

Federal Support Opportunities to Remediate and Redevelop Energy Assets



U.S. DEPARTMENT OF
ENERGY

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With the passage of the Inflation Reduction Act (IRA), communities, site owners, and developers can now access never-before-available loan guarantees to redevelop and repurpose legacy energy assets. There are thousands of retired and operating energy sites in communities throughout the United States waiting to be cleaned up and modernized. Together with other existing federal grants and tax credits, the newly created Energy Infrastructure Reinvestment (EIR) loan guarantees from the Department of Energy (DOE) can catalyze capital investment in these sites, empowering local communities and reducing carbon pollution.

The IRA¹ makes available up to \$5 billion in EIR credit subsidy to support up to \$250 billion in loan authority, which can aid in the remediation, repurposing, and redevelopment of eligible energy infrastructure sites. EIR provides opportunities for reinvestment in America's energy communities amid the energy industry's ongoing transformation to reduce carbon pollution. It can also reduce risks for electric utility customers by enabling access to favorable debt financing for owners and developers of energy infrastructure.

EIR is a project category under the DOE Loan Programs Office (LPO) Title 17 Program. Like other LPO offerings, EIR provides access to debt capital; flexible, custom financing; a committed partnership; and DOE's specialized energy expertise. EIR can support a wide variety of uses and presents a unique opportunity to reduce risks and costs of transitioning away from fossil energy infrastructure.

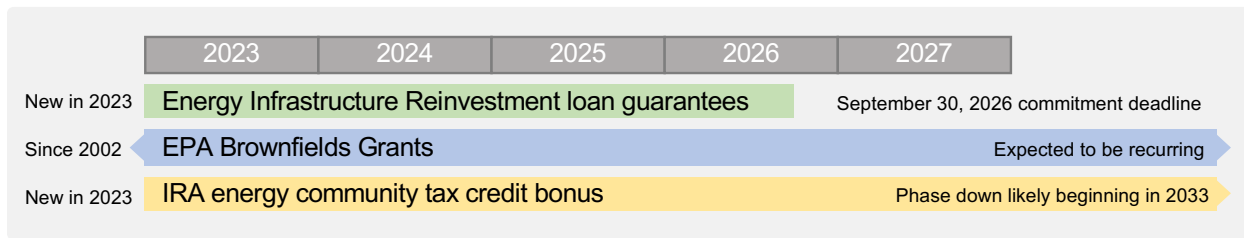
EIR loan guarantees complement a suite of other federal programs that support energy infrastructure redevelopment. Brownfields Grants² from the Environmental Protection Agency (EPA) support assessment and cleanup of sites where known or unknown contamination hinders redevelopment. Clean energy tax credits and the IRA energy communities tax credit bonus also support clean energy development at brownfield sites and defined regions with strong historical ties to fossil fuels. Working in tandem, these federal programs can unlock reinvestment in these communities and strengthen their position in the changing energy economy.

Timing is critical: Some federal support cannot be combined, and EIR loan guarantees must be committed by Sept. 30, 2026.

¹ Inflation Reduction Act of 2022 (Public Law 117-169)

² <https://www.epa.gov/brownfields/types-epa-brownfield-grant-funding>

Figure 1: Timeline of opportunity to combine EIR, Brownfields Grants, and energy community tax credit bonus.



This resource guide describes four redevelopment models that align EIR resources with EPA Brownfields Grants and the energy community tax credit bonus under the IRA.

1. Using EIR to redevelop retired energy infrastructure to new use
2. Using EIR and Brownfields Grants to redevelop retired energy infrastructure to new use
3. Using EIR and an IRA energy community tax credit bonus to redevelop retired energy infrastructure to qualifying clean energy infrastructure/projects
4. Using EIR to enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gases

This guide also describes two redevelopment scenarios that may be applicable to any of the four redevelopment models. The redevelopment scenarios include use of public-private partnerships (PPPs) to capitalize on available funding and align redevelopment with community priorities, and regulated investor-owned utilities’ considerations in using EIR loan guarantees.

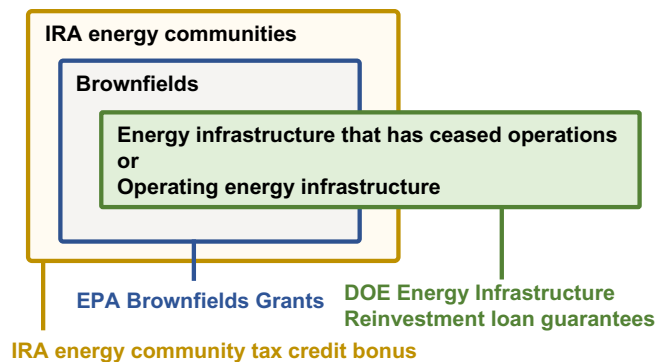
Combining multiple sources of federal support for the same project must be examined on a case-by-case basis. Actual redevelopment project eligibility will be determined based on the specific characteristics of a given project as it develops. The redevelopment examples illustrate potential paths using EIR and do not represent guidance from DOE, EPA, or the Internal Revenue Service (IRS).

Aligning Federal Financial Resources for Energy Asset and Site Redevelopment

EIR's \$250 billion in loan guarantee authority represents a redevelopment resource on a major scale. Individual projects are expected to seek loan guarantees on the order of \$100 million to several billion dollars.³ The ability to combine companion federal support for remediation and redevelopment represents a huge opportunity compared to existing programs that address these aspects of redevelopment separately.

EIR can be synergistic with EPA's Brownfields Program and the IRA energy community tax credit bonus and associated clean energy tax credits. These programs, with varying scopes and eligibility, can all support energy asset redevelopment and energy community reinvestment.

Figure 2: Interrelation of funding resources.



Retiring energy infrastructure sites are often brownfields⁴ due to the actual or potential presence of contamination. Opportunities to safely reuse the site will be limited if contamination is present, and the site may need to be remediated before reuse. Many brownfield sites are eligible for EPA Brownfields Grants, which support site assessment and remediation activities.⁵

Furthermore, certain brownfield sites fulfill the criteria for the IRA energy community tax credit bonus. Retired and retiring coal infrastructure, in particular, are expected to be aligned with all three programs.

Each of the three types of federal support covered in this analysis has different criteria for qualifying sites, project timing, and financial tools. The side-by-side comparison in Table 1 provides a clear picture of opportunities to access these tools in combination for a single project.

