

Job Creation Estimates for Kentucky 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 Kentucky if the U.S. Congress passes economic recovery legislation that implements a national THRIVE investment agenda, as described in a September 2020 Congressional resolution.¹ The overall finding we report here is that implementing the 10-year THRIVE investment agenda in Kentucky would generate about 129,000 jobs in the first full year of the program. This higher level of employment in Kentucky would be sustained throughout the 10 years of the investment program (assuming no other major changes in Kentucky's economy were to occur).² Thus, if the THRIVE program were implemented in full in 2021, employment in Kentucky would increase by 129,000 jobs and that higher level of 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.³ 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.

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

2 Of course, other changes in Kentucky'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 129,000 increase in employment under an "all else equal" assumption provides a benchmark for measuring the extent to which the THRIVE Agenda will expand job opportunities in the state, even after we allow that, in reality, economic conditions will undergo changes between 2021- 2030.

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

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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.⁴ 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 Kentucky result from the state receiving its share of the overall THRIVE budget based on its share of the U.S. population. Because Kentucky accounts for 1.4 percent of the U.S. population, its share of the \$954.2 billion annual U.S. THRIVE budget would be \$13.0 billion per year (with rounding). The proportions of total THRIVE spending in Kentucky will also be equal to their respective shares for the overall U.S. economy. In Table 1, we show Kentucky's annual budget allocations by investment area under THRIVE between 2021 – 2030. They amount to: \$4.9 billion for clean renewable energy and energy efficiency; \$4.4 billion for infrastructure; \$2.5 billion for agriculture and land restoration; and \$1.2 billion 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 Kentucky will generate an average of about 129,000 jobs within the state. This is equal to 6.1 percent of Kentucky's labor force as of February 2020. To illustrate the potential impact of this level of job creation in Kentucky, let us assume that these investments are undertaken in the state, and all else about the state's economy were to remain

⁴ 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 Kentucky Budget Allocations through THRIVE*Kentucky population = 1.4% of U.S. population*

	Overall U.S. THRIVE Agenda Budget		Kentucky 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%	\$4.9 billion
Infrastructure	\$324.3 billion	34.0%	\$4.4 billion
Agriculture and land restoration	\$186.6 billion	19.5%	\$2.5 billion
Care economy, public health, and postal service	\$84.5 billion	8.9%	\$1.2 billion
Totals	\$954.2 billion	100%	\$13.0 billion

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

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 near-zero from its average level of 6.1 percent between July – December 2020. A reduction in Kentucky’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 Kentucky would likely encourage a large number of people to enter Kentucky’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 will provide a foundation for a broader improvement in living conditions for the people of Kentucky.⁵

Of course, this expansion in job opportunities would be in addition to the benefits to the people of Kentucky 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.

⁵ In *Employment Impacts of Proposed U.S. Economic Stimulus Programs*, as cited above, we provide evidence on job creation at the national level within five major sectors of the U.S. economy: manufacturing; services; construction; wholesale and retail trade; and agriculture. For example, we report that manufacturing employment through the national THRIVE program will amount to 1.6 million jobs, equal to 10.3 percent of the 15.5 million overall level of job creation. This study of the U.S. economy-wide impact of the THRIVE Agenda also includes data on 1) wages, benefits and unionization rates for workers currently employed in the range of activities associated with the THRIVE Agenda; 2) educational attainment levels of these workers; and 3) shares of women and people of color employed in these activities at present.

KENTUCKY 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
Energy efficiency				
Building retrofits	4.6	2.6	2.0	9.2
Industrial efficiency	2.8	0.9	1.2	4.9
High-efficiency autos	0.3	0.3	0.2	0.8
Renewable energy				
Wind energy	1.7	0.6	0.7	3.0
Solar energy	2.1	0.8	0.9	3.8
Geothermal energy	5.1	1.4	1.9	8.4

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
Energy efficiency						
Building retrofits	9.2	\$767.8 million	7,100	10	\$7.7 billion	71,000
Industrial efficiency	4.9	\$85.6 million	400	10	\$856.0 million	4,000
High-efficiency autos	0.8	\$761.0 million	600	10	\$7.6 billion	6,000
Renewable energy						
Wind energy	3.0	\$1.5 billion	4,500	10	\$15.0 billion	45,000
Solar energy	3.8	\$1.5 billion	5,700	10	\$15.0 billion	57,000
Geothermal energy	8.4	\$326.1 million	2,700	10	\$3.3 billion	27,000
Total		\$4.9 billion	21,000	10	\$49.0 billion	210,000

