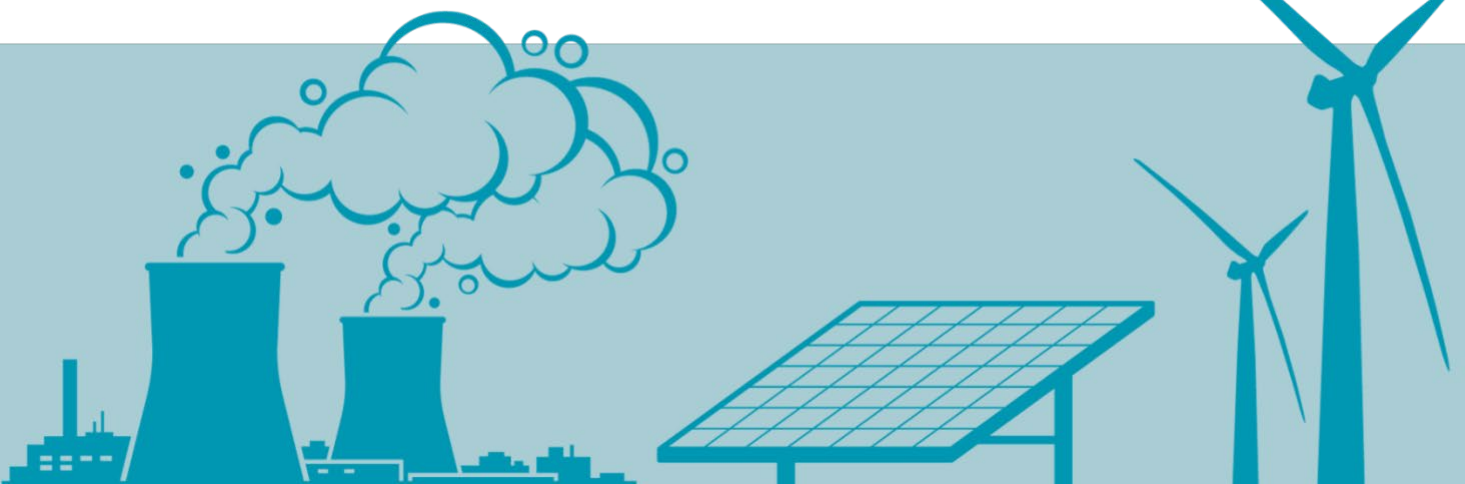


How Nuclear Power Plant Decommissioning Can Inform the Energy Transition

LESSONS LEARNED

THE NUCLEAR DECOMMISSIONING COLLABORATIVE, INC.

March 2024



Introduction

For many communities who host nuclear power plants, the threat of plant closure is familiar and distressing. Nuclear power plant closures often inflict swift, sudden and severe economic impacts on host communities, including the loss of skilled labor and tax revenue. The lengthy decommissioning process combined with the indefinite on-site presence of nuclear waste often thwarts timely site redevelopment, thereby delaying efforts to mitigate these negative fiscal impacts.

In recent years, a combination of state and federal legislation has delayed the inevitability of plant closure in some instances. This respite is temporary, however, as all plants will eventually close. In this context, and over the past three years, the Nuclear Communities Technical Assistance Team¹ (NCC-TA) has worked with nuclear power host communities around the country to plan for closures and to fill the socioeconomic gaps between operation and decommissioning, and between decommissioning and site redevelopment.

Since 2021, power generation from renewable sources has surpassed both coal and nuclear power generation in the United States.² As the nation pushes towards more carbon-free energy, renewable host communities will eventually face their own economic challenges with decommissioning. As renewable energy developments begin to supplant fossil fuels and new nuclear technologies gain traction, both energy host communities and developers are presented with an opportunity to plan for reproducible and sustainable economic success. To that end, the lessons learned from the decommissioning of nuclear power plants provide a roadmap for navigating the complex cycle of energy transition across multiple energy sectors.

¹ The Nuclear Communities Technical Assistance Team is a collaboration of Smart Growth America, the Nuclear Decommissioning Collaborative, the National Association of Development Organizations, and the Center for Creative Land Recycling.

² "Renewable Generation Surpassed Coal and Nuclear in the U.S. Electric Power Sector in 2022." U.S. Energy Information Administration (EIA), March 27, 2023. <https://www.eia.gov/todayinenergy/detail.php?id=55960>.

