Economic, Fiscal, and Social Impacts of the Transition of Electricity Generation Resources in Indiana

AUTHORS
Tom Guevara, Director, Public Policy Institute
Tim Slaper, Co-director, Indiana Business Research Center
Sanya Carley, Professor, O’Neill School of Public and Environmental Affairs
Matt Kinghorn, Senior Demographic Analyst, Indiana Business Research Center
Drew Klacik, Senior Policy Analyst, Public Policy Institute
Jamie Palmer, Senior Policy Analyst, Public Policy Institute
Kevin Martyn, Visiting Lecturer, O’Neill School of Public and Environmental Affairs
Madeline Mohrman, Research Assistant, O’Neill School of Public and Environmental Affairs
Claire Williamson, Research Assistant, O’Neill School of Public and Environmental Affairs
The IU Public Policy Institute (PPI) produces unbiased, high-quality research, analyses and policy guidance to effect positive change and improve the quality of life in communities across Indiana and the nation. As a multidisciplinary institute within the IU O’Neill School of Public and Environmental Affairs, PPI supports the Center for Health and Justice Research, the Center for Research on Inclusion & Social Policy, the Manufacturing Policy Initiative, and the Indiana Advisory Commission on Intergovernmental Relations.

Established in 1925, the Indiana Business Research Center (IBRC) is an integral unit in the Kelley School of Business at Indiana University. The IBRC provides and interprets the economic information needed by the state’s business, government and nonprofit organizations, as well as users of such information throughout the nation. In addition, the Center conducts original research to generate needed information when existing data are not available or sufficient. The goal of the IBRC is to put analytical tools and practical research into the hands of its users to help them transcend the challenges of today’s rapidly changing world.

The Paul H. O’Neill School of Public and Environmental Affairs at Indiana University is a professional school with 140 full-time faculty serving more than 4,000 students on two campuses: Bloomington and Indianapolis. Founded in 1972, the school was the first of its kind to combine public policy, management, and administration with environmental studies. The O’Neill School provides international scope, influential research, and focused opportunities for students to pair a comprehensive foundation of knowledge with hands-on experience in the field. Its more than 34,000 alumni work in the public, private, and nonprofit sectors around the world.
# TABLE OF CONTENTS

**EXECUTIVE SUMMARY** ......................................................................................................................................................................................... 1

**INTRODUCTION** .................................................................................................................................................................................................. 4

**METHODOLOGY** .................................................................................................................................................................................................. 5

- Literature reviews .................................................................................................................................................................................................................................................. 5
- State and local impacts of selected near-term retirements of coal-fired generation .......................................................................................................................... 5
  - Direct economic and tax effects .......................................................................................................................................................................................... 5
  - Input-output modeling .................................................................................................................................................................................................................................. 6
  - Stakeholder interviews .................................................................................................................................................................................................................................. 7
- Employment impacts of near-term solar, wind, and natural gas generation investments in Indiana .............................................................................................................. 9

**AN ENERGY TRANSITION—A LITERATURE REVIEW** ......................................................................................................................................................... 10

- Impacts associated with the decline of coal .......................................................................................................................................................................................... 13
  - Employment .................................................................................................................................................................................................................................................. 13
  - Tax revenue losses .................................................................................................................................................................................................................................. 14
  - Social ...................................................................................................................................................................................................................................................... 15
- Impacts associated with the increase of renewable energy ................................................................................................................................................. 15
  - Employment .................................................................................................................................................................................................................................................. 15
  - Tax revenue .................................................................................................................................................................................................................................................. 18
  - Landowner payments .......................................................................................................................................................................................................................... 18
  - Variation in local impacts from renewable energy projects .................................................................................................................................................. 19
  - Employment transitions from fossil fuels to renewables .................................................................................................................................................. 19

**INDIANA’S ENERGY TRANSITION—A LITERATURE REVIEW** ........................................................................................................................................... 21

**STATE & LOCAL IMPACTS OF SELECTED NEAR-TERM RETIREMENTS OF COAL-FIRED GENERATION IN INDIANA** .................................................................................................................. 23

- Schahfer Generating Station .................................................................................................................................................................................................................................. 24
  - Employment .................................................................................................................................................................................................................................................. 24
  - Employee demographics .......................................................................................................................................................................................................................... 25
  - Wages and compensation .......................................................................................................................................................................................................................... 26
  - Occupations .................................................................................................................................................................................................................................................. 27
  - Goods and services purchases .......................................................................................................................................................................................................................... 28
  - Local income and property taxes .......................................................................................................................................................................................................................... 31
  - Regional economic analysis .......................................................................................................................................................................................................................... 33
  - Stakeholder input .................................................................................................................................................................................................................................................. 34
  - Summary ...................................................................................................................................................................................................................................................... 38
- Michigan City Generating Station .................................................................................................................................................................................................................................. 39
  - Employment .................................................................................................................................................................................................................................................. 39
  - Employee demographics .......................................................................................................................................................................................................................... 41
  - Wages and compensation .......................................................................................................................................................................................................................... 41
  - Occupations .................................................................................................................................................................................................................................................. 43
EMPLOYMENT IMPACTS OF NEAR-TERM SOLAR, WIND, & NATURAL GAS GENERATION INVESTMENTS IN INDIANA..... 76

CONCLUSION—IMPLICATIONS FOR INDIANA.................................................................................................................. 78

BIBLIOGRAPHY.................................................................................................................................................................. 79

APPENDICES .................................................................................................................................................................. 84
APPENDIX A—EFFECTS OF COVID-19 PANDEMIC ON ECONOMIC IMPACT ASSESSMENTS................................. 84
APPENDIX B—ADDITIONAL ECONOMIC EFFECTS SCENARIOS.................................................................................. 85
APPENDIX C—WIND FARM DATA SUMMARY........................................................................................................... 88
# TABLES & FIGURES

## METHODOLOGY

<table>
<thead>
<tr>
<th>Table/Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE 1</td>
<td>Regional modeling details</td>
</tr>
<tr>
<td>FIGURE 1</td>
<td>Stakeholder interview questions</td>
</tr>
<tr>
<td>TABLE 2</td>
<td>Local and regional stakeholders—Schahfer Generating Station</td>
</tr>
<tr>
<td>TABLE 3</td>
<td>Local and regional stakeholders—Petersburg Generating Station</td>
</tr>
</tbody>
</table>

## AN ENERGY TRANSITION

<table>
<thead>
<tr>
<th>Table/Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURE 2</td>
<td>Change in electricity production by source (1990–2018)</td>
</tr>
<tr>
<td>FIGURE 3</td>
<td>Electricity generation by resource (1990–2018)</td>
</tr>
<tr>
<td>FIGURE 4</td>
<td>Change in electricity capacity by source (2019–2050)</td>
</tr>
<tr>
<td>FIGURE 5</td>
<td>Coal employment by sector (2018)</td>
</tr>
<tr>
<td>FIGURE 7</td>
<td>Employment in renewable power generation (2018)</td>
</tr>
<tr>
<td>FIGURE 8</td>
<td>Renewable energy employment by industry sector (2018)</td>
</tr>
<tr>
<td>TABLE 4</td>
<td>Median direct employment factors for wind and solar PV projects</td>
</tr>
</tbody>
</table>

## INDIANA’S ENERGY TRANSITION

<table>
<thead>
<tr>
<th>Table/Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURE 9</td>
<td>Renewable energy employment by industry sector (2018)</td>
</tr>
</tbody>
</table>

## STATE & LOCAL IMPACTS OF SELECTED NEAR-TERM RETIREMENTS OF COAL-FIRED GENERATION IN INDIANA

<table>
<thead>
<tr>
<th>Table/Figure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURE 10</td>
<td>Schahfer Generating Station potential employment losses (2014–2018)</td>
</tr>
<tr>
<td>FIGURE 11</td>
<td>Schahfer Generating Station potential employment losses in Indiana from closure by zip code of employee residence (2018)</td>
</tr>
<tr>
<td>FIGURE 12</td>
<td>Schahfer Generating Station employees for coal-fired units by age (2014–2018)</td>
</tr>
<tr>
<td>FIGURE 13</td>
<td>Schahfer Generating Station potential employee compensation (2014–2018)</td>
</tr>
<tr>
<td>FIGURE 14</td>
<td>Schahfer Generating Station potential employee compensation losses in Indiana from closure by zip code of employee residence (2018)</td>
</tr>
<tr>
<td>FIGURE 15</td>
<td>Schahfer Generating Station worker occupations (2018)</td>
</tr>
<tr>
<td>FIGURE 16</td>
<td>Schahfer Generating Station potential goods and services losses, excluding coal (2015–2018)</td>
</tr>
<tr>
<td>FIGURE 17</td>
<td>Schahfer Generating Station annual average goods and services purchases—Five largest categories, excluding coal (2015–2018)</td>
</tr>
<tr>
<td>FIGURE 18</td>
<td>Schahfer Generating Station potential goods and services losses, excluding coal, in Indiana from closure by county (2015–2018)</td>
</tr>
<tr>
<td>TABLE 5</td>
<td>Total assessed value for selected local governments (assess 2019, pay 2020)</td>
</tr>
<tr>
<td>TABLE 6</td>
<td>Schahfer Generating Station assessed value as a share of assessed value for selected parcels and taxing units (assess 2019, pay 2020)</td>
</tr>
<tr>
<td>TABLE 7</td>
<td>County local income tax rates for final CY 2020 certified distribution</td>
</tr>
<tr>
<td>TABLE 8</td>
<td>Estimated regional effects of Schahfer Generating Station closure</td>
</tr>
<tr>
<td>TABLE 9</td>
<td>Schahfer Generating Station regional employment ripple effects—Top 10 industries</td>
</tr>
<tr>
<td>FIGURE 19</td>
<td>Michigan City Generating Station potential employment losses from closure (2014–2018)</td>
</tr>
<tr>
<td>FIGURE 20</td>
<td>Michigan City Generating Station potential employment losses in Indiana from closure by zip code of employee residence (2018)</td>
</tr>
<tr>
<td>FIGURE 21</td>
<td>Michigan City Generating Station employees by age (2014–2018)</td>
</tr>
<tr>
<td>FIGURE 22</td>
<td>Michigan City Generating Station potential employee compensation losses (2014–2018)</td>
</tr>
<tr>
<td>FIGURE 23</td>
<td>Michigan City Generating Station potential employee compensation losses in Indiana from closure by zip code of employee residence (2018)</td>
</tr>
<tr>
<td>FIGURE 24</td>
<td>Michigan City Generating Station worker occupations (2018)</td>
</tr>
<tr>
<td>FIGURE 25</td>
<td>Michigan City Generating Station potential goods and services losses, excluding coal (2015–2018)</td>
</tr>
<tr>
<td>FIGURE 26</td>
<td>Michigan City Generating Station average annual goods and services purchases—Five largest categories, excluding coal (2015–2018)</td>
</tr>
<tr>
<td>FIGURE 27</td>
<td>Michigan City Generating Station potential goods and services losses, excluding coal, in Indiana from closure by county (2015–2018)</td>
</tr>
<tr>
<td>TABLE 10</td>
<td>Total certified assessed value for selected local governments (assess 2019, pay 2020)</td>
</tr>
<tr>
<td>TABLE 11</td>
<td>Michigan City Generating Station assessed value for selected parcels as a share of assessed value for selected taxing units (assess 2019, pay 2020)</td>
</tr>
</tbody>
</table>
TABLE 12. County local income tax rates for final CY 2020 certified distribution .......................................................... 47
TABLE 13. Estimated regional effects of the Michigan City Generating Station closure ............................................................... 47
TABLE 14. Michigan City Generating Station regional employment ripple effects—Top 10 industries .......................................................... 48
FIGURE 28. Petersburg Generating Station total employees and estimated lost employment from partial closure (2014–2018) .................. 49
FIGURE 29. Petersburg Generating Station potential job losses in Indiana from partial closure by zip code of employee residence (2018) .......... 50
FIGURE 30. Petersburg Generating Station potential job losses from partial closure by employee age (2014–2018) ............................... 51
FIGURE 31. Petersburg Generating Station total compensation and potential losses (2014–2018) ........................................................... 52
FIGURE 32. Petersburg Generating Station potential employee compensation losses in Indiana from partial closure by zip code of employee residence (2018) ....... 52
FIGURE 33. Petersburg Generating Station worker occupations associated with predicted job losses (2018) ......................................................... 53
FIGURE 34. Petersburg Generating Station estimated loss of goods and services sales from partial closure, excluding coal (2014–2018) .................. 54
FIGURE 35. Petersburg Generating Station top five types of goods and services purchased, excluding coal, and potential sales losses from partial closure (2018) .... 54
FIGURE 36. Petersburg Generating Station potential annual goods and services losses, excluding coal, in Indiana from partial closure by county (2014–2018) ... 55
TABLE 15. Total assessed value for selected local governments (assess 2019, pay 2020) ................................................................. 56
TABLE 16. Schahfer Generating Station assessed value as a share of assessed value for selected parcels and taxing units (assess 2019, pay 2020) ... 56
TABLE 17. County local income tax rates for final CY 2020 certified distribution .............................................................. 57
TABLE 18. Estimated regional effects of Petersburg Generating Station partial closure ................................................................. 58
TABLE 19. Petersburg Generating Station employment ripple effects—Top 10 industries ................................................................. 59
FIGURE 37. Rockport Generating Station total employees and estimated job losses from partial closure (2014–2018) ............................. 66
FIGURE 38. Rockport Generating Station potential job losses in Indiana from partial closure by zip code of employee residence (2018) ............... 67
FIGURE 39. Rockport Generating Station potential job losses by employee age (2014–2018) ................................................................. 68
FIGURE 40. Rockport Generating Station employee compensation (wages and benefits) and potential losses from partial closure (2014–2018) .......... 68
FIGURE 41. Rockport Generating Station potential employee compensation losses in Indiana from partial closure by zip code of employee residence (2018) ..... 69
FIGURE 42. Rockport Generating Station worker occupations associated with potential job losses (2018) ......................................................... 70
FIGURE 43. Rockport Generating Station potential goods and services losses, excluding coal, from partial closure (2014–2018) ....................... 70
FIGURE 44. Rockport Generating Station potential goods and services losses, excluding coal, in Indiana from partial closure by county (2014–2018) ...... 71
TABLE 20. Total assessed value for selected local governments (assess 2019, pay 2020) ................................................................. 72
TABLE 21. Rockport Generating Station assessed value as a share of assessed value for selected parcels and taxing units (assess 2019, pay 2020) ........ 72
TABLE 22. County local income tax rates for final CY 2020 certified distribution .............................................................. 73
TABLE 23. Estimated effects of Rockport Generating Station partial closure ......................................................................................... 74
TABLE 24. Rockport Generating Station regional employment ripple effects—Top 10 industries ................................................................. 74
TABLE 25. Summary of statewide effects of the closures and partial closures of four coal-fired generating stations .................................................. 75
TABLE 26. Statewide summary of employment effects—Top 10 industries ......................................................................................... 75

EMPLOYMENT IMPACTS OF NEAR-TERM SOLAR, WIND, & NATURAL GAS GENERATION INVESTMENTS IN INDIANA

FIGURE 45. Projected increase in alternative energy generation capacity in Indiana (2023–2030) ................................................................. 76
FIGURE 46. Estimated employment factors for operation and maintenance per 100 megawatts of capacity ........................................................ 77
TABLE 27. Potential employment effects of increased alternative energy generation ................................................................................ 77

APPENDICES

TABLE B1. County-level employment effects ......................................................................................................................... 85
TABLE B2. County-level GDP effects ................................................................................................................................. 85
TABLE B3. Employment effects under force account scenario ................................................................................................. 87
TABLE B4. GDP effects under force account scenario ............................................................................................................. 87
TABLE CL. Data summary for selected Indiana wind farms (2014–2018) ................................................................................... 88
EXECUTIVE SUMMARY

At the request of the Indiana Utility Regulatory Commission (IURC), Indiana University researchers from the Public Policy Institute, the Indiana Business Research Center (IBRC), and the Paul H. O’Neill School of Public and Environmental Affairs prepared this analysis of the local economic, fiscal, and social impacts of the transition of electricity generation from coal to new and emerging technologies.¹ The study focused on the effects of anticipated 2021–2028 closures or partial closures of the Schahfer, Michigan City, Petersburg, and Rockport coal-fired generating plants, and was informed by an extensive review of literature on the transition and closing of power plants in other communities across the United States. Similar analyses were conducted on each plant. The requirements of this study also included interviews with stakeholders from two communities. The communities and regions around the Schahfer and Petersburg plants were selected for this purpose.

Several findings are provided in this report and the key findings are summarized below. Readers are encouraged to examine the detailed findings beginning on Page 23. It important to note, however, that the findings in this report—as well as summaries of conversations with community stakeholders, where applicable—were prepared largely before the pandemic impacted our state and national economies. There is no consensus about the duration of our current recession or any long-lasting effects resulting from it; therefore, the timing and long-term effects of plant closures or changes in operations may be substantially different than those presented in this report.

Indiana’s electricity sector is part of the broader national energy transition. Indiana, like the nation, is shifting from producing electricity from carbon-intensive fossil fuels to more efficient low-carbon sources such as natural gas, solar photovoltaics, wind turbines, and demand-side management approaches. Based on an extensive literature review, the Indiana energy transition is expected to come with a mix of benefits and costs. Expected benefits include improved health from cleaner air, increased jobs in the clean energy field, and reduced greenhouse gas emissions. Expected costs include job losses in traditional fossil fuel industries, localized tax revenue losses, potential changes in the social makeup of affected communities, and potentially unwanted land uses.

The statewide direct economic impacts of the four plant closures may affect as many as 652 jobs, $77.5 million in employee compensation, and $354 million in GDP. The economic ripple effects may affect an additional 1,732 jobs, $98.4 million in employee compensation, and $184.7 million in state GDP. These direct and ripple effects represent 0.15 percent and 0.06 percent of Indiana’s 2018 GDP and total employment, respectively. The continued demand for skilled labor in maintenance and construction occupations is expected to mitigate some of these effects (see the Force Account discussions in each of those sections and the full analysis in Appendix B).²

¹ Please see 2019 House Enrolled Act 1278 (IC 8-1-8.5-3.1(b) et seq.), which directed the IURC to undertake this study.
² This report does not address the potential change in energy prices due to transition because potential price effects have been analyzed by the State Utility Forecasting Group in a companion report. Scenario analyses for the IURC report to the 21st Century Policy Task Force (2020).
While these impacts are not substantial in a statewide context, the closures are expected to have considerable impacts on the communities in which the plants are located. Among the four plants, the Schahfer plant closure is expected to have the biggest direct regional employment impact, a loss of almost 300 jobs. The other plants are expected to lose approximately 120 jobs each.

Job loss also is likely to be mitigated by tight labor markets and open positions in the regions surrounding each of the plants. The Schahfer and Petersburg stakeholders generally expressed that skilled workers would be absorbed immediately and semi-skilled workers with some additional training. In both regions, they indicated that management and administrative workers would find fewer replacement opportunities regionally and may need to relocate as a result. In addition, several stakeholders indicated that having available workers in these regions also provides an opportunity to attract new firms and to diversify the local economy and tax base.

The four plants pay substantially more in wages and compensation than the average wages and compensation in the counties in which they are located. Stakeholders believe that these wages and benefits generally may be difficult for local displaced workers to replace.

Many stakeholders suggested that households in rural Indiana are locally rooted and will likely be willing to commute within their region for new jobs. However, there also is concern, particularly in Pike County, about potential employee relocation and population loss that can further exacerbate the existing challenges in rural communities.

NIPSCO, IPL, and I&M reported buying goods and services (excluding coal) in half of Indiana’s counties. The partial closure of the Petersburg plant is expected to have the greatest regional ripple employment impacts at 470 jobs, in part, because it is the only one of the four plants that uses Indiana coal.

The loss of assessed value from the three plant closures in rural settings has or will have a profound impact on the affected local governments, particularly townships and school corporations. The impact of the Michigan City plant closure, the only one located in an urban setting, is mitigated somewhat by a larger and more diverse tax base.

Stakeholders reported being confident that local officials generally understand the nature and scale of the upcoming impacts and that resource organizations are poised to assist. They commonly expressed, however, that communities and local resource organizations need more specific information about assessed value losses, the occupations of transitioning employees, and the goods and services firms that will be affected.