³ There are no maximum or minimum loan guarantees; however, loan guarantees of less than \$100 million are uncommon.

⁴ Defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as codified in 42 USC chapter 103, §101(39)(A): "The term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." Additional information is provided in CERCLA §101(39).

⁵ Site eligibility criteria: <https://www.epa.gov/brownfields/information-sites-eligible-brownfields-funding-under-cercla-ss-104k>

Table 1: Summary comparison of resources.

| | | Energy Infrastructure Reinvestment (EIR) loan guarantees | EPA Brownfields grants | Energy community tax credit bonus and associated clean energy tax credits |
|-------------------------------|--------------------------|--|---|---|
| Agency | | DOE | EPA | IRS |
| Qualifying sites | | Energy infrastructure that has ceased operations Operating energy infrastructure | Brownfield properties that meet site eligibility criteria | Energy Communities as defined in IRA (which includes certain brownfield properties) ^(a) |
| Qualifying uses | Retired infrastructure | To retool, repower, repurpose, or replace energy infrastructure, including remediation of environmental damage | Activities designed to help assess and/or clean up brownfield properties | Energy investment credit (§48); clean electricity investment (§48E); renewable electricity production (§45); clean electricity production (§45Y); manufacturing or recycling of clean energy property (§48C) |
| | Operating infrastructure | To avoid, reduce, utilize, or sequester air pollutants or greenhouse gases | | |
| Funding | Instrument | Loan guarantees (of loans provided by third party or Federal Financing Bank) | Grants; may be limitations on use of grants with EIR on a single project at the same time | Tax credits; expected to be combinable with EIR |
| | Amount available | National cap up to \$250 billion, supported by up to \$5 billion in credit subsidy; individual projects commonly receive loan guarantees above \$100 million | Amounts vary; grants are typically between \$500,000 - \$2 million to address one or more eligible brownfield sites | <p>§48/48E Investment tax credit: energy community bonus of up to 10 percentage points above base tax credit; no dollar limits at project or national level</p> <p>§45/45Y Production tax credit: energy community bonus of up to 10% above base tax credit; no dollar limits at project or national level</p> <p>§48C: Individual project credits of up to 30% of qualified investment in clean energy property manufacturing or recycling, allocated under a national cap of \$10 billion in tax credits, of which \$4 billion is directed to projects in certain energy communities.^(b)</p> |
| Eligible organizations | | Organizations; expected to include private and public developers | Public and non-profit entities; ^(c) grant recipients may sub-grant to other eligible organizations | Organizations; expected to include private and public developers |
| Timing | | Must be committed by September 30, 2026; funds committed may be drawn down through September 30, 2031 | Grants awarded annually through a competitive process (subject to continued availability of funding) | Phase down likely beginning in 2033 |

^(a) 26 USC § 45(b)(11)(B)

^(b) See IRS Notice 2023-18: <https://www.irs.gov/pub/irs-drop/n-23-18.pdf>

^(c) Complete list of eligible entities: <https://www.epa.gov/brownfields/entities-eligible-receive-brownfield-grants>

Programs Overview

Energy Infrastructure Reinvestment (Project Category of Title 17)

The IRA created the EIR Project Category (Title 17 section 1706) to spur the efficient redevelopment of legacy energy infrastructure. Section 50144 of the IRA amends Title 17 of the Energy Policy Act of 2005 to create EIR, which adds to the existing suite of DOE lending programs, including Innovative Clean Energy (Title 17 section 1703) loan guarantees. EIR can help revitalize infrastructure for the energy transition by reducing project risks associated with redeveloping existing sites, and, unlike the existing Innovative Clean Energy category, does not require that projects involve innovative technologies. EIR also requires public engagement by applicants, strengthening connections between communities and projects.

Like other LPO programs and project categories, EIR can support energy-sector projects that are economically beneficial but are outside what private capital markets typically finance. LPO underwrites these transactions to address the risks and challenges that prevent them from receiving traditional private-sector financing. Projects will be assessed for reasonable prospect of repayment, along with other factors, in determining eligibility.

EIR also explicitly supports community engagement, ensuring projects are developed with community feedback and perspectives in mind. As part of their application, EIR projects must provide “an analysis of how the proposed project will engage with and affect associated communities.”⁶ This creates an environment of constructive collaboration and ensures communities have a role in the development of new projects. The application process combines DOE consultation and due diligence with that of other lenders and project partners.

Table 2: EIR summary.

| | |
|-----------------|---|
| Scope | Projects that retool, repower, repurpose, or replace energy infrastructure that has ceased operations; OR Projects that enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or anthropogenic emissions of greenhouse gases. Project scope may include the remediation of environmental damage associated with energy infrastructure. |
| Eligibility | Organizations; expected to include private and public developers. |
| Value potential | National cap up to \$250 billion in loan authority, up to \$5 billion in available credit subsidy; individual projects commonly receive loan guarantees no less than \$100 million. |
| Timing | Funds must be committed by September 30, 2026. |

⁶ Energy Policy Act of 2005 (Public Law 109-58) §1706(d)(2)

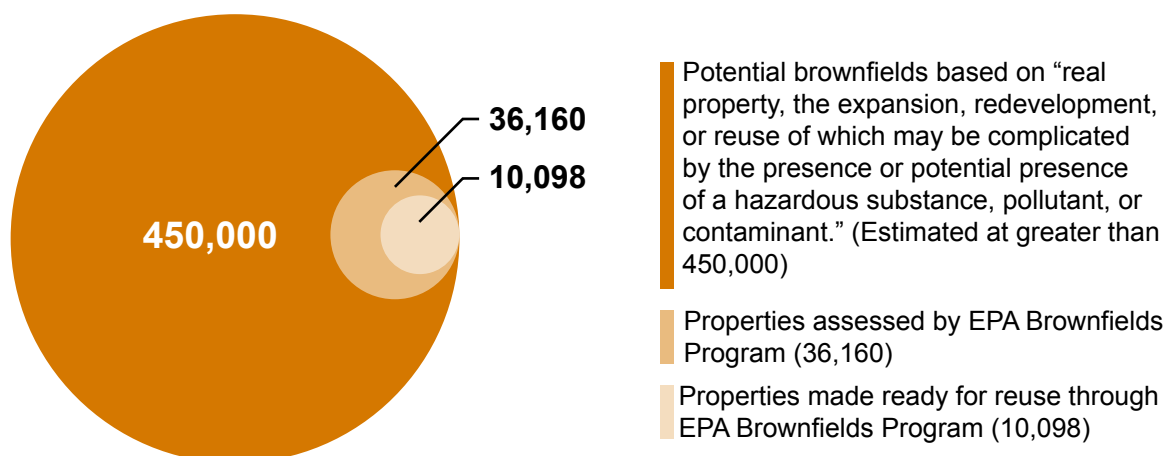
EPA Brownfields Program

Grants to revitalize brownfield sites are available through EPA’s Brownfields and Land Revitalization Program. EPA Brownfields Grants can take several forms,⁷ including grants for site assessment, cleanup, multipurpose, revolving loan funds, and job training. Eligible entities can apply directly for Brownfields Grants funding via the annual brownfields grant competition.

