



JEDI: Jobs and Economic Development Impact Model

The Jobs and Economic Development Impact (JEDI) models are user-friendly tools that estimate the gross economic impacts of constructing and operating power generation, transmission, and biofuel plants at the state or national level. First developed by NREL’s researchers to model wind energy jobs and impacts, JEDI has been expanded to also estimate the economic impacts of biofuels and biopower, coal, conventional hydro, concentrating solar power, geothermal, marine and hydrokinetic power, natural gas, photovoltaics, and transmission lines.

Based on project-specific and default inputs (derived from industry norms), JEDI estimates the number of jobs and economic impacts to a local area that could reasonably be supported by a power project. For example, JEDI estimates the number of in-state construction jobs from a new wind farm.

JEDI models are input-output models designed to provide reasonable estimates, not exact numbers. JEDI also provides estimates on land lease and property tax revenues, when appropriate. Various ownership and financing structures can be incorporated by the user as well. JEDI presents gross project-specific

results. It does not consider potential electricity price impact or alternative investment options. Using model defaults, results are reported on a statewide or national scale. However, JEDI can be used on a county or region by incorporating additional data (not included in the model).

Jobs, earnings, and output are distributed across three categories:

- Project Development and On-site Labor Impacts
- Local Revenue and Supply Chain Impacts
- Induced Impacts.

Wind Energy’s Economic “Ripple Effect”

Project Development & On-Site Labor Impacts

- Construction
- Management
- Administrative support
- Cement truck drivers
- Road crews
- Maintenance
- Legal and siting

Local Revenue & Supply Chain Impacts

- Blades, towers, and management, gas and gas station workers
- Supporting businesses, such as bankers financing the construction, contractors, manufacturers, and equipment suppliers
- Hardware store purchases and workers, spare parts and their suppliers

Induced Impacts

Jobs and earnings that result from the spending supported by the project, including benefits to grocery store clerks, retail salespeople, and child-care providers

Construction Phase = 1-2 years
Operation Phase = 20+years

Source: National Renewable Energy Laboratory

Wind Farm — Project Data Summary Based on User Modifications to Default Values

Project Location	Colorado
Year of Construction	2017
Total Project Size - Nameplate Capacity (MW)	100
Number of Projects (included in total)	1
Turbine Size (kW)	2,300
Number of Turbines	44
Installed Project Cost (\$/kW)	\$1,680
Annual Direct O&M Cost (\$/kW)	\$24.42
Money Value (Dollar Year)	2017
Installed Project Cost	\$167,975,431
Local Spending	\$33,692,260
Total Annual Operational Expenses	\$27,553,871
Direct Operating and Maintenance Costs	\$2,442,173
Local Spending	\$742,515
Other Annual Costs	\$25,111,698
Local Spending	\$689,703
Property Taxes	\$343,930
Land Lease	\$303,600

Local Economic Impacts — Summary Results

During construction period (Project Development and Onsite Labor Impacts)	Jobs	Earnings (in millions for 2017)	Output (in millions for 2017)	Value Added (GDP)
Construction and Interconnection Labor	60	\$3.60		
Construction-Related Services	6	\$0.30		
Total	66	\$3.90	\$4.50	\$4.10
Turbine and Supply Chain Impacts	214	\$12.50	\$39.00	\$18.20
Induced Impacts	96	\$5.50	\$15.90	\$9.30
Total Impacts	376	\$21.90	\$59.40	\$31.60

During operating years (annual)	Jobs	Earnings (in millions for 2017)	Output (in millions for 2017)	Value Added (GDP)
Onsite Labor Impacts	6	\$0.40	\$0.40	\$0.40
Local Revenue and Supply Chain Impacts	7	\$0.50	\$1.80	\$1.20
Induced Impacts	5	\$0.30	\$0.90	\$0.50
Total Impacts	18	\$1.20	\$3.00	\$2.10

Notes: Totals may not add up due to independent rounding. Results are based on user modifications to default values. Earnings and Output values are millions of dollars in year 2017 dollars. Construction and operating jobs are full-time equivalent for a period of 1 year (1 FTE = 2,080 hours). Wind farm workers include field technicians, administration, and management. Economic impacts "During operating years" represent impacts that occur from wind farm operations/expenditures.

Who Uses JEDI?

JEDI models are used by county and state decision-makers, public utility commissions, potential project owners, academics, and others interested in the economic impacts from new electricity generation projects.

JEDI's user-friendly design allows novices and advanced users to explore the statewide jobs and economic impacts from the construction and operation of power plants. Advanced users can incorporate specific data to tailor model inputs and refine conclusions drawn from model output.

JEDI model defaults are based on interviews with industry experts and project developers and engineering cost models. Economic multipliers contained within the model are derived from the MIG IMPLAN model.

The JEDI model provides output in table form (left). Presenting results visually provides a more intuitive way of understanding the distribution of jobs and economic impacts (see ripple chart).

Find More Information

Download JEDI at www.nrel.gov/analysis/jedi/

Submit questions to JEDIsupport@nrel.gov

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