KENTUCKY 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	8.8	1.3	1.9	12.0
Water/wastewater	5.5	1.8	2.1	9.4
Electricity	1.7	0.5	0.7	2.9
Airports	2.7	0.7	1.0	4.4
Inland waterways/marine ports	3.1	1.3	1.5	5.9
Dams	7.5	1.8	2.8	12.1
Hazardous and solid waste	5.8	2.1	2.2	10.1
Levees	7.6	1.9	2.9	12.4
Gas distribution pipelines—leak repairs only	1.1	1.8	1.1	4.0
Broadband	1.9	1.5	1.0	4.4
Public parks and recreation	10.9	2.2	2.6	15.7
Rail	2.7	1.0	1.3	5.0
Schools	10.5	1.4	2.6	14.5

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	12.0	\$1.5 billion	18,000	10	\$15.0 billion	180,000
Water/wastewater	9.4	\$437.6 million	4,100	10	\$4.4 billion	41,000
Electricity	2.9	\$580.2 million	1,700	10	\$5.8 billion	17,000
Airports	4.4	\$57.1 million	300	10	\$571.0 million	3,000
Inland waterways/ marine ports	5.9	\$20.4 million	100	10	\$204.0 million	1,000
Dams	12.1	\$53.0 million	600	10	\$530.0 million	6,000
Hazardous and solid waste	10.1	\$4.1 million	40	10	\$41.0 million	400
Levees	12.4	\$95.1 million	1,200	10	\$951.0 million	12,000
Gas distribution pipe- lines—leak repairs only	4.0	\$248.7 million	1,000	10	\$2.5 billion	10,000
Broadband	4.4	\$475.6 million	2,100	10	\$4.8 billion	21,000
Public parks and recreation	15.7	\$138.6 million	2,200	10	\$1.4 billion	22,000
Rail	5.0	\$284.0 million	1,400	10	\$2.8 billion	14,000
Schools	14.5	\$516.4 million	7,500	10	\$5.2 billion	75,000
Total		\$4.4 billion	40,240	10	\$44.0 billion	402,400

KENTUCKY 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
<i>Agriculture</i>				
Regenerative agriculture	21.4	2.1	1.7	25.2
Farmland conservation	9.8	1.9	2.1	13.8
Organic farming	21.4	2.1	1.7	25.2
Resources for marginalized farmers	12.9	1.8	2.1	16.8
Agricultural R&D	6.8	1.6	1.6	10.0
<i>Land restoration</i>				
Pollution cleanup	6.4	1.8	2.3	10.5
Closing orphaned wells	1.1	1.3	0.9	3.3
Ecosystem restoration	11.6	2.0	2.6	16.2

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
<i>Agriculture</i>						
Regenerative agriculture	25.2	\$557.1 million	14,000	10	\$5.6 billion	140,000
Farmland conservation	13.8	\$339.7 million	4,700	10	\$3.4 billion	47,000
Organic farming	25.2	\$20.4 million	500	10	\$204.0 million	5,000
Resources for marginalized farmers	16.8	\$1.2 billion	20,200	10	\$12.0 billion	202,000
Agricultural R&D	10.0	\$34.0 million	300	10	\$340.0 million	3,000
<i>Land restoration</i>						
Pollution cleanup	10.5	\$171.2 million	1,800	10	\$1.7 billion	18,000
Closing orphaned wells	3.3	\$163.1 million	500	10	\$1.6 billion	5,000
Ecosystem restoration	16.2	\$13.6 million	200	10	\$136.0 million	2,000
Total		\$2.5 billion	42,200	10	\$25.0 billion	422,000

KENTUCKY 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	17.1	1.7	3.6	22.4
Public health	6.8	1.7	2.4	10.9
Postal service	6.2	0.8	2.9	9.9

**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	22.4	\$1.1 billion	24,600	10	\$11.0 billion	246,000
Public health	10.9	\$61.1 million	700	10	\$611.0 million	7,000
Postal service	9.9	\$34.0 million	300	10	\$340.0 million	3,000
Total		\$1.2 billion	25,600	10	\$12.0 billion	256,000

TABLE 6: KENTUCKY 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	\$4.4 billion	40,240	\$44.0 billion	402,400
Clean energy investments	\$4.9 billion	21,000	\$49.0 billion	210,000
Agriculture and land restoration investments	\$2.5 billion	42,200	\$25.0 billion	422,000
Care economy, public health, and postal service investments	\$1.2 billion	25,600	\$12.0 billion	256,000
Total	\$13.0 billion	129,040	\$130.0 billion	1,290,400

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