The communities near the Schahfer and Petersburg plants have undertaken a substantial set of local efforts to mitigate the effects of plant closures. For example, Pike County officials have developed the Southwest Indiana Megasite—a large shovel-ready industrial park—and the Entrepreneurial and Technology Center near Interstate 69. Jasper County convened a community task force which made a number of recommendations about how to diversify the local tax base, including facilitating development around the I-65 interchanges by extending infrastructure and adopting tax increment financing districts. The county economic development organization is working with partners to implement the recommendations.
The development of wind and solar resources provides opportunities to mitigate both job and tax base loss. While the literature suggests that communities facing the loss of a coal-fired plant are not always suitable for replacement capacity development, community stakeholders in Pike and Jasper counties shared that IPL and NIPSCO have been working to develop solar projects in those counties. Jasper County also is suitable for wind development, but local preferences have limited such development.

This Executive Summary highlights only key findings and issues faced by communities where plants are scheduled to close or reduce operations of coal-fired generators. Readers are strongly encouraged to read the remainder of this report for more detailed information, implications from current literature, and analysis of individual communities’ economic, fiscal, and social impacts from the transition away from coal-fired power generation.
INTRODUCTION

2019 House Enrolled Act 1278 (IC 8-1-8.5-3.1(b) et seq.) directed the Indiana Utility Regulatory Commission (IURC) to conduct a comprehensive study of the short- and long-term statewide impacts of (1) transitions in the fuel sources and other resources used to generate electricity by electric utilities; and (2) new and emerging technologies for the generation of electricity, including the potential impact of such technologies on local grids or distribution infrastructure on electric generation capacity, system reliability, system resilience, and the cost of electric utility service for consumers. The IURC also is required to issue the findings of these studies to the governor, the Legislative Council, and the 21st Century Energy Policy Development Task Force (IC 2-5-45-2) by July 1, 2020. The due date for the IURC report was extended to on or before August 14, 2020, by the Governor’s Executive Order 20-31 issued June 3, 2020.

As part of this effort, the IURC approached Indiana University to prepare an analysis of the local economic, fiscal, and social impacts of the transition in generation resources, particularly on rural communities. This work was conducted by a team of researchers from the IU Public Policy Institute, the Indiana Business Research Center (IBRC), and the Paul H. O’Neill School of Public and Environmental Affairs at Indiana University.

The report that follows provides state and local policymakers information about the potential impact of retiring coal-fired generation and how building replacement generation will affect local communities and regions. These impacts are important to economic development, workforce development, and other civic leaders as they craft community, regional, and state responses.

This report is organized into five principal sections:

- A detailed methodology for each of the report’s analytical elements
- Literature reviews on the local economic and social impacts of the ongoing energy transition in the United States and Indiana
- An assessment of potential impacts, along with regional and selected statewide analyses, of retiring four coal-fired power plants—Schahfer, Michigan City, Petersburg, and Rockport
- An analysis of the employment effects of planned near-term investments in wind, solar, and natural gas generation

The document also includes a bibliography and three appendices:

- Appendix A contains a short discussion about the potential effects of the pandemic on the study results.
- Appendix B contains the complete county-level and force account input-output modeling analyses.
- Appendix C contains a brief summary of wind farm operations data.

A special note: The estimates provided in this report do not consider potential residual effects from the current economic downturn because as discussed more fully in Appendix A the full extent of economic adjustment from the current downturn will not be known for several months, or longer. Therefore, the actual effects of plant closures on any county or region cannot be estimated with a high degree of confidence in the current economic environment.
METHODOLOGY

This section provides the detailed methodology used by the research team to produce each element in the report.

Literature reviews
The research team conducted two literature reviews synthesizing current literature on the local economic and social impacts of the ongoing energy transition in the United States and in Indiana.

State and local impacts of selected near-term retirements of coal-fired generation
To evaluate the nature and intensity of potential impacts of a full or partial closure of four coal-fired generating stations—Schahfer, Michigan City, Petersburg, and Rockport—the research team completed an analysis for each. First, they assessed plant data on employment, wages and compensation, and goods and services purchased. Second, the team conducted a cursory analysis of tax impacts. Third, they created an input-output analysis of direct and spin-off economic activity. Fourth, the team interviewed stakeholders in the regions affected by the closing of the Petersburg and Schahfer plants. Lastly, researchers analyzed three additional scenarios using input-output modeling: statewide impact of the plant closures, impact on the counties where the plants are located, and a force account scenario exploring the potential absorption of released workers. Additional detail is provided for each of these activities in the sections that follow.

The assessments for the Michigan City and Schahfer plants assumes a full closure of these coal-fired facilities, resulting in scenarios in which all direct jobs and spending are lost to their respective regions. On the other hand, the Petersburg and Rockport plant assessments consider only partial closures. This means only a portion of the economic activity created by these plants will be lost. The research team did not have data on the number of direct jobs or amount of supply chain spending that is at risk from these partial closures. Instead, the team used the expected decrease in net electricity generation—based on an average of the past three years—as a proxy for the reduction of jobs and spending. In Petersburg, for instance, the units slated for closure have accounted for approximately 40 percent of the total electricity generated at this plant. Therefore, analysts assumed that there would also be a 40 percent decrease in employment, wages and benefits, and spending. The effects of any closures also are assumed to occur proportionally across demographics, geography, etc. These adjustments were not made to property tax data.

Direct economic and tax effects
The first two analyses use data provided by each company including the number of employees and their distribution by zip code of residence, employee age, gender, and race, employees by occupation type, the type and geographic distribution of goods and services purchased by the plant, and net electricity generation. This data provides important information about the communities affected by closure and the nature and relative intensity of those impacts.

The property and income tax analysis uses data collected by county assessors, the Indiana Department of Local Government Finance (DLGF), and the Indiana State Budget Agency (ISBA).
**Input-output modeling**

The economic impact analysis measures the direct economic effects of Indiana’s electricity generation industry using the number of facility employees, the compensation they earn, and the Gross Domestic Product (GDP) they contribute to the economy (i.e., the total value of the electricity generated after subtracting the cost of production inputs).

The impacts do not end there. The economic ripple effects of these activities cascade throughout the economy. For instance, power plant operators engage with other local businesses to purchase the goods and services needed to maintain and operate their facilities. Additionally, employees at these plants—as well as workers throughout the electricity generation supply chain—trigger more economic activity when they spend their earnings on food, clothing, health care, entertainment, and other goods and services. The contributions from both of these spending streams—the supply chain purchases and the household spending by employees—are referred to as the economic ripple effects of electricity generation industry activities.

To estimate these impacts, the research team used detailed data provided by each company on staffing, payroll, capital expenditures, and supply chain spending from the relevant electricity generation companies. Several companies provided specifics on supply chain spending by industry, as well as the amount of money paid to Indiana-based vendors. This level of detail allowed the analysts to fine-tune the modeling approach and improve the accuracy of the resulting estimates.

The research team used the IMPLAN economic modeling software to generate the impact estimates. IMPLAN draws from a variety of secondary data sources to create a detailed model of a local economy that reflects the unique dynamics of the geographic region selected for analysis.

Table 1 summarizes several key details used for modeling each facility. The process for defining the regions was taking the county in which a given plant is located, adding any bordering counties within Indiana. The Michigan City plant, for instance, is located in LaPorte County, which is bordered by Porter, Starke, and St. Joseph counties within Indiana. The lone exception to this rule was the addition of Sullivan County to the Petersburg region since this generating station buys a portion of its coal from suppliers in this county.

**TABLE 1. Regional modeling details**

<table>
<thead>
<tr>
<th>GENERATING STATION</th>
<th>COUNTIES IN MODELING REGIONS</th>
<th>PERCENT REDUCTION IN NET GENERATION</th>
<th>PERCENTAGE OF COAL FROM INDIANA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schahfer</td>
<td>Benton, Jasper, Lake, Newton, Porter, Pulaski, Starke, White</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Michigan City</td>
<td>LaPorte, Porter, Starke, St. Joseph</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Petersburg</td>
<td>Daviess, Dubois, Gibson, Knox, Pike, Sullivan, Warrick</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td>Rockport</td>
<td>Dubois, Perry, Spencer, Warrick</td>
<td>47%</td>
<td>0%</td>
</tr>
</tbody>
</table>
The research team completed modeling for three additional scenarios:

Statewide: This scenario calculates the combined statewide effects of the four plant closures or partial closures. It also uses similar data to the regional modeling described above. Direct effects are the same as the aggregate of the direct effects in the regional modeling for the four plants. The model, however, accounts for ripple effects that occur within Indiana but outside the four local regions.

County-level: This scenario calculates the economic effects for the counties in which each plant is located. The analysis of the effects of the Schahfer plant uses a two-county region (Jasper and Porter counties). The direct effects again are identical to those in the regional models. The models account only for the ripple effects in each county, excluding economic activity that occurs in the local region and throughout the state.

Force account: This scenario considers that the portion of plant employment associated with the construction and repair of structures—as well as the goods, materials, and services purchased for specialty construction—would transition to construction and maintenance activities of the remaining coal-fired production and non-coal electricity production. To provide perspective on the potential retention of this economic activity, this model calculates the effects of closure assuming that 30 percent of plant construction workers and 50 percent of goods and services purchased from specialty contractors would transition.

**Stakeholder interviews**

The research team interviewed representatives from local and regional government, economic development, and business organizations for local perspectives on the expected economic, tax, and social effects of closure, local responses, and any gaps in needed assistance and other challenges. The interviews were conducted in March and early April 2020. Tables 2 and 3 show the stakeholders who provided perspectives on the closure of the Schahfer Generating Station and the partial closure of the Petersburg Generating Station. Figure 1 shows the interview questions.

**FIGURE 1. Stakeholder interview questions**

1. How significant do you expect the impacts of these changes to be in your community?
2. Have you observed signs of these changes in your community? If so, how?
3. How optimistic are you that government and economic development officials understand the severity of your local challenges?
4. How do you think these changes will affect individuals within your community personally?
5. What support systems are in place to help people cope and adapt to these changes?
6. How do you think the closure will affect the local economy?
7. How do you think the closure will affect local taxes used by local governments and school districts to provide services?
8. What efforts are the [nonprofit, private, public] sector planning or taking to help relieve these impacts? How are you or your organization helping affected communities?
9. Are there any gaps in needed assistance?
10. Overall, how effectively has your community planned for this event to date?
Northern Indiana Public Service Company (NIPSCO) and Indianapolis Power & Light (IPL) were given the opportunity to provide information about their strategies for transitioning employees upon closure. While the Rockport plant was not one of those chosen for stakeholder interviews, Indiana Michigan Power (I&M) also was given the opportunity to provide similar information.

**TABLE 2. Local and regional stakeholders—Schahfer Generating Station**

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debi Baughman</td>
<td>Chair</td>
<td>Northwest Indiana Workforce Investment Board (Region 1)</td>
</tr>
<tr>
<td>Edwin Buswell</td>
<td>Executive Director</td>
<td>Kankakee-Iroquois Regional Plan Commission (KIRPC)</td>
</tr>
<tr>
<td>Kendell Culp</td>
<td>Commissioner</td>
<td>Jasper County</td>
</tr>
<tr>
<td>Stephen Eastridge</td>
<td>Executive Director</td>
<td>Jasper County Economic Development Organization</td>
</tr>
<tr>
<td>Heather Ennis</td>
<td>President and CEO</td>
<td>Northwest Indiana Forum</td>
</tr>
<tr>
<td>Kathy Luther</td>
<td>Chief of Staff and Director of Environmental Programs</td>
<td>Northwestern Indiana Regional Plan Commission (NIRPC)</td>
</tr>
<tr>
<td>Rex Richards</td>
<td>Executive Director</td>
<td>Valparaiso Economic Development Corporation/Greater Valparaiso Chamber of Commerce</td>
</tr>
<tr>
<td>Matt Sheafer</td>
<td>Farmer/business owner</td>
<td>N/A</td>
</tr>
<tr>
<td>Linda Woloshansky</td>
<td>President and CEO</td>
<td>WorkOne Northwest Indiana (Region 1)</td>
</tr>
</tbody>
</table>

**TABLE 3. Local and regional stakeholders—Petersburg Generating Station**

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makenzie Coulter</td>
<td>Chair</td>
<td>Grow Southwest Indiana Workforce Investment Board (Region 11)</td>
</tr>
<tr>
<td>Lisa Gelhausen</td>
<td>Executive Director</td>
<td>Indiana 15 Regional Planning Commission</td>
</tr>
<tr>
<td>Jill Hyneman</td>
<td>Director</td>
<td>Pike County Chamber of Commerce</td>
</tr>
<tr>
<td>R.C. Klipsch</td>
<td>Mayor</td>
<td>City of Petersburg</td>
</tr>
<tr>
<td>Bryant Niehoff</td>
<td>Executive Director</td>
<td>Daviess County Economic Development Corporation</td>
</tr>
<tr>
<td>David Rhoads</td>
<td>Mayor</td>
<td>City of Washington</td>
</tr>
<tr>
<td>Jeff Quyle</td>
<td>President and CEO</td>
<td>Radius Indiana</td>
</tr>
<tr>
<td>Ashley Willis</td>
<td>Executive Director</td>
<td>Pike County Economic Development Corporation</td>
</tr>
<tr>
<td>Sara Worstell</td>
<td>Executive Director</td>
<td>Grow Southwest Indiana/WorkOne (Region 11)</td>
</tr>
</tbody>
</table>
Employment impacts of near-term solar, wind, and natural gas generation investments in Indiana

The research team collected data from selected solar, wind, and natural gas facilities—including the number of employees, employee wages and compensation, goods and services purchased (total and in Indiana), capital expenditures, and net electricity generation. Six energy companies provided data on seven operating wind farms. Two energy companies provided data on three solar farms in development. IPL provided data for the Eagle Valley Generating Station, a natural gas facility.

The research team performed statewide input-output modeling to estimate the impacts of the solar, wind, and natural gas investments described in current utility Integrated Resource Plans (IRP) submitted to IURC. The direct employment factors for wind and solar energy come from an analysis of U.S.-based projects by the National Renewable Energy Laboratory (NREL) (Steinberg et al, 2012). The direct employment factor for natural gas also is derived from an analysis of Indiana facilities. The indirect employment factors for the alternative energy sources are based on IMPLAN multipliers for these industries.

The research team evaluated the data provided by energy companies when selecting the direct employment factors for solar and wind energy. The Indiana data shows a slightly lower, but similar, jobs per 100 megawatts of wind energy capacity. From 2014 to 2018, Indiana data shows that every 100 megawatts (MW) of wind energy capacity translates to 4.7 jobs. In 2014 and 2018, Indiana wind farms reported 5.0 or more jobs per 100 MW-capacity. While much of the literature consistently shows a relatively high direct employment factor for solar energy, data gathered on three proposed solar energy projects in Indiana show much smaller direct employment effects. Specifically, the factor for solar energy reflected substantially fewer jobs per 100 MW-capacity than the average for projects in the NREL study (EDP Renewables North America, 2020; Invenergy, 2020a; Invenergy, 2020b). The team contacted the NREL study authors but was unable to identify a reason for the difference. Given this uncertainty and the non-disclosure limitation on the Indiana solar data, the NREL direct employment factor for solar is labeled as a high estimate.
AN ENERGY TRANSITION—A LITERATURE REVIEW

The energy transition from a fossil-fuel based economy to one powered by advanced, efficient, and low-to no-carbon sources is occurring in the United States and across the world. In general terms, an energy transition is a shift in dependence on one set of energy resources to another (Sovacool, 2016). The current energy transition in the U.S. is a shift from producing electricity from carbon-intensive fossil fuels, such as coal, to using more efficient, lower-carbon sources, such as natural gas, solar photovoltaics, wind turbines, and demand-side management approaches.

Energy transitions tend to be gradual. On average, it can take 50 years for a sector to partially transition from one energy source to another, shifting as little as 5 percent of its energy or as much as 80 percent during that time. Historical examples from the 19th century include the transition from burning of animal fat candles to kerosene lamps, as well as the transition from burning wood to burning coal to heat homes (Fouquet, 2016).

While the shift in energy resources is gradual, both the short-term and long-term effects of the transition will be significant. In some places, the localized impacts are already evident. Such impacts include benefits, costs, and a mixture of both. These effects vary from community to community, and within regions. Benefits of the transition include improved health from cleaner air, increased jobs in the clean energy field, and reduced greenhouse gas emissions. However, there are costs to making the change, including job losses in traditional fossil fuel industries, localized tax revenue losses, and potential unwanted land uses.

This report covers only topics of economic and social impacts of the energy transition. A discussion of the environmental and health benefits is outside of the scope of our analysis. The environmental and health effects of an energy transition toward low- to no-carbon sources could be immense. For example, climate scientists strongly urge an energy transition as a key strategy to reduce greenhouse gas emissions and mitigate the most serious effects of climate change (Intergovernmental Panel on Climate Change, 2018).

Coal use increased between 1990 and 2007, when it produced as much as 50 percent of the country’s electricity. The decline in coal as an electricity generation resource began in 2008. By the 2010s, coal use began decreasing gradually at first but more rapidly in recent years. In 2015, the U.S. retired 15 GW of coal use capacity, the largest capacity retirement to that date. In 2018, the U.S. retired another 13 GW of capacity. By 2019, coal generation only accounted for 25 percent of the nation’s electricity. During that same 30-year period, the use of natural gas, wind, and solar photovoltaics (PV) for electricity generation has increased. Natural gas use increased the most, producing 1 million more GWh in 2018 than in 2017. These various trends are reflected in Figures 2 and 3, which display the change in electricity sources between 1990 and 2018 (U.S. EIA, 2019a).

Utilities often report the electricity we use in kilowatt-hours (kWh) on monthly electricity bills. When aggregating electricity use on a national scale, experts use gigawatt-hours (GWh). A GWh is 1 million kWhs, which is roughly the amount of energy needed to power 110 million LED lightbulbs for 1 hour. Power is the rate at which electricity is used or produced in any given moment. Some units of power are kilowatts (kW), megawatts (MW), and gigawatts (GW), where 1 GW = 1,000 MW = 1,000,000 kW. Power plants have maximum power ratings (i.e. maximum rates at which the plant can produce energy), and these power ratings are often referred to as capacities.
Before 2015, most of the retired coal plants were small, old, and in need of retirement. Since 2015, lower cost substitutes, such as natural gas and renewables, have driven retirements as opposed to the age or condition of the plant (Houser et al., 2017). Retired coal units in 2018 were, on average, 10 years younger, 46 years old versus 56 years old. They also were twice as large as the coal plants retired before 2015, with a capacity of 350 MW versus 130 MW (Johnson & Chau, 2019).

Economic pressures have contributed to these trends. Prices for natural gas, for example, remain consistently lower than coal due to technological advancements in the extraction of unconventional oil and gas, and the resulting increased domestic supply (Hodge, 2018). Driven by government mandates for renewable energy and subsidies, renewable energy markets also are rapidly maturing. For example, between 2009 and 2019 costs for onshore wind turbines and utility-scale solar declined by 70 percent and 89 percent, respectively (Lazard, 2019). Even without government subsidies, onshore wind and utility-scale solar are becoming the lowest cost options, based on the levelized cost of electricity, for new power generation (U.S. EIA, 2019b).

Analysts predict that the trend in coal plant retirements and increased reliance on renewables and natural gas will continue. The U.S. Energy Information Administration’s (U.S. EIA) 2020 Annual Energy Outlook predicts that all new generating capacity built between now and 2050 will come primarily from wind, solar, and natural gas facilities. These estimates are reflected in Figure 4, which shows projections in generation sources between 2019 and 2050. The U.S. EIA also forecasts a retirement of 108 GW of coal capacity between now and 2050 (U.S. EIA, 2020). The rate of coal retirements likely will accelerate if governments adopt more stringent policies to reduce greenhouse gas emissions.
SECTION 4: AN ENERGY TRANSITION

FIGURE 3. Electricity generation by resource (1990–2018)

[Graph showing electricity generation by resource from 1990 to 2018.]


FIGURE 4. Change in electricity capacity by source (2019–2050)

[Graph showing change in electricity capacity by source from 2019 to 2050.]

Impacts associated with the decline of coal

As the United States transitions electricity markets away from coal, it will experience a loss of direct jobs in industries that produce and use coal and indirect jobs in the broader community surrounding coal operations, a loss of tax revenue from coal facility closures, and changes to the social makeup of communities, among other possible effects. The majority of these impacts will be local and will disproportionately affect some communities more than others.

Employment

The National Association of State Energy Officials (NASEO)\(^4\) estimates that the coal industry employed 197,400 people across all sectors in 2018 (National Association of State Energy Officials [NASEO], 2019). Figure 5 shows the distribution of these jobs into North American Industrial Classification System (NAICS) categories. As displayed, the largest share of coal employment in 2018 was in coal mining (28 percent), followed by utilities (23 percent), and wholesale trade (22 percent). Professional services, manufacturing, and construction firms accounted for smaller shares: 15 percent, 6 percent and 4 percent, respectively (NASEO, 2019).

