

**The Appalachian Regional Commission
Request for Proposals**

An Economic Analysis of the Coal Industry Ecosystem in Appalachia

**Proposals due on or before the close of business
August 19, 2016**

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**The Appalachian Regional Commission Request for Proposals:
An Economic Analysis of the Coal Industry Ecosystem in Appalachia**

I. Overview of Request for Proposals

The Appalachian Regional Commission (ARC) invites proposals from qualified research teams to *examine the full ecosystem of the coal industry in Appalachia through in-depth quantitative analysis*. Specifically, this research will identify, quantify, and map data on all relevant coal industry activity throughout the Region. In this research, the coal industry ecosystem is characterized by the relationship and interdependence between coal mining and its related supply chain, transportation services, and coal-fired power plants, among other possible activities. While the Appalachian Region is large (covering all of West Virginia and parts of 12 states), a key objective of this work is to derive estimates of coal-related impacts and economic activity at the county level.

Recognizing the decline in the coal mining industry and broader energy transitions, the U.S. Economic Development Administration (EDA) and ARC are collaborating on a relatively new initiative to assist coal-impacted communities in Appalachia. Coined the POWER Initiative (Partnerships for Opportunity and Workforce and Economic Revitalization), this program is funding \$45 million in implementation grants for FY 2016 to communities and regions within Appalachia that demonstrate that they have been negatively impacted by the decline in the coal industry. The grants are focused on supporting efforts to increase economic diversity, enhance job training, create new jobs, and attract new sources of investment. For more information on POWER, see: <http://www.arc.gov/funding/POWER.asp>

A critical aspect of this POWER Initiative is understanding the full-range of economic implications due to changes within the coal mining industry. Changes in coal mining activity and production levels have wide impacts on and connections to supplier firms, transportation services, electricity-generating power plants, as well as other effects.

As detailed below in Section III, in March 2016, ARC completed a report on the coal industry in Appalachia; this research was presented during an April 2016 POWER Initiative webinar. By generating detailed county-level data on coal mining production and employment throughout the Region, that report provides a starting point for this new coal ecosystem research effort. And while that report includes research and data findings related to supply chain, transportation, exports, and power plants, additional research and data analysis are needed in these areas (as identified in the concluding report section on potential future research). Consequently, this new research project will: provide additional research and data findings on coal-related economic activity to encompass a full ecosystem; generate maps, charts, and other appropriate graphics to depict the interrelated connections of the coal industry ecosystem; and develop data and methods to quantify if, and to what extent different geographies within Appalachia are impacted by changes to the coal industry.

There are three new data-driven research components to this project:

- 1) The research shall identify all components of the coal ecosystem, and estimate the **supply chain impacts** of the coal industry in Appalachia. Past studies and reports have relied on input-output models (such as IMPLAN) to identify key supplier industries and estimate supply chain impacts. This is a starting point for this research, however, and it is expected that the research team will explore other methods to identify and quantify supplier industries. Examples of major suppliers may be industries such as heavy equipment, transportation equipment, industrial equipment, engineering services, metal fabrication, and water treatment. Additional research methods will likely be needed to identify supplier firms and the relative importance of coal mining to their business activities. Critically, this analysis shall include data and methods to: 1) identify the key coal industry supplier firms down to the county level, and b) estimate county-level supply chain impacts in Appalachia.
- 2) Additional research and detail is needed to customize the **transportation implications of coal** to the Appalachian Region and estimate the economic impact of this activity. Recent research on the coal industry highlights the importance of rail, trucking, and water transportation in shipping coal from mining production areas to consumption areas (power plants and to a lesser degree, manufacturing). As of 2012, coal represented the majority of tonnage shipped by rail from Appalachian states, and over 90 percent of rail in West Virginia. Recently compiled data on the transportation implications of coal are limited, however, as they represent state-level data estimates (rather than customized to the counties in Appalachia), and do not include estimates of the economic importance of this transportation.
- 3) New research and analysis is needed to understand the economic impact of **coal-fired power plants**. As depicted in recent ARC studies and the Energy Information Administration (EIA) Annual Energy Outlook, the use of coal as a share of electricity generation is declining and there are a number of coal-fired power plants in the Region that have been retired or are scheduled for retirement. These trends have economic implications and new research is needed to estimate the economic contributions and impacts of these power plants.

While ARC is aware of some of the data limitations for these new areas of research, we are requesting that research teams: 1) generate data analyses and resources to identify and quantify the ecosystem (by component) at the county level; and 2) develop and document methods and data sources to help local areas and communities investigate and estimate the extent to which their area could be considered coal-impacted. To the extent possible, the data analysis shall focus on the county level, and include maps, charts, and other data tabulations to communicate the aspects of that area's coal ecosystem. The objective is to build on currently published online resources (e.g., county-level coal mining employment and production on ARC's web site) and expand the quantitative estimates of coal-related

economic activity to help local areas research and document the extent to which they are coal-impacted.

