



Over 7,000 jobs supported by Bipartisan Infrastructure Law orphaned wells funds

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Section 40601 of the Bipartisan Infrastructure Law (BIL) provided direction and funding for work to plug, remediate, and reclaim orphaned wells. The spending on these measures generates economic activity including supporting jobs. Using economic input-output analysis, the \$601.1 million of Fiscal Year 2022 Section 40601 expenditures by the Department of the Interior and the Department of Agriculture Forest Service is estimated to support 7,250 jobs.

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The Bipartisan Infrastructure Law of 2021 (U.S. Congress, 2021) directed investment in U.S. infrastructure to over 350 distinct programs across more than a dozen federal departments and agencies. One of those programs is §40601, directing the creation of programs to plug, remediate, and reclaim oil and gas “orphaned wells” on Federal, State, Tribal and private lands. The precise definition of orphaned wells depends on where the well is located; see §40601(a)(5)—but the underlying premise is that they are not used for an authorized purpose (e.g., production, injection, or monitoring) and are wells for which an operator cannot be located, or the operator cannot plug or remediate and reclaim the well site. Such wells are a source of pollution for people and nature, with impacts such as harming water quality and leading to land subsidence even after operations cease.

Federal, State and Tribal expenditures aimed at plugging, remediating, and reclaiming orphaned wells generate economic activity that can be estimated using input-output analysis. This analysis estimates economic activity as measured by the jobs supported from the Department of the Interior (DOI) and the U.S. Forest Service (USFS) Fiscal Year 2022 §40601 expenditures. This measurement of jobs supported fulfills §40601(f)(3), the request to provide an annual report to Congress that includes “the number of

jobs created and saved through the plugging, remediation, and reclamation of orphaned wells”. Here, supported jobs are defined as the total number of annualized full-, part- and temporary-time jobs accumulated over the duration of Fiscal Year 2022 §40601 expenditures.¹ These job-years are a measure of the quantity of employment supported by §40601 expenditures and are not the measure of the number of workers. For example, if a construction project using Fiscal Year 2022 expenditures employs a worker for 18 months, this worker would be counted as 1.5 supported jobs in this estimate – that is, the jobs supported capture the jobs supported by this amount of Fiscal Year 2022 expenditures regardless of whether this expenditure, or the worker’s term of employment, extend beyond Fiscal Year 2022. The supported jobs capture the net economic activity associated with the §40601 expenditures through direct, indirect, and induced effects.

- *Direct Effect*: Known economic change that occurs as a direct result of the §40601 expenditures for Fiscal Year 2022. This captures the jobs supported as a result of the economic activity generated by the businesses who are the direct recipients of §40601 funds.
- *Indirect Effect*: The jobs supported throughout the supply chain that satisfies §40601 activity-

¹ IMPLAN’s “jobs supported” estimate counts the number of positions regardless of part- or full-time. IMPLAN’s definition of job is different than the number of full-time equivalent (FTE) employment defined as total hours worked divided by average

annual hours worked in full-time jobs. IMPLAN jobs can be converted to FTE using the IMPLAN’s [Compensation Conversion Table](#).

that is, the business-to-business transactions as §40601 funds are re-spent in the economy. This includes inputs that suppliers must purchase from other industries and provide to direct businesses (defined above) in order for the direct businesses to produce their goods and services for §40601.

- **Induced Effect:** The jobs supported from the household spending on goods and services as a result of people’s income related to their work in direct and indirect businesses that support §40601 activity.

Indirect and induced effects of spending are considered secondary effects, capturing how the direct effect of §40601 expenditures “ripples” through the U.S. economy. The estimated jobs created and saved are equal to the sum of jobs supported through direct, indirect, and induced effects. This measurement of supported jobs fulfills the legal requirements of §40601(f)(3).

Results

The total Fiscal Year 2022 expenditures by DOI and USFS for §40601 are \$601.1 million. The number of jobs created and saved in the United States, measured as jobs supported, through the DOI and USFS §40601 Fiscal Year 2022 activities is estimated to be 7,250. Of those 7,250 supported jobs, 2,615 were supported through activities directly related to §40601 eligible activities and 4,634 reflected the secondary ripple effects as those expenditures were re-spent in the economy. Table 1 presents the §40601 Fiscal Year 2022 activities, with associated Fiscal Year 2022 expenditures and jobs supported. For purposes

of the Federal estimates, Fiscal Year 2022 expenditures are the amount of funding approved to be moved from the Energy Communities Revitalization Program parent account to DOI Bureaus and USFS. For purposes of the state initial grant estimates, Fiscal Year 2022 are the amount of funding awarded amount to states through the state initial grants program.

Conclusion

The goals of the BIL include improving the Nation’s infrastructure—such as cleaning up legacy pollution such as that arising from orphaned oil and gas wells—and supporting jobs in the process. This analysis creates a baseline against which future expenditures can be compared and a foundation on which future analyses of the program’s overall impact can be measured.

