



# Energy Efficiency and Renewable Energy Case Studies for Small and Rural Local Governments

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MIDWEST RURAL FEDERAL FUNDING OUTREACH SERIES | ACEEE

In light of new and expanded federal funding opportunities, this fact sheet highlights energy efficiency and renewable energy project examples that small local governments can use as models with federal funding. ACEEE selected projects relevant to local governments, focusing on federally funded rural projects and strategies that can serve as models for other rural communities of varying sizes. This is not intended to serve as a comprehensive assessment of best practices, but rather a select description of relevant projects.

The projects described here can serve as replicable examples that small, rural local governments could pursue using unprecedented levels of new and expanded federal funding from the American Rescue Plan Act (ARPA), Infrastructure Investment and Jobs Act (IIJA), and Inflation Reduction Act (IRA). This fact sheet highlights key features, available results, and lessons learned for each project.

## PROJECTS FEATURED IN THIS FACT SHEET

Project	Location	Sector	Measures and services
Village of Holy Cross Energy Efficiency Project	Holy Cross, Western Interior Alaska, Population <500	Municipal, Residential	Building envelope retrofits, installation of heat recovery and solar PV in municipal buildings, residential lighting retrofits
Indiana Rural Energy Innovation Grant Program	Various Locations, Indiana, Population <30,000	Municipal, Industrial	Energy innovation and improvement projects such as HVAC, boiler, window, and lighting replacements, as well as solar with battery storage
Batesville School District	Batesville, Arkansas, Population <30,000	School	Comprehensive energy retrofits, solar PV, lighting upgrades, thermostats, windows, HVAC systems, and water fixtures

While this fact sheet primarily focuses on specific project examples, more information on strategies for securing funding and relevant federal funding opportunities for rural local governments in IIJA, ARPA, and IRA can be found in our companion factsheets at [Connecting Rural Communities with Historic Federal Clean Energy Investments](#).

# Remote Alaska Communities Energy Efficiency Project

Village of Holy Cross, Alaska | Population <500

## PROJECT SUMMARY:

The Village of Holy Cross in interior Alaska is home to members of the Deg Hit'an Athabascan culture. The U.S. Department of Energy (DOE) administered the Remote Alaska Communities Energy Efficiency (RACEE) Competition, which provided funding and technical assistance for energy efficiency projects that lower energy burdens for rural Alaskans.<sup>1</sup> Like other rural residents, rural Alaskans face high fuel costs because of their remote locations, cold climate, and reliance on delivered fuels. To qualify for the grant, Holy Cross pledged to reduce its per capita energy consumption by 15% annually. The Village leveraged its \$530,000 RACEE award with both a \$782,000 High Energy Cost grant from the U.S. Department of Agriculture (USDA) to install a heat recovery system and \$124,000 of in-kind cost share from Holy Cross.

After completing energy audits on public buildings, the Village of Holy Cross worked with the local nonprofit [Tanana Chiefs Conference \(TCC\)](#) to select four projects:

1. Building envelope retrofits and installation of a heat recovery system in two municipal buildings<sup>2</sup>
2. Building envelope and HVAC retrofits in the tribal and school buildings
3. LED lighting retrofits in 56 homes, 11 community buildings, 2 offices, and the school
4. Installation of solar PV on the community water plant



The selected projects were chosen to improve comfort, reduce energy costs, and improve tribal energy security. The project is expected to lower community electricity usage by 15%, or 100,00 kilowatt-hours (kWh), and lower diesel fuel consumption by 10,000 gallons annually, resulting in \$50,000 in energy cost savings per year. For these projects, Holy Cross used 90% local labor by providing on-the-job training and keeping projects simple, such as pursuing lighting upgrades when possible. Some tasks, such as the initial energy audits conducted in 2012, used out-of-town contractors hired through the Alaska Housing Finance Corporation.<sup>3</sup>

**Holy Cross tribal council office before the solar panels were installed on it. Source: Dave Messier.**

<sup>1</sup>RACEE has since formally ended. More information on the award can be found [here](#). An energy burden is the percentage of a household's annual income expended on energy costs. To access data on energy burdens and energy costs in your state, visit DOE's [Low-Income Energy Affordability Data \(LEAD\) Tool](#).

<sup>2</sup> The heat recovery systems are designed to transfer excess heat from the local power plant to the water treatment plant and community hall. Transferring excess heat to these buildings allows them to meet their heating needs with less heating fuel.

<sup>3</sup> We thank Dave Messier, rural energy coordinator at Tanana Chiefs Conference, for providing additional program information over email.

## ACEEE SUGGESTIONS FOR OTHER LOCAL GOVERNMENTS:

- Pursue energy efficiency and renewable energy projects that will reduce high overall energy costs. Some projects will have lower upfront costs and faster payback periods (such as installing LED lighting), while others will provide higher long-term savings and thermal benefits (such as installing a heat recovery system, envelope improvements, or installing solar panels).
- Identify projects that will deliver a range of energy and non-energy benefits: for example, improved comfort in public buildings for community members. Another example, if the funding secured allows, is residential retrofits, which are an opportunity to improve residents' comfort while lowering household energy bills that contribute to a high cost of living.
- Community engagement can increase cost savings and other benefits in disadvantaged communities; for example, by raising awareness of residential retrofit offerings and job training opportunities.
- Conduct energy evaluations at a variety of facilities, such as municipal buildings, residential buildings, or critical infrastructure to help identify retrofit opportunities. Identifying a range of opportunities will ensure that multiple possible projects in the pipeline can be adapted based on funding opportunities. To explore energy audit opportunities, contact your state energy office or local utilities.
- Employ local labor through project labor agreements and by offering workforce education and training whenever possible.

