

## Approach for Analyzing/Coding Planning Documents, January 2021

### Overview

This document describes the coding process used to analyze planning documents in Haggerty et al.'s (2018) [Resources Policy](#) paper, "Planning for the local impacts of coal facility closure: Emerging strategies in the U.S. West."

1. **Intent.** We focused on local planning documents to get a sense of 1) if and how affected communities were considering coal-plant closure in their economic development plans; 2) if yes, how the plans addressed the impacts and the strategies they promoted. The strategies outlined in the plans were evaluated according to a framework that synthesized insights and recommendations from different literatures.
2. **Pre-coding work**
  - a. **Literature review:** The literature review is central to developing the evaluation framework you use for coding the plans. Our literature review asked how different scholars from a range of disciplines (economic and rural geography, sociology, applied economics) think about the drivers and outcomes of industrial closures to understand key impacts and strategies related to economic transition. Four key themes emerged and served as the conceptual framework for the assessment criteria. Ours were: (1) the importance of replacing and stabilizing revenue streams; (2) the necessity to plan, fund, and execute complete environmental remediation; (3) the risk of focusing on economic development strategies that are inappropriate to local context; (4) the association of willingness to change and positive outlook with community resilience during transitions.
  - b. **Data collection:** Acquire plans – included public documents that consider economic and community development objectives or specific to the industrial closure. For most cases – community economic development strategies (CEDs) plans, plant-specific closure and decommissioning plans, and Memorandums of Agreement.
3. **Coding the plans** – Coding is an iterative process that can be done alone but can be generative (and more fun) if you can work in partners or teams. This process described was conducted by 2-3 researchers.
  - a. **Without coding framework,** slowly read through each of the planning documents. Take descriptive notes and look for themes that emerge. Some general questions to ask as you start to read through the plans: Who is the author – a consultant firm/local government/economic development corp/etc? What is the impetus for the plan – policy requirement/legal/voluntary? Are there common strategies? Deadlines? Are there aspects that stand out?
  - b. **Return to the coding framework/criteria and discuss with research team.** Discussion is an important part of the coding process, work with your team to identify the connections

between your framework and your data. It is not always clear at first, but definitions become sharper through discussion. Disagreement shows that definitions have to be expanded or amended. Time spent on this will pay off when the research team has a shared idea of what the codes mean and which blocks of data best fit which code (Miles, Huberman, & Saldana, 2014).

- c. **Coding is a process** that can be done with software such as Nvivo or simply in a word document or spreadsheet. Since we had a relatively small data set (N=12 plans) and small coding framework we started in a word document. We divided the plans between the three codes, so that there was overlap and that at the plan was coded by two people. To help with the process we developed a coding worksheet for ourselves with prompts and questions for each code. See image below for examples from questions 1 and 2.

### Economic Transition Strategies

#### 1. EVIDENCE OF REPLACEMENT REVENUE FOR KEY LOCAL INSTITUTIONS?

*Does the plan discuss strategies to replace annual tax revenue that will be lost after plants close? Of particular interest is that revenue that will bolster local government and civic society institutions providing social, health care, economic development, and education services that are central to stabilizing and growing rural communities.*

#### ACE Decommissioning Plan

- Pg. 5-62: "The ACE project analyzed in the 1986 AFC submitted to the CEC included an analysis of the project's impact on the economic base of the local area, as well as population, housing, public services, and utilities. No decommissioning requirements specific to socioeconomics were included in the 1988 ACE Decision.
- Pg. 5-66: "As the decommissioning is located in San Bernardino County, the County is the local agency with taxing power and the only county that may experience direct impacts from decommissioning and a loss of taxes.
- Pg. 5-71: "Estimates suggest that the ACE cogeneration facility contributed \$2 million annually in local taxes. According to the latest San Bernardino County revenues, this represents approximately 0.4 percent of the total tax revenues. The loss of taxes will be distributed among local agencies and programs within the County. This decrease is considered negligible and will be replaced to some extent by revenues from the new owner of the site. This is not a significant impact."