Each year, the EPA also provides noncompetitive grants to support State and Tribal Response Programs.⁸ These grants are used to create or enhance State or Tribal environmental response programs; they may also be used for limited site assessments or cleanup at brownfield sites or for other activities that increase the number of response actions conducted or overseen by a State or Tribal response program. PPPs and other ownership arrangements (discussed below) can help facilitate access to Brownfields Grants.

It is estimated that there are more than 450,000 brownfield sites in the United States,⁹ defined as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.”¹⁰ Cumulatively, EPA’s program has assessed over 36,000 brownfield sites and made over 10,000 ready for reuse through assessment and cleanup.¹¹ Please visit [EPA’s Cleanups in My Community](#) to view sites supported using EPA brownfields funding.

Figure 3: Universe of brownfields.



⁷ Types of EPA Brownfield Grant Funding | US EPA, <https://www.epa.gov/brownfields/types-epa-brownfield-grant-funding>

⁸ Additional information: <https://www.epa.gov/brownfields/state-and-tribal-response-program-grants>

⁹ [https://www.epa.gov/brownfields/frequently-asked-questions#Without%20a%20national%20inventory%20of%20all%20brownfield%20sites,%20why%20does%20EPA%20think%20there%20could%20be%20somewhere%20between%20450,000-1%20million%20brownfield%20sites%20in%20the%20U.S.?](https://www.epa.gov/brownfields/frequently-asked-questions#Without%20a%20national%20inventory%20of%20all%20brownfield%20sites,%20why%20does%20EPA%20think%20there%20could%20be%20somewhere%20between%20450,000-1%20million%20brownfield%20sites%20in%20the%20U.S.)

¹⁰ <https://www.epa.gov/brownfields/overview-epas-brownfields-program>

¹¹ <https://www.epa.gov/brownfields/brownfields-program-accomplishments-and-benefits>

Despite the challenges posed by actual or potential contamination, these sites often have great redevelopment potential. Brownfield properties are often located near existing transportation infrastructure (like rail, road, or port access) and labor markets. As energy infrastructure transitions to cleaner sources, opportunities arise to redevelop these sites for new uses. Significant potential remains for the safe reuse of brownfields that have yet to be assessed or remediated (if needed).

While not all brownfield sites qualify for an EIR loan guarantee, the sheer number of brownfield sites presents an enormous opportunity. In certain circumstances, EIR can play a role in redeveloping brownfields by supporting the remediation associated with redevelopment for those sites that were originally energy infrastructure. EIR can also help finance redevelopment of sites where remediation work is complete. The broad universe of brownfields likely contains high-potential sites that can benefit from EIR and the IRA energy community tax credit bonus (discussed below).

In addition to the Brownfields Program, [EPA's RE-Powering America's Land Initiative](#) encourages renewable energy development on current and formerly contaminated lands, landfills, and mine sites when such development is aligned with the community's vision for the site. The Initiative's [Project Tracking Matrix](#) identifies hundreds of examples of projects that show the benefits of siting renewable energy projects on brownfields.

Table 3: EPA Brownfields Program summary.

| | |
|-----------------|--|
| Scope | Brownfields assessment, cleanup, multipurpose, revolving loan fund, and job training. |
| Eligibility | Public and non-profit entities; ^(a) grant recipients may sub-grant to other eligible organizations. |
| Value potential | Amounts vary; grants are typically between \$500,000 - \$2 million to address one or more eligible brownfield sites. |
| Timing | Grants awarded annually through a competitive process (subject to continued availability of funding). |

IRA Energy Community Tax Credit Bonus

The IRA established the energy community tax credit bonus, which is synergistic with EIR by supporting investment in communities with brownfields, retiring coal infrastructure, or providing significant fossil-related employment and tax revenues. Table 4 contains the specific energy community definitions from the IRA. Projects are expected to qualify by meeting the criteria for any one or a combination of the definition layers.

^(a) Complete list of eligible entities: <https://www.epa.gov/brownfields/entities-eligible-receive-brownfield-grants>

Table 4: IRA energy communities definitions.

| IRA Energy Communities | |
|------------------------------------|--|
| Brownfields | A brownfield site (as defined in subparagraphs (A), (B), and (D)(ii)(III) of section 101(39) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601(39))), OR |
| Fossil employment and tax revenues | A metropolitan statistical area or non-metropolitan statistical area which—(I) has (or, at any time during the period beginning after December 31, 2009, had) 0.17 percent or greater direct employment or 25 percent or greater local tax revenues related to the extraction, processing, transport, or storage of coal, oil, or natural gas (as determined by the Secretary), and (II) has an unemployment rate at or above the national average unemployment rate for the previous year (as determined by the Secretary), OR |
| Coal closures and retirements | A census tract—(I) in which—(aa) after December 31, 1999, a coal mine has closed, or (bb) after December 31, 2009, a coal-fired electric generating unit has been retired, or (II) which is directly adjoining to any census tract described in subclause (I). |

The energy community tax credit bonus is an adder on top of the applicable base tax credit (Table 5). The Energy Investment Tax Credit (26 USC §48) and Renewable Electricity Production Tax Credit (26 USC §45) are established incentives that were expanded and extended by the IRA. Beginning in 2025, they will transition to a technology-neutral basis, with qualification based on facility greenhouse gas emission rates that are determined to be zero or less (26 USC §48E; 26 USC §45Y).

