

# Job Creation Estimates for West Virginia through U.S. THRIVE Agenda

## *Program to Transform, Heal, and Renew by Investing in a Vibrant Economy—THRIVE*

This report presents estimates of the job creation that would result in West Virginia if the U.S. Congress passes economic recovery legislation that implements a national THRIVE investment agenda, as described in a September 2020 Congressional resolution.<sup>1</sup> The overall finding we report here is that implementing the 10-year THRIVE investment agenda in West Virginia would generate about 50,000 jobs in the first full year of the program. This higher level of employment in West Virginia would be sustained throughout the 10 years of the investment program (assuming no other major changes in West Virginia's economy were to occur).<sup>2</sup> Thus, if the THRIVE program were implemented in full in 2021, employment in West Virginia would increase by 50,000 jobs and that higher level of increased employment would continue in the state as the 10-year program continues until 2030.

The Congressional resolution's commitment is to "Transform, Heal and Renew by Investing in a Vibrant Economy"—i.e. "THRIVE"—through a range of investments to rebuild the U.S. economy. To date, the THRIVE Agenda has been endorsed by more than 100 members of Congress, including Senate Majority Leader Chuck Schumer, and hundreds of major union, racial justice, and climate organizations.<sup>3</sup> The aims of the THRIVE agenda are similar to those proposed in the Build Back Better program advanced by President Biden during his 2020 presidential campaign.

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1 <https://www.congress.gov/bill/116th-congress/house-resolution/1102/text>

2 Of course, other changes in West Virginia's economy will occur over the 10-year period 2021 – 2030, often in ways that cannot be predicted in advance. Still, our estimate of a 50,000 increase in employment under an "all else equal" assumption provides a benchmark for measuring the extent to which the THRIVE Agenda will increase job opportunities in the state, even after we allow that economic conditions will undergo changes between 2021- 2030.

3 <https://www.thriveagenda.com>

The THRIVE Agenda consists of four major investment areas:

**1. Clean renewable energy and energy efficiency:** To expand access to renewable energy and improve the energy efficiency of vehicles, buildings, and industries so as to achieve the climate stabilization goals set out by the Intergovernmental Panel on Climate Change (IPCC) of reducing carbon dioxide emissions by 45 percent by 2030 and to reach net zero emissions by 2050.

**2. Infrastructure:** To expand access to affordable transportation, high-speed broadband, clean water, upgrade parks and other public amenities, reduce pollution, and strengthen the public resources needed to undergird a manufacturing revival.

**3. Agriculture and land restoration:** To expand opportunities for family farmers, including younger farmers and people of color, and to support regenerative agriculture, local and regional food systems, and climate resilience.

**4. Care economy, public health, and the postal system:** To significantly expand and enhance the level of service provision in these crucial areas of the economy and to raise job quality standards—including wages, benefits, and workplace conditions—for workers employed in these activities.

For the U.S. as a whole, the THRIVE Agenda is designed as a 10-year investment program, with an average annual budget of \$954 billion.<sup>4</sup> This would amount to about 4.0 percent of average U.S. Gross Domestic Product over 2021 – 2030, assuming that the U.S. economy grows at about 2.2 percent per year.

Our job creation estimates for West Virginia result from the state receiving its share of the overall THRIVE budget based on its share of the U.S. population. Because West Virginia accounts for 0.54 percent of the U.S. population, its share of the \$954.2 billion annual U.S. THRIVE budget would be \$5.2 billion per year. The proportions of total THRIVE spending in West Virginia will also be equal to their respective shares for the overall U.S. economy. In Table 1, we show West Virginia’s annual budget allocations by investment area under THRIVE between 2021 – 2030. They amount to: \$1.9 billion for clean renewable energy and energy efficiency; \$1.8 billion for infrastructure; \$1.0 billion for agriculture and land restoration; and \$458 million for the care economy, public health and postal service.

As we noted above and present in detail in the following tables, this level of investment spending in West Virginia will generate an average of about 50,000 jobs within the state.

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<sup>4</sup> In our March 2021 report *Employment Impacts of Proposed U.S. Economic Stimulus Programs: Job Creation, Job Quality, and Demographic Distribution Measures*, we describe the components of the overall U.S. THRIVE Agenda and the sources for the budget figures in the program’s various investment areas. We also present details on our methodology for estimating job creation figures and related data presented for the national THRIVE program: <https://www.peri.umass.edu/publication/item/1397-employment-impacts-of-proposed-u-s-economic-stimulus-programs>.