*Summary: This decommissioning plan addresses the role of the ACE cogeneration facility in contributing to the total tax revenues of San Bernardino County. This plan estimates that the facility contributed \$2 million annually in local taxes, representing approximately 0.4 percent of the total tax revenues. The plan asserts that the tax revenue losses will be distributed across the budget and will have no significant impact on the county's ability to provide services. They also suggest that the new operations at the site will somewhat replace the lost revenues.*

#### Colstrip CCC

Executive Summary: "The first goal is to maintain shipments, employment and tax revenues from coal production."

- Pg. 1: "Taxes and royalties are the primary input in Montana coal mining. Severance and gross proceeds taxes generated more than \$81 million to state and local governments in FY2016. The coal cluster generates more than \$87million of tax revenues for state and local governments in Montana..."
- Pg. 11: "State Severance and Gross Proceeds taxes on coal are a substantial government revenue source in Montana."
- Pg. 60: "The reduction of coal shipments also has unintended consequences on state and university payrolls throughout Montana. Severance and gross proceeds taxes generate nearly \$90 million per year for Montana governments."
- Pg. 61: "The strategy should investigate in-depth the strategies that Montana should adopt to generate new tax revenues to replace coal severance and gross proceeds taxes..."

Figure 1. Sample from our individual coding worksheet

## 2. EVIDENCE OF SUPPORT FOR REMEDIATION AS LOCAL ECONOMIC DEVELOPMENT OPTION?

*Does the plan consider environmental remediation? Does the remediation plan raise the issue of local employment?*

### ACE Decommissioning Plan

- Pg. 4-7: "Long-term shut down activities will be performed by the existing ACE plant work force. Demolition, removal, and final grading work will be performed by outside contractors with the appropriate expertise and licensing. The maximum demolition workforce including both ACE employees and demolition contractors is expected to be no more than 30 workers."
- Pg. 5-68: "During its past operation ACE Cogeneration facility employed a total of 22 to 28 workers. It is expected that some employees may be able to find employment at other nearby traditional or alternative energy generation facilities in the region. Because the new site owner will use the site for industrial purposes, new jobs are expected to be created that may offset all or some of the jobs lost by closure of the ACE facility. "
- Pg. 5-69: "Decommissioning is expected to occur over a total of six months. Decommissioning would require a maximum of 30 workers per day, including both ACC employees and demolition contractor staff, over the six-month period.
- Pg. 5-70: "The employees who worked at the ACE cogeneration plant were paid approximately \$4.1 million in wages annually and the plant supported 242 indirect jobs in the immediate area. The risk that many of these indirect jobs would be negatively affected by decommissioning of the plant will be partially or entirely offset with jobs created by the site's new owner.

**Summary:** *This decommissioning plan asserts that employees of the ACE Cogenerating facility, in addition to demolition contractors, will be the people performing the remediation work. This is suggested to continue for a six-month period after closure. There are only 25 employees at the ACES facility, and only 30 employees are expected to be needed for the decommissioning process.*

### Colstrip CCC

Pg. 67: *This plan asserts that there are job opportunities in developing new commercial technologies that lower carbon emissions and increase efficiency of coal-fired generators. Though, these are probably not going to be filled by current coal employees.*

**Summary:** *No, this plan does not recommend environmental remediation as an economic development strategy. They do recommend job opportunities in developing new commercial technologies that lower carbon emissions and increase efficiency of coal-fired generators. Though, these jobs are not likely to require the same skillsets as the employees of the coal-fired generating station.*

Figure 2. Sample from our individual coding worksheet

4. **Synthesize insights from literature and data to assess and compare.** Through discussions we created a categorization system to identify *how* each strategy was found in the plan (rubric with

definitions below. Then, we used that framework to evaluate each plan (next image) with examples.