Table 5: Energy community bonus and applicable base credits.

| Applicable base tax credit | Bonus for siting project in energy community |
|---|---|
| Energy Investment Tax Credit (26 USC §48) and Clean Electricity Investment Tax Credit (26 USC §48E): base credit of up to 30 percent of qualifying investment | Up to 10 percentage points above base tax credit; no dollar limits at project or national level |
| Renewable Electricity Production Tax Credit (26 USC §45) and Clean Electricity Production Tax Credit (26 USC §45Y): base credit of up to 1.5 ¢/kWh, adjusted annually for inflation | Up to 10% above base tax credit; no dollar limits at project or national level |
| Qualifying Advanced Energy Project Credit (26 USC §48C): Individual project credits of up to 30% of qualified investment, allocated under a national cap of \$10 billion in tax credits | Set-aside of \$4 billion directed to projects in certain energy communities |

The Qualifying Advanced Energy Project Credit (26 USC §48C) is an allocated program that effectively functions as a competitive grant. Qualifying projects include those that re-equip, expand, or establish an industrial or manufacturing facility for the production or recycling of clean energy property, ranging from conventional equipment like solar photovoltaic modules to newer applications like electrolyzers for low-carbon hydrogen. The IRA also creates direct pay and transferability of tax credits, which is expected to encourage investment by new types of entities. The direct pay function makes the credits accessible to certain entities that do not have a federal tax liability, like local and Tribal governments and non-profit utility cooperatives. The transferability function allows

certain entities to sell their credits without a tax equity structure, which is expected to encourage additional investment.

These IRA tax credits and the energy community bonus are expected to be highly aligned with EIR. Both programs can support community investments, reductions in carbon pollution, and redevelopment of legacy sites. IRA tax credits and the energy community bonus are expected to be combinable with EIR loan guarantees.

The IRA also created other bonuses for clean energy investment and production, including adders for domestic content and, in more limited cases, certain projects in low-income or Tribal sites. These bonuses can be combined with the energy community bonus, meaning the total qualifying investment tax credit could theoretically be as high as 70%.

The IRA additionally established or expanded tax credits that are not subject to the energy community bonus but could still support the uses envisaged by EIR. Examples include tax credits for the production of clean hydrogen (26 USC §45V) and carbon capture and sequestration (26 USC §45Q).

Table 6: IRA energy community tax credit bonus summary.

| | |
|-----------------|--|
| Scope | Qualifying investments in energy communities. |
| Eligibility | Organizations; expected to include private and public developers. |
| Value potential | For clean energy investment and production: bonus credit on top of applicable base credit, with no dollar limits at project or national level. For clean energy manufacturing and recycling: potential allocation of tax credits for up to 30% of investment, including a set-aside for projects in certain energy communities. |
| Timing | Expected phase-down of clean energy investment and production tax credits beginning in 2033. |

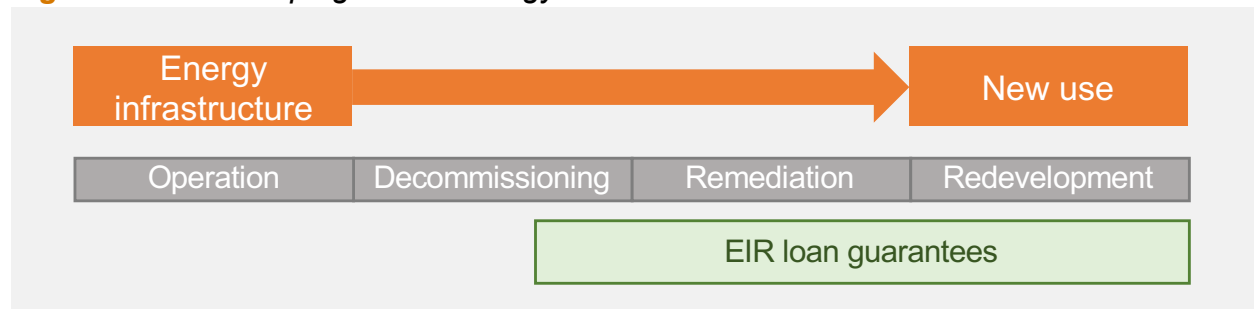
Redevelopment Models

The examples below are possible approaches to energy asset redevelopment that illustrate how EIR and other federal funding can support energy infrastructure reinvestments. There are additional redevelopment models beyond those represented here with variations on ownership and former and new uses. In application, each project would be developed according to its unique circumstances.

I. Using EIR to redevelop retired energy infrastructure to new use

This model considers energy infrastructure that has ceased operations and is redeveloped to a new use. For such retired energy infrastructure, EIR provides loan guarantees to retool, repower, repurpose, or replace energy infrastructure, including associated remediation of environmental damage. EIR loan guarantees can support the site remediation and redevelopment for many kinds of end uses.

Figure 4: Redeveloping retired energy infrastructure to new use with EIR.



Example: A retiring natural-gas-powered electric generating station is converted to a solar energy plus battery storage hub. EIR supports a tailored decommissioning process that retains some infrastructure like electric transmission interconnection. EIR simultaneously supports environmental assessments and any necessary remediation of the site, in conjunction with the new energy development.

EIR is also expected to support projects such as:

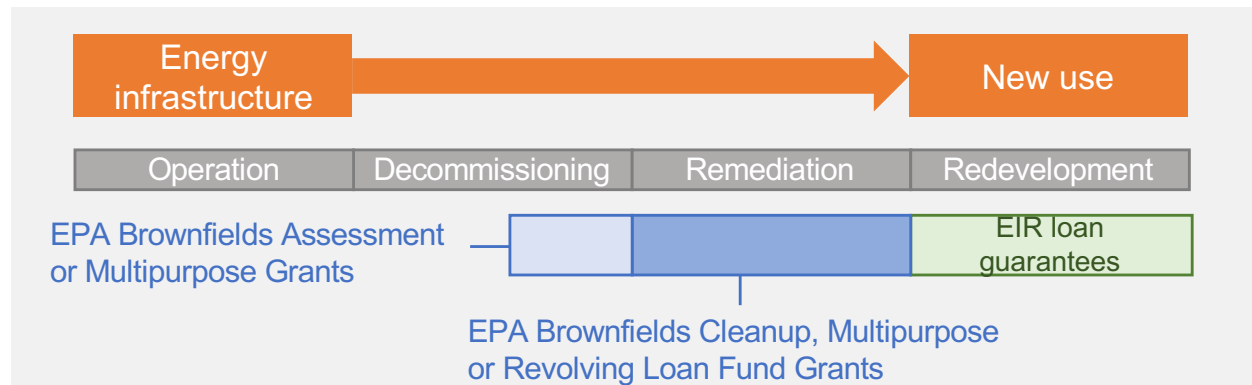
- Repurposing transmission infrastructure at a retired fossil plant for interconnection of off-site renewables
- Retooling fossil-based energy infrastructure for energy-related manufacturing
- Repurposing oil pipelines for clean hydrogen or carbon dioxide transport

This model is especially attractive for sites that may not be eligible for EPA Brownfields Grants. PPPs, however, may be applicable to support project development, as described in the Additional Redevelopment Scenarios section, below.