# Indiana Rural Energy Innovation Grant Program and DOE State Energy Program (SEP)

Indiana Office of Energy Development | For Counties with Population <30,000

## PROGRAM SUMMARY:

The Department of Energy's State Energy Program (SEP) provides grants to communities, cities, and states to develop clean energy programs and projects.<sup>4</sup> Using SEP funding, the Indiana Office of Energy Development (OED) administers Indiana's Rural Energy Innovation Grant, a competitive grant for energy-related studies and projects for farms, small towns, agribusinesses, and small commercial businesses in rural areas with populations less than 30,000. The program funds alternative energy generation and projects that improve energy efficiency, such as electrification technologies, water heaters, furnaces, air conditioners, steam systems, and processing and manufacturing equipment.

The Rural Energy Innovation Grant program awarded more than \$300,000 in 2020. One supported project is new LED lighting and a variable frequency drive (VFD) dust collector for Accurate Castings, a metal casting company, saving an estimated \$20,300 a year in electricity costs. Another recent grant recipient is Co-Alliance Cooperative, Inc., a company that provides agricultural solutions to members and customers across Indiana, Ohio, Michigan, and Illinois. A \$40,000 grant enabled Co-Alliance to upgrade outdoor canopy lighting to LEDs at seven fueling stations across central Indiana and save 87,704 kWh and \$8,770 in energy costs annually.



Workers finish installing a 6-kW solar array on a storage garage at Crowley Engineering's Indiana headquarters. *Source: Crowley Engineering LLC ([crowleyengineering.com](http://crowleyengineering.com)).*

<sup>4</sup> Among its many provisions, the Bipartisan Infrastructure Law includes \$500 million over five years (fiscal year 2022 through 2026) for SEPs, up from approximately \$62.5 million annually. While SEP emphasizes the state's role as decision maker and administrator of program activities and funds, rural communities should contact their State Energy Office to learn about the kinds of SEP-funded programs and opportunities available. The [WIP Project Map](#) includes more information about SEP projects currently underway across the United States.

The OED also helped reduce energy costs for Crowley Engineering LLC, an electrical and plumbing consulting engineering firm headquartered in Schererville, Indiana. To support its computational analysis and design operations, the company maintains a variety of field measurement tools, many of which require regular battery charging. As the company has expanded its operations, the electricity needed to power these devices has also increased. With support from a \$37,000 state grant supported by SEP funds, Crowley installed a 6-kW PV solar panel array on the roof of its storage garage, serving two buildings onsite. It is estimated that the new installation will save 7,289 kWh and \$2,460 annually.

### ACEEE SUGGESTIONS FOR OTHER LOCAL GOVERNMENTS:

- Consider a range of project types, including improving community spaces or reducing operating expenses for municipal offices or services. When funding allows for commercial funding, consider supporting small local businesses.
- Develop project proposals with clear, identifiable goals and benefits, including criteria for evaluating project success. In addition to goals to reduce energy costs and curb pollution, metrics may include benefits to disadvantaged communities, workforce development, and enhanced emergency preparedness.

# Batesville School District Project

Batesville, Arkansas | Population <11,000

## PROJECT SUMMARY:

High energy bills can exacerbate preexisting budgetary concerns for local governments. To address this, the Batesville School District implemented comprehensive energy retrofits and installed 759 kilowatts (kW) of solar panels on two of their campuses. The resulting energy savings of roughly \$100,000 annually allowed the school district in this former coal community to avoid cutting teaching staff and increase salaries by an average of \$2,000–3,000.



A solar canopy at a Batesville school district campus entrance. Source: [Entegriety](#).

The Batesville School District was able to pay for these retrofits using an energy savings performance contract (ESPC). An ESPC guarantees that energy and operations savings over the term of the contract are sufficient to pay off capital costs, partially fronted by a private energy service company. Entegriety, the energy service company tasked with identifying and implementing retrofits at the school, upgraded lighting, thermostats, windows, HVAC systems, and water fixtures. Entegriety also installed over 1,400 solar panels, including a canopy on one campus and a solar array on school district land.

The school district financed the \$5.4 million project costs through a bond. This project offers a financial model for local governments to lower upfront costs or expand the size of the planned project through an ESPC and by partnerships with federal funding.<sup>5</sup>

## ACEEE SUGGESTIONS FOR OTHER LOCAL GOVERNMENTS:

- Consider leveraging federal funds with other financing mechanisms, such as ESPCs, to pursue projects with considerable upfront costs. For additional ESPC resources, see DOE's [State and Local Solution Center](#).<sup>6</sup>
- Use ESPCs to upgrade community facilities and lower energy costs. Lower municipal operating expenses can free up local government budgets to reallocate toward essential local services such as teacher salaries.

<sup>5</sup> See Generation 180's feature on the Batesville School District solar project: [generation180.org/brighter-future-2020-download/](https://www.generation180.org/brighter-future-2020-download/). Batesville school district is considering partnering with Entegriety to add more solar arrays.

<sup>6</sup> See the U.S. Department of Energy resource on [Energy Savings Performance Contracting for Small Projects](#) to learn more about how to leverage incentives for ESPC projects.