Economic Transition Codebook					
	Ranking Definitions	1: Absent	2: Problematic/Wrong	3: Present, Incomplete	4: Adequately addresses recommendations from the literature.
Code	Definition	1	2	3	4
Revenue Replacement	Acknowledgement of loss of annual tax revenue. Discusses specific--short and long term--strategies to replace lost revenue that are vital for funding local institutions.	Absent. No discussion of replacing lost revenue.	Acknowledge significance of potential revenue loss. Recommends maintaining status quo. Does not recommend strategies for replacement that address socio-economic reality.	Acknowledges significant potential revenue loss. Develops strategies with some consideration for socio-economic context.	Acknowledges significant potential revenue loss, and develops viable strategies considerate of socio-economic context. Suggests plan for funding replacement and implementation.
Environmental Remediation	Plan addresses opportunities and challenges associated with plant decommissioning and site remediation. Considers dec/rem processes as potential opportunity for short term employment for displaced workers and long term economic development.	Absent, does not address decommissioning or remediation process.	Decommissioning and environmental remediation are mentioned, but only cited in terms of its potential economic burden on the community.	Decommissioning and environmental remediation are mentioned as <b>either</b> opportunities for employment or economic development	Decommissioning and environmental remediation are mentioned as <b>both</b> opportunities for employment or economic development
Economic Geography	Evidence of consideration of economic geogrpahy, including the physical and socioeconomic context. Acknowledges opportunities and challenges associated with relative isolation and/or connectedness to an MSA.	No evidence of consideration of economic geography.	Evidence of consideration of economic geography, but do not address opportunities and limitations associated with physical and soci-economic context.	Evidence of consideration of econ geography. Implementation strategies <b>partially align</b> with associated limitations and opportunities related to physical and socio-econ context.	Evidence of consideration of econ geography. Implementation strategies fully align with associated limitations and opportunities related to physical and socio-econ context. Strategies specifically discuss mitigation of these limitations and challenges.
Evidence of Acceptance of Transition	Plan acknowledges the reality of the situation regarding the local or immediate coal industry and coal-fired electrical facilities. The plan also discusses the national trend away from coal-fired electricity production, driven by competition from natural gas prices, increasing negative pressure from consumers, and stricter regulations. Also speaks to energy transition, are there opportunities to repurpose coal plant infrastructure?	No evidence of acceptance of transition.	Evidence of acknowledgement of local conditions surrounding coal industry and/or coal-fired power plants, but denial of the reality of the situation. Plan directly advocates for maintaing the status quo regarding coal.	Evidence of acknowledgement of local conditions surrounding coal industry and/or coal-fired power plants, and acceptance of the reality of the situation. Plan indirectly advocates for maintaining the status quo regarding coal and/or inaccurately assesses the national trends in regards to coal, or the drivers of these trends.	the reality of the situation regarding the local or immediate coal industry and coal-fired electrical facilities. The plan also discusses the national trend away from coal-fired electricity production, driven by competition from natural gas prices, increasing negative pressure from consumers, and stricter regulations. Strategies recommended in the plan do

Figure 3. Codebook - definitions of code and ranking values

Economic Transition Strategies						
Plan	County	State	Evidence of replacement revenue for key local institutions.	Evidence of support for remediation as local economic development option.	Evidence of consideration of economic geography.	Evidence of Acceptance of Transition
ACE Decommissioning Plan	San Bernadino	CA	Addresses role of contributing to total tax revenues of San Bernadino County. Estimates a \$2 million annual contribution to local taxes or 0.4%. Decrease is considered negligible and will be replaced to some extent by revenues from the new owner. (4)	The decommissioning plan asserts that employees of the ACE Cogenerating facility, in addition to demolition contractors, will be the people performing the remediation work. This will take approximately 6-months after closure. There are only 25 employees at the ACE facility and only 30 employees are expected to be needed for the decommissioning process (4)	There was no mention of economic geography. This is probably because this is a decommissioning plan and not an economic transition plan. It seems notable that this generating station is located in a populated county and that \$2 million of annual tax revenue is only 0.04 percent of the county's overall budget. (2)	(4) Yes, this plan demonstrates acceptance of closure by outlining a thorough decommissioning process
Martin Drake Power Station	El Paso	CO	Did not address replacing tax revenue (2)	"The economic impacts of site redevelopment were calculated based on the expected capital expenditures on local properties by residents and business owners. Thirteen full-time equivalent jobs are anticipated per million dollars spent and each job is expected to contribute \$86,900 to GDP per years..." (2-3) Does this count?		1-3 It is apparent that the disagreement in the community about the future of this plant is still unclear. The conclusions of this plan provide comparative conclusions. The plan ultimately recommends "generally retiring Drake earlier than later results in improved environmental and social results. This is in contrast to the financial outcomes in which earlier retirement yields higher financial costs and clearly highlights the trade-off between these alternatives."

Figure 4. Example of how codes were applied to each plan with examples

- All of these steps may not be necessary, but through discussion and different iterations this process was helpful for synthesis and the writing of the data.