II. Using EIR and Brownfields Grants to redevelop retired energy infrastructure to new use

In a variation on the above model, EPA Brownfields Grants may be used to support the remediation needed to transition a site to new use. EPA Brownfields Grants support site assessment and cleanup activities.

Figure 5: Redeveloping retired energy infrastructure-to-new use, with Brownfields Grants.



Example: The site of a former coal power plant has been transferred to municipal ownership. The plant was demolished by the original owner and the local government received funds from the EPA Brownfields Program to assess and remediate the property. A private developer acquires the ready-for-use site and uses EIR to support the development of an electric transformer manufacturing plant that benefits from the site’s existing rail and port access.

Additional examples of the use of this redevelopment model could include:

- Redevelopment of a former municipal energy infrastructure site
- Repurposing a waterfront coal terminal to a clean energy logistics center
- Using a Brownfields Assessment Grant to determine the extent of remediation required at a former energy infrastructure site before proceeding to full remediation and redevelopment with EIR

Brownfields Grants can reduce the overall cost of redevelopment by helping a community determine upfront whether a site is contaminated and, if so, how the contamination will affect the safe reuse of the property. Answering these questions before redevelopment begins is crucial to the financial viability of a project.

Remediated properties may also attract lower-cost financing (compared to unremediated brownfields), which further reduces lifecycle project cost and widens the scope of possibilities for redevelopment uses. This may be especially important for emerging technologies or processes with higher revenue uncertainties and other potential risks. In some cases, a brownfields site assessment may be sufficient to determine that no further action is necessary to remediate the site.

Timing is a key consideration for this development model. In general, projects will likely not be able to benefit from both forms of support at the same time due to federal support restrictions contained in the laws applicable to EIR.¹² However, projects may be able to stage the use of these funds utilizing a Brownfields Grant and then EIR after completion of the grant.

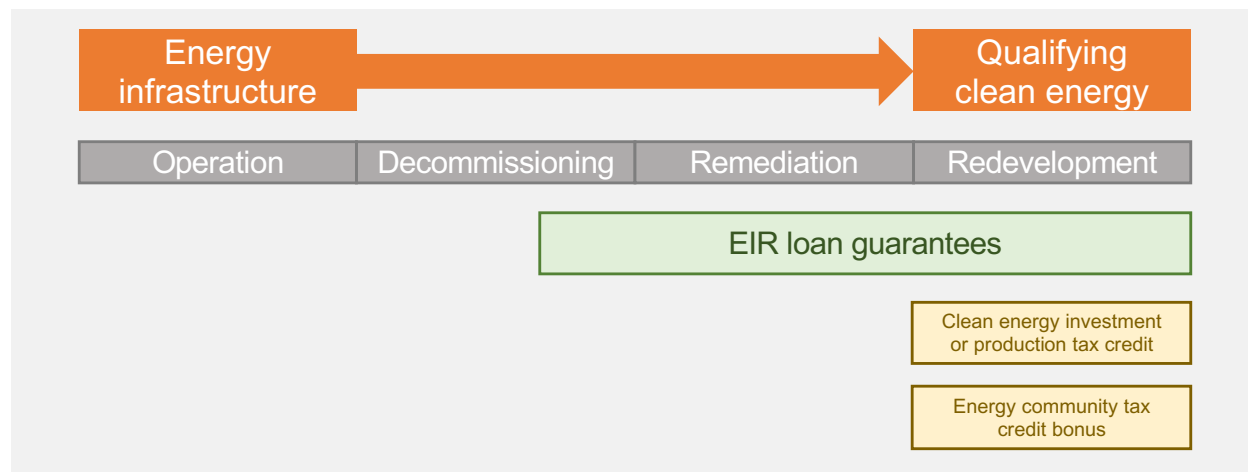
EPA hosts brownfields grant competitions annually. If selected to receive a grant, the process — from applying for funding to completing cleanup — may take two to three years or more. There are existing brownfield sites that have been made ready for reuse using EPA grants and can serve as starting points for redevelopment. Of these, a subset are former energy infrastructure sites that could qualify for EIR loan guarantees. EIR loan guarantees in this case could plausibly cover the remaining remediation costs in connection with redevelopment.

EPA Brownfields Grants are typically made available only to public or non-profit entities. PPPs and other ownership arrangements (discussed below) may therefore be a means for combining EPA Brownfields Grants with other sources of funding.

III. Using EIR and IRA energy community tax credit bonus to redevelop retired energy infrastructure to qualifying clean energy infrastructure/projects

As a subset of the retired energy infrastructure to new use pathway, if the redevelopment qualifies as clean energy investment, production, or manufacturing as defined in the IRA, then clean energy tax credits and the energy community bonus could apply to the redevelopment phase.

Figure 6: *Redeveloping retired energy infrastructure to qualifying clean energy with energy community tax credits.*



¹² Inflation Reduction Act §50141(d)

Example: The site of a former coal mine is redeveloped to a utility-scale solar photovoltaic generating plant. The developer's investment in solar photovoltaics qualifies for a 30% investment tax credit. The energy community tax credit bonus is obtained because the coal mine was closed after 2000, bringing the total investment tax credit to 40% and improving the financials of the project enough to increase the capacity beyond the originally envisaged size. EIR supports remediation to stabilize the site and additionally supports the subsequent photovoltaics installation and local utility interconnection.

Additional examples of the use of this redevelopment model could include:

- Redeveloping a retired coal mine to a pumped storage hydroelectric facility, qualifying for the Section 48 credit for energy storage and the energy community bonus, if the coal mine has retired since 2000 or is otherwise located in an IRA energy community, e.g., under the definition of brownfields
- Redeveloping former energy infrastructure in an IRA energy community to a wind-turbine recycling facility, with an allocation of the Section 48C tax credit

The IRA energy community definitions (Table 4) are highly aligned with the potential uses of EIR. Coal-related infrastructure potentially spans all three energy community definition layers and is therefore expected to be of high potential.