**FIGURE 5. Coal employment by sector (2018)**

Figure 6 presents employment in the coal-mining sector from 1990 to 2019, as published by the U.S. Bureau of Labor Statistics. The peak employment for coal miners in the last 30 years was in 2011, when 89,000 individuals worked in the profession (U.S. Bureau of Labor Statistics [U.S. BLS], 2018). Coal-mining employment has declined since 2011 as improvements to mining techniques, such as mountaintop removal,

---

\(^4\) It is challenging to find comprehensive employment statistics for the entire coal industry because government reporting does not distinguish jobs associated with the coal industry from those that otherwise fall into other government reported categories. Therefore, the National Association of State Energy Officials supplemented the Bureau of Labor Statistics’ Quarterly Census of Employment and Wages with employer surveys to estimate total energy-related employment across all sectors.
make mining less labor intensive (Betz et al., 2015). Between 2011 and 2019, coal mining employment fell more than 40 percent to 53,000 miners. Decreases in coal employment also closely follow the closure of coal mines. Half of the coal mines open in 2008 (1,435 mines) closed by 2019, leaving a total of 671 mines still in operation (Berry, 2019).

Communities with power plants and mining operations often are unprepared with alternative plans for retraining workers, economic development, and revitalization (Jolley et al., 2019). These industries are typically located in remote areas of counties with few alternative job opportunities (Haggerty et al., 2018), and that exhibit higher income volatility and a higher proportion of adults without a college degree (Betz et al., 2015). Further, the cyclical boom-and-bust nature of the coal industry may suppress entrepreneurship and small business formation (Betz et al., 2015). Replacement job opportunities for former coal employees can come with sacrifices—they may have to take a pay cut, acquire new skills (Jolley et al., 2019), or commute long distances from their homes to find a job (Carley et al., 2018). These sacrifices also depend on the type of coal job replaced. Through a comparison of reported skills in coal employment and emerging job opportunities in Adams County, Ohio, researchers found that white-collar coal plant workers were more likely to have to acquire new skills compared to blue-collar workers if they were to transition into a new job. Through further comparison of reported wages in coal employment and emerging occupations, the researchers also found blue-collar workers were more likely to have to take a pay cut (Jolley et al., 2019).

**Tax revenue losses**

Coal-mining operations and power plants typically are located in areas without significant economic diversification. In such locations, coal-related economic activity often contributes a large portion of the local tax base and funds critical public services. Therefore, when coal industry closures occur, they will have greater economic consequences than individual job losses (Betz et al., 2015; Haggerty et al., 2018; Tierney, 2016).
Most articles and reports on tax revenue impacts focus on cases from Appalachia and the Western United States. Very few studies focus on the Midwest. Susan Tierney’s 2016 study, for example, presented the case of Boone County, West Virginia, located in the Central Appalachia coal basin. Formerly, the county received a portion of the coal severance tax\(^5\) from the state of West Virginia, which it used to fund municipal services such as trash pick-up, the health department, county jail, and public transportation (Tierney, 2016). Local property taxes from coal, which fund the county government and school system, brought in about 30 percent of the Boone County general fund. A 70 percent decline in coal production in Boone County in 2017, however, led to a decrease in local tax revenue, and subsequently prompted cuts in solid waste services and school closures (Morris et al., 2019). In another example, the two coal power plants in Adams County, Ohio, paid tangible personal property taxes—taxes on property that can be physically moved or relocated—to the county. When the two plants closed, Adams County lost $8.7 million in property tax revenue, representing a 10 percent decrease in total revenue (Jolley et al., 2019).

**Social**

In addition to economic losses, the sharp decline in coal-mining jobs has profound social and cultural implications. Through semi-structured interviews and focus groups, residents from coal-mining regions of West Virginia, Kentucky (Carley et al., 2018), and Utah (Olson-Hazboun, 2018) revealed how the decline in coal threatened their cultural identity and sense of community. In some Appalachian families, coal mining is ancestral. When families are no longer able to work in the profession, they experience some loss of identity. Some people also experience a decline in a sense of community, as day-to-day activities—such as children’s sporting events, parades, and potlucks that are sponsored by the coal industry—disappear as the industry shrinks. Changing job opportunities may also force families to renegotiate social structures when new job opportunities necessitate greater time away from the home and family, or additional family members must take up new employment to help support the family.

**Impacts associated with the increase of renewable energy**

While coal-dependent communities may be affected adversely from the energy transition, there are also opportunities—beyond direct environmental improvements—for communities to benefit. This section discusses the employment and tax benefits of renewable projects as well as how effects vary across and within communities.

**Employment**

In 2018, there were an estimated 441,459 U.S. jobs in solar, wind, hydropower, biomass, and geothermal electric power generation (NASEO, 2019). The distribution of these jobs is shown in Figure 7. Solar (55 percent) and wind (25 percent) represented the largest share of these jobs. The U.S. Bureau of Labor Statistics also forecasts that solar photovoltaic installers and wind turbine service technicians will be the two fastest growing occupations in the next decade, with a projected 63 percent and 57 percent increase in employment, respectively (U.S. BLS, 2019a).

---

\(^5\) A severance tax is a tax on the extraction of a natural resource such as coal or oil. Severance taxes are often collected by states for resources extracted within their state.
Figure 8 shows the full distribution of 2018 renewable energy jobs across sectors. The construction industry (NASEO, 2019) makes up the largest portion of renewable energy jobs, at 45 percent. Construction offers short- to medium-term employment compared to professional (17 percent) and wholesale trade (9 percent), both of which offer more permanent employment.
Many studies quantify the employment impacts of renewable energy projects using employment factors (Cameron & van der Zwaan, 2015; Wei et al., 2010). In 2015, Cameron and van der Zwaan conducted a literature review of reported employment factors for renewable energy projects. For onshore wind, the researchers found the median employment factors for manufacturing, construction and installation, and operations and maintenance to be 4 person-years/MW, 2 person-years/MW, and 0.3 jobs/MW, respectively. For solar, the median employment factors for the same three categories of jobs were 18.8 person-years/MW, 11.2 person-years/MW, and 0.3 jobs/MW, respectively (Cameron & van der Zwaan, 2015). These estimates are summarized in Table 4. Differing methodologies, locations of study, and project sizes account for the large standard deviations in employment factors.

Many entry-level construction and installation jobs, such as solar photovoltaic installer, do not require any postsecondary certificate or degree (U.S. BLS, 2019b). However, renewable energy operation and maintenance jobs, such as wind turbine technician, tend to require a postsecondary certificate or degree (U.S. BLS, 2019c). To prepare local residents for these positions, community colleges across the country have started offering certificate and degree programs in operations and maintenance for renewable energy (U.S. DOE Wind Energy Technologies Office, n.d.; U.S. DOE Office of Energy Efficiency & Renewable Energy, n.d.).

### Table 4. Median direct employment factors for wind and solar PV projects

<table>
<thead>
<tr>
<th>EMPLOYMENT FACTOR STATISTICS</th>
<th>MANUFACTURING (PERSON-YEARS/MW)</th>
<th>CONSTRUCTION AND INSTALLATION (PERSON-YEARS/MW)</th>
<th>OPERATIONS AND MAINTENANCE (JOBS/MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>4</td>
<td>2</td>
<td>0.3</td>
</tr>
<tr>
<td>Median</td>
<td>3.3</td>
<td>2.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Solar PV</td>
<td>18.8</td>
<td>11.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Median</td>
<td>9.3</td>
<td>9.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Standard deviation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


6 One conventional method of reporting employment factors for renewable energy is in jobs per megawatt for operations and maintenance jobs and in person-years per megawatt for manufacturing and construction and installation jobs. Operations and maintenance jobs refer to jobs that are needed over the operational lifetime of the renewable energy project (often 20–25 years). A person-year—synonymous with a job-year or full-time equivalent—refers to full-time employment for one person over the course of one year. The difference in units is necessary since the construction and installation of renewable energy projects may support many jobs but only for a short period of time (e.g., a year or less).
**Tax revenue**

Renewable energy projects typically raise property values and also can change the property use classification for a parcel from agricultural to commercial use, which in turn can increase property tax revenue for local communities. In the North Carolina Sustainable Energy Association (NCSEA) evaluation of North Carolina utility-scale solar projects installed in 2017, they found the state and counties received almost $10.6 million in property taxes the year after solar installation, compared to only $513,000 on the same parcels of land the year prior to the installations. That is a nearly 2,000 percent increase (Carson et al., 2019). While this gain is significant for the state of North Carolina, tax systems with maximum property tax levy controls, such as Indiana, will only experience increased revenue from renewables if county revenues are below the maximum levy (Accelerating Indiana Municipalities, 2019).

It can be difficult to analyze local tax revenue since there is no national database of local government finances or revenue from renewable energy projects (Haggerty et al., 2014). The majority of studies on the topic focus on individual counties and projects. For example, a 2014 study found that the extent of property tax revenue in the western U.S. could vary considerably, with revenue ranging between $32,000 and $850,000 one year after the installation of a hypothetical renewable energy project. Revenue estimates in this study were dependent on the size of the project, tax rates, tax abatement policies, and other local or state policies (Haggerty et al., 2014). A 2013 study estimated property tax rates for solar developments across several states (Barnes et al., 2013). The property tax rates ranged from as low as $2,500/MW per year in states with solar specific tax-exemptions to more than $100,000/MW per year in other states. The researchers noted that the price of electricity and cost to build the projects affected the potential tax revenue. Local revenue benefits are most pronounced in communities with a small tax base and high tax rates since such communities can raise a consistent and relatively significant revenue stream (Haggerty et al., 2014). Another study estimated that the 600-MW Rush Creek Wind Farm in Colorado will produce around $62.5 million in 2016 dollars in property tax revenue across four counties during its lifetime from 2018–2043 (Stefek et al., 2019).

**Landowner payments**

Studies on landowner payments from renewable energy developers primarily focus on wind, possibly due to the fact that utility-scale wind projects have a longer history than solar. In the case of wind farms, which are predominantly located on ranges or farms (Xiarchos & Sandborn, 2017), landowner payment arrangements typically include an annual lease per turbine as well as royalty payments based on total electricity production. These payments can offer significant financial compensation to the landowner, as well as long-term boosts to the local economy. For example, researchers estimated the Rush Creek Wind Farm will provide more than $1.8 million dollars in payments annually, and result in a total of $45 million (in 2016 dollars) in transfers to local landowners in four counties in Colorado (Stefek et al., 2019). Landowner payments also are more stable than farming income, which is susceptible to drought or other weather conditions.

One survey analysis linked wind landowner payments to an increase in farmer retention and a decrease in rural migration to urban areas. The increase in income from wind turbine payments made farmers less likely to sell their properties, and thus lose their farmland to the urban fringe (Mills, 2015). In some contexts, this decline in migration from rural to urban areas also could reverse structural economic declines in rural communities by restoring local populations to sustainable levels and creating diverse income sources (Berka & Creamer, 2018).
The literature has documented that, in some cases, landowners reinvest payments from developers into their properties (Mills, 2017). Yet, this finding does not hold across all studies. A statistical analysis of the overall impacts of energy payments in the U.S., for example, found that those receiving energy payments, on average, were no more likely to invest them back into their farms than those who did not receive the payments (Grout, 2018). The author of this study noted, however, that farms that receive such energy payments are more likely to be profitable in the long run.

There also are distributional issues associated with renewable energy payments. Some studies find that the majority of such payments go to individuals who already own large amounts of land (Brannstrom et al., 2015). These payments, therefore, may reinforce pre-existing landowner advantages, where wealthier landowners benefit the most from payments and non-landowners or less wealthy landowners receive fewer or no benefits.

**Variation in local impacts from renewable energy projects**

Renewable energy projects typically have a short-term construction period of one to two years and an operating and maintenance period of around 20–30 years. In the short-term, renewable energy projects exhibit some of the same dynamics as other major infrastructure projects. That is, the majority of the economic activity occurs within the construction period (Stefek et al., 2019). Such a short-term and relatively rapid influx of people into rural areas can create strains on housing markets and infrastructure. During the Rush Creek Wind Farm construction period, for instance, there were anecdotal reports of rent increasing more than 300 percent in some areas and local residents who could not afford to pay being displaced (Stefek et al., 2019). In the long-term, wind energy projects can provide a long-lasting and predictable stream of income and employment for some individuals within the community. The pattern of development is relatively predictable, compared to fossil fuel extractive industries, and reports are optimistic that lessons from the industry can help inform local communities on how to best prepare and benefit from the economic activity generated by renewable energy projects (Stefek et al., 2019).

The impacts of renewable energy projects on local economies is highly dependent upon the amount of local economic inputs and the degree of local ownership, as well as the specific location of the project. For example, a project built with out-of-town labor, imported inputs, and sited on public land—where there are no payments to local landowners or local payments of taxes—will have minimal local economic impacts. As many renewable energy projects take large amounts of capital and technical expertise, they are often financed by multinational conglomerates and developed by large energy firms (Berka & Creamer, 2018). Such conditions make local ownership challenging since local areas often do not have the capital or expertise needed to implement these large-scale projects. It follows that local and municipal ownership is rare. However, such cases exist and the literature finds that in those cases, municipal ownership greatly increase the local value of the project (del Río & Burguillo, 2009).

**Employment transitions from fossil fuels to renewables**

One may question whether lost coal or other fossil fuel jobs can be replaced with clean energy jobs. One study addressed this question with an analysis of employment trends between 2008 and 2012. It found that in most parts of the country—the Northeast, Carolinas, Midwest, and West—employment losses in the fossil fuel industry were more than offset by growth in solar, wind, and natural gas industries. However, counties
that lost coal-mining and coal-fired power plant jobs were not typically the same as the counties that gained renewable energy jobs. Appalachia and parts of Wyoming and Colorado experienced greater job losses from coal than employment gains from clean energy (Haerer & Pratson, 2015).

More recently, in a 2020 peer-reviewed article, researchers evaluated whether coal-mining communities were suitable for wind and solar, as well as how many megawatts of wind or solar would need to be deployed to replace local coal-mining jobs. The study found 71 percent of U.S. coal-mining communities had either the solar irradiance or wind speeds necessary for utility-scale solar or wind. The study also estimated that each U.S. coal-mining community with suitable solar potential would need to install, on average, 320 MW of solar to replace all estimated lost coal-mining jobs. Each U.S. coal-mining community with suitable wind potential would need to install, on average, 180 MW of wind to replace all estimated coal-mining jobs (Pai et al., 2020).
INDIANA’S ENERGY TRANSITION—A LITERATURE REVIEW

Indiana’s electricity sector is a part of the nationally occurring energy transition. In Indiana, coal’s share of total electric generation declined from 94 percent in 2008 to 68 percent in 2018. During the same time, natural gas and renewables increased from 3 percent and 1 percent to 24 percent and 6 percent, respectively (U.S. EIA, 2019d). These trends are displayed in Figure 9. The publicly available Integrated Resource Plans (IRPs) of Indiana’s electric utilities and more recent announcements from some utilities indicate the shift away from coal will continue. By 2023, Indiana’s electric utilities plan to retire 3,300 MW of coal-fired power in Indiana, with an additional 1,700 MW committed to retirement between 2023 and 2028. All coal-fired units at the NIPSCO Schahfer Generating Station, the IPL Petersburg Units 1 and 2, and the Hoosier Energy Merom Generating Station are planned to retire by 2023 (Northern Indiana Public Service Company [NIPSCO], 2018; Indianapolis Power and Light [IPL], 2019; Morehouse, 2020). I&M’s Rockport Unit 1 and NIPSCO’s Michigan City plant will retire by 2028 (NIPSCO, 2018; Kuykendall et al., 2019).

FIGURE 9. Renewable energy employment by industry sector (2018)

Note: EIA data does not include generation resources owned by Indiana utilities and used to serve Indiana customers but located out of state. For example, Cook Nuclear Plant in Michigan has approximately 66 percent of its output going to I&M retail customers located in Indiana. Also, the Indiana Municipal Power Agency (IMPA) owns portion of two coal units located in Kentucky and portions of two units in Illinois.

Source: U.S. EIA, 2019d.

As this energy transition continues in Indiana, some communities may experience gains in economic opportunities and increases in government revenue, while others may face economic declines. In its 2018 IRP, NIPSCO projected it will terminate 276 full-time jobs and pay $74 million less in property taxes by following through with its 2018 IRP compared to its 2016 IRP. NIPSCO estimated its plan for replacement capacity will provide fewer than 30 permanent NIPSCO jobs (NIPSCO, 2018). However, there could be
private jobs outside of NIPSCO spurred by NIPSCO’s investments in renewables, storage, and demand-side management. Currently, 220 individuals work full time at the Rockport power plant, and it is uncertain how many individuals will remain employed after the retirement of Rockport 1 in 2028 (Lyman, 2019). The Hoosier Energy Merom Generating Station currently employs 185 people (Kuykendall et al., 2019). The closure of these coal-fired power plants likely will result in job losses, property tax revenue declines, and reduced economic activity to varying degrees in LaPorte, Jasper, Sullivan, Pike, Spencer, and surrounding counties.

Natural gas combined-cycle, solar, and wind will largely replace retiring coal capacity and generation in Indiana. In their latest IRP, I&M estimated adding 1,700 MW of solar, 1,800 MW of wind, 2,695 MW of natural gas, and 50 MW of battery storage by 2037 (Indiana Michigan Power [I&M], 2019). In IPL’s latest IRP, they estimated renewables, storage, and demand-side management will meet 87 percent of their new capacity needs in 2037, with natural gas meeting the remaining 13 percent (IPL, 2019). NIPSCO plans to meet 97 percent of its 2037 capacity deficit with renewables, storage, and demand side management, with MISO market purchases meeting the remaining 3 percent (NIPSCO, 2018).

NIPSCO has received approval from the IURC for a number of wind farm projects with a total capacity of 1,104 MW (IURC, 2019a, 2019b, 2019c, 2020). The developers of these projects plan to locate them in White, Warren, Benton, and Montgomery counties. EDP Renewables, the developer of a collective 1,000 MW of wind in Indiana, claims that these projects have supported 674 short-term construction jobs (EDP Renewables North America LLC [EDPR], 2019a). This equates to 6.74 construction jobs per 100 MW of capacity. Using this employment factor, NIPSCO’s planned wind projects could result in 741 construction jobs. In addition, developers have proposed roughly 520 MW of power from three solar farms in Randolph, Shelby, and Madison counties (EDPR, 2019b; Speedway Solar, n.d.; Invenergy, n.d.). The project developers estimate more than 100 short term construction jobs and several permanent jobs will result from each project, as well as millions in landowner payments and property taxes (EDPR, 2019b; Speedway Solar, n.d.; Invenergy, n.d.; Associated Press, 2019). These proposed renewable projects are in Central and Northwest Indiana, whereas coal-power plant closures will occur in Northwest and Southwest Indiana. Although the proposed solar projects are not in coal-mining counties, a recent study estimated 100 percent of coal-mining communities in Indiana are suitable for solar power due to the communities’ solar irradiance. However, in Indiana, no coal-mining community was suitable for wind (Pai et al., 2020).

---

7 The data reported in the next section of the report reflects employment data provided by I&M for 2014–2018. The research team began data collection in late 2019 and requested data for the five full years that were available at that time. The employment reported in the cited article were for mid-2019.
STATE & LOCAL IMPACTS OF SELECTED NEAR-TERM RETIREMENTS OF COAL-FIRED GENERATION IN INDIANA

As described in the previous section, the closure or partial closure of coal-fired power plants may have a variety of impacts, affecting individuals, businesses, communities/local governments, and regions. Plant closures or partial closures may result in job losses that affect workers and their households. Utilities may be able to absorb some employees in the remaining local operations or within the companies more broadly. Older workers may be able to take retirement. The remaining workers potentially face full or partial income loss in the event that they take another job in the local community or region. Workers may need to complete skills training/retraining to access new jobs. Employees and their households may face relocation or more extensive commutes.

Plant closure or partial closure will result in lost sales to firms that provide goods and services directly to these plants. Local businesses that provide goods and services to workers may also lose sales. When in sufficient concentrations, these losses could affect the viability of these businesses and their ability to maintain current workers.

Local communities in and around these plant closures may be affected in a number of ways. In communities in which the plants are located, local governments face significant reductions in industrial assessed value and the shifting of property tax burdens to the remaining property owners. They could also lose property tax revenues if lost assessed value increases property tax rates to levels exceeding statutory tax rate caps. Lost revenues also may result in service reductions for the affected counties, townships, municipalities, school districts, and other local governments. The viability of the communities in which affected employees live—particularly rural communities—may experience population loss when the employees have to move to other areas or regions for work. Further, labor markets in Indiana are tight. For local communities and their regions, a diminished local workforce may affect the ability to attract new industries that provide jobs for new and existing workers and support local income and property tax revenues.