**TABLE 1: U.S. THRIVE Agenda Budget and West Virginia Budget Allocations through THRIVE**  
*West Virginia population = 0.54% of U.S. population*

	Overall U.S. THRIVE Agenda Budget		West Virginia THRIVE Agenda Budget Allocations
	U.S. THRIVE Agenda Budget Allocations	Shares of U.S. THRIVE Agenda Budget Allocations	
Clean renewable energy and energy efficiency	\$358.8 billion	37.6%	\$1.9 billion
Infrastructure	\$324.3 billion	34.0%	\$1.8 billion
Agriculture and land restoration	\$186.6 billion	19.5%	\$1.0 billion
Care economy, public health, and postal service	\$84.5 billion	8.9%	\$457.7 million
<b>Totals</b>	<b>\$954.2 billion</b>	<b>100%</b>	<b>\$5.2 billion</b>

Source: <https://www.peri.umass.edu/publication/item/1397-employment-impacts-of-proposed-u-s-economic-stimulus-programs>.

This is equal to 6.2 percent of West Virginia’s labor force as of February 2020.<sup>5</sup> To illustrate the potential impact of this level of job creation in West Virginia, let us assume that these investments are undertaken in the state, and all else about the state’s economy were to remain equal. Under such an “all else equal” assumption, this level of job creation would result, for example, in the state’s unemployment rate falling to 1.6 percent from its average level of 7.8 percent between July – December 2020. A reduction in West Virginia’s unemployment rate at something approximate to this scale would represent a major expansion in job opportunities throughout the state. Indeed, implementing the THRIVE Agenda in West Virginia would likely encourage a large number of people to enter West Virginia’s labor force, or to reenter after having dropped out because their prospects for getting hired had been discouraging. Overall, the rise in the state’s employment opportunities

<sup>5</sup> In February 2021, we published a separate study, *Impacts of the Reimagine Appalachia & Clean Energy Transition Programs for West Virginia: Job Creation, Economic Recovery and Long-Term Sustainability*, which evaluates an investment program for West Virginia that is similar to, but not identical with, the THRIVE Agenda for West Virginia. The overall budget for the investment program in the earlier study also amounts to an average of \$5.2 billion per year between 2021 – 2030, i.e. the same as West Virginia’s budget allocation under THRIVE. But because the investment areas are somewhat different than those for THRIVE, our overall estimate of job creation is also lower, averaging about 42,000 jobs created per year between 2021 – 2030. See: <https://www.peri.umass.edu/publication/item/1404-impacts-of-the-reimagine-appalachia-clean-energy-transition-programs-for-west-virginia>.

will provide a foundation for a broader improvement in living conditions for the people of West Virginia.<sup>6</sup>

Of course, this expansion in job opportunities would be in addition to the benefits to the people of West Virginia through implementing the THRIVE investment program—i.e. the benefits resulting from building a clean energy system throughout the state; deepening the state’s commitment to protecting its environment; enhancing productivity and business opportunities through upgrading the state’s infrastructure; widening opportunities in agriculture and land restoration; and raising quality standards in the provision of care economy, health care and postal delivery services.

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<sup>6</sup> In *Employment Impacts of Proposed U.S. Economic Stimulus Programs*, as cited above, we provide evidence on the quality of jobs created through the THRIVE Agenda investment program at the national level, including data on wages, benefits and unionization rates. We also report on educational attainment levels of workers currently employed in the range of industries associated with the THRIVE Agenda, as well as on the shares of women and people of color employed in these activities. For West Virginia specifically, the separate 2021 study *Impacts of the Reimagine Appalachia & Clean Energy Transition Programs for West Virginia* provides extensive details on job quality and the demographic composition of the workforce specifically for an investment program similar to, though not identical with, the THRIVE Agenda.