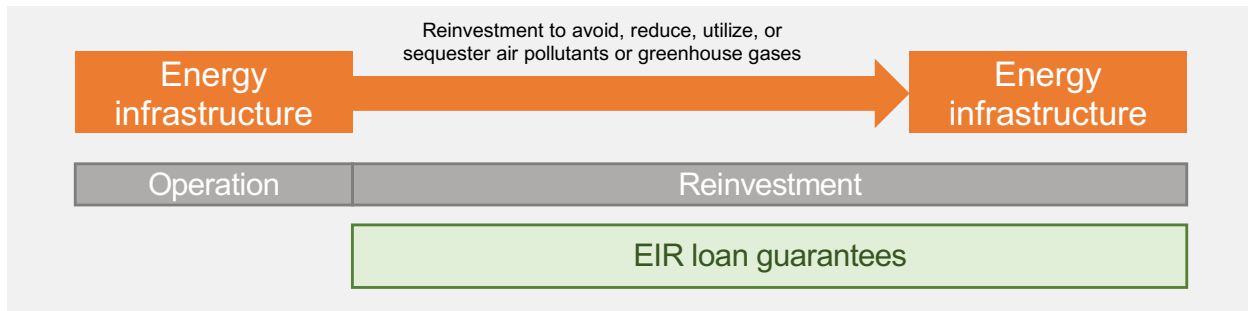
The base investment or production clean energy tax credit applies to clean energy as defined in the Internal Revenue Code and modified by the IRA. Qualifying clean energy investment (26 USC §48) and production (26 USC §45) are expected to align closely with envisaged uses of EIR. Clean energy manufacturing or recycling under 26 USC §48C may also align with EIR.

It is expected that projects will be able to combine tax credits with EIR loan guarantees. Additional tax credits may also be eligible for redevelopment uses beyond those described here. Given appropriate ownership and timing, Brownfields Grants could also be used in this redevelopment model.

IV. Using EIR to enable operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gases

In addition to supporting redevelopment of energy infrastructure that has ceased operations, EIR can also be used for reinvestment on operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gases.

Figure 7: Enabling operating energy infrastructure to avoid, reduce, utilize, or sequester air pollutants or greenhouse gases.



Example: An electric transmission line is re-conducted with a high-efficiency conductor that increases the transmission capacity and extends the infrastructure life. The line re-utilizes some of the structural infrastructure and remains within original rights-of-way while unlocking new renewable energy development and reducing carbon pollution in the service territory.

Additional expected uses under this pathway include:

- Retrofitting existing fossil assets with carbon capture, utilization, and storage
- Upgrading or uprating existing nuclear or hydropower facilities
- Upgrading refineries to lower-greenhouse-gas alternative fuels
- Repurposing thermal power plants as synchronous condenser plants

Various tax credits may also be applicable to reinvestment projects under this pathway, including:

- The energy community tax credit bonus, in combination with clean energy investment and production tax credits, as described above
- Additional tax credits like the 45Q credit for carbon capture and sequestration (26 USC §45Q)

Additional Redevelopment Scenarios

Public-Private Partnerships

Public-private partnerships, or PPPs, present a unique structure that can be tailored to the needs of project developers to result in broader funding opportunities. PPPs may be applicable to any of the redevelopment models discussed above. PPPs have previously been successfully used for brownfield redevelopment projects.

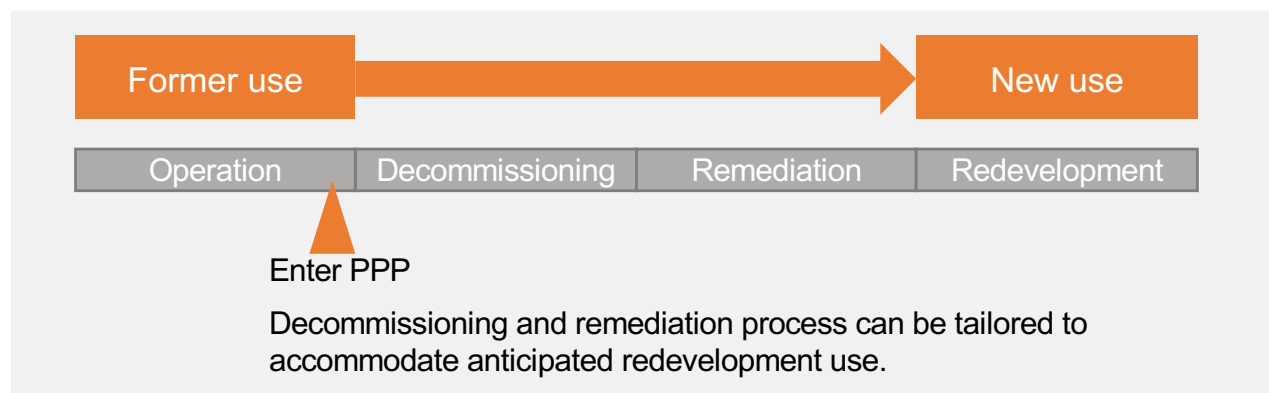
A PPP is an agreement between a public sector entity and a private sector organization to combine resources and establish roles to achieve a common goal. Each PPP is unique based on the circumstances. The public entity frequently sponsors the project by providing initial funding, such as for site assessment, and the private entity then funds and manages the development and construction process. A PPP can be a successful model where the initial public investment and support incentivizes private deployment of capital and resources. This kind of collaboration reduces the financial burden on each party, accelerates the cleanup and redevelopment of the site, and leads to investment in local communities.

Only public or non-profit entities are eligible for EPA Brownfield Grants, so use of a PPP may be especially advantageous when:

- Ownership arrangements facilitate access to additional support like local tax benefits or grant funding
- Community ownership or public participation are central to the redevelopment process
- The site may change ownership status from public to private, or vice versa

Timing will again be a key consideration. Entering a PPP at the beginning of the project cycle — when the original infrastructure is nearing retirement or has recently retired — may bring time and cost savings by tailoring the decommissioning and remediation phases to the anticipated redevelopment use.

Figure 8: PPP at early stage of redevelopment process.