Methods

IMPLAN input-output models (<https://IMPLAN.com>) were used for each of the four Fiscal Year 2022 activities: Federal administrative, Federal project, State initial grant administrative, and State initial grant project activities (Table 2). The methodology used to estimate jobs supported is described in more detail in Appendix A.

Peer Review

This *Analysis* was reviewed for technical merit by the Chief Economist of the Department of the Interior. The Director of the Office of Policy Analysis and the Director of the Office of Environmental Policy and Compliance (Policy, Management, and Budget, Office of the Secretary) reviewed the report for overall framing and presentation.

Table 1. Bipartisan Infrastructure Law Section 40601 Fiscal Year 2022 expenditures (in millions) and estimated number of jobs supported.

	FY 2022 Expenditures (Millions)	Jobs supported	Jobs – Direct	Jobs – Secondary
Federal Program	\$41.1	475.8	166.3	309.6
Administrative	8.3	89.7	41.6	48.1
Project	32.8	386.1	124.7	261.4
State Initial Grants	560.0	6,773.9	2,448.8	4,325.1
Administrative	32.6	462.5	232.5	230.0
Project	527.4	6,311.4	2,216.3	4,095.1
Total	\$601.1	7,249.7	2,615.4	4,634.6

Table 2. Overview of the information available and methods used to estimate the expenditures and jobs supported by Section 40601 Fiscal Year 2022 funding. A more complete description of the methods is given in Appendix A.

Federal Program	Information Available	Estimation Method
Administrative	Expenditures used for administrative costs subject to the 3 percent limitation	IMPLAN <i>Institutional Spending Pattern</i>
Project	Estimate of relative distribution of expenditures to eligible activities (e.g., plugging, reclamation, methane measurement, etc.)	IMPLAN <i>Industry Output</i>
State Initial Grants		
Administrative	Estimate of the portion of total state initial grants used for administrative costs subject to the 10 percent limitation	IMPLAN <i>Institutional Spending Pattern</i>
Project	Estimate of relative distribution of expenditures to eligible activities (e.g., plugging, reclamation, methane measurement, etc.)	IMPLAN <i>Industry Output</i>

Disclaimer

Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Literature Cited

U.S. Congress (2021). Infrastructure Investment and Jobs Act. Available at: <https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf> [Accessed January 24, 2022].

U.S. Department of the Interior (2021). Interior Department Releases Implementation Guidance to States on Infrastructure Law Efforts to Address Legacy Pollution. Available at: <https://www.doi.gov/pressreleases/interior-department-releases-implementation-guidance-states-infrastructure-law-efforts> [Accessed September 16, 2022].

Appendix A: Detailed Methods

Additional details of the methods used in this report are provided in the subsections below.

Fiscal Year 2022 Expenditures

In this report, Federal Fiscal Year 2022 expenditures are the amount of funding approved to be moved from the Energy Communities Revitalization Program parent account to DOI Bureaus and USFS. For purposes of the state initial grant estimates, Fiscal Year 2022 are the amount of funding awarded to states through the state initial grants program.

IMPLAN Input-Output Models

Each of the activities employ IMPLAN, an economic analysis software application that is designed to estimate the impacts or “ripple” effects of a given economic activity through the implementation of its Input-Output modeling.² The economic data underlying IMPLAN reflect data collected by the U.S. Department of Commerce’s Bureau of Economic Analysis, the U.S. Department of Labor’s Bureau of Labor Statistics, and other Federal and state government agencies. Given the estimates reflect activities that do not yet have a full set of economic data, assumptions must be made about the economic structure and supply chains of the Fiscal Year 2022 period being measured. For purposes of these estimates, an assumption is made that the structure of the economy in Fiscal Year 2022 will be similar to the structure captured in the pre-COVID 2019 IMPLAN model year. All dollars in this report are in 2022 dollars. The methodology also assumes all supply chain requirements are satisfied by U.S. based businesses.

Federal Project Activities

In Fiscal Year 2022, \$32.8 million was spent on Federal project activities. To estimate the jobs supported by these activities the DOI Office of Policy Analysis bridged Fiscal Year 2022 expenditures to IMPLAN sectors that best represented the industries performing the work of the §40601 activity. Combined, this spending is estimated to support 386.1 jobs.

Information on the relative distribution of Fiscal Year 2022 project expenditures to eligible activities was estimated by each receiving Federal entity – that is, the Bureau of Land Management, Fish and Wildlife Service, National Park Service, and the USFS. These Fiscal Year 2022 activities were bridged to IMPLAN sectors in IMPLAN’s *industry output* model to estimate the number of jobs supported. These sectors represent the assumed sector performing the work of each eligible activity. Table 3 shows the relative distribution of Fiscal Year 2022 Federal project expenditures, associated IMPLAN sector and the relative distribution share.