This section evaluates the nature and intensity of potential impacts of a full or partial closure of four coal-fired generating stations—Schahfer, Michigan City, Petersburg, and Rockport—on individuals, communities/local governments, and regions. State and local leaders can use this information to plan for closure by crafting economic development, workforce development, and other responses.

The research team completed four analyses for each plant. First, was an assessment of plant data on employment, wages and compensation, and purchased goods and services. Second, was an input-output analysis of direct and spin-off economic activity. Third, was a cursory analysis of tax impacts. Fourth, the team conducted stakeholder interviews in the regions affected by the closing of the Petersburg and Schahfer plants. The research team also conducted additional input-output analyses for three additional scenarios: statewide impact of the closure of the four plants, the impact on the county where each plant is located, and a force account scenario that adjusts the estimates to account for the construction-type workers that the utility would continue to employ following a plant closure.
Schahfer Generating Station

The R.M. Schahfer Generating Station is owned and operated by NIPSCO. It is located in a rural setting in Jasper County near Wheatfield and the Kankakee River. The annual average generation, from 2014 through 2018, was 5.8 million MWh. Generation in 2018 was 6.8 million MWh (NIPSCO, 2020).

NIPSCO plans to close the four coal-fired units by the end of 2023. The facility also has two natural gas units that will remain open. With the exception of local property tax data, all data reported here covers only the activity associated with the coal-fired units.

Employment

The coal-fired units planned for closure employed 293 workers in 2018. A closure would put those jobs in jeopardy. Employment at the plant already dropped 7 percent from 2014 through 2018 (Figure 10). The facility accounted 2.9 percent of private sector jobs in Jasper County (Indiana Business Research Center [IBRC], 2020).

Employees who work at the Schahfer Generating Station live throughout Northwest Indiana. In 2018, employees commuted from Lake, Porter, LaPorte, Newton, Jasper, Starke, Marshall, Elkhart, and White counties (Figure 11). More than a third of employees lived in Porter County while only one-sixth lived in Jasper County where the plant is located. Five other counties had five or more employees working at the plant.

As mentioned above, the Northwest Indiana region has a tight labor market with low unemployment. Stakeholders who serve the region believe that skilled and semi-skilled employees can be absorbed readily but that administrative jobs may be harder to absorb.

Jasper County has a relatively small industrial base, a tight labor market, and low unemployment. Employees who live there could potentially access jobs within the county, within neighboring urban communities to the north and west, and in surrounding rural communities. Stakeholders suggested that county residents often commute to jobs outside Jasper County.

FIGURE 10. Schahfer Generating Station potential employment losses (2014–2018)

FIGURE 11. Schahfer Generating Station potential employment losses in Indiana from closure by zip code of employee residence (2018)


Employee demographics
In 2018, the vast majority of employees for the coal-fired units were white (90.1 percent) and male (89.1 percent). More than half of employees were ages 45–64. More than two-fifths of employees, however, were ages 25–44. The company reported having a few employees ages 18–24 in all years except 2017 (Figure 12).

Age may influence employee responses to job loss. Older employees may have the option to retire when the plant closes. In some cases, other employees may be able to relocate within the company. People ages 45–64 may be more likely to remain in their current communities and commute to other jobs, while younger employees may be more likely to relocate.
Wages and compensation

Plant employees earned $25.3 million in wages and $36.1 million in compensation (wages and benefits) in 2018 (Figure 13). Employees at the Schahfer plant earn higher wages and benefits relative to the average wages and compensation in Jasper and Porter counties. Average wages and the estimated average compensation per employee were $86,273 and $123,072 at the plant. By comparison, the averages for private sector wages in Jasper and Porter counties were $42,401 and $46,392. The total estimated average employee compensations were $55,079 and $60,263 in these counties (IBRC, 2018; U.S. BLS, March 19, 2020). Figure 14 shows the distribution of compensation by zip code of employee residence.

The premium wages and benefits paid by NIPSCO may be difficult to match for transitioning employees. Stakeholders suggested that some opportunities to match these higher wages may exist in the regional steel industry and by relocating to the Chicago area and within the Northwest Indiana region.

---

8 Estimated compensation was calculated using county average wage data from IBRC (2020) and U.S. Bureau of Labor Statistics survey data regarding compensation (March 19, 2020).
FIGURE 14. Schahfer Generating Station potential employee compensation losses in Indiana from closure by zip code of employee residence (2018)


Occupations

Occupations at the plant are 82.6 percent technical/mechanical and 17.4 percent and management/administrative. More than half of the employees at the plant were classified as skilled (skilled crafts/production). About 15 percent were classified as semi-skilled (operatives/equipment and operatives/other support), and about 13 percent of employees were classified as professional technicians, technical and engineering professionals, and other professionals (Figure 15) (NIPSCO, 2020).

As the result of a robust industrial base and tight labor market with low unemployment in Northwest Indiana, stakeholders believe that skilled and semi-skilled employees can be absorbed readily either directly or with some training. They suggested that administrative jobs may be harder to absorb in the region and that opportunities may be better in the South Bend and Lafayette areas.
**FIGURE 15. Schahfer Generating Station worker occupations (2018)**

![Bar chart showing the distribution of worker occupations at Schahfer Generating Station in 2018.](chart)

- Skilled crafts/production: 158
- Operatives/equipment: 41
- Supervisors: 38
- Technicians professional: 23
- Management: 8
- All other professionals: 8
- Technical and engineering professionals: 8
- Administrative support/clerical: 5
- Operatives/other support: 4


**Goods and services purchases**

NIPSCO reported $69.2 million and $15.3 million in average annual goods and services purchases, excluding coal, total and in Indiana, respectively (Figure 16). Figure 17 shows the five largest expenditures by type. NIPSCO purchased $146.1 million in out-of-state coal on average annually during this same period.

**FIGURE 16. Schahfer Generating Station potential goods and services losses, excluding coal (2015–2018)**

![Bar chart showing potential goods and services losses from 2015 to 2018.](chart)

FIGURE 17. Schahfer Generating Station annual average goods and services purchases—Five largest categories, excluding coal (2015–2018)

All other specialty trade contractors $39.6
Crushed and broken limestone mining and quarrying $8.8
Other chemical and allied products merchant wholesalers $7.2
Other commercial and industrial equipment rentals $1.0
Automotive mechanical and electrical repair and maintenance $0.7


Figure 18 shows the distribution by county of plant expenditures purchased from Indiana firms. NIPSCO reported purchasing goods and services from firms in 25 Indiana counties. Jasper County firms could lose more than $400,000 on average annually. Firms in Lake and Porter counties are most at risk from the loss of purchased goods and services, with more than $5.5 million going to firms in each county on average annually. Firms in these counties also had substantial sales from the Schahfer plant. Sufficient information was not available to know how much overlap might exist.

Lost sales could affect firms and their employees negatively. Firms may face viability issues if sales to the plant represent a large portion of overall sales and they are not able to establish new customers. Laid-off workers likely would face some of the same issues that plant employees will when transitioning. Additional detail about the scale of these ripple effects are described in the regional economic analysis section below.
FIGURE 18. Schahfer Generating Station potential goods and services losses, excluding coal, in Indiana from closure by county (2015–2018)

Notes:
1. County totals were aggregated from zip code data.
2. The Schahfer plant purchases only out-of-state coal. These purchases are not reflected in the total shown for purchases from other states.

Sources: NIPSCO, 2020; IndianaMAP Data Portal.
Local income and property taxes

Property taxes and local option income taxes are fundamental resources for local governments. The most fundamental component of local government property tax revenues and fiscal well-being is assessed value. The loss of a significant proportion of assessed value can have traumatic impacts on local taxing units.

Tables 5 and 6 show total assessed value for Jasper County, Kankakee Township, and Kankakee Valley School Corporation, and the assessed value of selected plant parcels, particularly those with improvements or substantial land assessed value, and the State Distributable (personal property) Assessed Value. The Schahfer Generating Station makes up a substantial portion of the property tax base for these three local governments.

### TABLE 5. Total assessed value for selected local governments (assess 2019, pay 2020)

<table>
<thead>
<tr>
<th>Local Government</th>
<th>CERTIFIED ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jasper County</td>
<td>$2,472,597,647</td>
</tr>
<tr>
<td>Kankakee Township</td>
<td>$471,689,407</td>
</tr>
<tr>
<td>Kankakee Valley School Corporation</td>
<td>$1,440,040,785</td>
</tr>
</tbody>
</table>


### TABLE 6. Schahfer Generating Station assessed value as a share of assessed value for selected parcels and taxing units (assess 2019, pay 2020)

<table>
<thead>
<tr>
<th>Parcel 006-00324-00</th>
<th>TOTAL ASSESSED VALUE</th>
<th>SHARE OF JASPER COUNTY ASSESSED VALUE</th>
<th>SHARE OF KANKAKEE TOWNSHIP ASSESSED VALUE</th>
<th>SHARE OF KANKAKEE VALLEY SCHOOL CORPORATION ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real property improvements</td>
<td>$38,620,400</td>
<td>1.6%</td>
<td>8.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Parcel 006-00326-00</td>
<td>$30,764,200</td>
<td>1.2%</td>
<td>6.5%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Parcel 006-00327-02</td>
<td>$7,943,500</td>
<td>0.3%</td>
<td>1.7%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$4,052,100</td>
<td>0.2%</td>
<td>0.9%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Personal property improvements</td>
<td>$3,205,100</td>
<td>0.1%</td>
<td>0.7%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Total assessed value</td>
<td>$352,777,190</td>
<td>14.3%</td>
<td>74.8%</td>
<td>24.5%</td>
</tr>
<tr>
<td>Real and personal property improvements</td>
<td>$386,746,490</td>
<td>15.6%</td>
<td>82.0%</td>
<td>26.9%</td>
</tr>
</tbody>
</table>

Notes:
1. The total and personal property assessed values reported here are from the Jasper County Assessor and may include assessed value for additional parcels.
2. The certified total assessed values in Table 5 for the county, township, and school districts were used to calculate the percentages in this table.

The loss of assessed value that will result from closure is unknown, but could be substantial for these units. The property tax assessment of utilities is complex. The exact effects also are dependent on the complex dynamics among levy controls, mix of property types and property tax caps, property tax replacement strategies, etc.

Property tax records show that substantial assessed value changes are already occurring. For example, the value of the real property improvements on parcel 006-00324-00 already has been reduced from $69,022,100 from assessments for the assess 2018, pay 2019 property tax cycle. The Jasper County Assessor and stakeholders indicated that NIPSCO has appealed their county assessments a number of times in the past.

These losses, however, will challenge local governments with, all else the same, increases in property tax rates and potential property tax increases for county, township, and school taxpayers. The county’s relatively high local option income tax rate limits raising local option income tax rates as an option for mitigating the likely increases in property taxes as a result of the closure. Local leaders also may consider changes to public services to offset increases.

County leaders convened a task force to develop strategies to mitigate potential losses. In addition, county leaders have asked NIPSCO to develop alternative solar generation within the county in order to replace, in part, the anticipated losses.

Among the counties that have five or more plant employees in residence, Jasper, Porter, Lake, Starke, and LaPorte counties utilize local options income taxes (Table 7) (Indiana State Budget Agency [ISBA], 2019). The number and distribution of employees across these counties and the relative income tax rates, suggest a minimal direct effect on local revenues. Jasper County historically has used local option income taxes to offset property taxes.

**TABLE 7. County local income tax rates for final CY 2020 certified distribution**

<table>
<thead>
<tr>
<th>LOIT RATES</th>
<th>JASPER COUNTY</th>
<th>PORTER COUNTY</th>
<th>LAKE COUNTY</th>
<th>STARKE COUNTY</th>
<th>LAPORTE COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified shares</td>
<td>1.364%</td>
<td>0.000%</td>
<td>0.000%</td>
<td>0.500%</td>
<td>0.500%</td>
</tr>
<tr>
<td>Public safety</td>
<td>0.250%</td>
<td>0.000%</td>
<td>0.250%</td>
<td>0.000%</td>
<td>0.000%</td>
</tr>
<tr>
<td>Economic development</td>
<td>0.250%</td>
<td>0.500%</td>
<td>0.250%</td>
<td>0.000%</td>
<td>0.450%</td>
</tr>
<tr>
<td>Property tax relief</td>
<td>0.850%</td>
<td>0.000%</td>
<td>1.000%</td>
<td>0.060%</td>
<td>0.000%</td>
</tr>
<tr>
<td>Special purpose</td>
<td>0.150%</td>
<td>0.000%</td>
<td>0.000%</td>
<td>0.650%</td>
<td>0.000%</td>
</tr>
<tr>
<td>Total</td>
<td>2.864%</td>
<td>0.500%</td>
<td>1.500%</td>
<td>1.710%</td>
<td>0.950%</td>
</tr>
</tbody>
</table>

*Note: None of these counties has adopted a correctional facility local income tax rate.
Source: ISBA, Nov. 18, 2019.*
Regional economic analysis

From the perspective of direct effects alone, the potential Schahfer plant closure represents the largest loss of jobs and GDP. The expected direct employment effect of this closure would be approximately 290 jobs (NIPSCO, 2020). With a nearly equal number of ripple-effect jobs likely to be lost, the full employment impact would stand at roughly 570 lost jobs and $54.1 million in lost compensation for the region (Table 8). Meanwhile, the total lost GDP would reach nearly $200 million.

TABLE 8. Estimated regional effects of Schahfer Generating Station closure

<table>
<thead>
<tr>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>293</td>
<td>280</td>
<td>573</td>
</tr>
<tr>
<td>Compensation</td>
<td>$36.1M</td>
<td>$18.0M</td>
<td>$54.1M</td>
</tr>
<tr>
<td>GDP</td>
<td>$170.4M</td>
<td>$28.8M</td>
<td>$199.2M</td>
</tr>
<tr>
<td>State and local tax revenue</td>
<td>$7.5M</td>
<td>$2.2M</td>
<td>$9.7M</td>
</tr>
</tbody>
</table>

Sources: NIPSCO, 2020; IBRC, using the IMPLAN economic modeling software.

A helpful way to interpret these potential losses is to look at the multiplier. The ratio of total effects for employment to the direct effects yields a multiplier of 1.96, meaning that every direct job lost at the power plant could lead to the loss of nearly one additional job in other industries in the region. Likewise, the compensation multiplier of 1.50 suggests that every dollar of direct pay generates another $0.50 in employee compensation for other workers in the region.

The Schahfer plant also produces state and local government revenues. The IMPLAN model estimates the tax collections from corporate profits, indirect business taxes (e.g., sales, property and excise taxes), personal taxes (e.g., income and property taxes), and employee and employer contributions to social insurance. The combined lost economic activity created by the plant closing would translate into an estimated loss $9.7 million in state and local government revenues.

With a large share of the supply chain spending for this plant going to out-of-state vendors, industries that benefit from household spending will experience the largest impacts. As with the other facilities, however, the big exception is the region’s maintenance and repair construction industry, which could lose nearly 90 jobs from this closure (Table 9).

The force account scenario in Appendix B lays out whether some share of construction workers directly employed at the plant—as well as some of the labor and spending associated with specialty contractors—will continue to be employed in the region by NIPSCO. These workers and contractors could be redeployed to other activities such as building and maintaining transmission and distribution systems or other types of production infrastructure. Assuming that 30 percent of plant construction workers and 50 percent of labor

---

9 This analysis was conducted for the region that includes Jasper County in which the Schahfer plant is located, along with bordering counties of Benton, Lake, Newton, Porter, Pulaski, Starke, and White counties. A separate analysis for the effects on Jasper and Porter counties solely is available in Appendix B.
and purchases for specialty contractors remain engaged with the utility, the full employment effects of this closure would improve from a loss of 573 jobs to 539 jobs, while the full GDP losses would improve from an estimated $199.2 million in value added to $166.5 million.

### TABLE 9. Schahfer Generating Station regional employment ripple effects—Top 10 industries

<table>
<thead>
<tr>
<th>Industry</th>
<th>JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and repair construction of nonresidential structures</td>
<td>87</td>
</tr>
<tr>
<td>Hospitals</td>
<td>19</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
<td>14</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>14</td>
</tr>
<tr>
<td>Full-service restaurants</td>
<td>14</td>
</tr>
<tr>
<td>Real estate</td>
<td>13</td>
</tr>
<tr>
<td>General merchandise stores</td>
<td>9</td>
</tr>
<tr>
<td>Physician offices</td>
<td>9</td>
</tr>
<tr>
<td>Food and beverage stores</td>
<td>7</td>
</tr>
<tr>
<td>All other food and drinking places</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

### Stakeholder input

Stakeholder perceptions about the impact expected from closure and local preparations for these changes are provided below.

#### Expected economic impacts

Stakeholders indicated that the economic effects of the Schahfer retirement would be mixed. In the short-term, they recognize that there will be negative impacts, principally potential job losses or wage reductions for employees as they find other employment opportunities. Stakeholders do not perceive that many workers are leaving their jobs in anticipation of closure. Most stakeholders indicated needing more information about the company’s plans in order to understand the nature and scale of impacts for plant workers. There generally is uncertainty among stakeholders about whether NIPSCO will absorb employees within the company. If transfers are offered, employees may have to move. Employees that choose to remain in their current homes may have to find new jobs or change professions. While the Northwest Indiana economy should absorb most skilled workers, matching current wages and benefits may be a challenge.

---

10 NIPSCO provided the following statement when asked to provide their plans for transitioning employees. “NIPSCO is working internally to determine workforce transition and training opportunities. We have a number of activities and milestones that we have to complete over the next months and years in order to finalize our workforce transition plans. The goal, as we develop our future plans, is to create the least amount of disruption for our employees” (T. McElmurry, email communication, May 4, 2020).
Those interviewed currently have limited knowledge of the type and scale of goods and services that local firms provide to the plant. More information is needed from NIPSCO to identify the nature and scale of those effects. Stakeholders specifically identified potential effects on the railroad companies that deliver coal. Jasper County officials expect that the plant retirement will have some effect on local businesses near the plant, particularly if Jasper County residents relocate.

Jasper County officials perceive residents as anchored to their communities. They do not expect many local employees to relocate. Commuting to jobs is already common. In the past, these communities have placed a focus on housing to attract residents.

Jasper County officials are thinking about the disposition of the retired elements at the NIPSCO facility. No specific plans have been shared by NIPSCO. Some officials expect that the site will be used, in part, as an electricity distribution facility. Reusing the site may be challenging because of environmental issues, particularly the coal ash landfill.

Regional stakeholders believe that there will be positive long-term impacts as communities work through these broader economic transitions. Jasper County is well-positioned geographically to benefit from opportunities in both the Northwest Indiana and Lafayette regions. Stakeholders believe Porter County’s location, diversity, and the resilience of its economy will offset some of these effects.

They identified a number of mitigating factors that may lessen negative impacts for skilled workers: a modest number of employees affected, open jobs as a result of the tight labor market and low unemployment, demand for high-skilled and well-trained workers, and training made available by NIPSCO and a variety of providers in the region. The expansion of the steel industry in the northwest region may provide opportunities. Administrative jobs may be harder to absorb in the immediate area. Additional opportunities for these workers may be available in South Bend or Lafayette.

**Expected local tax impacts**

Jasper County has a small industrial property tax base and projects a substantial loss of assessed value that will likely affect property tax revenue to the county, the township, and Kankakee Valley School Corporation. Local stakeholders are concerned that the assessment of the plant is not fair. Jasper County already has suffered assessed value losses due to changes in the plant’s assessed value including as a result of tax appeals. There is a mismatch between the company’s definition of the value of a soon-to-be-retired operation and the community’s perception of the value of a plant that is still operating. County officials indicated that the state-distributed value process is challenging. Per state law, the value of plant equipment is self-assessed by NIPSCO and approved the DLGF. The details are confidential. The county has negotiated with NIPSCO in past years about assessed value and property taxes generated by the plant.

Jasper County officials also expressed concern about the potential loss of a gypsum plant that manufactures wallboard using fly ash from NIPSCO generating facilities and is located in northern Jasper County. The company has assured officials they will continue to operate.
Previous and anticipated losses in light of an accelerated retirement timeline have contributed to two local governments postponing or canceling capital projects. Kankakee Valley School Corporation has postponed later phases of a planned building project. The uncertainty also caused the township adjacent to the most directly affected township to cancel building a new fire station. In spite of securing an Indiana Office of Community Affairs Community Development Block Grant, the township was not able to make the economics work without bonding and chose to cancel the project.