Given the timing of EIR (commitment deadline of September 30, 2026), redevelopers may also begin from brownfield sites that have already been made ready for reuse. This compresses the project timeline by eliminating the remediation phase; however, the brownfield site may not necessarily have been prepared with the specific end use in mind, so additional due diligence or site preparations may be necessary.

Figure 9: PPP at later stage of redevelopment process.



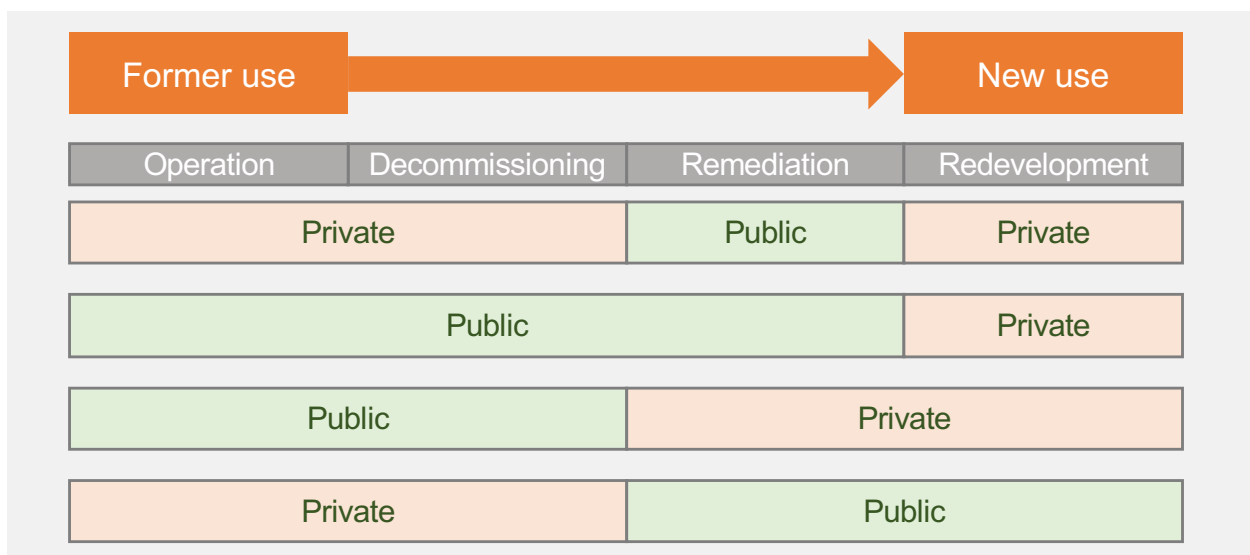
PPPs can take the form of formal legal arrangements or less formal, *de facto* partnerships. Formal PPPs should consider terms addressing the following:

- Site access for various entities during different phases of the project cycle
- General site liability during different phases of the project cycle
- Liability for remediation costs or actions beyond anticipated
- Specified end state of remediation
- Public relations or communications plan
- Community/stakeholder engagement

If these considerations arise during ownership transfers, such as a redeveloper acquiring a remediated site from a public entity that has conducted the assessment and cleanup, many of these terms could also be addressed through buy-sell arrangements, eliminating the need for a formal PPP.

Various ownership sequences exist that could be compatible with formal PPPs or achieved through ownership transfer arrangements:

Figure 10: Various illustrative public-private ownership pathways.



Case Study: Successful public-private partnership for coal plant redevelopment

The Ottawa Street coal power plant in Lansing, Michigan, was redeveloped to a corporate headquarters office building through PPPs that tipped the financial balance to viability.

Figure 11: The Ottawa Street coal power plant redeveloped as a corporate headquarters office building.



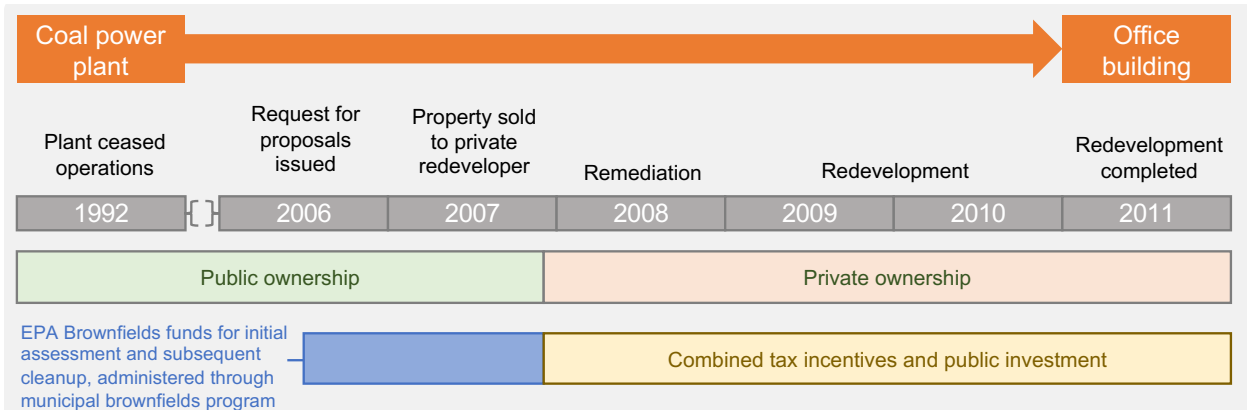
This case study demonstrates how a PPP can be structured to support community reinvestment. EIR could also support public-private partnerships in a similar manner, though EIR may place more emphasis on new uses that include clean energy or clean manufacturing.

