

Winter 2023 | Volume 6, Issue 1

## Happy New Year, 2023

Each New Year we look at the coming year, hopeful for peace, prosperity, and health. 2022 was a challenging year on all fronts for individuals, families, and nations.



We hope that our country's leaders will capture us with messages that draw us in and give us purpose for being part of this great Nation. Martin Luther King's speech, "I have a dream," was a compelling story that pulled many people into seeing possibilities. Don't we all yearn for the person who could tell us a story about a world that works for everyone? We buy products when we see or read of the human experience with that product (remember the Maytag Man). We accept the call to action if we hear a compelling story about triumph over odds. Think about the solicitation letters you get from non-profits. They are often stories of individuals who suffered greatly until the non-profit's "product" allowed them to regain a semblance of their lives.

Crafting compelling, honest stories that resonant core values in action are a skill worth learning by any leader, manager, sales executive, or parent. In his best-selling book *Story: Substance, Structure, Style, and the Principles of Screenwriting*, Robert McKee, the world's best-known and most respected screenwriting lecturer, argues that stories "fulfill a profound human need to grasp the patterns of living" not merely as an intellectual exercise, but within a personal, emotional experience." Or as USC leadership guru Dr. Warren Bennis states, "Man cannot live without story any more than he can live without bread." What is the point you want to make at your next meeting? Is there a story that can be crafted to that point—not a sermon to be intoned?

Who has used your housing services and reported a wonderful story that came because of those services? Or have you ever asked a resident, "Tell me a story about a time when—" What stories are told in the community rooms about what it is like to live where you are? What contribution could you make to this story that could improve the ending? What future do you want? Create a story about it. Remember, people are not inspired to act by reason alone. The heart holds hands with the head.

Article inspired by Eileen McDargh, the Chief Energy Officer and founder of McDargh Communications and The Resiliency Group. She believes resiliency is a critical life skill and one that requires the energy of connections. <https://eileenmcdargh.com/credentials>

## UPCOMING EVENTS

- » **NAHRO 2023 Washington Conference**  
March 6-8, 2023  
Washington, DC
- » **NLIHC Housing Policy Forum 2023**  
March 20-23, 2023  
Washington, DC
- » **DOE Better Buildings, Better Plants Summit**  
April 11-13, 2023  
Washington, DC
- » **PHADA 2023 Annual Convention & Exhibition**  
May 21-24, 2023  
Denver, CO
- » **NAHRO 2023 Summer Symposium**  
July 14-15, 2023  
Washington, DC
- » **NAHRO 2023 National Conference & Exhibition**  
October 6-8, 2023  
New Orleans, LA

## Energy Update

- California is set to ban the sale of new gasoline-only powered cars by 2035. This first-of-its-kind policy, announced in the Advanced Clean Cars II rule issued by the California Air Resources Board last month, sets the stage for other states to take similar action to accelerate the transition to electric vehicles. More than a dozen states typically follow California's lead, meaning that similar emissions-slashing policies could soon apply to about a third of the U.S. auto market.
- States have also taken key actions in their legislative sessions this year to decarbonize buildings. Massachusetts enacted sweeping climate legislation last month that, among other things, requires energy usage reporting for larger buildings, a necessary first step to implement a building performance standard in the future; allows municipalities to begin pilot programs that prohibit the use of fossil fuels in new buildings; and promotes the use of ground-source heat pump systems. Maryland's Climate Solutions Now Act, passed in April, includes a building energy performance standard that will require owners of larger, inefficient buildings to make upgrades. In addition, a recently enacted New York law strengthened efficiency standards for appliances and boosts energy savings through building codes.
- Wind and solar combined account for 14% of U.S. generation in 2022, and it is forecasted that wind and solar share will grow to 16% in 2023. Increasing generation from renewable energy, along with retirements reducing the available capacity of coal-fired power plants, contribute to the forecast that coal's generation share will fall from 20% this year to 19% in 2023.
- Geothermal energy is a renewable and clean energy resource, which plays a vital role in the sustainable development of energy production. In recent decades, significant advancements have been made in the geothermal investigation and resources assessment. Electricity generated from geothermal plants is projected to increase from 16 billion kWh in 2021 to 47.7 billion kWh in 2050. In 2016, California, Nevada, Utah, and Hawaii were the states with the most installed geothermal energy capacity.
- As the largest building owner in the Nation, the Federal Government has proposed to implement a 2007 law requiring ambitious new standards to **eliminate onsite** climate pollution in all its new construction and major renovations. The White House has paired that plan with a **building performance standard** targeting efficiency and decarbonization retrofits for 30% of all federal building space by 2030.
- The **New York Climate Action Council** and **Massachusetts Executive Office of Energy and Environmental Affairs** raised the bar for equitable state plans to reduce climate pollution and increase efficiency—prioritizing those most overburdened and underserved. New York aims to help one to two million households transition to clean heating and cooling options such as heat pumps by 2030 and to see approximately three million zero-emission vehicles on the roads by 2030.
- **Washington, Oregon,** and **Vermont** became the latest states to require that all new passenger vehicle cars sold be zero emissions by 2035, all finalizing requirements in December. Half a dozen states now have these rules.
- On the heels of last month's update that the Massachusetts Clean Heat Commission recommended rates to help reduce electrification costs, the Maine Public Utilities Commission **finalized exactly that approach for utilities** in the state. The new rates could **save customers hundreds of dollars a year.**