Local recognition of challenges and adequacy of planning to date
Stakeholders who work regularly with the county and communities in Jasper County generally are confident that local officials recognize the general potential impact of the plant closure and will understand it more specifically when information is available. As mentioned above, stakeholders recognize that more details are needed about company plans for employees, the affected goods and services firms, and assessed value reductions. Some suggested that it is not possible to be completely prepared and that communities must be able to adapt as needed.

NIPSCO reported five years in advance that the plant would close, giving communities time to respond. Some reported that NIPSCO has been active in communicating the changes through the community advisory panels (CAPs) in Lake, Porter, and LaPorte counties. Communication in Jasper County has been both directly with local elected officials and through the recent county task force. There is no Jasper County-specific CAP.

Resources and efforts to address impacts
Stakeholders identified many resources that are available to address the impacts identified above:

Workforce development and training
- The Center for Workforce Innovations serves Northwest Indiana.
- WorkOne Northwest Indiana provides services in Jasper, Lake, LaPorte, Newton, Porter, Pulaski, and Starke counties. Each county has at least one WorkOne office.
- NIPSCO has developed energy academies/centers that provide training in renewable energy occupations.
- Local high schools and career and technical education programs.
- Postsecondary institutions including Ivy Tech and Indiana University Northwest.

Economic development
- The Northwest Indiana Forum serves Lake, Porter, LaPorte, Newton, Jasper, Starke, and Pulaski counties.
- The Greater Valparaiso Chamber of Commerce serves much of Porter County. It is co-located with the Valparaiso Chamber of Commerce.
- The Valparaiso Economic Development Corporation serves Valparaiso. It is co-located with the Greater Valparaiso Chamber of Commerce.
- Jasper County Economic Development Organization (Jasper County EDO).
- Kankakee-Iroquois Regional Planning Commission (KIRPC) serves Jasper, Benton, White, Newton, Starke, and Pulaski counties.
• Northwest Indiana Regional Planning Commission serves Lake, Porter, and LaPorte counties
• Jasper County commissioners and council.

Social services
• United Ways
• Community foundations
• Food banks
• Child care
• KIRPC provides public transit (Jasper, Newton, Pulaski, and Starke counties)
• KIRPC provides Head Start (Jasper, Newton, and Pulaski counties)

Efforts to mitigate impacts
Stakeholders identified a number of efforts local communities and other stakeholders have or plan to undertake related, in part, to the expected effects of the Schahfer retirement.
• Jasper County convened a community task force to make recommendations about diversifying the local base. The report, “Preparing for Growth after 2023,” was led by the Jasper County EDO and completed in the first half of 2019. The committee recommended updating the county comprehensive plan and unified development ordinance (combined zoning and subdivision control), investing in quality-of-life projects, facilitating development around the Interstate 65 interchanges within the county by extending utilities to those areas and adopting tax increment finance (TIF) districts, revisiting the county tax abatement policy, and pursuing grant funding to support county efforts. The EDO is leading implementation. Purdue Extension and other county offices are working on the initial phases of the comprehensive plan update. The commissioners are working on developing the TIF districts.
• Jasper County is working with neighboring rural counties (Benton, White, Newton, Starke, and Pulaski) to attract value-added agricultural industries.
• Jasper County asked NIPSCO to invest in renewable energy near the retiring plant. The company released a request for proposals and received a number of responses. To date, one large solar farm has been approved locally. Another project has been proposed. A proposal for a wind farm was rejected by county residents.
• The NWI Forum released its report “Ignite the region: A regional strategy for economic transformation” in 2018. The plan addresses five pillars: entrepreneurship and innovation, business development and marketing, infrastructure, placemaking, and talent.
• KIRPC will undertake a new Community Economic Development Strategy in the summer/fall 2020.
• DeMotte is considering extending drinking water and sewer utilities out to Interstate 65.
• Wheatfield is considering a stormwater project and plans to meet with KIRPC regarding the closure.

Gaps and other issues
Stakeholders also were asked to identify any gaps in the services necessary to respond to the effects of closures and for any additional issues that were not covered by other interview questions.
• While the stakeholders interviewed generally perceive NIPSCO positively, there is some community mistrust within Jasper County.
• Stakeholders are concerned about having ample electric service at reasonable cost in the region to support the regional economy. One Jasper County stakeholder indicated some concern that large industrial customers may install their own generation if sufficient and price competitive replacement resources are not identified within the region. This could limit the development of that capacity in Jasper County.

• Only a small part of Jasper County is served by NIPSCO. The Jasper County REMC is the principal provider in the county.

• There is a bit of a geographic mismatch between employees who live in Jasper County and the bulk of training resources.

• A few stakeholders expressed concern that the language and debate around 2020 HEA 1414 may be interpreted by local officials and residents as forestalling closure and may hinder efforts to build support for the next iteration of the local economy.

• Local communities need more mental health resources to address the psychological effects of job loss on workers.

• More standardization is needed in the property tax assessment of wind and solar facilities. There is variation across the state that affects the fairness of the playing field.

**Summary**

The Schahfer Generating Station is owned and operated by NIPSCO. The plant is located in a rural setting in northern Jasper County. NIPSCO plans to close the four coal-fired units at this location by the end of 2023.

As stakeholders mentioned, the effects of the closing plant are likely to be mixed. Jasper and surrounding counties face a number of challenges. The Schahfer plant has the biggest potential employment losses—about 300—among the locations studied. Employees live in nine counties. More than a third of them live in Porter County. Both the average wage and the total compensation at the Schahfer plant are substantially more than the average wages and compensation in Porter and Jasper counties and may be hard to match, although stakeholders suggested that some high wage opportunities may be available in Northwest Indiana and Chicago. Firms in Lake and Porter counties potentially will be affected most by lost sales of goods and services to the Schahfer and Michigan City plants.

The loss of assessed value for Jasper County and taxing units that serve the northeast part of the county will be profound. Taxpayers could face increasing property tax rates with an already high local option income tax rate, historically used to offset property taxes.

On the positive side, stakeholders identified that the region was economically robust with a tight labor market and low unemployment. They added that many companies with open positions would mitigate the effects of the closure on employees, particularly those with skilled occupations. They also identified that the transition to new energy sources and available employees would provide new opportunities for the local economy including attracting new firms.
Stakeholders are confident that local officials generally understand the nature and scale of the coming impacts. They commonly expressed that communities and resource organizations need more specific information about the assessed value losses, the occupations of transitioning employees, and the goods and services firms that will be affected. Resource organizations are poised to assist the impacted employees, businesses, and communities through the transition.

Jasper County has undertaken several efforts to address the potential assessed value losses and their impact on local taxing units. First, Jasper County convened a community task force in 2019 to make recommendations about diversifying the local base. The committee recommended updating the county comprehensive plan and unified development ordinance (combined zoning and subdivision control), investing in quality of life projects, facilitating development around the I-65 interchanges within the county by extending utilities to those areas and adopting tax increment finance (TIF) districts, revisiting the county tax abatement policy, and pursuing grant funding to support county efforts. Second, the county asked NIPSCO to invest in renewable energy near the retiring plant. The company released a request for proposals and received a number of responses. To date, one large solar farm has been approved locally with additional facilities in development. Third, the county is partnering with neighboring rural counties to attract value-added agricultural industries. Fourth, DeMotte and Wheatfield, communities in northern Jasper County, are considering infrastructure investments, in part, to support economic development.

**Michigan City Generating Station**

The Michigan City Generating Station is located in Michigan City in LaPorte County and is adjacent to Lake Michigan. It is the only plant in the study that is located in an urban context and within a municipality. The annual average generation for Unit 12 (coal-fired), 2014–2018, was 1.9 million MWh. Generation in 2018 was 2.0 million MWh (NIPSCO, 2020). NIPSCO has announced plans to close its coal-fired unit at the Michigan City plant by 2028.

**Employment**

The Michigan City Generating Station employed 118 employees to operate Unit 12 in 2018. Unit 12 employment accounted for just 0.35 percent of private sector jobs in LaPorte County in 2018 (IBRC, 2020). During the past five years (2014–2018), plant employment varied from 105 to 118 employees (Figure 19) (NIPSCO, 2020).

Less than half of the plant’s employees live in LaPorte County. The remaining employees commute from Elkhart, Lake, Marshall, Porter, St. Joseph, and Starke counties (Figure 20) (NIPSCO, 2020).

---

11 NIPSCO provided the following statement when asked to provide their plans for transitioning employees. “NIPSCO is working internally to determine workforce transition and training opportunities. We have a number of activities and milestones that we have to complete over the next months and years in order to finalize our workforce transition plans. The goal, as we develop our future plans, is to create the least amount of disruption for our employees” (T. McElmurry, email communication, May 4, 2020).
FIGURE 19. Michigan City Generating Station potential employment losses from closure (2014–2018)


FIGURE 20. Michigan City Generating Station potential employment losses in Indiana from closure by zip code of employee residence (2018)

Sources: NIPSCO, 2020; IndianaMap Data Portal.
In recent years, the Northwest Indiana region had a tight labor market with low unemployment. Stakeholders who serve the region believe that employees in skilled and semi-skilled occupations can be absorbed readily into other companies, either directly or with some training. They suggested that administrative jobs may be harder for the region to absorb.

**Employee demographics**
In 2018, 94.1 percent of plant employees were white male. Most employees were ages 45–64. Two-fifths of employees, however, were ages 25–44. No employees were younger than 25 (Figure 21) (NIPSCO, 2020).

**FIGURE 21.** Michigan City Generating Station employees by age (2014–2018)

Note: NIPSCO reported no employees ages 18–24 during this period.

**Wages and compensation**
Plant employees earned $10.2 million in wages and $14.5 million in compensation (wages and benefits) in 2018. The average wages and compensation per employee were $85,508 and $126,710, respectively (Figure 22) (NIPSCO, 2020). The average wages and estimated compensation for LaPorte County were $40,810 and $52,013 (IBRC, 2020; U.S. BLS, March 19, 2020). Figure 23 shows the geographic distribution of employee compensation.

The premium wages and benefits paid by NIPSCO may be difficult to match for transitioning employees. Some stakeholders interviewed about the Schahfer closure and who operate in Northwest Indiana suggested that there may be opportunities to match these higher wages in the steel industry and by relocating to the Chicago area.

---

12 Estimated compensation was calculated using wage data from IBRC (2020) and U.S. Bureau of Labor Statistics survey data regarding compensation (March 19, 2020).
FIGURE 22. Michigan City Generating Station potential employee compensation losses (2014–2018)


FIGURE 23. Michigan City Generating Station potential employee compensation losses in Indiana from closure by zip code of employee residence (2018)

Source: NIPSCO, 2020; IndianaMap Data Portal
Occupations

Occupations at the plant are 81 percent technical/mechanical positions and 19 percent management/administrative positions. Nearly 50 percent of plant employees were classified as skilled (skilled crafts/production). About 20 percent were classified as semi-skilled (operatives/equipment and operatives/other support) and about 15 percent were classified as professional technicians, technical and engineering professionals, and other professionals (Figure 24) (NIPSCO, 2020).


As mentioned above, stakeholders who serve the region believe that employees skilled and semi-skilled can be absorbed readily into other companies, either directly or with some training. They suggested that administrative jobs may be harder for the region to absorb, but that these employees may be able to find opportunities in the South Bend and Lafayette areas.

Goods and services purchases

NIPSCO reported its average annual spending on goods and services, excluding coal, was $15.2 million overall and $3.1 million in Indiana from 2015–2018 (Figure 25). Figure 26 shows the five sectors, excluding coal, from which NIPSCO buys the most goods and services. NIPSCO purchased $40.5 million in out-of-state coal on average annually during this same period. NIPSCO reported purchasing goods and services from 14 Indiana counties (Figure 27). Firms in Lake and Porter counties could lose the most business as a result of the plant closure (NIPSCO, 2020).

While the potential loss of goods and services purchases from Indiana firms are modest, some of these same firms may be affected by the Schahfer closure as well. We do not have sufficient data to know how much overlap might exist. Additional detail about the scale of these ripple effects are described in the regional economic analysis section below.
FIGURE 25. Michigan City Generating Station potential goods and services losses, excluding coal (2015–2018)


FIGURE 26. Michigan City Generating Station average annual goods and services purchases—Five largest categories, excluding coal (2015–2018)

FIGURE 27. Michigan City Generating Station potential goods and services losses, excluding coal, in Indiana from closure by county (2015–2018)

Average annual spending at risk (2015–2018)
- None
- $1–$150K
- $150K–$300K
- $300K–$450K
- $450K+

Total purchases
- IN: $2,822,502
- IN unassigned: $261,549
- Non-IN: $9,581,219
- Location unavailable: $2,570,570

Notes:
1. County totals were aggregated from zip code data.
2. The Michigan City plan purchases only out-of-state coal. These purchases are not reflected in the total shown for purchases from other states.

Sources: NIPSCO, 2020; IndianaMAP Data Portal.
Local income and property taxes

Table 10 shows total assessed value for LaPorte County, Michigan Township, Michigan City, and Michigan City Area Schools. Table 11 shows the assessed value of selected plant parcels, particularly those with improvements or substantial land assessed value. The selected parcels for the Michigan City plant make up almost 10 percent of the assessed value in Michigan City. The proportions for the other taxing units are more modest. All generally are less than the proportion of assessed value represented by the other plants located in rural locations.

**TABLE 10.** Total certified assessed value for selected local governments (assess 2019, pay 2020)

<table>
<thead>
<tr>
<th>Local Government</th>
<th>CERTIFIED ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaPorte County</td>
<td>$5,575,472,955</td>
</tr>
<tr>
<td>Michigan Township</td>
<td>$1,818,012,184</td>
</tr>
<tr>
<td>Michigan City</td>
<td>$1,372,013,562</td>
</tr>
<tr>
<td>Michigan City Area Schools</td>
<td>$2,694,187,503</td>
</tr>
</tbody>
</table>


**TABLE 11.** Michigan City Generating Station assessed value for selected parcels as a share of assessed value for selected taxing units (assess 2019, pay 2020)

<table>
<thead>
<tr>
<th>PARCEL</th>
<th>ASSESSED VALUE</th>
<th>SHARE OF LAPORTE COUNTY ASSESSED VALUE</th>
<th>SHARE OF MICHIGAN TOWNSHIP ASSESSED VALUE</th>
<th>SHARE OF MICHIGAN CITY ASSESSED VALUE</th>
<th>SHARE OF MICHIGAN CITY SCHOOLS ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>46-01-29-151-006.000-022</td>
<td>$8,099,300</td>
<td>0.2%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$6,892,800</td>
<td>0.1%</td>
<td>0.4%</td>
<td>0.5%</td>
<td>0.3%</td>
</tr>
<tr>
<td>46-01-29-101-001.000-022</td>
<td>$1,249,900</td>
<td>0.0%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>46-01-29-151-007.000-022</td>
<td>$1,173,800</td>
<td>0.0%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Personal property improvements</td>
<td>$118,245,920</td>
<td>2.1%</td>
<td>6.5%</td>
<td>8.6%</td>
<td>4.4%</td>
</tr>
<tr>
<td>Total assessed value</td>
<td>$135,661,720</td>
<td>2.4%</td>
<td>7.5%</td>
<td>9.9%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Real and personal improvements</td>
<td>$126,345,220</td>
<td>2.3%</td>
<td>7.0%</td>
<td>9.2%</td>
<td>4.7%</td>
</tr>
</tbody>
</table>

Note: The certified total assessed value for the county, township, city, and school districts in Table 10 were used to calculate the percentage in this table.

---

13 Tax bill data shows that personal property assessed value increased by approximately $50 million for NIPSCO-owned properties in LaPorte County between Assess 2018, Pay 2019 and Assess 2019, Pay 2020 property tax years.
The property tax assessment of utilities is complex, and the exact loss of assessed value that will result from closure is unknown. These losses, however, will challenge local governments with, all else the same, increases in property tax rates and potential property tax increases for county, township, city, and school taxpayers. Because the plant is located inside a municipality, there is an increased likelihood of property cap losses.

Among the counties with five or more plant employees who reside there, LaPorte, Porter, Lake, and Elkhart counties utilize local option income taxes (Table 12) (ISBA, 2019). The number and distribution of employees across these counties, and the relative income tax rates, suggest a minimal effect on local revenues. The relatively low local income tax rate for LaPorte County provides an option for replacing potential property tax losses.

### TABLE 12. County local income tax rates for final CY 2020 certified distribution

<table>
<thead>
<tr>
<th>LOIT RATES</th>
<th>LAPORTE COUNTY</th>
<th>PORTER COUNTY</th>
<th>LAKE COUNTY</th>
<th>ELKHART COUNTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified shares</td>
<td>0.500%</td>
<td>0.000%</td>
<td>0.000%</td>
<td>1.000%</td>
</tr>
<tr>
<td>Public safety</td>
<td>0.000%</td>
<td>0.000%</td>
<td>0.250%</td>
<td>0.250%</td>
</tr>
<tr>
<td>Economic development</td>
<td>0.450%</td>
<td>0.500%</td>
<td>0.250%</td>
<td>0.250%</td>
</tr>
<tr>
<td>Property tax relief</td>
<td>0.000%</td>
<td>0.000%</td>
<td>1.000%</td>
<td>0.250%</td>
</tr>
<tr>
<td>Special purpose</td>
<td>0.000%</td>
<td>0.000%</td>
<td>0.000%</td>
<td>0.250%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.950%</strong></td>
<td><strong>0.500%</strong></td>
<td><strong>1.500%</strong></td>
<td><strong>2.000%</strong></td>
</tr>
</tbody>
</table>

*Note: None of these counties has adopted a correctional facility local income tax rate.*

*Source: ISBA, Nov. 18, 2019.*

### Regional economic analysis

As mentioned above, the power plant at Michigan City employs nearly 120 workers who earn a combined $14.5 million in compensation (Table 13) (NIPSCO, 2020). In addition to these direct effects, the supply chain purchases for this facility along with the household spending of the employees combined to support another 150 additional ripple-effect jobs for other businesses in the region. All told, the Michigan City plant’s full employment footprint in the region stands at an estimated loss of 268 jobs with a total compensation loss of $21.8 million.

### TABLE 13. Estimated regional effects of the Michigan City Generating Station closure

<table>
<thead>
<tr>
<th></th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>118</td>
<td>150</td>
<td>268</td>
<td>2.27</td>
</tr>
<tr>
<td>Compensation</td>
<td>$14.5M</td>
<td>$7.3M</td>
<td>$21.8M</td>
<td>1.50</td>
</tr>
<tr>
<td>GDP</td>
<td>$65.3M</td>
<td>$11.2M</td>
<td>$76.5M</td>
<td>1.17</td>
</tr>
<tr>
<td>State and local tax revenue</td>
<td>$3.6M</td>
<td>$0.9M</td>
<td>$4.5M</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Sources: NIPSCO, 2020; IBRC using the IMPLAN economic modeling software.*

14 This analysis was conducted for the region that includes LaPorte County in which the Michigan City plant is located, along with bordering counties including Porter, Starke, and St. Joseph counties. A separate analysis for the effects on only LaPorte County is available in Appendix B.
In terms of contributions to the broader economy, the combined effects of the Michigan City plant’s activities created an estimated $76.5 million to total GDP for the region. The multiplier of 1.17 indicates that every dollar of GDP directly generated by the facility spurs an additional $0.17 in economic activity in the region.

The combined economic activity created by this plant contributes an estimated $4.5 million to annual state and local government revenues.

Table 14 lists the industries that will likely take the hardest hits from a Michigan City plant closure, with maintenance and repair construction leading the way with an estimate loss of 35 jobs in the region. The only other industry on this list that would be considered part of the plant supply chain would be wholesale trade. A decline in household spending as a result of lost employee compensation will drive the impacts to the remaining industries on the list.

