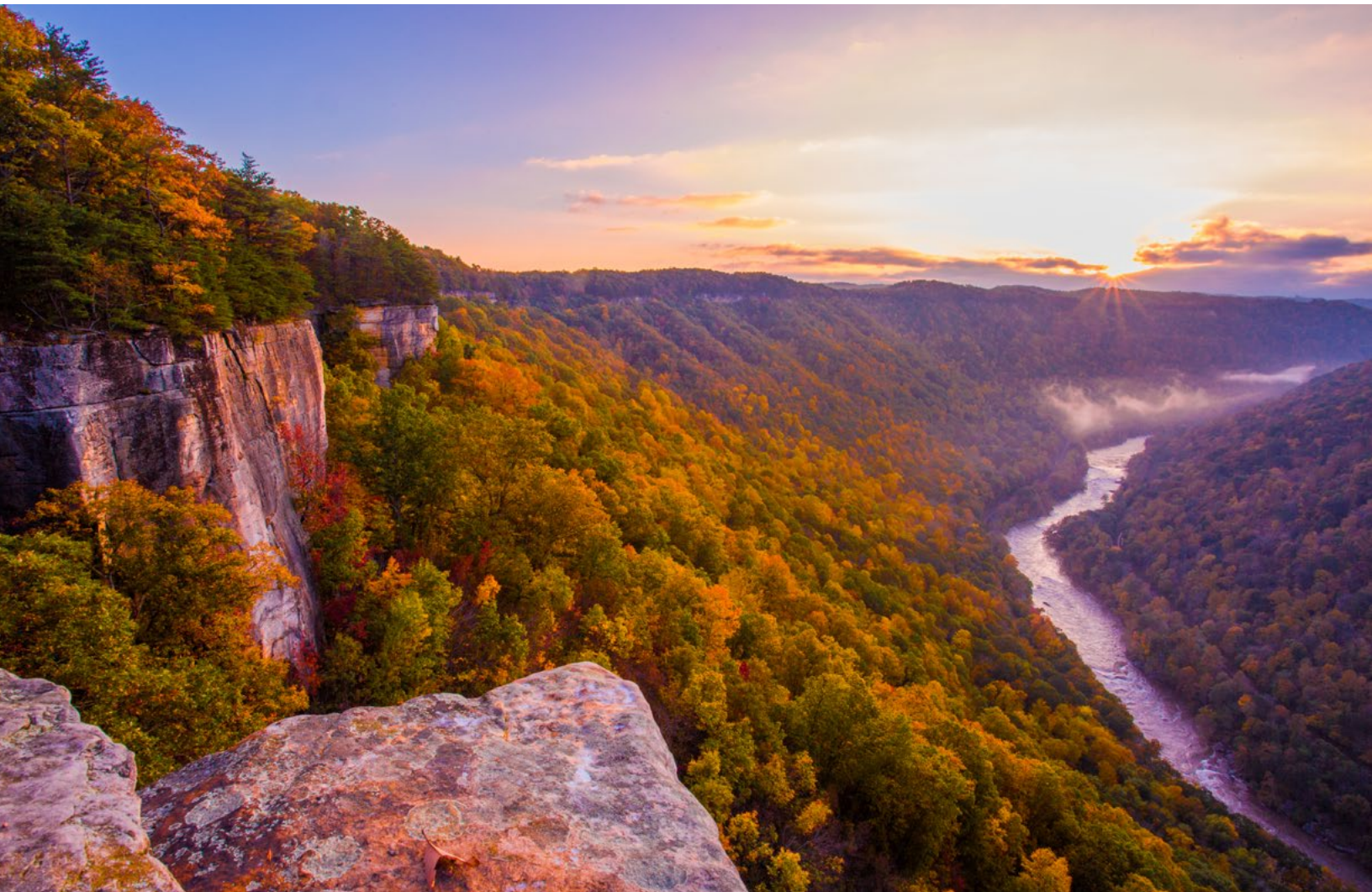
Heat pump water heater	$1,750
Heat pump for HVAC	$8,000
Electric stove or heat pump clothes dryer	$840
Electric service upgrade	$4,000
Insulation and air sealing	$1,600
Electrical wiring	$2,500

Moderate-income households qualify for 50 percent of the maximum benefit listed above. For example, a moderate-income family could receive a rebate up to $4,000 for installing a heat pump. Preliminary data indicates that a moderate-income single household would be someone who earns between $43,200 and $70,800 and a couple earning between $48,600 and $81,000. These numbers are not exact. As of the publication of this guide, exact eligibility amounts have not yet been developed but these numbers should give you some idea of who will qualify for these rebates.

Under the second energy efficiency rebate program, homeowners would hire a certified energy auditor, who would conduct a home audit and determine how much energy can be saved by adopting energy efficiency measures. If a low-income homeowner can reduce their energy usage by 35 percent, they will receive a $4,000 rebate. If the energy savings is between 20 percent and 35 percent, a low-income homeowner will receive a $2,000 rebate. If the homeowner is a moderate-income household, they will receive $2,000 for a 35 percent reduction in energy use and a $1,000 rebate for a reduction in energy usage between 35 percent and 20 percent.

Benefits from these two energy efficiency rebate programs cannot be combined.

Both rebate programs will be run by the state. The state will need to submit a draft program to the U.S. Department of Energy for approval before benefits will be available. It is unclear how soon that will happen.



APPENDIX B: EV Tax Credits

Purchasers of electric vehicles (EVs) can receive up to a $7,500 tax credit under the IRA. There are, however, significant restrictions. First, all EVs must be assembled in the North America in order to qualify for the tax credit.

If the EV is assembled in North America, the $7,500 tax credit is split equally into two buckets. The first bucket provides up to half of the tax credit ($3,750) and requires that 50 percent of the batteries must be manufactured or assembled in North America. That percentage increases over time until 2029 when 100 percent of the batteries must be manufactured or assembled in North America in order to qualify for the tax credit.

The second bucket of up to $3,750 is contingent on where minerals used in the batteries are mined or processed. Forty percent of these minerals (e.g., lithium, cobalt, and nickel) must be mined, processed or recycled in North America. This percentage increases each year until 2027 when 80 percent of the battery's minerals must be mined, processed or recycled in North America.

There are also limits on the cost of the EVs and income limits on taxpayers who can qualify for EV tax credits. EV cars cannot cost more than $55,000 and SUVs and light trucks cannot cost more than $80,000 and still qualify for the tax credit. Additionally, individuals earning more than $150,000 and couples earning more than $300,000 do not qualify for the EV tax credits.

Used EVs sold by a car dealer also qualify for tax credits of up to $4,000 or 30 percent of the sales price, whichever is less. The sales price cannot exceed $25,000 and the EV must be at least two years old. Individuals who purchase a used EV cannot earn more than $75,000 (joint filers $150,000) a year and still qualify for the used EV tax credit.

It is unclear which EVs will qualify for part or all of the $7,500 tax credit for new EVs. If you are considering purchasing a new EV, consult the dealership on whether your EV will qualify or not.

The nature pictures on the front cover, page 10 and back cover were taken by Al Peery, a West Virginia photographer. For additional pictures see peeryphoto.com

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The West Virginia Highlands Conservancy is a nonprofit organization that promotes, encourages and works for the conservation — including both preservation and wise management — and an appreciation of the natural resources of West Virginia and the Nation. We focus primarily on the Highlands Region of West Virginia, but our work is for the cultural, social, educational, physical health, spiritual and economic benefit of present and future generations of residents and visitors alike. Join us by becoming a member at **wvhighlands.org**

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