**\$30
million**

in EDA funding
allocated to nuclear
host communities

Conducted outreach to

96% of
the national
nuclear fleet

Provided tailored
planning guidance to

over **24**
communities

The Work So Far

Since September 2020, the NCC-TA Team³ has supported nuclear host communities in their efforts to plan for a more resilient future, regardless of the operating status of their plant. Over the past three years, the Team has reached out to host communities across the country and has worked directly with over two dozen of them to provide planning and economic development guidance. The Team provided specific recommendations tailored to each individual community by reviewing community assets, engaging stakeholders, and identifying potential funding opportunities. Through the Nuclear Closure Communities initiative, the U.S. Economic Development Administration has allocated over \$30 million to support nuclear host communities in their efforts to create resilient economies and plan for eventual plant closure.

Additionally, the Team organized virtual and in-person events that presented practical information and brought together community stakeholders, industry representatives and local governments. The Team developed an ongoing Community of Practice, which created a space for local officials and community members to share their experiences and discuss topics such as stakeholder engagement, spent fuel management, and site re-use. The Team also produced informational webinars on topics such as EDA funding opportunities, wealth creation strategies, and transitioning economies. The [Fall Nuclear Economic Resilience Conference](#), which took place in November 2022, was an in-person event that allowed participants to both hear about the economic resilience strategies of other nuclear communities and share their own experiences. Additionally, the Team organized

³ This program is supported by funding from the U.S. Economic Development Administration under grant number ED20HDQ3030068.

two Nuclear Forums, the first in [April 2022](#) and the second in [September 2023](#). These events each featured over a dozen speakers from the nuclear industry, local and national governments, and the academic field to discuss pressing concerns facing nuclear communities and potential strategies to address these issues.

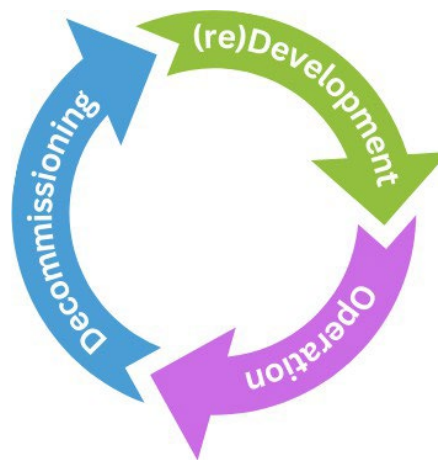
Lastly, the Team developed written resources that synthesized the lessons learned throughout the course of the Technical Assistance for Nuclear Communities program and explored pressing questions related to the economic effects of nuclear decommissioning. One of these resources is the [Community Economic Diversification Roadmap](#). This roadmap provides specific strategies and guidance for four different areas of the energy transition lifecycle: Land Use & Planning, Economic Resilience, Regional Coordination, and Energy Transition. The Team also published a research paper that explored the possibility of siting solar power installations on former nuclear power plant sites.

What Have We Learned?

We identified three important themes from our work that are applicable to both current host communities and those who may be interested in hosting new generation technologies.

1. It's Never Too Early to Plan

While our early efforts were focused on host communities where nuclear plants had already announced closure, it is clear that every nuclear host community—regardless of a plant's operational status—should be planning for a post nuclear power plant future. Proactive community planning neither precipitates nor accelerates plant closure. Rather, early planning positions communities for success by allowing them to make resiliency-related decisions



Lifecycle of energy generation project

without the pressure of imminent closure. Incorporating closure-related economic resiliency strategies into broader community planning efforts such as the Comprehensive Economic Development Strategy or utility-led planning efforts such as the license renewal process and/or Integrated Resource Plans, can be an effective way to plan proactively.

Planning for eventual closure and decommissioning should also be a part of renewable energy projects. This planning should both clarify the logistical and financial details of the decommissioning process, and determine how the developer and utility are going to minimize the economic harm that host communities face in the wake of plant closure. The American Clean Power Association recommends that developers prepare a plan for decommissioning before construction begins on new renewable energy projects.⁴ These plans can then be incorporated into the project agreement and updated as needed throughout the life of the development. At the same time,

⁴"Renewable Energy Facility Decommissioning: Industry Recommendations." American Clean Power Association, October 2021. https://cleanpower.org/wp-content/uploads/2021/01/Final_Decommissioning-Fact-Sheet_Oct21.pdf.

local governments should create closure and decommissioning plans of their own that can be periodically reviewed and revised. The Center for Rural Affairs also recommends that local governments prepare for solar developments by creating ordinances that assign all financial responsibility for decommissioning to the project developers and not to the community.⁵ In addition to planning for decommissioning, the utility, developer, and local government need to plan to minimize the economic void created by plant closure, and its associated impacts. This may mean that the utility and developer set aside funding to support the host community, or that they plan to help facilitate redevelopment of the site. Coordinated planning between the local government and the developers allows each party to clearly define their expectations for the project and encourages informed and equitable communication.