## WEST VIRGINIA Energy Efficiency and Clean Renewable Energy Investments through THRIVE Agenda

**TABLE 2A: Energy Efficiency and Clean Renewable Energy Investments: Job Creation—Direct, Indirect, and Induced Jobs**

	Job Creation per \$1 Million in Spending			
	1) Direct Jobs	2) Indirect Jobs	3) Induced Jobs	4) Total Jobs
<b>Energy efficiency</b>				
Building retrofits	4.0	1.9	1.8	7.7
Industrial efficiency	2.8	0.7	1.5	5.0
High-efficiency autos	0.0	0.0	0.0	0.0
<b>Renewable energy</b>				
Wind energy	1.2	0.3	0.6	2.1
Solar energy	1.5	0.5	0.7	2.7
Geothermal energy	4.7	1.2	1.9	7.8

**TABLE 2B: Energy Efficiency and Clean Renewable Energy Investments: Total Jobs Created with Budgetary Figures**

	1) Total Jobs/ \$1 Million	Annual Job Creation		Job-Years Created, All Years		
		Annual Budget	Job Creation per Year	# of Years	Total Budget	Total Job Years
<b>Energy efficiency</b>						
Building retrofits	7.7	\$306.1 million	2,400	10	\$3.1 billion	24,000
Industrial efficiency	5.0	\$34.1 million	200	10	\$341.0 million	2,000
High-efficiency autos	0.0	\$303.3 million	0	10	\$3.0 billion	0
<b>Renewable energy</b>						
Wind energy	2.1	\$585.0 million	1,200	10	\$5.9 billion	12,000
Solar energy	2.7	\$585.0 million	1,600	10	\$5.9 billion	16,000
Geothermal energy	7.8	\$130.0 million	1,000	10	\$1.3 billion	10,000
<b>Total</b>		<b>\$1.9 billion</b>	<b>6,400</b>	<b>10</b>	<b>\$19.0 billion</b>	<b>64,000</b>

## WEST VIRGINIA Infrastructure Investments through THRIVE Agenda

**TABLE 3A: Infrastructure Investments: Job Creation—Direct, Indirect, and Induced Jobs**

	Job Creation per \$1 Million in Spending			
	1) Direct Jobs	2) Indirect Jobs	3) Induced Jobs	4) Total Jobs
Surface transportation	11.7	1.2	2.0	14.9
Water/wastewater	4.9	1.3	2.0	8.2
Electricity	1.2	0.3	0.5	2.0
Airports	2.2	0.4	0.9	3.5
Inland waterways/marine ports	2.4	0.9	1.1	4.4
Dams	6.6	1.3	2.5	10.4
Hazardous and solid waste	5.6	1.7	2.3	9.6
Levees	6.6	1.3	2.6	10.5
Public parks and recreation	6.4	0.9	1.5	8.8
Rail	2.4	0.8	1.2	4.4
Schools	9.7	0.9	2.1	12.7
Gas distribution pipelines—leak repairs only	1.4	1.7	1.4	4.5
Broadband	1.4	0.8	0.7	2.9

**TABLE 3B: Infrastructure Investments: Total Jobs Created with Budgetary Figures**

	1) Total Jobs/ \$1 Million	Annual Job Creation		Job-Years Created, All Years		
		Annual Budget	Job Creation per Year	# of Years	Total Budget	Total Job Years
Surface transportation	14.9	\$596.4 million	8,900	10	\$6.0 billion	89,000
Water/wastewater	8.2	\$174.4 million	1,400	10	\$1.7 billion	14,000
Electricity	2.0	\$231.3 million	500	10	\$2.3 billion	5,000
Airports	3.5	\$22.8 million	100	10	\$228.0 million	1,000
Inland waterways/ marine ports	4.4	\$8.1 million	40	10	\$81.0 million	400
Dams	10.4	\$21.1 million	200	10	\$211.0 million	2,000
Hazardous and solid waste	9.6	\$1.6 million	20	10	\$16.0 million	200
Levees	10.5	\$37.9 million	400	10	\$379.0 million	4,000
Public parks and recreation	8.8	\$55.3 million	500	10	\$553.0 million	5,000
Rail	4.4	\$113.2 million	500	10	\$1.1 billion	5,000
Schools	12.7	\$205.8 million	2,600	10	\$2.1 billion	26,000
Gas distribution pipe- lines—leak repairs only	4.5	\$99.1 million	400	10	\$1.0 billion	4,000
Broadband	2.9	\$189.6 million	500	10	\$1.9 billion	5,000
<b>Total</b>		<b>\$1.8 billion</b>	<b>16,060</b>	<b>10</b>	<b>\$18.0 billion</b>	<b>160,600</b>