*Thank you to the American Council for an Energy-Efficient Economy for its contribution to our WattsHot energy efficiency updates!*

# Is Your Housing Project Leaving Money on the Table?

***The 179D tax deductions get a makeover under the new law with the potential for huge financial benefits for housing projects.***

***Here is how to take advantage of the new law for your housing project.***



The [Inflation Reduction Act](#) (IRA) of 2022 was signed into law on August 16, 2022, after passing votes in Congress. Among the provisions in this bill is the expansion of the Section 179D tax deduction for building energy efficiency. Housing authorities like Chicago and New York City Housing Authorities have utilized the 179D tax deduction since its inception in 2005, and this expansion potentially allows for many more to not only utilize the deduction but also claim larger amounts than previously available.

Under the Energy Policy Act (EPAct) of 2005, Section 179D allows for energy efficient investments in new and existing buildings to qualify for immediate tax deductions up to \$1.88 per square foot through the 2022 tax year. Eligible projects include those related to interior lighting, HVAC, hot water, and building envelope. The [179D deduction](#) was made permanent as part of the Consolidated Appropriations Act of 2021.

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## Changes to 179D in 2023

The Inflation Reduction Act of 2022 includes numerous updates to the 179D deduction, which took effect on January 1, 2023. Notable updates include:

- **Deduction levels up to \$5.00 per square foot** – the qualified deduction range for projects meeting prevailing wage and apprenticeship standards will be between \$2.50 and \$5.00 per square foot, depending on the building's energy efficiency level. For projects that do not meet prevailing wage and apprenticeship standards, the deduction level range will be between \$0.50 and \$1.00 per square foot.
- **Inclusion of not-for-profits, instrumentalities, and Tribal Government buildings** – Designers of energy systems in these buildings now may claim the 179D deduction for qualifying projects.
- **Deduction reset** – the maximum 179D deduction can be taken once over the life of the building. With the passage of this new law, the maximum deduction would now be available every three years on a commercial building and every four years on a government, instrumentality, not-for-profit, or Tribal Government building.

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## Let us Look at the Details

**What is 179D?** 179D is a tax deduction for energy efficient buildings made permanent in 2021 and expanded in 2022.

**What does 179D cover?** All new construction and existing building retrofits of lighting, HVAC, hot water, and envelope systems.

**How many years can I apply 179D?** IRS has a three-year statute of limitations on claiming refunds, so projects completed 1/1/2019 – 12/31/2021 are retroactively potential opportunities. 2022 and future completions may integrate 179D into project contracting.

**Who can apply?** Commercial buildings owners and REITS (Real Estate Investment Trusts) directly benefit from the program. Government, Nonprofit, and Tribal building owners indirectly benefit from the program by allocating to their vendors in return for lower fees. The vendors that qualify to receive the allocations must *design* the qualifying building lighting, HVAC, hot water, and envelope systems. Project Designers may include architects, engineers, consultants, manufacturers, energy service companies and Design-Build Contractors. Parties that merely install the assets may not qualify.

**But governmental entities do not pay taxes, how can my governmental entity get a payment?**

The IRS guidance states that governments may allocate the 179D to ESCOs, architects, contractors, consultants or engineers who designed energy efficient systems of their buildings, and like other governmental assets, the governments can receive in exchange for a negotiated savings from the ESCO, architect or engineer a portion of the tax benefit of the 179D deduction confirmed in a transfer agreement accounting for the processing costs including certification, legal, accounting, data gathering fees.