Table 3. Distribution of Section 40601 Fiscal Year (FY) 2022 Federal project activities shows over 95% of funding are estimated to have gone to direct implementation categories. Numbers may not sum because of rounding.

Section 40601 Expenditure Categories	IMPLAN Sector	Distribution of FY 2022 Funding
Plugging and site preparation	36 – Support activities for oil and gas	74%
Reclamation and remediation	479 – Waste management and remediation services	17%
Measurement (e.g., emission)	463 – Environmental and other technical consulting services	5%
Support and Other	546 – Employment and payroll of federal govt, non-military	3%
Total		100%

² IMPLAN Group LLC; IMPLAN Pro software [2019 national-level]. Huntersville, NC. IMPLAN.com

Federal Administrative Activities

In Fiscal Year 2022, an estimated \$8.3 million was spent on Federal administration activities by the Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife Service, National Park Service, USFS, United States Geological Survey, and DOI Office of the Solicitor. Combined, this \$8.3 million is estimated to support 89.7 jobs.

An IMPLAN *institutional spending pattern* with the specification “Federal Government, Non-Defense” was used to estimate the supported jobs related to these expenditures. IMPLAN’s *institutional spending pattern* uses economic data to estimate how Federal spending on goods and services, including labor, are allocated across 260 distinct commodities. In IMPLAN’s preset distribution of “Federal Government, Other Services” 93.6% of Federal spending is distributed to a “employment and payroll of Federal government, non-military” commodity. There was no additional information about the Fiscal Year 2022 Federal administrative funding to indicate an adjustment to the preset IMPLAN spending distribution needed to be made.

State Initial Grant Project Activities

In Fiscal Year 2022 an estimated \$527.4 million was spent on state initial grant project activities. The \$527.4 was estimated based on a review of detailed budget information submitted by states to DOI.³ To estimate the jobs supported by these activities the DOI Office of Policy Analysis bridged Fiscal Year 2022 expenditures to IMPLAN sectors that best represented the industry performing the work of eligible activity. This spending is estimated to support 6,311 jobs.

Information on the portion of initial state grant funds allocated to project activities was estimated based on a review of budget detail submitted to DOI by the 24 states who applied for the large- and small-scale initial grant.⁴ The relative distribution of project funds across eligible §40601 activities was based on a sample of those states. States included in the sample were those states who reported program level detail – that is, three or more types of project level activities that differentiated activities of plugging, remediation, etc.

Similar to the Federal project funds, the state project activities were bridged to IMPLAN sectors within an *industry output* model to estimate jobs supported. Table 4 shows the relative distribution of Fiscal Year 2022 state initial project expenditures, the associated IMPLAN sector, and the relative distribution share.

Table 4. Distribution of Section 40601 Fiscal Year (FY) 2022 State initial grant project funding shows over 90% of funding are estimated to have gone to direct implementation categories. Numbers may not sum because of rounding.

Section 40601 Expenditure Categories	IMPLAN Sector	Distribution of FY 2022 Funding (%)
Plugging and site preparation	36 – Support activities for oil and gas	60%
Reclamation and Remediation	479 – Waste management and remediation services	32%
Support and Other	541 – employment and payroll of state government, other	9%
Total		100%

State Initial Grant Administrative Activities

In Fiscal Year 2022 an estimated \$32.6 million was spent on state initial grant administrative activities, supporting 462.5

³ This review did not include revised information from West Virginia, Alaska, and New York made available in late 2022.

⁴ This review did not include revised information from West Virginia, Alaska, and New York made available in late 2022.

jobs. The \$32.6 was estimated based on a review of budget information submitted by states to DOI. For states that did not provide detailed administrative and project expenditures, the administrative expenditures were estimated as \$2.5 million, the 10 percent administrative cap of the \$25 million state initial grant value. In Kansas, New Mexico, Ohio, Oklahoma, and West Virginia administrative expenditures were estimated as zero, reflecting the budget details allocation of all \$25 million to project activities.

To estimate jobs supported associated to these estimate Fiscal Year 2022 administrative expenditures an IMPLAN *institutional spending pattern* using the specification “State/Local Government, Other Services”. IMPLAN’s *institutional spending pattern* uses economic data to estimate how state and local government spending on goods and services, including labor, are allocated across a list of commodities. The distribution of the IMPLAN *institutional spending pattern* was modified from a preset allocation of 37 and 20 percent of total spending to local government labor and state government labor, respectively, to 57 percent of total spending allocation to state labor.⁵ This modification to the IMPLAN preset was assumed to be a better reflection of the \$40601 spending at the state level. The remaining 47 percent of \$40601 state initial grant administrative funding was allocated across 544 commodities based on historical patterns of state and local spending on non-education and non-health activities.

⁵ The IMPLAN institutional spending pattern allocation was validated by a review of the budget detail submitted by states, which estimated that roughly 64 percent of all administrative funding for initial state grants was allocated to labor.