The power plant was municipally owned and ceased operations in 1992. It then stood shuttered for more than 15 years due to redevelopment challenges, including:

- Liability issues
- Unknown costs of remediation and infrastructure upgrades
- Soil and groundwater contamination
- Hazardous materials including lead and asbestos
- Need to remove retired equipment

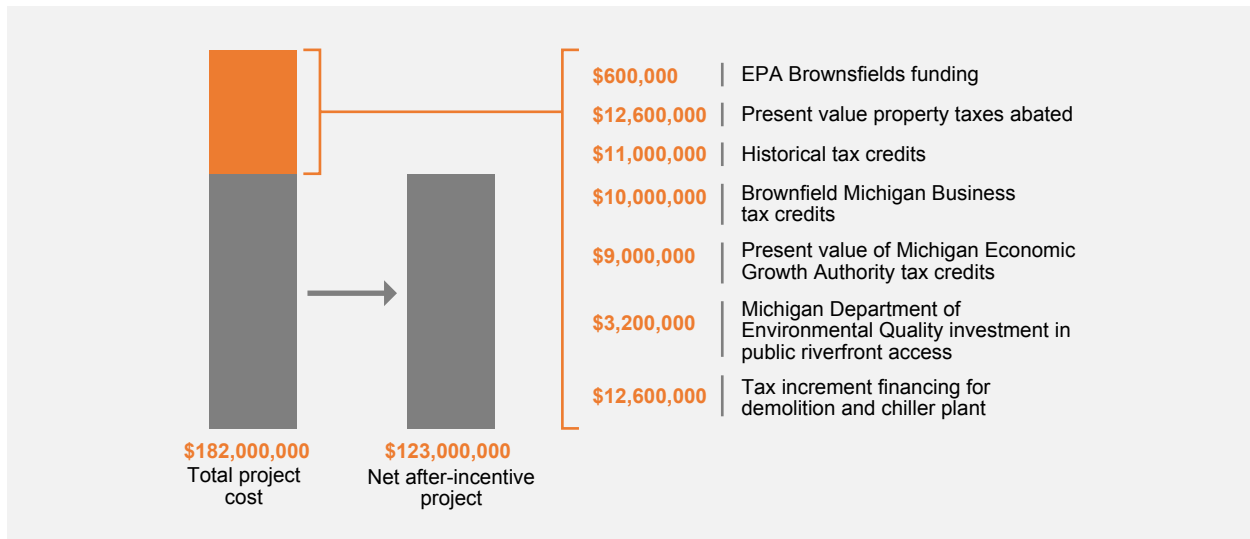
The local authorities recognized that a PPP would be necessary to attract a developer to take on these risks and costs. A PPP between the city and the developer unlocked an incentives package of approximately \$59 million, including EPA Brownfields funding through the local brownfield redevelopment authority, that made the \$182 million project financially viable (Figure 12). A key public benefit from the partnership was the generation of property tax revenues and the retention and creation of over 1,000 jobs. The redevelopment process from assessment to completion took approximately five years.

Figure 12: Approximate timeline of ownership and funding of the Ottawa Street redevelopment project.



The incentives package included multiple forms of public investment and involved several public agencies (Figure 13).

Figure 13: Total project cost and incentive package breakdown.



Regulated Utilities

Many regulated electric and natural gas investor-owned utilities are exploring ways to reduce carbon pollution in their systems, either in response to customer demand or to comply with state mandates. As regulated utilities consider how to replace or repurpose existing fossil-fuel assets, the appropriate combination of federal financial assistance might offer increased flexibility and a lower-cost path while reducing risk for ratepayers.

From 2010 to the end of 2022, 115 coal power plants owned by electric utilities, representing 53 gigawatts (GW) of installed capacity, have fully or partially retired. From 2023 through September 2026 (the commitment deadline for EIR loan guarantees), a further 12 electric utility-owned coal power plants, representing 10 GW of installed capacity, are scheduled to fully or partially retire. Additional coal-powered generating units at dual-fuel power plants have also retired or may retire in these timeframes. These coal plant retirements may fall within a defined energy community area and qualify for an additional IRA tax credit bonus. Electric utility redevelopment is also expected for other types of energy generation assets as well as transmission and distribution infrastructure.

Utilities and their regulators will be looking to redevelop assets at the lowest cost to the utility customer. EIR specifies that the benefits from the LPO loan guarantee arrangement be passed on to utility customers and their communities. This may be advantageous in obtaining regulatory approval for retirement, remediation, and redevelopment costs.

Table 7: Benefits of EIR for regulated utilities.

| Redevelopment stage | Potential benefits of EIR |
|---------------------|--|
| Asset retirement | <ul style="list-style-type: none"> • EIR loan guarantees can reduce financing costs below the utility's normal borrowing costs. • Savings can be passed on to customers and/or used to finance the redevelopment to new clean uses, increasing the possibility of a favorable prudence review. • EIR can be used to refinance outstanding debt on retiring assets. |
| Site remediation | <ul style="list-style-type: none"> • EIR loan guarantees can reduce financing costs for remediation, with savings passed on to customers. • Loan guarantees can be made under conditional commitments that specify the level of remediation and the owner's efforts to proceed to redevelopment. These conditions may attract investors that would otherwise not accept ownership of fossil infrastructure due to environmental, social, and governance concerns. • Utility financing of remediation costs can be consistent with the polluter-pays principle. EIR can increase the likelihood and speed of remediation as part of redevelopment. |
| Site redevelopment | <ul style="list-style-type: none"> • EIR loan guarantees reduce financing costs, with savings passed on to ratepayers. • EIR can enable the development of emerging technologies, bringing increased value and system functionality to ratepayers. • EIR can structure financing in a way that reduces consumer rate impacts from capital investments. |

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Resources for additional information

| | |
|--|---|
| In Transition: Stories from Coal Plant Communities (contains numerous examples of coal power plants at various stages of retirement and redevelopment) | https://delta-institute.org/wp-content/uploads/2017/08/In-Transition-Stories-From-Coal-Plant-Communities-Delta-Institute-Aug-2017.pdf |
| Power plant redevelopment brochure from Commercial Development Company, Inc., a private-sector redeveloper | https://eltransfer.com/wp-content/uploads/2021/12/Power-Plant-Brochure.pdf |
| Investing with LPO | https://www.energy.gov/sites/default/files/2022-11/DOE-LPO_Investing_with_LPO.pdf |
| Getting to Know LPO: The Energy Infrastructure Reinvestment (EIR) Program | https://www.energy.gov/lpo/articles/deploydeploy-deploy-2-energy-infrastructure-reinvestment-eir-program |
| Solicitations for Brownfields Grants | https://www.epa.gov/brownfields/solicitations-brown-field-grants |
| Anatomy of Brownfields Redevelopment (EPA brownfields redevelopment fact sheet) | https://www.epa.gov/brownfields/anatomy-brown-fields-redevelopment-0 |
| EPA RE-Powering America's Land Initiative Mapper | https://geopub.epa.gov/repoweringApp/ |
| Revitalization-Ready: A Guide for Revitalizing Land in Your Community, a step-by-step process for identifying reuse possibilities for contaminated sites | https://www.epa.gov/land-revitalization/revitalization-ready-guide |

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