**How much can be allocated?**

Projects Completed in 2019 or 2020: Up to \$1.80 per square foot

Projects Completed in 2021: Up to \$1.82 per square foot

Projects Completed in 2022: Up to \$1.88 per square foot

Projects Completed in 2023+ Up to \$5.00 per square foot

**Is there a minimum sized project?** At least 50,000 sq. ft. of affected space is needed to support costs. How long does the process take? Typically, 2-3 months for filings followed by IRS review and acceptance. What is the process? Third party manages and processes each of the key steps to success: 1. Feasibility study to determine eligible amounts & verify with participating Designers; 2. Negotiate Allocation Agreement; 3. Certification by qualified third-party energy modeling with DOE-approved software or actual savings verification via building energy data; 4. Site visit(s) 5. Closing documentation with legal, accounting, governmental entity & Designer(s) and exchange of value.

**What are the savings required?** 25+% Reduction in Building Energy Use Intensity

**What is the cost?** There is no-upfront-cost. Fees are paid from proceeds after successful receipt of savings.

**How do I safeguard the 179D benefits for my housing organization?**

Under the 179D policy, in the case of buildings owned by a nontaxpaying local government, Tribal, or nonprofit, the owner may allocate the deduction to a taxpaying "designer." A "designer" is defined as "an architect, engineer, contractor, environmental consultant or energy services provider who creates the technical specifications for a new building or an addition to an existing building that incorporates energy efficient commercial building property." Your procurement contract, however, must clearly state that as the property owner, you reserve the rights for all applicable energy incentives and in particular benefits applicable under 179D, including the right to allocate the deduction to a designer. This will ensure that no parties can claim the 179D benefits without the owner's knowledge and approval.

*Will Volker is President of Efficiency Energy. For additional questions on securing 179D benefits for your project call Will at 720-201-6856 or write to [wvolker@wesavegreen.com](mailto:wvolker@wesavegreen.com).*



# Considering Electrification for your Multifamily Building Project? – Start Here

***Electrification of multifamily building loads present a significant opportunity to reduce site-level greenhouse gas (GHG) emissions, especially when combined with renewable and zero-carbon electricity resources.***

## Building Electrification

**MORE COMFORTABLE HOMES**



**LESS MAINTENANCE**



**SAFER AND EMISSIONS FREE**



**MUCH LOWER OPERATING COSTS**



*Image courtesy of Passive House Accelerator*

Electrification involves the conversion of a building system that would traditionally use fossil fuels (such as, natural gas, fuel oil, or propane) to using electrical power, which could be a key strategy in decarbonization. The sweeping Inflation Reduction Act (IRA) will reshape the American energy industry by putting non-fossil fuel alternatives in reach of more people. While not a panacea for the climate crisis, the spending bill is predicted to get the United States much closer to its emissions goals. Residential facilities use a wide variety of HVAC and water heating technologies. While heat pump solutions are readily available for some equipment types and system designs (e.g., commercial rooftop units below 25 tons), facilities relying on boilers and distributed heating systems as well as those in colder climates have limited options.

Heat pumps are often classified by their heat source (e.g., air-, water-, and ground-source) and thermal distribution method in the building (e.g., air for packaged rooftop units, water for hydronic heat pumps, and refrigerant for variable refrigerant flow solutions). As U.S. market interest in heat pumps has increased in recent years, manufacturers and system designers continue to develop new strategies to electrify new and existing residential facilities. There are a wide variety of heating electrification options available and challenges to consider when evaluating opportunities for specific facilities. This section outlines critical topics to evaluate when performing a site electrification assessment.

## Placement of All-Electric Systems

Heat pump systems may have a footprint larger than the existing fuel-fired systems and may require larger hot water storage tanks. During the site assessment, the facility's management team should evaluate the available floor or roof space that would be available for the heat pump systems and necessary heat exchangers. In addition, many newer rooftop units have footprints larger than older models and may require roof curb redesign or structural supports to accommodate the larger size and weight. Air-based systems need copious quantities of outside air to exchange heat, which often requires outdoor placement of units (rooftop or ground mount).