**TABLE 14.** Michigan City Generating Station regional employment ripple effects—Top 10 industries

<table>
<thead>
<tr>
<th>Industry</th>
<th>JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and repair construction of nonresidential structures</td>
<td>35</td>
</tr>
<tr>
<td>Hospitals</td>
<td>7</td>
</tr>
<tr>
<td>Full-service restaurants</td>
<td>6</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
<td>6</td>
</tr>
<tr>
<td>Real estate</td>
<td>5</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>4</td>
</tr>
<tr>
<td>General merchandise stores</td>
<td>4</td>
</tr>
<tr>
<td>Physician offices</td>
<td>4</td>
</tr>
<tr>
<td>Food and beverage stores</td>
<td>3</td>
</tr>
<tr>
<td>Colleges, universities, and professional schools</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

The force account scenario in Appendix B contemplates that some share of construction workers employed at the plant, as well as some of the labor and spending associated with specialty contractors, will continue to be employed in the region by NIPSCO. These workers and contractors could be redeployed to other activities such as building and maintaining transmission and distribution systems or other types of generation infrastructure. Assuming that 30 percent of plant construction workers and 50 percent of labor and purchases for specialty contractors remain engaged with the utility, the full employment effects of this closure would change from a gross loss of 268 jobs (with no force account adjustment) to a net loss of 225 jobs (with the force account adjustment) while the full GDP impact would change from a gross loss $76.5 million drop in value added to a less severe net-loss of $64.8 million.
Summary
The Michigan City Generating Station is owned and operated by NIPSCO. The plant is located in Michigan City on Lake Michigan. It is a small plant relative to Schahfer and Petersburg. It is the only plant in the study that is located in an urban and municipal setting.

Within the region, LaPorte County potentially will be affected most in terms of employment. Loss of assessed value is likely to have a substantial effect on local taxing units, including Michigan City, Michigan Township, Michigan City Area Schools, and—to a lesser degree—LaPorte County. Lake and Porter counties will be affected most by lost sales of goods and services. Specialty trade contractors in the goods and services industry are most likely to be affected by the plant closures for all regions.

Petersburg Generating Station
The Petersburg Generating Station is owned and operated by IPL. It is located in a rural setting near Petersburg in Pike County. The annual average net generation between 2014 and 2018 was 9.6 million MWh (IPL, 2020a).

IPL has announced the closure of two of the four generating units by 2023. Units 1 and 2 account for 39.6 percent of the plant’s average annual net generation 2016–18 (IPL, 2020a). For the analysis that follows, plant data—employment, wages and compensation, purchased goods and services, etc.—has been parsed using this proportion. The effects of closure also are assumed to occur proportionally by demographics, geography, etc.

Employment
Employment at the Petersburg plant increased from 2014 through 2018. In 2014, the plant had 291 employees. In 2018, the plant had 316 employees (IPL, 2020a). An estimated 125 employees could be at risk with the partial closure (Figure 28). These lost jobs account for 4.6 percent of the private sector jobs in Pike County in 2018 (IBRC, 2020)

FIGURE 28. Petersburg Generating Station total employees and estimated lost employment from partial closure (2014–2018)

Note: Estimated job losses were calculated using the proportion of anticipated plant capacity reduction from partial closure.
Source: IPL, 2020a.
Most of the employees who work at the plant live in Pike and Daviess counties. Employees also commute to the plant from Dubois, Gibson, Greene, Knox, Martin, Owen, Spencer, Sullivan, Switzerland, Vanderburgh, and Warrick counties. Figure 29 shows potential job losses in Indiana by zip code based on where employees live (IPL, 2020a).

Pike County has a relatively small industrial base. The regional industrial base is more robust. Both Pike County and the region have a tight labor market and low unemployment. Stakeholders believe that skilled and semi-skilled workers can be absorbed into the many open positions in the region.
Employee demographics
A strong majority of employees in 2018 were white (97.9 percent) and male (96.2 percent). Figure 30 shows potential job losses by employee age. More than half of plant employees were ages 45–64, and more than one-third of employees were 25–44. The plant employed just a small proportion of employees ages 18–24 and age 65 and older (IPL, 2020a).

FIGURE 30. Petersburg Generating Station potential job losses from partial closure by employee age (2014–2018)

If employees are not able to stay in the continuing operations or transfer within the company, stakeholders believe that many employees are settled in their communities and will commute to new jobs, if possible. There is some worry in Pike County about potential population loss if employees choose to relocate.

Wages and compensation
With a partial closure, an estimated $16 million in employee compensation is potentially at risk. Figure 32 shows the geographic distribution of employee compensation. In 2018, the average wages for a plant employee was $122,059 and the average compensation—which includes wages and benefits—was $183,919 (IPL, 2020a). This is more than twice the estimated average compensation in Pike and Daviess counties in 2018 (Figure 31) (IBRC, 2020). In Pike County, the average private-sector wage was $54,205 and the average compensation—including wages and benefits—was $70,412. In Daviess County, the average private-sector wage and estimated total compensation were $35,965 and $46,719, respectively (IBRC, 2020; U.S.BLS, March 19, 2020).15 Stakeholders believe that the premium wages and benefits paid by IPL may be difficult to match for transitioning employees.

FIGURE 31. Petersburg Generating Station total compensation and potential losses (2014–2018)

Note: Potential wage losses were calculated using the proportion of anticipated plant capacity reduction from partial closure.
Source: IPL, 2020a.

FIGURE 32. Petersburg Generating Station potential employee compensation losses in Indiana from partial closure by zip code of employee residence (2018)

Note: Potential job losses were calculated using the proportion of anticipated plant capacity reduction from partial closure.
Source: IPL, 2020a; IndianaMAP Data Portal.
**Occupations**

In 2018, more than three-quarters of employee occupations at the plant were skilled/semi-skilled. More than 10 percent of employees were classified as supervisors and about 10 percent were classified as helpers. The company did not list any administrative staff (Figure 33) (IPL, 2020). Anecdotal information from stakeholders suggest that the plant human resources unit was closed in the last few years.

Stakeholders believe that skilled and semi-skilled workers can be absorbed by the regional economy. They expressed concern that management and administrative jobs may be more difficult to absorb.

**FIGURE 33. Petersburg Generating Station worker occupations associated with predicted job losses (2018)**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Potential Job Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other plant and system operators</td>
<td>51</td>
</tr>
<tr>
<td>First line supervisors of mechanics, installers, and repairers</td>
<td>16</td>
</tr>
<tr>
<td>Helpers—production workers</td>
<td>13</td>
</tr>
<tr>
<td>Maintenance and repair workers—general</td>
<td>10</td>
</tr>
<tr>
<td>Life, physical and social science technicians</td>
<td>9</td>
</tr>
<tr>
<td>Electrics repairers—powerhouse substation and relay</td>
<td>8</td>
</tr>
<tr>
<td>Electrical engineers</td>
<td>4</td>
</tr>
<tr>
<td>Welders, cutters, solderers, and brazers</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Potential job losses by occupation were calculated using the proportion of anticipated plant capacity reduction from partial closure. Source: IPL, 2020a.

**Goods and services purchases**

From 2014–2018, the Petersburg plant purchased an annual average of $179 million of inputs—goods and services, excluding coal—from all firms. The plant purchased $74.1 million on average annually from firms in Indiana. Those Indiana firms could lose $34.2 million in annual average sales from the partial closure (Figure 34). Specialty trade contractors account for about half of these losses (Figure 35).

Figure 36 shows the geographic distribution of potential losses. IPL reported making purchases from firms in 34 counties. The largest potential losses are possible in Marion, Vanderburgh, and Knox counties.

During the past five years (2014–2018), the Petersburg plant purchased an average of 4.5 million tons of coal annually with an average value of $215.8 million (IPL, 2020). The partial closure puts the purchase of 1.8 million tons of coals at an approximate value of $85.5 million at risk. In 2018, more than half of coal purchases came from mines in Gibson County. The plant also purchased coal from mines in Sullivan, Knox, Daviess, and Dubois counties (EIA, 2019c).
FIGURE 34. Petersburg Generating Station estimated loss of goods and services sales from partial closure, excluding coal (2014–2018)

Note: Potential losses in goods and services sales were calculated using the proportion of anticipated plant capacity reduction from partial closure.

FIGURE 35. Petersburg Generating Station top five types of goods and services purchased, excluding coal, and potential sales losses from partial closure (2018)

Source: IPL, 2020a.
FIGURE 36. Petersburg Generating Station potential annual goods and services losses, excluding coal, in Indiana from partial closure by county (2014–2018)

Average annual spending at risk (2014–2018)

- None
- $1–$150K
- $150K–$300K
- $300K–$450K
- $450K+

Notes:
1. Potential sales losses were calculated using the proportion of anticipated plant capacity reduction from partial closure.
2. County totals were aggregated from zip code data.
3. The Petersburg plant purchases Indiana coal. These purchases are not reflected in the Indiana goods and services sales reported here.

Source: IPL, 2020; IndianaMAP Data Portal.
IPL makes substantial purchases in Indiana of coal and other goods and services. Among the companies in our analysis, IPL purchases touch firms in the broadest set of counties. Some of these same firms may be affected by the Rockport partial closure as well. We do not have sufficient data to know specifically how much overlap might exist.

Additional detail about the scale of these ripple effects are described in the regional economic analysis section below.

**Local income and property taxes**

Tables 15 and 16 show total assessed value for Pike County, Washington Township, and Pike County School Corporation, and the assessed value of selected parcels owned by IPL, particularly those with real and personal improvements or substantial land assessed value.

**TABLE 15. Total assessed value for selected local governments (assess 2019, pay 2020)**

<table>
<thead>
<tr>
<th></th>
<th>CERTIFIED ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pike County</td>
<td>$625,655,419</td>
</tr>
<tr>
<td>Washington Township</td>
<td>$273,440,242</td>
</tr>
<tr>
<td>Pike County School Corporation</td>
<td>$625,655,419</td>
</tr>
</tbody>
</table>


**TABLE 16. Schahfer Generating Station assessed value as a share of assessed value for selected parcels and taxing units (assess 2019, pay 2020)**

<table>
<thead>
<tr>
<th>Assessed Value</th>
<th>Share of Pike County Assessed Value</th>
<th>Share of Washington Township Assessed Value</th>
<th>Share of Pike County School District Assessed Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-02-12-700-014.000-011</td>
<td>$1,501,400</td>
<td>0.2%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$1,060,400</td>
<td>0.2%</td>
<td>0.4%</td>
</tr>
<tr>
<td>63-02-12-800-008.000-011</td>
<td>$1,459,000</td>
<td>0.2%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$926,900</td>
<td>0.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>63-02-12-900-006.000-011</td>
<td>$31,720,700</td>
<td>5.1%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$27,621,800</td>
<td>4.4%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Personal property improvements</td>
<td>$98,026,310</td>
<td>15.7%</td>
<td>35.8%</td>
</tr>
<tr>
<td>Total assessed value</td>
<td>$132,707,410</td>
<td>21.2%</td>
<td>48.5%</td>
</tr>
<tr>
<td>Real and personal property improvements</td>
<td>$127,635,410</td>
<td>20.4%</td>
<td>46.7%</td>
</tr>
</tbody>
</table>

Notes:
1. These numbers were not adjusted using the proportion of retiring capacity with partial closure.
2. The certified total assessed value for the taxing districts in Table 15 were used to calculate the percentages in this table.

Based on the value of these selected parcels, the Petersburg Generating Station makes up a substantial portion of the property tax base for these three local governments. The personal and real property improvements for these parcels make up one-fifth of the certified assessed value for the county and the school district. The proportion is almost double that for Washington Township. These units experienced property tax reductions in the past with the closure of the Hoosier Energy Ratts Generating Station. They also experienced a significant assessed value reduction for the Petersburg plant, about $94 million in the plant’s assessed value from the 2019 to the 2020 budget year. Stakeholders indicated that for the recent substantial reduction units were able to raise property tax rates and generally were able to maintain the previous level of services.

The additional losses of assessed value that will result from closure are unknown, and may be particularly devastating for these units given the recent reduction. These losses will be very challenging with likely some increases in tax rates and property taxes for county, township, and school taxpayers. These increases will likely be mitigated for taxpayers by property tax caps. Local leaders also may consider changes to public services to offset increases.

Among the counties that have five or more plant employees who reside there, Pike, Daviess, Dubois, Knox, and Vanderburgh counties utilize local options income taxes (Table 17) (ISBA, 2019). The number and distribution of employees across these counties and the relative income tax rates, suggest a minimal effect on local revenues. Pike County’s relatively low income tax rate provides an option for replacing potential property tax losses.

**TABLE 17. County local income tax rates for final CY 2020 certified distribution**

<table>
<thead>
<tr>
<th>LOIT Rates</th>
<th>Pike County</th>
<th>Daviess County</th>
<th>Dubois County</th>
<th>Knox County</th>
<th>Vanderburgh County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified shares</td>
<td>0.0000%</td>
<td>1.0000%</td>
<td>0.6000%</td>
<td>0.6000%</td>
<td>0.9035%</td>
</tr>
<tr>
<td>Public safety</td>
<td>0.2500%</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.2000%</td>
</tr>
<tr>
<td>Correctional facility</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.2000%</td>
<td>0.2000%</td>
<td>0.0000%</td>
</tr>
<tr>
<td>Economic development</td>
<td>0.5000%</td>
<td>0.2500%</td>
<td>0.4000%</td>
<td>0.4000%</td>
<td>0.0000%</td>
</tr>
<tr>
<td>Property tax relief</td>
<td>0.0000%</td>
<td>0.2500%</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.0965%</td>
</tr>
<tr>
<td>Special purpose</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.0000%</td>
<td>0.0000%</td>
</tr>
<tr>
<td>Total</td>
<td>0.7500%</td>
<td>1.5000%</td>
<td>1.2000%</td>
<td>1.2000%</td>
<td>1.2000%</td>
</tr>
</tbody>
</table>

Source: ISBA, Nov 18, 2019.
Regional economic analysis

The estimated economic effects from the partial closure of the generating station in Petersburg stand out from the other facilities in this analysis since it is the only facility using Indiana coal. A partial closure of this plant would lead to an estimated loss of approximately 125 direct employees (IPL, 2020). With the loss of associated supply chain purchases and household spending, the total job loss could rise as high as 595 jobs in the region worth an estimated $44.4 million in employee compensation (Table 18). To provide some context, the U.S. Bureau of Economic Analysis reports that this region had a total of nearly 139,000 jobs in 2018, meaning the total estimated effect of this partial closure would represent 0.4 percent of total employment in the area.

Other potential economic effects from this partial closure include a total of nearly $146 million in GDP in the region and $9.6 million in annual state and local government revenues.

**TABLE 18. Estimated regional effects of Petersburg Generating Station partial closure**

<table>
<thead>
<tr>
<th></th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>125</td>
<td>470</td>
<td>595</td>
<td>4.76</td>
</tr>
<tr>
<td>Compensation</td>
<td>$15.3M</td>
<td>$29.1M</td>
<td>$44.4M</td>
<td>2.90</td>
</tr>
<tr>
<td>GDP</td>
<td>$71.7M</td>
<td>$74.1M</td>
<td>$145.8M</td>
<td>2.03</td>
</tr>
<tr>
<td>State and local tax revenue</td>
<td>$3.4M</td>
<td>$6.2M</td>
<td>$9.6M</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Sources: IPL, 2020; IBRC, using the IMPLAN economic modeling software.

Even with the coal sourced locally, the maintenance and repair construction industry would sustain the biggest losses with an estimated 127 jobs (Table 19). The decrease in demand for coal would lead to the loss of an estimated 106 jobs in the Southwest Indiana region including Daviess, Dubois, Gibson, Knox, Warrick, and Sullivan counties. The IMPLAN model indicates that this region has a total of nearly 2,220 jobs in the coal-mining industry, an estimated impact that translates to 4.8 percent of total coal jobs in the region.

The force account scenario in Appendix B contemplates that some share of construction workers directly employed at the plant, as well as some of the labor and spending associated with specialty contractors, will continue to be employed in the region by IPL. These workers and contractors could be redeployed to other activities such as building and maintaining transmission and distribution systems or other types of production infrastructure. Assuming that 30 percent of plant construction workers and 50 percent of labor and purchases for specialty contractors remain engaged with the utility, the full employment effects of this partial closure would improve from a loss of 595 jobs to 476 jobs, while the full GDP losses would improve from an estimated $145.8 million in value added to $128.0 million.

16 This analysis was conducted for the region that includes Pike County in which the Petersburg plant is located, along with bordering counties including Daviess, Dubois, Gibson, Knox, and Warrick counties. Sullivan County also was included in this region because the plant buys a portion of its coal from suppliers in this county. A separate analysis for the effects on Pike County solely is available in Appendix B.
TABLE 19. Petersburg Generating Station employment ripple effects—Top 10 industries

<table>
<thead>
<tr>
<th>JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and repair construction of nonresidential structures</td>
</tr>
<tr>
<td>Coal mining</td>
</tr>
<tr>
<td>Wholesale trade</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
</tr>
<tr>
<td>Real estate</td>
</tr>
<tr>
<td>Full-service restaurants</td>
</tr>
<tr>
<td>Architectural, engineering, and related services</td>
</tr>
<tr>
<td>General merchandise stores</td>
</tr>
<tr>
<td>Hospitals</td>
</tr>
<tr>
<td>Miscellaneous store retailers</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

Stakeholder Input

Stakeholder perceptions about the impact expected from partial closure and local preparations for these changes are provided below.

Expected economic impacts

Most stakeholders indicated that the economic effects of the partial retirement at Petersburg will be very negative for Pike County and the surrounding region. More specifically, they identified potential job losses and wage reductions for employees, an impact on the plant’s goods and services suppliers, and effects on local service industry. Stakeholders indicated that coal mines already have begun closing and laying off employees.

IPL is one of the two biggest employers in Pike County. Most stakeholders do not believe that workers are leaving their jobs in anticipation of closure. A few indicated that some may be starting to look around and that some people will not plan ahead. The Washington mayor indicated they are getting more applications for city positions. Stakeholders shared that the partial closure will be a “big transition for workers” and that the loss of a job can be “devastating, like losing a loved one.”

Most stakeholders indicated that communities need more information about the company’s specific plans for employees to understand the nature and scale of impacts for plant workers and tailor assistance to those specific needs. The recent WARN\(^1\) notice will allow WorkOne to survey IPL workers. There is some expectation among stakeholders that IPL will address early job cuts through transfers, retirement, and attrition.\(^2\) Younger workers may have to find new jobs and possibly relocate. The partial closure may also

---

17 Refers to a notice under the Worker Adjustment and Retraining Notification Act of 1988.

18 IPL provided the following statement when asked about their plans for transitioning employees. “With regard to the public information around Petersburg employee retraining, Indianapolis Power & Light Company continues to develop and analyze its staffing projections and potential training opportunities associated with the two planned retirements at Petersburg Generating Station in 2021 and 2023, respectively” (A. Baker, email communication, May 17, 2020).
affect part-time workers at the plants, potentially including some local firefighters who work part time in the plant’s safety department.

Stakeholders indicated that the negative effects of layoffs will be mitigated to a degree by the tight labor market with a substantial number of open positions in the surrounding region. They mentioned the region is becoming an automotive cluster. There are open jobs at Toyota in neighboring Gibson County. They also identified open jobs with Dubois County manufacturers. They suggested that many employers are willing to provide training.

Officials believe that employees with production jobs will be able to find new positions directly. They suggested that employees with technician positions may need some training. Employees with administrative jobs are expected to be harder to absorb within the regional economy. One stakeholder mentioned that IPL closed the Petersburg human resources unit a few years ago.

Stakeholders indicated that matching current wages and benefits often including overtime is likely to be a challenge. One stakeholder provided an example of a recent closure of a legacy industry that resulted in a $6–$10/hour reduction in wages for those workers in new positions.

Stakeholders perceive that residents in the region generally are settled in their communities where they have connection to churches, schools, childcare, etc. They expect that some of the displaced workers will commute to other jobs in the region. Some believe that workers who leave IPL in the first wave of the partial closure will stay, but they are less confident that workers who leave in the second wave of potential layoffs will stay.

Pike County officials are particularly worried that employees who live in the county will leave. Population loss is a common challenge in rural areas, affecting the communities’ ability to maintain the critical mass of people and business needed to thrive. They also expressed concern that the partial closure would have a negative impact on the already tight housing market.

Stakeholders believe that the challenges will filter down to goods and services providers as well as to the local service economy. They noted that IPL has continued to make investments in the plant. More information is needed from IPL to identify the nature and scale of likely effects. Stakeholders identified specifically potential effects on the railroad companies that deliver coal. Officials also identified known suppliers that provide welding, fabricating, fuel, and limestone. Stakeholders suggested effects on local businesses such as restaurants, although they disagreed about the likely severity. In Pike County some proprietors were identified to be spouses of plant employees, creating additional potential challenges for those families.

Pike County officials are thinking about the disposition of the retired elements at the IPL facility. No specific plans have been shared yet.