Researching and profiling an ecosystem for the coal industry and potentially coal-impacted communities requires a holistic assessment of the characteristics and key variables that are important. Research teams are encouraged to propose and conceptualize a systematic framework to capture and measure all relevant components of this ecosystem. For example, it's possible that some communities may be more impacted by coal based on their resident workforce commuting to jobs at coal mines or coal-related industries. There could be other aspects of this ecosystem not directly mentioned in this RFP that justify inclusion in our understanding of the full impacts of the coal industry in the Appalachian Region.

As part of the final report deliverables, the research team shall **develop a series of maps and graphics to depict the coal industry ecosystem** based on data obtained and estimated as well as data available on coal employment and production. The maps shall display multiple concepts, depicting the connections between different components. For example, a map may focus on mapping production locations, transportation flows and consumption locations, or a map may highlight the location of supplier firms in relation to coal mining industries. A graphic may convey the relative economic importance of different aspects of the coal industry ecosystem (e.g., jobs and wages generated by production, suppliers, transportation, and power plants). The research team will work closely with ARC staff in an iterative process throughout the project to propose and refine the most effective map and visual depictions.

The aim of this research project is to extend beyond currently available data and reports to provide a more complete and customized assessment of the coal industry ecosystem throughout Appalachia. This requires innovative research methods, and a team of researchers with a broad range of expertise, including: economists, geographers, energy specialists, data analysts, cartographers, as well as writers capable of weaving the multiple components into a cohesive, well-documented, and visually-appealing report. Team members with prior knowledge of the coal industry or experience conducting similar types of industry studies may be of particular importance.

The final product will be a detailed, written report and executive summary submitted to ARC within 9-12 months of project start, with preference given to proposals that outline a completion schedule within 9 months.

II. Background

About Appalachia

The Appalachian Region, as defined in ARC's authorizing legislation, is a 205,000-square-mile region that follows the spine of the Appalachian Mountains from southern New York to northern Mississippi. It includes all of West Virginia and parts of 12 other states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio,

Pennsylvania, South Carolina, Tennessee, and Virginia. Forty-two percent of the Region's population is rural, compared with 20 percent of the national population.

The Region's economy, once highly dependent on mining, forestry, agriculture, chemical industries, and heavy industry, has become more diversified in recent times, and now includes a variety of manufacturing and service industries. In 1965, one in three Appalachian residents lived in poverty; during the 2010-2014 period, the Region's poverty rate was around 17 percent. Approximately 70 percent of Appalachian counties (295 of 420) were considered high poverty in 1960 (at least one and a half times the U.S. average); during the 2010–2014 period, that number went down to 91.

These gains have transformed the Region from one of widespread poverty to one of economic contrasts: some communities have successfully diversified their economies, while others still require basic infrastructure such as roads, clinics, and water and sewer systems. The contrasts are not surprising in light of the Region's size and diversity—the Region includes 420 counties in 13 states, extends more than 1,000 miles from southern New York to northeastern Mississippi, and is home to more than 25 million people.

About the Appalachian Regional Commission (ARC)

In the mid-1960s, at the urging of two U.S. presidents, Congress enacted legislation to address the persistent poverty and growing economic despair of the Appalachian Region.

The Appalachian Regional Commission (ARC) is a regional economic development agency that represents a partnership of federal, state, and local government. Established by an act of Congress in 1965, ARC is composed of the governors of the 13 Appalachian states and a federal co-chair, who is appointed by the president. Local participation is provided through multi-county local development districts.

ARC's mission is to be a strategic partner and advocate for sustainable community and economic development in Appalachia. ARC funds projects that address the five goals identified in the Commission's strategic plan:

1. Invest in entrepreneurial and business development strategies that strengthen Appalachia's economy.
2. Improve the education, knowledge, skills, and health of residents to work and succeed in Appalachia.
3. Invest in critical infrastructure—especially broadband; transportation, including the Appalachian Development Highway System; and water/wastewater systems.
4. Strengthen Appalachia's community and economic development potential by leveraging the Region's natural and cultural heritage assets.
5. Build the capacity and skills of current and next-generation leaders and organizations to innovate, collaborate, and advance community and economic development.

Each year ARC provides funding for several hundred projects in the Appalachian Region, in areas such as business development, education and job training, telecommunications, infrastructure, community development, housing, and transportation. These projects create thousands of new jobs; improve local water and sewer systems; increase school readiness; expand access to health care; assist local communities with strategic planning; and provide technical and managerial assistance to emerging businesses.

Additional information about Appalachia and the Appalachian Regional Commission can be found here: www.arc.gov.

III. Scope of Work

Proposals shall present an outline of the research and analysis to be conducted, a work plan, and a schedule for reports and deliverables. The scope of work requires a team of researchers and consultants with a broad set of skills to execute the project.