## Electrical Service, Panels, and Wiring

Conversion to all-electric systems may require some redesign or upgrade of the facility's electrical panels and wiring, especially for older buildings where electrical upgrades have not been performed recently. Most residential buildings should have excess electrical capacity available, especially if they have existing space cooling systems, but evaluating the new power requirements and available electrical capacity will confirm whether upgrades are needed. The new electrical loads may change the electrical rate class or the monthly demand charges for the building and should be evaluated. If extensive upgrades or utility rate changes would be necessary, the facility's management team could consider incorporating on-site renewable generation, battery storage, building envelope and window improvements, lighting retrofits, and other energy efficiency measures to mitigate the increase in electrical demand.

## Thermal Distribution Systems

Residential facilities using elevated temperature steam or hot water distribution (180°F and above) should evaluate whether there is sufficient radiator and heat exchanger capacity to accommodate the lower supply temperatures of hydronic heat pumps (often 110-140°F). Sometimes, the existing distribution system is oversized and would have sufficient capacity for the lower temperatures, especially if the building envelope is upgraded to lower the heating load. In other cases, decommissioning the steam/hydronic system and transitioning to a Variable Refrigerant Flow (VRF) system may be preferable if there were leakage and other problems with the existing distribution system.

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## Ground Source Heat Pump (GSHP) Solutions

GSHPs are an attractive electrification strategy due to their performance and efficiency, even in extreme wintry weather. GSHPs can make sense for new and existing applications if the heating and cooling loads are balanced through most of the year to make the most benefit of the ground wells. For retrofit, land is required for the well field; a combination well and air-based system can be considered.

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## Distributed Solutions

Many buildings today use large, centralized space and water heating systems, which may pose technical or feasibility challenges for electrification projects. If the project is part of a larger renovation, the facility's management team may consider moving towards a decentralized strategy where smaller heat pump and electric resistance systems are placed throughout the building. For example, if a large gas-fired boiler provided both space and water heating to the building, the facility's management team could consider separate systems for space heating and water heating or placing individual heat pump or point-of-use water heaters throughout the building. Ductless mini-split heat pumps are also effective distributed solutions where only a small area of the building requires thermal conditioning (for example, an office in a warehouse) or if an area is significantly warmer or cooler than other parts of the building.

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## Auxiliary and Back-up Systems

The heating capacity and efficiency for air-source heat pumps decreases at colder temperatures, which requires careful consideration for peak day capacity needs including during defrost cycles. Ideally, choose heat pumps that will operate at the coldest possible temperatures for the location to satisfy the building's heating loads. For tiny amounts of backup capacity, thermal storage can cover a few hours when the heat pump is in defrost mode or during extreme cold if feasible at the site. If the electric system is replacing a fossil fuel system, the fossil fuel may be a backup for extreme frigid days. Electric resistance is common for all-electric heating solutions but has much lower efficiency and higher operating costs than heat pump operation. Electric resistance back-up systems should operate sparingly (for example, during defrost cycles) and carefully sized to minimize potential electrical capacity upgrades.

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## Review Available Utility and State Incentives

Many electric utilities and state energy efficiency programs offer financial incentives and rebates to support the installation of high-efficiency electric technologies. Sometimes, utilities offer additional incentives for early replacement and fuel-switching projects. For complex projects or technologies not listed in the incentive programs, the facility's management team should communicate with the energy efficiency program to understand the custom application process. Electric technologies can participate in demand response and load flexibility programs, particularly those technologies that utilize hot water storage systems.

*More system details can be found in DOE's paper on Decarbonizing HVAC and Water Heating in Commercial Buildings: <https://betterbuildingsolutioncenter.energy.gov/resources/decarbonizing-hvac-and-water-heating-commercial-buildings>.*

# Four Ways to Finance Energy Efficiency and Renewables, While Reducing GHG

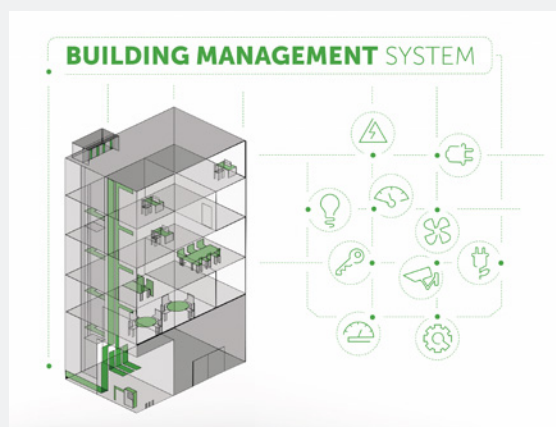
**Facility managers are always looking for building management strategies that can help ease the pain of equipment and systems replacement. Luckily for facility managers, these days there are more options than ever to explore.**

Whether the goal is to improve energy efficiency, reduce carbon emissions, or both, these four strategies can help facility managers pay for upgrades, and coordinate incentives to defray cost.