While IPL does not provide local electricity, officials are concerned about the effects of the transition on the power industry and on the availability and price of electricity locally. Power is an important input for potential replacement employers.
Expected local tax impacts
Pike County has a small industrial property tax base and projects a substantial loss of assessed value that will affect property tax revenue in 2023 to Pike County, Washington Township, the Petersburg Fire Territory, the Pike County School Corporation, and the Pike County Library. These taxing units already faced reductions in assessed value with the retirement of the Hoosier Energy Ratts Generating Station and more recently as a result of the depreciation and reallocation of IPL assets. Local governments were able to maintain services by raising tax rates. With the announcement that the partial closure will happen sooner than previously expected, taxing units are trying to be frugal. The Pike County Library is concerned about funding building expansion that is underway. Some stakeholders are concerned that the Pike County landscape does not lend itself well to development that can mitigate these losses. The reuse of old mine land is challenging.

Pike and Daviess county officials expect some impact on local option income taxes from job and wage losses for plant and supplier workers. Pike County officials hopes that those losses will not be as bad as for property taxes.

Local recognition of effects and adequacy of planning to date
Stakeholders that work regularly with the county and communities in Pike County generally are confident that local officials recognize the potential changes generally and will understand more specifically when information is available. Several indicated that IPL reported several years in advance that the plant would close, giving communities time to respond. Officials mentioned that a few local leaders are new and might have a bit of a learning curve.

Stakeholders indicated that the affected communities have put substantial energy into preparing for the anticipated effects of partial closure. They believe, however, that a new urgency and more planning is needed with the recent announcement of a compressed timeline for partial closure and as more specific information is available from IPL about their plans for employees and the affected goods and services firms.

One stakeholder suggested thinking creatively and looking at case studies from other areas of the country that have dealt with the decline of the coal industry, including Appalachia.

Resources to address impacts
Stakeholders identified many nonprofit and public sector organizations that are working on or serve as resources to address the effects identified above.

Workforce development and training
• WorkOne Region 8 (South Central) serves Brown, Daviess, Greene, Lawrence, Martin, Monroe, Orange, and Owen counties. All counties have a local office.
• WorkOne Region 11 (Southwest) provides services in Dubois, Gibson, Knox, Perry, Pike, Posey, Spencer, Vanderburgh, and Warrick counties. There are no local offices in Pike, Posey, Spencer, and Warrick counties. They reported an upcoming meeting with the Pike County library about a location for service hours in the county.
• IPL training.
• The Patoka Valley Career and Technical Cooperative includes the following high schools: Jasper, Pike County, Northeast Dubois, Southeast Dubois, Southwest Dubois,
North Spencer, East Gibson, Tell City, Perry Central, and Cannelton. These schools work together to cover a variety of CTE specialties.

- Washington High School.
- Postsecondary institutions including Ivy Tech and Vincennes.

Economic development

- Pike County Economic Development Corporation.
- Daviess County Economic Development Corporation.
- Radius Indiana serves Crawford, Daviess, Dubois, Greene, Martin, Orange, Lawrence, and Washington counties.
- Indiana 15 Regional Plan Commission provides assistance to communities with studies and applying for funding.
- Pike County Chamber of Commerce provides technical assistance to entrepreneurs.
- Southwest Indiana Development Council (SWIDC) is a coalition of local economic development organizations from Crawford, Daviess, Dubois, Knox, Martin, Orange, Perry, Pike, and Spencer counties.

Social services

- Worship sector for food support and other services.
- Township relief.

Efforts to mitigate impacts

Stakeholders identified a number of efforts local communities and other stakeholders have or plan to undertake related, at least in part, to the expected effects of the partial closure.

- The Pike County Economic Development Corporation has developed the Southwest Indiana Megasite, a 4,000-acre industrial park near I-69. The site is shovel-ready with electric (Win Energy and Hoosier Energy), water (Petersburg), sewer (Petersburg), and natural gas available. The site also is served by rail. Pike County EDC has completed a marketing study for the site. The city and county are working to market sites. Recently, stakeholders reported having some heavy industrial prospects.
- The development is on reclaimed mine land. The 2020 HEA 1065 allows mine reclamation sites to be designated as eligible for redevelopment tax credits. This incentive will be helpful in marketing the Megasite.
- Some new and relocating companies want to market to investors and customers that they use sustainable energy. Some want on-site generation, while others want to say that energy used at their sites comes from renewables.
- The Pike County Progress Partners is developing the Entrepreneurship and Technology Center also near I-69 that will provide support for entrepreneurs with coworking, training, and makers’ spaces. It will open in late 2020.
- The Pike County Chamber of Commerce provides technical assistance services for local entrepreneurs.
- The Pike County Commissioners and Council are collaborating with nearby communities on a number of efforts, including working with Ivy Tech and Vincennes University on training and retraining.
• Pike County updated its comprehensive plan in the last couple of years.
• Petersburg is working on a wastewater upgrade using a U.S. Department of Agriculture grant and is preparing the engineering for a drinking water project.
• Representatives of the U.S. Economic Development Administration recently visited the region. The agency will provide access to the Assistance to Coal Communities program, which is available to communities with a WARN notice. These funds have been used for Entrepreneurship and Technology Center. They also can be used for water and sewer improvements.
• Petersburg joined the Main Street program in 2016.
• WorkOne Region 11 will survey IPL employees about needs as a result of the WARN notice.
• The community is applying for a Lilly Endowment grant to support retraining.
• The Daviess County Economic Development Corporation had planned a recent job fair, but it was cancelled due to the pandemic.
• Pike County EDC and Daviess County EDC were among the partners that participated in the Southwest Indiana Technology and Collaboration Hub Network Feasibility Study known as the SWITCH Study, launched in late 2018 and focused on entrepreneurship in the technology and defense sectors. Additional partners included nine additional local economic development organizations (Crawford, Daviess, Dubois, Greene, Knox, Lawrence, Martin, Monroe, Orange, Pike and Washington counties), three regional planning commissions (SIDC, River Hills and IN 15), two regional economic development organizations (Radius Indiana and the Southwest Indiana Development Council), Regional Opportunity Initiatives, Inc., and the Indiana Economic Development Corporation.
• The Pike County Economic Development Corporation, Farm Bureau, the Pike County Soil and Water Conservation District, and Purdue Extension hosted a workshop in March 2020 about the local tax impacts from partial closure. The speaker was Purdue University Professor Larry DeBoer. 
• Several solar projects have been proposed in Pike County, including one resulting from an IPL request for proposals issued in late 2019 regarding the competitive procurement of replacement capacity.
• Daviess County EDC created the Daviess County Quality of Place and Workforce Attraction Plan through the Regional Opportunity Initiatives, Inc. Ready Communities Program. The program encourages investment in quality of life and in the skills gap for STEM careers in defense, technology, medical devices, and advanced manufacturing.
• Washington High School is working to launch a College and Career Academy, a career pathways strategy. The program will connect students with local and regional employers to establish local talent pipelines.
• In addition to services provided to member counties, Radius Indiana has invited Pike County to participate in a number of programs and is open to additional collaborations.

Gaps and other issues
Stakeholders identified service and resources gaps, as well as a number of miscellaneous issues.
• More resources are needed to address the local skills gap.
• One stakeholder would like to see more activity from the U.S. Small Business Administration to support small business startups locally and more partnerships run through the new technology and entrepreneurial center.
• Some local leaders across the state, including a number of city councils, have called for retiring coal-fired generation and moving to renewable sources. One stakeholder hoped that those communities would be a bit more sensitive about the effects of the transition directly on the affected communities.
  Regional definitions can be limiting in crafting solutions.
• One stakeholder suggested that the federal Opportunity Zone program could be helpful if there was more flexibility about the drawing of zones. Rural residences and needed investments are not as compact as in more urban areas.
• More guidance is needed for assessors about the assessment of wind and solar facilities. There are varied treatments across the state.

Summary
The Petersburg Generating Station is owned and operated by IPL. The plant is located in a rural setting in Pike County. IPL plans to close Units 1 and 2 by 2023.

Most stakeholders indicated that the partial closure of the IPL plant will affect Pike County and the region negatively. They specifically identified job and wage losses for employees, loss of sales for mining and other goods and services firms, and the effects on the local service industry. Within the region, Pike County and its communities will be the most profoundly affected by the partial closure and the resulting job losses, sales losses to the local service industry, and loss of property tax base.

Stakeholders believe that job losses will be mitigated by available jobs in the robust regional industrial economy. They believe that production workers will be absorbed quickly, while technician-level positions may require some training. Firms in the region often are willing to provide training. Other occupations may be harder to absorb.

Many stakeholders identified households in southern Indiana as locally rooted and that they will be willing to commute to new jobs. There also is concern, particularly in Pike County, about employee relocation and potential population loss that can further exacerbate the challenges of a rural community.

Petersburg is the only plant in our analysis that uses Indiana coal. Firms in five counties in the region are at risk for loss of coal sales, while firms in Marion, Vanderburgh, and Hamilton counties are most at risk for other goods and services. The greatest potential ripple-effect job losses are in the specialty trades and in mining.

Pike County has a small industrial property tax base and projects a substantial loss of assessed value that will affect property tax revenue in 2023 to Pike County, Washington Township, the Petersburg Fire Territory, the Pike County School Corporation, and the Pike County Library. These taxing units suffered assessed value losses in the current budget year as a result of the depreciation and reallocation of IPL assets. Local governments have been able to maintain services by raising tax rates. In anticipation of further losses, the affected taxing units are trying to be frugal. Pike and Daviess county officials expect some impact on local option income taxes from job and wage losses for plant and supplier workers.
Stakeholders generally are confident that local officials recognize the potential changes generally given available information. They mentioned that some new elected officials may have a bit of a learning curve. All agreed that more specific information is needed to refine local efforts and that a new urgency and more planning are needed with the recent announcement of a compressed timeline. The WARN notice will allow workforce development officials to survey current employees.

Affected communities in Pike and Daviess counties have put substantial effort into planning for closure, including the selected efforts below:

- The Pike County Economic Development Corporation worked with its partners to develop the Southwest Indiana Megasite, a 4,000-acre industrial park near I-69. It is served fully by utilities and rail service. A marketing study has been completed and Pike County EDC is marketing the site.
- The Pike County Progress Partners is developing Entrepreneurship and Technology Center also near I-69 that will provide support for entrepreneurs with coworking, training, and makers’ spaces. It will open in late 2020.
- The Pike County Economic Development Corporation, Farm Bureau, the Pike County Soil and Water Conservation District, and Purdue Extension hosted a workshop in March 2020 about the local tax impacts from partial closure. The speaker was Purdue University Professor Larry DeBoer.
- The Daviess County EDC created the Daviess County Quality of Place and Workforce Attraction Plan.
- Petersburg joined the Main Street Program in 2016.
- The Pike County and Daviess County EDCs worked with other partners on in the Southwest Indiana Technology and Collaboration Hub Network Feasibility Study (SWITCH Study) that launched in late 2018 and focused on entrepreneurship in the technology and defense industries.
- The U.S. Economic Development Administration has visited the area and provided access to resources available as a result of the WARN notice through the Assistance to Coal Communities Program.
- Communities and educational institutions are working on a variety of training efforts.
- Resource organizations are poised to assist the impacted employees, businesses, and communities through the transition. Some concern was expressed that WorkOne does not have a local office in Pike County. WorkOne is exploring options for co-locating with a local organization to provide in-person services locally.

**Rockport Generating Station**

The Rockport Generating Station is operated by I&M. It is located in a rural setting near Rockport in Spencer County and is near the Ohio River. The annual average generation at the plant was 12.7 million MWh (2014–2018).

I&M has announced the closure of Unit 1 by the end of 2028. Current plans are that Unit 2 will remain operational. Unit 1 accounts for 46.9 percent of the plant’s net generation (2016–2018). For the analysis that follows, plant data—employment, wages and compensation, purchased goods and services, etc.—

19 I&M’s lease of Rockport 2 is scheduled to end December 2022. Currently, it is uncertain if I&M will renew the lease.
has been parsed using this proportion. The effects of closure also are assumed to occur proportionally by demographics, geography, etc.

**Employment**

The Rockport plant had 239 employees in 2018. The partial closure potentially puts 112 employees at risk (Figure 37) (I&M, 2020), accounting for 1.9 percent of private sector jobs in Spencer County in 2018 (IBRC, 2020).

**FIGURE 37.** Rockport Generating Station total employees and estimated job losses from partial closure (2014–2018)

Most of the employees who worked at the Rockport plant live in Spencer and Warrick counties (2018). The remaining employees commute to the plant from Vanderburgh, Perry, Dubois, Gibson, Pike, Crawford, and Dearborn counties (Figure 38).

The southwest region has a robust industrial base and a tight labor market with low unemployment. Similar to Petersburg, skilled and semi-skilled workers likely can be absorbed within the regional economy either directly or with some training. Employees in other position types may find it more challenging to find replacement employment.

---

20 I&M provided the following statement about their plan for transitioning employees: “I&M’s practice when we have reduced our workforce is to offer a severance package to affected employees. The value of that package is reviewed periodically and is revised as required by our Human Resources and Benefits personnel. We also offer, under certain circumstances, employees the opportunity look elsewhere in the company and apply for positions for which they are qualified. For example, in preparation for the retirement of several of coal-fired generating facilities in 2014, employees who would be affected by the retirements were able to apply for positions that we anticipated would be coming open at other facilities.

“Because the approach to a reduction in force depends on the circumstances driving the reduction, it is not possible to predict what we will do in the future, but I&M has a commitment to treating its employees fairly and with respect and we expect to do the same in the future.” (R. Sitevaris, email communication, May 1, 2020).
FIGURE 38. Rockport Generating Station potential job losses in Indiana from partial closure by zip code of employee residence (2018)

Notes:
1. Estimated job losses were calculated using the proportion of anticipated plant capacity reduction from partial closure.
2. Zip codes represented by less than one employee equivalent are displayed at <1. All others are rounded to the nearest whole number.

Sources: I&M, 2020; IndianaMap Data Portal.

Employee demographics
Most employees are white (95.5 percent) and male (90.2 percent). More than half of employees at the plant are ages 45–64, while about one-third of employees are ages 25–44. The plant employs just a few employees who are ages 18–24 or 65 and older (Figure 39) (I&M, 2020).
Wages and compensation

The wages and compensation in 2018 associated with estimated job losses were $9.4 million and $11.9 million, respectively (Figure 40). Employee average wages and compensation at the plant were more than double those in Spencer County. On average, employees at the plant earned $83,710. The average compensation—including both wages and benefits—at the plant was $106,088. That is substantially more than Spencer County’s average wage of $41,075 and its estimated average compensation of $53,356 (I&M, 2020; IBRC, 2020). Figure 41 shows the geographic distribution of potential losses in compensation. The premium wages and benefits paid by I&M may be difficult for transitioning employees to match.

FIGURE 39. Rockport Generating Station potential job losses by employee age (2014–2018)


FIGURE 40. Rockport Generating Station employee compensation (wages and benefits) and potential losses from partial closure (2014–2018)


FIGURE 41. Rockport Generating Station potential employee compensation losses in Indiana from partial closure by zip code of employee residence (2018)

Note: Estimated compensation losses were calculated using the proportion of anticipated plant capacity reduction from partial closure. Source: I&M, 2020.

**Occupations**

Figure 42 shows the types of positions that potentially are at risk from the partial closure. Occupations at the plant are 84.9 percent skilled/semi-skilled and 15.1 percent management/administrative (2018) (I&M, 2020).

As mentioned above, the tight labor market in Southwest Indiana make it likely that skilled and semi-skilled workers can find new positions. Administrative and other types of workers may experience more challenges finding new employment regionally.
**Goods and services purchases**

Figure 43 shows the estimated average annual loss of $26.0 and $6.1 million in total and Indiana purchases of goods and services, excluding coal (2014–2018). Data on goods and services purchased by sector were not available in an aggregated format. Figure 44 shows the location of estimated lost goods and services purchases in Indiana (I&M, 2020). I&M also purchased $326.1 million in out-of-state coal on average annually during the same period (I&M, 2020). A portion of these sales are at risk from the partial closure.
**FIGURE 44.** Rockport Generating Station potential goods and services losses, excluding coal, in Indiana from partial closure by county (2014–2018)

*Source: I&M, 2020.*

**Notes:**
1. Estimated losses were calculated using the proportion of anticipated plan capacity reduction from partial closure.
2. County totals were aggregated from zip code data.
3. The Rockport plan purchases only out-of-state coal. These purchases are not reflected in the total show here for purchases from other states.
I&M purchased goods and services from firms in 35 Indiana counties (Figure 44). Firms in Vanderburgh and Marion counties are most at risk for these losses (I&M, 2020).

**Local income and property taxes**

Property taxes and local option income taxes are fundamental resources for local governments. Table 20 shows total assessed value for Spencer County, Ohio Township, and South Spencer School Corporation. Table 21 shows assessed value of selected plant parcels owned by I&M/AEP, particularly those with improvements or substantial land assessed value.

### TABLE 20. Total assessed value for selected local governments (assess 2019, pay 2020)

<table>
<thead>
<tr>
<th></th>
<th>CERTIFIED ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spencer County</td>
<td>$1,790,414,104</td>
</tr>
<tr>
<td>Ohio Township</td>
<td>$608,031,221</td>
</tr>
<tr>
<td>South Spencer School Corporation</td>
<td>$734,366,856</td>
</tr>
</tbody>
</table>

Sources: DLGF, Dec. 6, 2019.

### TABLE 21. Rockport Generating Station assessed value as a share of assessed value for selected parcels and taxing units (assess 2019, pay 2020)

<table>
<thead>
<tr>
<th></th>
<th>ASSESSED VALUE</th>
<th>SHARE OF SPENCER COUNTY ASSESSED VALUE</th>
<th>SHARE OF OHIO TOWNSHIP ASSESSED VALUE</th>
<th>SHARE OF SOUTH SPENCER SCHOOL CORPORATION ASSESSED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>74-15-11-900-005.000-017</td>
<td>$4,016,300</td>
<td>0.2%</td>
<td>0.7%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$1,667,300</td>
<td>0.1%</td>
<td>0.3%</td>
<td>0.2%</td>
</tr>
<tr>
<td>74-15-12-900-001.000-017</td>
<td>$43,875,300</td>
<td>2.5%</td>
<td>7.2%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$38,986,500</td>
<td>2.2%</td>
<td>6.4%</td>
<td>5.3%</td>
</tr>
<tr>
<td>74-15-13-900-001.000-017</td>
<td>$4,724,100</td>
<td>0.3%</td>
<td>0.8%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$2,385,700</td>
<td>0.1%</td>
<td>0.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td>74-15-02-800-004.000-017</td>
<td>1,240,300</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Real property improvements</td>
<td>$571,300</td>
<td>0.0%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Personal property improvements</td>
<td>$342,576,700</td>
<td>19.1%</td>
<td>56.3%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Total assessed value</td>
<td>$396,437,700</td>
<td>22.1%</td>
<td>65.2%</td>
<td>54.0%</td>
</tr>
<tr>
<td>Real and personal property improvements</td>
<td>$386,187,500</td>
<td>21.6%</td>
<td>63.5%</td>
<td>52.6%</td>
</tr>
</tbody>
</table>

Notes:
1. These numbers were not adjusted using the proportion of retiring capacity with partial closure.
2. The certified total assessed value for the county, township, city, and school districts in Table 20 were used to calculate the percentage in this table.

Sources: DLGF, Dec. 6, 2019; Spencer County, 2020.
Based on the value of these selected parcels, the Rockport plant makes up a substantial portion of the assessed value for Spencer County, Ohio Township, and the South Spencer School Corporation. The exact losses of assessed value from partial closure is unknown due to the complexities of the property tax assessment of utilities and the dynamics among levy controls, mix of property types and property tax caps, and property tax replacement strategies. These losses will be challenging with possible increases in tax rates and property taxes for taxpayers.

Among the counties that have five or more plant employees who reside there, Spencer, Dubois, and Vanderburgh counties utilize local option income taxes (Table 22) (ISBA, 2019). The number and distribution of employees across these counties and the relative income tax rates suggest a minimal effect on local revenues. Spencer County’s relatively low income tax rate provides an option for replacing potential property tax losses.

| TABLE 22. County local income tax rates for final CY 2020 certified distribution |
|-----------------------------------------------|-----------------|-----------------|-----------------|
| LOIT RATES                                   | SPENCER COUNTY  | DUBOIS COUNTY   | VANDERBURGH COUNTY |
| Certified shares                             | 0.2611%         | 0.6000%         | 0.9035%          |
| Public safety                                | 0.0000%         | 0.0000%         | 0.2000%          |
| Correctional facility                        | 0.0000%         | 0.2000%         | 0.0000%          |
| Economic development                         | 0.5000%         | 0.4000%         | 0.0000%          |
| Property tax relief                          | 0.0389%         | 0.0000%         | 0.0965%          |
| Special purpose                              | 0.0000%         | 0.0000%         | 0.0000%          |
| Total                                        | 0.8000%         | 1.2000%         | 1.2000%          |

Source: ISBA, Nov. 18, 2019.