The research design for proposals would be well served by a review of previous studies of the coal industry and its economic impacts – both in Appalachia, as well as the rest of the country – to understand the current state of knowledge on these topics. Proposals shall be informed by existing and relevant ARC-sponsored research in the Region. See www.arc.gov/research for data, research, and reports on Appalachia commissioned by ARC.

The implementation of this research project would benefit from consulting with industry experts, existing mining research centers, and other researchers to review and interpret the findings of the work, and proposals shall budget accordingly for such activities. The main audiences for this work are ARC as well as the development practitioners and communities in the Appalachian Region.

A number of resources are available for reference, including the following:

- A recent report commissioned by ARC examining the coal industry in the Region: http://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=121
- The POWER webinar entitled “Research and Data: What is a Coal-Impacted Community : https://www.youtube.com/playlist?list=PLRQ_a3uhWX_tTEc3hhah4oMbj1081A59j
- The Appalachian Region: A Data Overview from the 2010-2014 American Community Survey: http://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=129
- A 2001 study on the economic impacts of the Appalachian coal industry: http://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=54

- State research centers with data profiles and analysis of the coal industry such as the economic impacts of West Virginia's coal industry (2010): <http://www.be.wvu.edu/bber/pdfs/BBER-2010-04.pdf> and Kentucky's Coal Facts annual publication: [http://energy.ky.gov/Coal%20Facts%20Library/Kentucky%20Coal%20Facts%20-%202015th%20Edition%20\(2015\).pdf](http://energy.ky.gov/Coal%20Facts%20Library/Kentucky%20Coal%20Facts%20-%202015th%20Edition%20(2015).pdf) (Please copy and paste this link to access the document.)

Although some components of the report will inherently be technical in nature, the final report shall be written for a non-technical audience, with the narrative discussion weaving together all statistics, analyses, graphs, maps, and tables where appropriate. Consideration shall be given as to how tabular and graphic information will be integrated in the narrative structure of the report. Additionally, a final, concise executive summary shall integrate and interpret the key findings of the research and provide an analytical framework to understand the development implications, particularly those involving ARC resources. Detailed statistical data and methodological issues, including an inventory of resources available to communities shall be organized in appendices. The research team will work closely with ARC throughout the development of this report. Creative approaches for methodology, content, and presentation are encouraged.

Deliverables include electronic copies of ready-to-print masters of the final report and executive summary, together with word processing files (for conversion into HTML versions of the reports) and PDF versions. These documents shall be accompanied by an electronic version of all relevant maps, charts, tables and graphics, as well as all databases compiled during the study, including all raw data, calculated datasets, and results of statistical analyses. All maps shall be accompanied by well-documented, supporting databases. ARC will provide the selected research team with formatting guidance for all reports.

IV. Methodology

The successful research team will develop a detailed methodology to analyze the topics specified in the scope of work.

The methodology shall include:

- Specification of datasets and methods to be used for each of the proposed analyses, including a discussion of the scope, limitations, and coverage of data sources. For example, while data that depict county-level trade flows of coal is a desirable aspect of the transportation research component, the budget limitations of this project may prohibit certain purchases of commercial data products.
- Preliminary description of the methodologies for conducting each component of the proposed analysis, and the advantages and limitations of the selected approach given budgetary and time constraints.
- Suggestions about surveys, establishment data sources, or other methods to help customize the analysis and assess supply chain impacts beyond input-output modeling.

- Other creative or innovative approaches, especially as it relates to depicting the coal industry ecosystem through data visualizations and maps.

Proposals can offer additional methodological approaches as needed. In keeping with the overall budget constraint and timing for this project, proposals may present trade-offs among tasks as long as the research design ensures the accomplishment of the main research objectives of the project within the given time period. The research team shall work closely with ARC during all phases of this research.

V. Technical, Management, and Cost Proposal Contents

A. Technical Proposal (Narrative shall not exceed 15 pages, not including the abstract and accompanying resumes and organizational background materials.)

1. Summary Abstract (300 words)

In this section, provide a brief abstract of the proposal by summarizing the background, objectives, proposed methodologies, and expected outputs and results of the research.

2. Methodology

Describe the step-by-step approach or methods intended to accomplish all the tasks specified in this RFP. The proposal shall provide a detailed explanation of the methodologies to be used, describe the limits of the selected methods, and justify why the methods were selected over others. The proposal shall identify the points and tasks in this research project that will require participation by the Commission and ARC staff. Further, the methodology shall identify specific information needs according to sources, procedures, and individual tasks of the research that may need to be supplied by the Commission. Finally, the proposal shall identify any difficulties that may be encountered in this project and propose practical and sound solutions to these problems.