## Energy Savings Performance Contract (ESPC)

This is the most tried-and-true method for cash strapped facility managers – tomorrow's energy savings pay for today's upgrades. The way an energy savings performance contract works is reasonably simple: Facility managers send a request for proposal (RFP) to third-party energy service companies (ESCO). The ESCOs then bid on the work, like any other project. Facility managers select the best fit, the ESCO does the energy efficiency upgrade, whether HVAC, lighting or other, and then the energy savings over the life of the equipment gradually pay for the initial investments.

The fine print of the financing mechanisms for ESPCs can vary depending on the organization, type of ESCO hired, and types of upgrades. The [Better Buildings Solution Center](#) breakdowns how financing could work for an ESPC, and what facility managers need to know about each type. One of the main benefits to facility managers of an ESPC, other than getting energy efficient equipment with no upfront cost, is that depending on the contract, the ESCO must measure and verify the equipment to ensure it is operating as efficiently as expected, and therefore delivering the expected savings. This measurement and verification task often falls within the purview of the ESCO, however, if the facility management team lacks experience with an ESPC, an independent third-party owner's representative is recommended to verify contract compliance and the project's performance.



## Federal Tax Deductions and Credits

While deductions on taxes aren't exactly "free" money, they can still be an additional source of savings from past and planned projects. The Inflation Reduction Act of 2022 created a direct pay incentive for applicable Tax Credits and improved and expanded Federal 179D Tax Deduction Program. These tax deductions for energy efficient upgrades have been in place since 2005, and several times over the last two decades, they've been extended at the 11th hour. In 2021, though, they finally became permanent. The code allows facility managers to deduct a portion of energy efficient upgrades to HVAC, lighting, hot water or building envelope, based on the measure efficiency of the upgrade.

President Biden's Inflation Reduction Act of 2022, signed into law in August, changes the 179D deductions. With the passage of this new law, commercial buildings owners and Real Estate Investment Trusts (REITs) directly benefit from the program. The deduction would now be available every three years on commercial buildings. For government, instrumentality, not-for-profit, or Tribal Government building, the deduction would be available every four years. The IRS guidance states that governments may allocate the 179D to ESCOs, architects, contractors, consultants or engineers who designed energy efficient systems of their buildings, and like other governmental assets, the governments can receive in exchange for a negotiated savings from the ESCO, architect or engineer a portion of the tax benefit

of the 179D deduction confirmed in a transfer agreement accounting for the processing costs including certification, legal, accounting, data gathering fees. The IRS has a 3-year statute of limitations on claiming refunds, so projects completed 1/1/2019– 12/31/2021 are retroactively potential opportunities. 2022 and future completions may integrate 179D into project contracting. More IRS guidance is anticipated on implementing the changes coming out of the IRA Act of 2022. To ensure your ownership of the deduction include language in your contracts e.g., ESPC, design, development that as the project owner, you intend to benefit from any 179D deductions.

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## Community Solar

Of all the innovative programs to support the growth of renewables with low or no-cost to building owners, **community solar** might be the simplest. Here is how it works: A facility manager signs up to subscribe to a part of a solar farm, based on their monthly energy spend and the size of the solar subscription share, he or she gets a solar credit on their electricity bill, and then the third-party community solar administrator charges them back for the solar credits, but at a reduced rate (usually about a 20 percent reduction). So, managers are saving money and using renewable energy.

The underpinning idea of community solar, and why it's gaining in popularity quickly, is that many buildings aren't candidates for on-site or rooftop solar. **According to Solar Energy Industries Association** (SEIA), over 5.1 gigawatts of community solar projects have been installed in the U.S. through the third quarter of 2022. Forty-one states and the District of Columbia have at least one community solar project, and 19 states have passed legislation making it easier for facility managers to take advantage of the benefits of community solar. For commercial building owners interested in community solar the main hurdle is that individual states must pass legislation to create the community solar mechanism. So far, 19 states have done so. SEIA estimates another 5 gigawatts of community solar projects will be installed in the next five years.