**Regional economic analysis**

The estimated regional direct employment effect of partial closure at the Rockport Generating Station is the potential loss of nearly 120 jobs and $11.6 million in compensation. The ripple effects from these reductions would bring the total effects to an estimated 256 lost jobs and nearly $18 million in lost wages and benefits (Table 23). Other potential impacts include a $56.1 million contribution to the region’s GDP and $3.8 million in state and local tax collections.

More than one-third of the expected employment ripple effects would be realized in the maintenance and repair construction industry. Industries such as real estate, food service, health care, and retail will also see some impact from the loss of household spending (Table 24).

---

22 This analysis was conducted for the region that includes Spencer County in which the Rockport plant is located, along with bordering counties including Dubois, Perry, and Warrick counties. A separate analysis for the effects on Spencer County solely is available in Appendix B.
### TABLE 23. Estimated effects of Rockport Generating Station partial closure

<table>
<thead>
<tr>
<th></th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>116</td>
<td>140</td>
<td>256</td>
<td>2.21</td>
</tr>
<tr>
<td>Compensation</td>
<td>$11.6M</td>
<td>$6.3M</td>
<td>$17.9M</td>
<td>1.54</td>
</tr>
<tr>
<td>GDP</td>
<td>$46.6M</td>
<td>$9.5M</td>
<td>$56.1M</td>
<td>1.20</td>
</tr>
<tr>
<td>State and local tax revenue</td>
<td>$2.9M</td>
<td>$0.9M</td>
<td>$3.8M</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

### TABLE 24. Rockport Generating Station regional employment ripple effects—Top 10 industries

<table>
<thead>
<tr>
<th></th>
<th>JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and repair construction of nonresidential structures</td>
<td>51</td>
</tr>
<tr>
<td>Real estate</td>
<td>5</td>
</tr>
<tr>
<td>Full-service restaurants</td>
<td>5</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
<td>4</td>
</tr>
<tr>
<td>Hospitals</td>
<td>4</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>4</td>
</tr>
<tr>
<td>Miscellaneous store retailers</td>
<td>3</td>
</tr>
<tr>
<td>General merchandise stores</td>
<td>3</td>
</tr>
<tr>
<td>Monetary authorities and depository credit intermediation</td>
<td>3</td>
</tr>
<tr>
<td>Nonstore retailers</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software

**Summary**

The Rockport Generating Station is operated by I&M. Unit 1 is owned by I&M and Unit 2 is owned by an investor group. The plant is located in a rural setting in Spencer County on the Ohio River. I&M has announced the retirement of Unit 1 by 2028.

Within the region, Spencer County potentially will be most affected by the loss of employment. The potential loss of assessed value could have a substantial effect on Ohio Township and the South Spencer School Corporation, and to a lesser extent Spencer County. Based on the amount of purchases, firms in Vanderburgh and Marion counties are most at risk for losses in goods and services from partial closure.
Statewide economic impact analysis

Table 25 summarizes the combined statewide effects of the four closures and partial closures under consideration. The numbers listed in the direct effects column are simply a sum of the direct effects shown previously for the individual facilities. The ripple effects, however, are all larger than the sum of the individual plants since a portion of the economic activity created by a given generating station will occur elsewhere in Indiana outside of its region. The combined total employment effect of these closures stands at an estimated 2,382 jobs, while the total GDP impact is nearly $539 million.

**TABLE 25. Summary of statewide effects of the closures and partial closures of four coal-fired generating stations**

<table>
<thead>
<tr>
<th></th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>652</td>
<td>1,730</td>
<td>2,382</td>
<td>3.65</td>
</tr>
<tr>
<td>Compensation</td>
<td>$77.5M</td>
<td>$98.4M</td>
<td>$175.9M</td>
<td>2.27</td>
</tr>
<tr>
<td>GDP</td>
<td>$354.0M</td>
<td>$184.7M</td>
<td>$538.7M</td>
<td>1.52</td>
</tr>
<tr>
<td>State and local tax revenue</td>
<td>$16.1M</td>
<td>$15.2M</td>
<td>$31.3M</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

Maintenance and repair construction and coal mining are the industries expected to take the largest hit in terms of employment (Table 26). According to the IMPLAN model, the employment impact in the maintenance and repair construction industry represents slightly more than 1 percent of all jobs in this industry statewide, while the impact in coal mining translates into 4.7 percent of employment in this industry.

**TABLE 26. Statewide summary of employment effects—Top 10 industries**

<table>
<thead>
<tr>
<th>Industry</th>
<th>JOBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and repair construction of nonresidential structures</td>
<td>346</td>
</tr>
<tr>
<td>Coal mining</td>
<td>106</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>78</td>
</tr>
<tr>
<td>Full-service restaurants</td>
<td>62</td>
</tr>
<tr>
<td>Hospitals</td>
<td>51</td>
</tr>
<tr>
<td>Limited-service restaurants</td>
<td>48</td>
</tr>
<tr>
<td>Real estate</td>
<td>46</td>
</tr>
<tr>
<td>Employment services</td>
<td>45</td>
</tr>
<tr>
<td>Retail—general merchandise stores</td>
<td>31</td>
</tr>
<tr>
<td>Physician offices</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.
EMPLOYMENT IMPACTS OF NEAR-TERM SOLAR, WIND, & NATURAL GAS GENERATION INVESTMENTS IN INDIANA

While several Indiana electric utilities are set to cut some of their coal-fired generation in the state, many have plans to expand their generation capacity for other energy sources during the next decade. This section of the report explores the potential effects of these investments.

The state’s investor-owned electricity producers expect that Indiana’s combined generation capacity of wind, solar, and natural gas energy will expand by an estimated 5,850 MW between 2023 and 2030 (Figure 45).

**FIGURE 45. Projected increase in alternative energy generation capacity in Indiana (2023–2030)**

This expected expansion in alternative energy sources will generate new jobs that will partially offset the job losses associated with coal-fired plant closures, although there is some uncertainty surrounding the potential size of these impacts as described above.

Figure 46 highlights the potential employment effects—either an expansion or contraction—of changes in energy production by type, with employment factors standardized by the number of jobs per 100 MW of capacity.

The direct employment factor for solar energy high estimate is 21 direct jobs for every 100 MW of capacity. With an employment multiplier of 1.5, the full employment impact for solar energy generation could range as high as 32 jobs per 100 MW. Meanwhile, the direct employment factors for wind and natural gas are comparatively small, but with employment multipliers greater than four for each industry, the total employment factors for these sources are 25 jobs and 23 jobs, respectively.
FIGURE 46. Estimated employment factors for operation and maintenance per 100 megawatts of capacity

<table>
<thead>
<tr>
<th>Energy Type</th>
<th>Expected Change in Capacity 2023–2030 (MW)</th>
<th>Total Employment Factor (Per 100 MW Capacity)</th>
<th>Employment Change 2023–2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar</td>
<td>2,890</td>
<td>up to 32</td>
<td>up to 930</td>
</tr>
<tr>
<td>Wind</td>
<td>950</td>
<td>25</td>
<td>240</td>
</tr>
<tr>
<td>Natural gas</td>
<td>2,010</td>
<td>24</td>
<td>480</td>
</tr>
<tr>
<td>Total</td>
<td>5,850</td>
<td>N/A</td>
<td>up to 1,650</td>
</tr>
</tbody>
</table>

Table 27 highlights the potential impacts when these total employment factors are applied to the projections of expanded alternative energy capacity in the state. If Indiana experiences an expansion of alternative energy capacity in the neighborhood of 5,850 MW between 2023 and 2030, this would likely support up to 1,650 jobs in the state. If the employment impacts of these alternative energy sources reach this upper limit, it would represent 69 percent of the estimated statewide job losses linked to the four coal plant closures shown in Table 25.
CONCLUSION—IMPLICATIONS FOR INDIANA

An energy transition from carbon-intensive fossil fuels, such as coal, to low- and no-carbon sources of energy (e.g., wind, solar, natural gas, and demand-side management) is occurring across the globe. As coal plants and coal mines close and the use of renewable energy increases, communities in Indiana will be affected directly. Many communities depend on the tax revenue and employment provided by coal power plants and mines in their community. As the energy transition continues, these communities are likely to experience social and economic losses to varying degrees based on the particular local and regional circumstances, such as losses of jobs, tax revenue, a sense of community, and cultural identity. While historically coal-reliant communities have not been the same communities to gain renewable energy benefits, there are opportunities for renewable energy projects in these communities. Renewable energy projects offer a large amount of short-term employment, as well as tax revenue and payments to landowners. State government and local communities can take steps to plan for the retraining of workers, the stabilization of local government revenue, and local economic development to minimize the costs and maximize the local benefit of the energy transition.
BIBLIOGRAPHY


Associated Press. (2019). $175 million solar power project planned for central Indiana. Fox59, Shelbyville, IN.


Intergovernmental Panel on Climate Change. (2018). Global Warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

Invenergy. n.d. Lone Oak Solar Energy Center.

Invenergy, LLC. (2020a). Loan Oak Solar Farm facility data [compilation of unpublished projected data].

Invenergy, LLC. (2020b). Fairbanks Solar Farm facility data [compilation of unpublished projected data].


Jasper County Assessor. NIPSCO assessed value history [spreadsheet]. Rensselaer, Indiana.


Lyman, J. (2019). Coal unit shutting down at Rockport Power Plant. WFIE.


Steinberg, D., Porro, G., & Goldberg, M. (2012). Preliminary analysis of the jobs and economic impacts of renewable energy projects supported by the §1603 Treasury Grant Program. National Renewable Energy Laboratory.


APPENDIX A—EFFECTS OF COVID-19 PANDEMIC ON ECONOMIC IMPACT ASSESSMENTS

Estimates of economic impacts, tax revenue effects, labor, and community response were based on data and interviews conducted before the release of employment and GDP data related to the current COVID-19 pandemic. While the impacts of the pandemic are not yet fully understood, the fundamental concepts of the risks associated with the closure of the plants and the potential for alternative energies remain in place. The full effects of this crisis are yet to be realized at the national, state, or local level. Even though data that has been released is very specific for the nation and for individual states, it does not imply a known level of impact at the regional or county level.

Plant closures are scheduled to start in 2021 with more scheduled for 2023 and others scheduled for as late as 2028. The timing and magnitude of any economic recovery in counties where plant closures are scheduled cannot be estimated with high confidence at this time. This report is based on assumptions about generation/consumption from pre-pandemic static consumption patterns that still apply in the current economic downturn. Current events related to COVID-19, however, imply a possible upending of the entire cost model of electricity generation and distribution. For example, if there is lower generation and usage levels because of a longer term (beyond a few months) economic slowdown and recovery, utilities must spread the capital cost of the distribution and generation infrastructure over fewer units of electricity used by existing consumers and industries. As a result, costs per unit of generated electricity may increase (subject to approved rate adjustments) even as usage per household increases because of stay-at-home orders. This may result in higher consumer energy bills for everyone, not just those who can work from home and have not been furloughed.

From a resiliency perspective, there may be some good news for communities in which power companies currently operate. Because of the inelasticity of demand for electricity, combined with the vertical structure of the largest power companies, power generation companies may be affected less severely in the economic downturn than other industries. This implies that in the short-term power plants are better-positioned to weather an economic downturn; thus, even at lower levels of demand, power companies may help localities weather better than communities without these plants. In the long term, however, unless replaced by other industries or forms of power generation, local economies will certainly become less resilient.

Finally, long-term demand for electricity may be changed by reconfiguration of supply chains. This is particularly true for products deemed essential to national security but that currently are largely produced overseas, such as pharmaceuticals, medical devices and equipment, defense-related materials and products, etc. If there is substantial re-shoring of industries, the demand for electricity will increase beyond assumptions discussed in this report.

The estimates provided in this report do not consider potential residual effects from the current economic downturn because, as discussed above, the full extent of economic adjustment will not be known for several months or longer. Therefore, the actual effects of plant closures on any county or region cannot be estimated with a high degree of confidence in the current economic environment.
APPENDIX B—ADDITIONAL ECONOMIC EFFECTS SCENARIOS

The research team conducted two additional modeling analyses—county level estimates and a force account scenario.

County-level estimates
Tables B1 and B2 outline the estimated employment and GDP effects within just the counties in which the coal-fired generating stations are located. However, it is important to note that the Schahfer station is located in Jasper County, but researchers treated it as a two-county region since a large share of its employees live in Porter County. For these county-level estimates, the direct effects of these power plants are identical to those listed in the previous section. As a rule, however, the ripple effect estimates will always be smaller than those reported for a larger region since some portion of the household spending and supply chain purchases related to a given facility will be spent in other communities in the region.

TABLE B1. County-level employment effects

<table>
<thead>
<tr>
<th>COUNTY (GENERATING STATION)</th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>LaPorte (Michigan City)</td>
<td>118</td>
<td>80</td>
<td>198</td>
<td>1.68</td>
</tr>
<tr>
<td>Pike (Petersburg)</td>
<td>125</td>
<td>130</td>
<td>255</td>
<td>2.04</td>
</tr>
<tr>
<td>Spencer (Rockport)</td>
<td>116</td>
<td>70</td>
<td>186</td>
<td>1.60</td>
</tr>
<tr>
<td>Jasper/Porter (Schahfer)</td>
<td>293</td>
<td>240</td>
<td>533</td>
<td>1.82</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

On a proportional basis, the estimated employment impact is greatest in Pike County as the total employment effect represents roughly 6 percent of the county’s 4,209 total jobs in 2018, as reported by the U.S. Bureau of Economic Analysis. The impact in Spencer County translates to nearly 2 percent of its total jobs, while the effects in LaPorte County and the Jasper/Porter area represent 0.4 percent and 0.5 percent of all jobs, respectively.

TABLE B2. County-level GDP effects

<table>
<thead>
<tr>
<th>COUNTY (GENERATING STATION)</th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jasper/Porter (Schahfer)</td>
<td>$170.4M</td>
<td>$18.2M</td>
<td>$188.6M</td>
<td>1.11</td>
</tr>
<tr>
<td>LaPorte (Michigan City)</td>
<td>$65.3M</td>
<td>$5.5M</td>
<td>$70.8M</td>
<td>1.08</td>
</tr>
<tr>
<td>Pike (Petersburg)</td>
<td>$71.7M</td>
<td>$11.1M</td>
<td>$82.8M</td>
<td>1.15</td>
</tr>
<tr>
<td>Spencer (Rockport)</td>
<td>$46.6M</td>
<td>$4.2M</td>
<td>$50.8M</td>
<td>1.09</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.
**Force account scenario**

The average consumer usually thinks about the economy in terms of producers and consumers. A consumer rarely thinks in terms of how a product or service is made. The average guest at a hotel considers lodging as one service, never mind that making a bed is much different than making an omelet. However, those two production activities—accommodation in contrast to a restaurant—are separated in the national economic accounting production table, the same sort of input-output table that is used to estimate the employment and supply chain ripple effects of a plant closing or opening. The “how” of economic production—which includes the type of labor, supplies, and technology—is the organizing principle for classifying industries. Industry classification is based on production.

It so happens that utilities in general share some similarities with lodging in terms of production activities; they both produce two different things with two different production functions. Lodging produces a place to sleep and a place to eat at the same address. The labor force at electricity generation plants produce electricity, but many of the workers at the plant build and repair structures. They are construction workers. In national industry analysis at places like the BEA and the U.S. Bureau of Labor Statistics, these construction workers are called force account.

As the research team approached the question of the effects of closing coal plants and utilizing other sources of electricity, they considered the separate effects of plant closings on coal-plant operators—those managing the fuel and waste as well as those monitoring the electricity generation—and the construction workers employed by the utilities. While the operators would most likely be displaced as a result of a closing, the force account construction workers still employed by the utility are still needed to build and maintain the electricity transmission and distribution infrastructure. The utilities’ purchase of goods, materials, and services for the specialty construction needs of an electricity transmission and distribution system would also still be needed.

Thus, not all labor will be displaced because of a coal plant closing or because multiple units within a plant close. As a result, the economic impacts estimated and presented in the main body of the report are the worst-case scenarios. The actual economic ripple effects will be smaller.

Pursuant to a more accurate picture of the economic ripple effects, the research team created an alternative scenario. There could be several scenarios ranging from the displacement of all force account construction workers, as modeled above, to different proportions of those force account workers who ultimately become redundant with the plant closures. This also holds for the purchased specialty labor inputs mentioned above. No direct data or research was available to select the proportion of absorption.

In the selected scenario, the research team assumed that 30 percent of workers attached to any given plant are force account and would transition frictionlessly to other construction and maintenance activities of non-coal electricity production. We also assumed that only 50 percent of the labor and purchased materials associated with specialty contractors working for the coal plants would also become redundant or discontinued.
A comparison of the employment results in the individual tables for each generating station closing reveals that the direct employment effects—those who are no longer on the plant payroll—are reduced by about 100 statewide (652 versus 554). The ripple effect job losses associated with the spending of the redundant workers together with jobs related to the supply chain are reduced by about 155 (1,040 versus 885) (Table B3). In all, the number of jobs lost is estimated to be reduced by about 250 with the alternative scenario of utility construction workers still holding their jobs after the plant closure. We see the same pattern for the change in state GDP (Table B4) and, while not presented, the in-state and local tax revenue.

Under this scenario, the expected total net change in employment in these regions is closer to 1,450 than to 1,700.

**TABLE B3. Employment effects under force account scenario**

<table>
<thead>
<tr>
<th>GENERATING STATION</th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schahfer</td>
<td>249</td>
<td>290</td>
<td>539</td>
<td>2.16</td>
</tr>
<tr>
<td>Michigan City</td>
<td>100</td>
<td>125</td>
<td>225</td>
<td>2.25</td>
</tr>
<tr>
<td>Petersburg</td>
<td>106</td>
<td>370</td>
<td>476</td>
<td>4.49</td>
</tr>
<tr>
<td>Rockport</td>
<td>99</td>
<td>100</td>
<td>199</td>
<td>2.01</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.

**TABLE B4. GDP effects under force account scenario**

<table>
<thead>
<tr>
<th>GENERATING STATION</th>
<th>DIRECT EFFECTS</th>
<th>RIPPLE EFFECTS</th>
<th>TOTAL EFFECTS</th>
<th>MULTIPLIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schahfer</td>
<td>$144.8M</td>
<td>$21.7M</td>
<td>$166.5M</td>
<td>1.15</td>
</tr>
<tr>
<td>Michigan City</td>
<td>$55.3M</td>
<td>$9.5M</td>
<td>$64.8M</td>
<td>1.17</td>
</tr>
<tr>
<td>Petersburg</td>
<td>$60.8M</td>
<td>$67.2M</td>
<td>$128M</td>
<td>2.11</td>
</tr>
<tr>
<td>Rockport</td>
<td>$39.8M</td>
<td>$6.6M</td>
<td>$46.4M</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Source: IBRC, using the IMPLAN economic modeling software.
## APPENDIX C—WIND FARM DATA SUMMARY

Table C1 summarizes operations data provided by Indiana wind farms.

### TABLE C1. Data summary for selected Indiana wind farms (2014–2018)

<table>
<thead>
<tr>
<th></th>
<th>AGGREGATED TOTAL PER 100 MWH CAPACITY</th>
<th>AVERAGE ANNUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual nameplate capacity</td>
<td>7,769 MWh (2018)</td>
<td>N/A</td>
</tr>
<tr>
<td>Electricity generation</td>
<td>18,890,826 MW</td>
<td>N/A</td>
</tr>
<tr>
<td>Capacity factor</td>
<td>29.23%</td>
<td>N/A</td>
</tr>
<tr>
<td>Employment</td>
<td>107 (2018)</td>
<td>4.7</td>
</tr>
<tr>
<td>Compensation</td>
<td>$31.8M</td>
<td>$0.4M</td>
</tr>
<tr>
<td>Good and services purchased (minus lease payments to landowners)</td>
<td>$230.7M</td>
<td>$3.0M</td>
</tr>
<tr>
<td>Good and services purchased in Indiana (minus lease payment to landowners)</td>
<td>$109.2M</td>
<td>$1.4M</td>
</tr>
<tr>
<td>Initial capital expenditures</td>
<td>$3.4B</td>
<td>$189.0M (one-time)</td>
</tr>
<tr>
<td>Ongoing capital expenditures</td>
<td>$48.2M</td>
<td>0.6M</td>
</tr>
</tbody>
</table>

Note: Calculations were made using annual data provided by wind farm companies and account for both years of operation and missing data.