## WEST VIRGINIA Agriculture and Land Restoration Investments through THRIVE Agenda

**TABLE 4A: Agriculture and Land Restoration Investments: Job Creation—  
Direct, Indirect, and Induced Jobs**

	Job Creation per \$1 Million in Spending			
	1) Direct Jobs	2) Indirect Jobs	3) Induced Jobs	4) Total Jobs
<b><i>Agriculture</i></b>				
Regenerative agriculture	31.8	2.0	0.4	34.2
Farmland conservation	9.5	1.0	1.2	11.7
Organic farming	31.8	2.0	0.4	34.2
Resources for marginalized farmers	16.7	1.4	1.3	19.4
Agricultural R&D	8.9	1.2	1.1	11.2
<b><i>Land restoration</i></b>				
Pollution cleanup	6.0	1.4	2.4	9.8
Closing orphaned wells	1.9	1.6	1.4	4.9
Ecosystem restoration	7.9	1.0	1.7	10.6

**TABLE 4B: Agriculture and Land Restoration Investments: Total Jobs Created with Budgetary Figures**

	1) Total Jobs/ \$1 Million	Annual Job Creation		Job-Years Created, All Years		
		Annual Budget	Job Creation per Year	# of Years	Total Budget	Total Job Years
<b><i>Agriculture</i></b>						
Regenerative agriculture	34.2	\$222.1 million	7,600	10	\$2.2 billion	76,000
Farmland conservation	11.7	\$135.4 million	1,600	10	\$1.4 billion	16,000
Organic farming	34.2	\$8.1 million	300	10	\$81.0 million	3,000
Resources for marginalized farmers	19.4	\$492.9 million	9,600	10	\$4.9 billion	96,000
Agricultural R&D	11.2	\$13.5 million	200	10	\$135.0 million	2,000
<b><i>Land restoration</i></b>						
Pollution cleanup	9.8	\$68.3 million	700	10	\$683.0 million	7,000
Closing orphaned wells	4.9	\$65.0 million	300	10	\$650.0 million	3,000
Ecosystem restoration	10.6	\$5.4 million	60	10	\$54.0 million	600
<b>Total</b>		<b>\$1.0 billion</b>	<b>20,360</b>	<b>10</b>	<b>\$10.0 billion</b>	<b>203,600</b>

## WEST VIRGINIA Care Economy, Public Health, and Postal Service Investments through THRIVE Agenda

**TABLE 5A: Care Economy, Public Health, and Postal Service Job Creation—  
Direct, Indirect, and Induced Jobs**

	Job Creation per \$1 Million in Spending			
	1) Direct Jobs	2) Indirect Jobs	3) Induced Jobs	4) Total Jobs
Care economy	16.2	1.2	3.1	20.5
Public health	6.8	1.3	2.0	10.1
Postal service	6.9	0.7	2.7	10.3

**TABLE 5B: Care Economy, Public Health, and Postal Service Investments:  
Total Jobs Created with Budgetary Figures**

	1) Total Jobs/ \$1 Million	Annual Job Creation		Job-Years Created, All Years		
		Annual Budget	Job Creation per Year	# of Years	Total Budget	Total Job Years
Care economy	20.5	\$419.8 million	6,800	10	\$4.2 billion	68,000
Public health	10.1	\$24.4 million	200	10	\$244.0 million	2,000
Postal service	10.3	\$13.5 million	90	10	\$135.0 million	900
<b>Total</b>		<b>\$457.7 million</b>	<b>7,090</b>	<b>10</b>	<b>\$4.6 billion</b>	<b>70,900</b>



**TABLE 6: WEST VIRGINIA Job Creation Estimates through all THRIVE Agenda Investments**

	Annual Budget and Job Creation Figures		Total Budget and Job-Years Figures	
	Annual Budget	Annual Job Creation	Total Budget	Total Job Creation, Job Years
Infrastructure investments	\$1.8 billion	16,060	\$18.0 billion	160,600
Clean energy investments	\$1.9 billion	6,400	\$19.0 billion	64,000
Agriculture and land restoration investments	\$1.0 billion	20,360	\$10.0 billion	203,600
Care economy, public health, and postal service investments	\$457.7 million	7,090	\$4.6 billion	70,900
<b>Total</b>	<b>\$5.2 billion</b>	<b>49,910</b>	<b>\$51.6 billion</b>	<b>499,100</b>

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