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## Carbon Credit Monetization

An opportunity exists to monetize carbon credits earned from energy efficiency savings, transition to solar power and other renewables. Through a streamlined digitized process those reduced CO<sub>2</sub> emissions can be monetized into carbon credits or offsets and sold to investors worldwide generating a significant and ongoing revenue stream for your organization. Real change in Green House Gas (GHG) reduction will only occur from corporate behavior changes. You may be ahead of many others in GHG reduction, initiated by your commitment to energy performance contracting, redevelopment, or repositioning years ago to reduce utility costs and GHG. A carbon credit represents one ton of carbon dioxide removed from the atmosphere. They can be purchased by an individual or, more commonly, a company to make up for carbon dioxide emissions that come from industrial production, delivery vehicles or travel. Buyers, purchasers of carbon credits often are driven to offset their GHG production by locality, state, or country's GHG reduction goals. Ignoring the mandates to reduce GHG can cause significant monetary penalties to a violating party.

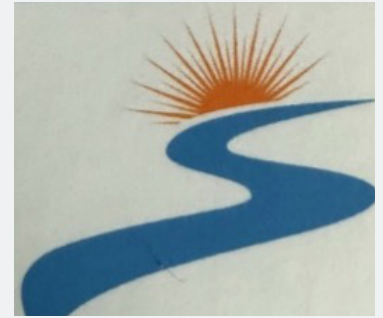
Unmonetized carbon credits from various sustainability and renewable initiatives at your housing projects could generate a potential cash flow for providing an opportunity for additionality in GHG reduction initiatives on the drawing board. The heavy lifting to undertake an energy redevelopment project may have been completed. Your properties benefited by reducing utility expenses and in addition, can now monetize its GHG reduction, resulting from its past and future utility savings and solar project. Your organization's role going forward is only to report savings as reported in its measure, verification, or energy performance reports. A third party carries the water to monetize the carbon credits, finding national or international buyers and sends the proceeds to you.

**Greg Zimmerman** is senior contributor editor for the facility group, which includes **FacilitiesNet.com** and *Building Operating Management* magazine. Mr. Zimmerman is recognized for his contribution to the article. Will Volker is President of Efficiency Energy. For additional questions on securing 179D and Tax Credit benefits for your project, call Will at 702-201-6856 or write to [wvolker@wesavegreen.com](mailto:wvolker@wesavegreen.com). Eliot Assimakopoulos is CEO of Sequestra. For additional questions on carbon monetization call Elliott at 518-817-7932 or write to [eliot@sequestra.co](mailto:eliot@sequestra.co).



## WattsHot in Tribal News

The Bipartisan Infrastructure Law (BIL) is a once-in-a-generation investment in our Nation's infrastructure, competitiveness, and communities. BIL will turbocharge clean energy deployment by funding state and local programs and projects that increase access to energy efficiency to save money for American families, businesses, and communities, help achieve our clean energy goals and accelerate job growth. The BIL will make an unprecedented investment in Indian Country to help ensure that Native communities will have clean air, drinkable water, fertile soil, and an overall improved quality of life for generations to come."



In support of transitioning to clean energy and combating climate change, Congress also enacted the Inflation Reduction Act (IRA) (Pub. L. 117-169) to extend, modify and enhance many existing tax incentives, create new tax incentives, and fund Tribal governments to meet their climate goals. The IRA passed in August 2022 provides tribal entities more than \$720 million in direct spending for a range of efforts addressing energy and climate change, as well as agriculture, and other areas. The IRA also offers Tribal entities access to tax incentives, e.g., 179D not previously available due to the tax-exempt nature of Tribal entities. Such incentives include tax deductions for increasing energy efficiency in buildings and tax credits for the production of renewable energy.

The White House has released a Bipartisan Infrastructure Law Tribal Playbook to help Tribal governments unlock the benefits from the historic investments in our Nation's infrastructure, including the more than \$13 billion set aside in for Indian Country.