3. Project Work Plan and Milestones

The proposal shall describe the phases into which the proposed research can be logically divided and performed together. Flow charts shall be included as necessary. A schedule of milestones and deadlines shall be specified for the completion of various work elements, including data collection, interviews (as needed), analyses, written quarterly progress reports, preliminary drafts for review, and final draft reports. Monthly call-ins with ARC staff are also required to monitor progress and address any issues or questions.

4. Key Personnel

Personnel performing the research must be described in this section in terms of numbers of people and their professional classification (e.g., project director, economist, analyst, business consultant, etc.). Brief resumes of the education and relevant experience of the principal investigator, co-investigator, and other key personnel are required. The research team will be required to furnish the services of those identified in the proposal as key personnel. Any change in key personnel is subject to approval by ARC.

B. Management Proposal

The resource capability and program management for planning and performing the research will be considered in the proposal selection process.

1. Business Management Organization and Personnel

Furnish a brief narrative description of the organization, including the division or branch planned to perform the proposed effort, and the authority responsible for controlling these resources and personnel.

2. Staffing Plan

A staffing plan is required that describes the research team's proposed staff distribution to accomplish this work. The staffing plan shall present a chart that partitions the time commitment of each professional staff member to the project's tasks and schedule. In addition, the proposal shall include a detailed description of activities for key project-related personnel and anticipated deliverables. Finally, the proposal shall identify the relationship of key project personnel to the contracting organization, including consultants and subcontractors.

3. Relevant Prior Experience

The proposal must describe the qualifications and experience of the organization and the personnel to be assigned to the project. Information provided shall include direct experience with the specific subject-matter area and must provide examples (via web links and/or printed materials) of the three most similar research reports undertaken by the applicant's organization and the extent to which performance goals were stated and achieved. Provide associated organization names, addresses, names of contact persons, and telephone numbers for reference.

4. Contract Agreement Requirements

This section of the proposal shall contain any special requirements that the research team wants to have included in the contract.

C. Cost Proposal

Each proposal submitted must contain all cost information. The cost information shall include direct labor costs (consistent with the staffing plan), labor overhead costs, transportation (if anticipated), estimated cost of any subcontracts, other direct costs (such as those for data purchases), university overhead, total direct cost and overhead, and total cost and fee or profit.

In addition, ARC requests that the research team formally present and discuss study findings with key Appalachian officials in Washington, D.C. An initial kick-off meeting in Washington, D.C. is also required. These activities will be over and above routine meetings with ARC staff during the course of the project, and the research team shall price its part in this activity separately, assuming travel to two one-day meetings.

VI. Cost, Timing, and Copyright

The Commission rates this RFP as a major research project according to ARC's rating of the level of effort for conducting research: Major research projects \$250k to \$350k; Large-scale \$150k to \$249k; Medium-scale \$75k to \$149k; Small-scale \$26k to \$74k.

The contract awarded for this research project will be a FIRM FIXED-PRICE CONTRACT, with payments on a quarterly schedule. The contract terms shall remain firm during the project and shall include all charges that may be incurred in fulfilling the terms of the contract. Given the time-urgency of this project, no time extensions will be granted.

The Federal Government, through the Appalachian Regional Commission, reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, for federal government purposes, any work developed under a contract, grant, subgrant, or contract under a grant or subgrant, and to use, and authorize others to use, for federal government purposes, any copyrights which a grantee, a subgrantee or a contractor purchases with grant support or contract funds. Such license to use includes, but is not limited to, the publication of such work on ARC Web site. Use of such works for purposes related to Appalachia and the development of Appalachia is generally authorized by ARC to State and local governments in the Appalachian Region and to other public and private not-for-profit organizations serving Appalachia, including the Appalachian Local Development Districts.

VII. Evaluation of Proposals

All proposals will be evaluated based on the following criteria:

- Complete, clearly articulated, logical study design and technically competent methodology;
- Qualifications, relevant prior experience, command of existing research on the coal industry, supply chain impacts, industry studies, regional development issues, and ability to present findings in a useful manner;
- A credible management proposal for staffing, and the capability to carry out and support the project in a timely fashion;
- Innovative data resources, research methods and visual representations of the coal industry ecosystem proposed; and
- Cost effectiveness of the proposal.

VIII. Proposal Submission

Proposals are due on or before the close of business on August 19, 2016.

An original and three hard copies of the proposal must be submitted to:

Julie Marshall, Ph.D.
Economist
Regional Planning and Research Division
Appalachian Regional Commission
1666 Connecticut Ave., NW, Suite 700
Washington, D.C. 20009-1068

In addition to the hard-copy submission, *proposals must also be e-mailed on or before the deadline* to jmarshall@arc.gov. Late submissions will not be considered. E-mail attachments shall be no more than 10 MB.

Questions about this proposal should be directed to Julie Marshall at jmarshall@arc.gov or at 202.884.7790.