2. Strong Community-Utility Relationships are Essential

Creating open and effective pathways for communication between community officials and residents, and between community officials and the utility, are both key to successful planning efforts. It is important for the project administrators, whether they be the utility or a third-party developer, to communicate with community members regularly to build trust and to gain critical insight into community needs. Engaging the host community as a partner in the project shows that the developers recognize their contribution to the project. It is also important to regularly engage with the utility in order to promote

“Coordinated planning between the local government and the developers allows each party to clearly define their expectations for the project and encourages informed and equitable communication.”

collaboration on issues such as site reuse, where the utility may exercise more control.

Communication and community engagement are equally crucial in the renewable energy sector. The degree to which a developer engages with the host community can affect factors such as local government cooperation and public opinion of the project. In a 2018 report, Michigan’s Wind Energy Stakeholder Committee (WESC) made recommendations for fostering a strong relationship with wind energy host communities. These recommendations included understanding the identity of the host community and their vision for the future, frequent and meaningful communication with community members, and the establishment of a community committee to advocate for community interests throughout the lifetime of the project.⁶ Recent research found that there was a significant relationship between the support for wind energy development in Michigan and the degree to which local residents felt they had an opportunity to provide meaningful input on the project.⁷ Building a strong relationship between the community, the developer, and the utility is beneficial for all parties and can ensure smooth transitions between all phases of the energy project cycle.

⁵“Decommissioning Solar Energy Systems Resource Guide - Cfra.Org.” Center for Rural Affairs, June 2022.

<https://www.cfra.org/sites/default/files/publications/Decommissioning%20solar%20energy%20systems%20WEB.pdf>.

⁶ “Lessons Learned - Community Engagement for Wind Energy Development in Michigan.” State of Michigan, 2018.

https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Programs/MMD/Energy/communities/Lessons_Learned_WESC_Report_Final.pdf?rev=f14779e351264adf810a5a410748b95f

⁷ Sarah Mills, “Is Wind Energy Right for Your Township?” The CLOSUP Wind Project. 2017.

<https://closup.umich.edu/video/2017/wind-energy-right-your-community-lessons-michigans-windfarms>

3. Funds are Available

Good planning is not free, but there are federal funds available to support communities in their planning efforts. Federal funds for nuclear communities are no longer limited to communities in which a plant has announced closure. Securing funding before plant closure is announced facilitates robust proactive planning and works to mitigate the economic losses that will eventually accompany plant closure.

Funding opportunities for all types of energy communities can be found through the Energy Communities IWG Clearinghouse.⁸ If an energy community is between the decommissioning and the post-closure redevelopment phases of the energy project lifecycle, particularly if it was home to a fossil fuel or nuclear power plant, there may be federal grants and loans to help facilitate the transition to renewable generation. Additionally, the Office of Energy Efficiency and Renewable Energy has a number of funding opportunities to support new renewable energy developments and communities that may be interested in hosting new energy technologies. Securing funding ahead of project development may allow for more robust planning efforts. More information on available funding and federal resources can be found at energycommunities.gov

Conclusion

Our work supporting nuclear host communities as they plan for a post-nuclear power plant future has highlighted the importance of early preparation, strong community-utility relationships, and deliberate utilization of available funding. These actions can also be taken by project developers, utilities, and communities across different energy sectors to

help energy host communities achieve the best long-term economic outcomes.

As the national energy transition progresses, an increasing number of communities will have the opportunity to participate in long-term facility hosting decisions; whether it be for renewables or other generation technologies. These transformations provide an opportunity to apply hard-won learnings and better position host communities to play a leading role in charting their course to long-term prosperity.

⁸ "Funding Clearinghouse." Energy Communities, August 14, 2023. <https://energycommunities.gov/funding-opportunities/all-funding/>.