**A list of the grants can be found at the following link:**

**<https://www.energy.gov/indianenergy/bipartisan-infrastructure-law-programs>**

In recognition of the efforts and successes by Tribal entities to seek energy independence, reduce GHG and better manage resources, WattsHotNewsletter® will feature successful projects in each of its quarterly newsletters to inform, promote, and inspire readers on the progress of energy efficiency and carbon reduction projects on Tribal land.

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### PROJECT OF THE QUARTER -

#### **Bad River Band of Lake Superior Tribe of Chippewa Indian**

The Bad River Band of Lake Superior Chippewa will install solar photovoltaic (PV) at three essential tribal buildings, including a 200-kilowatt (kW) ground-mount system near the Wastewater Treatment Plant (WWTP), a 300-kW ground-mount system at the Health & Wellness Center, and a 20-kW roof-mounted systems on the Chief Blackbird Administration Building (Administration Building).

The two larger installations will have Battery Energy Storage Systems (BESS) and "smart" controls, capable of operating independent of the grid. The systems are expected to offset approximately 100% of the electric usage at the WWTP & Health Clinic annually, and 5.5% at the Administration Building—reducing electric bills by \$841,000 over 25 years.

The Bad River Band of Lake Superior Chippewa Indians is a federally recognized Indian Tribe, organized under a constitution and bylaws ratified by the Band on May 23, 1936, and approved by the Secretary of the Interior on June 20, 1936. The Tribe is in the north central Wisconsin on the southern shores of Lake Superior. The Reservation totals 124,655 acres, of which 57,884 acres are Tribally owned in trust, 34,051 acres are considered fee land, 26,813 are "other" fee land, and 2,970 are considered municipal. The Tribe has 7,923 enrolled Tribal members, and the Reservation is home to approximately 2,614 people.

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The Tribe's mission is to work toward a more progressive, financially stable government, maintain tribal sovereignty, and enable members to progress individually toward a more fulfilling life culturally, spiritually, and economically. Through this mission, the Tribe has explored numerous avenues to assure resiliency and sovereignty into the next seven generations.

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The Energy Plan is focused on energy conservation and renewable energy strategies. The objectives of this Energy Plan include energy independence, environmental protection, reduced energy costs, and job creation. The Tribe's project objectives are to provide power in the event of grid failure to three of its essential buildings, to gain more control over its energy options, to reduce its high electric bills, and to create renewable energy jobs and skills.

The Tribe will install solar PV at three essential tribal buildings, including a 200-kW ground-mount system near the WWTP, a 300-kW ground-mount system at the health clinic, and a 20-kW roof-mounted system on the Administration Building. The two larger installations will have Battery Energy Storage System (BESS) and "smart" controls, capable of operating independent of the grid. The system retains most of the solar generation behind the meter because of the economics of utility interconnection rules. The smaller installation is a unique ready-to-install (RTI) system designed to teach solar PV installation skills while also reducing installation costs by allowing Tribal members to do much of the work. It will also have battery storage system but provides a different function; that is, to provide emergency power during a power outage to assist in essential Tribal functions.

The systems will generate approximately 625,000 kWh of electricity annually and will offset approximately 100% of the electric use at the WWTP and health clinic annually, and 5.5% at the Administration Building. The solar PV systems will offset the equivalent of 487 tons of CO<sub>2</sub> emissions and eliminate the equivalent of 483,000 pounds of coal from being burned each year.

## WattsHot at HUD

Looking for State incentives for Renewable and Efficiency to supplement HUD funding and funding under the IRA of 2022, check out the site: <https://www.dsireusa.org>. The link provides information on State, local, utility, and Federal incentives and policies that promote renewable energy and energy efficiency from a database funded by the U.S. Department of Energy.

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### Office of Public Housing issues guidance on the Rate Reduction Incentive in Public Housing

PIH Notice 2022-34 was issued November 28, 2022. This Notice serves as guidance to Public Housing Authorities (PHAs) on the use and eligibility of the Rate Reduction Incentive (RRI). This Notice supersedes and replaces Notice PIH-2019-24 (HA) and supplements information in the current Energy Performance Contracting (EPC), Utility Partnership Program (UPP), and the Operating Fund grant processing notices. The RRI is a financial incentive for PHAs that pursue special and significant efforts beyond what is required by statute and/or regulation to reduce their utility rate. The PHA's action must exceed the activities required by statute and/or regulation. Under HUD regulation 24 CFR § 990.185(b), "If a PHA takes action beyond normal public participation in rate-making proceedings, such as well-head purchase of natural gas, administrative appeals, or legal action to reduce the rate it pays for utilities, then the PHA will be permitted to retain one-half the annual savings realized from these actions." The RRI provides additional Operating Fund grant formula eligibility to a PHA that undertakes a special and significant action to reduce its utility rate. A PHA must undertake an eligible action that results in the PHA paying a lower utility rate to be eligible for an RRI. More details can be found in the Notice:

[https://www.hud.gov/sites/dfiles/PIH/documents/PIH\\_2022-34\\_RRI\\_Notice.pdf](https://www.hud.gov/sites/dfiles/PIH/documents/PIH_2022-34_RRI_Notice.pdf)

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### EPC Incentives Management Training

The Energy Performance Contract (EPC) Incentives Management Training consists of eight vignette training videos developed by HUD's Energy Branch of the Public Housing Financial Management Division. These videos assist Public Housing Authorities (PHAs) with an EPC to develop the knowledge and skillsets needed to better understand EPCs and review and request various EPC incentives on Form HUD-52722 and 52723 during the annual Operating Fund Grant (OpFund) process. Topics include understanding the measurement & verification (M&V) process, how baseline adjustments affect subsidy, eligible energy performance contracting (EPC) project costs, determining frozen rolling base (FRB) savings, determining resident paid utilities (RPU) savings, determining add-on subsidy (AOS) savings, understanding how the 75 Percent Rule impacts savings and cross-subsidization of EPC incentives.

Check out the following link to learn more about HUD's incentives

<https://www.hudexchange.info/trainings/courses/epc-incentives-management-training>

For more details on the Rate Reduction Incentive, follow the following link.

<https://www.youtube.com/watch?v=8lE0rSZOeMs>

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### HUD Benchmarking Tool for Multifamily Housing

HUD created a Multifamily Utility Benchmarking Toolkit to support multifamily housing providers as they undertake utility benchmarking at their properties. This resource is intended to demystify the utility benchmarking process for organizations and agencies that own and manage the nation's housing stock. HUD strongly encourages utility benchmarking as an important step toward improving property performance and reducing utility costs. The new Multifamily Utility Benchmarking Toolkit is easily accessed through the [Utility Benchmarking page on the HUD Exchange](#). It is organized into three sections: Benchmarking 101, Utility Benchmarking Step-by-Step, and Policies and Programs. The Toolkit also contains links to both internal and external resources and requirements, tools and reports, case studies, and FAQs specifically geared to multifamily housing providers.

# Weather, Economy, and CO<sub>2</sub>

## Short-Term Energy Weather Outlook

In October and November, U.S. population-weighted heating degree days (HDDs) were 13% more than last year and 4% more than the 10-year average. Based on forecasts from the National Oceanic and Atmospheric Administration, EIA expect the entire winter (October–March) to be colder than last winter, with 7% more Heating Degree Days in the United States compared with last winter and 2% more than the 10-year average.



## U.S. GDP growth

Based on the S&P Global macroeconomic model, EIA expects U.S. real GDP to grow by 0.5% in 2023, with economic growth returning after contraction in the first quarter of 2023 (1Q23) and 2Q23. In 2024, real GDP grows by 1.9%, driven primarily by an increase in household consumption. Relatively flat economic growth in 2023 results in total U.S. energy consumption falling by 0.9% in our forecast. Total energy consumption then rises by 1.0% in 2024.

## Global liquid fuels markets

Global production of liquid fuels in our forecast reaches an average of 102.8 million barrels per day (b/d) in 2024, up from 100.0 million b/d in 2022, driven by large growth in non-OPEC production. However, uncertainty over Russia's oil supply will persist, particularly in early 2023. Global consumption of liquid fuels will probably increase from an average of 99.4 million b/d in 2022 to 102.2 million b/d in 2024.

Ongoing concerns about global economic conditions and the easing COVID-19 restrictions in China, however, increase the uncertainty of the outcomes of our demand forecasts. With more global oil production than consumption in our forecast, global oil inventories will probably increase over the next two years.

- **Crude oil prices.** We forecast that the Brent crude oil price will average \$83 per barrel (b) in 2023, down 18% from 2022, and continue to fall to \$78/b in 2024 as global oil inventories build, pressuring crude oil prices.
- **Gasoline prices.** Gasoline prices decline in our forecast as both wholesale refining margins and crude oil prices fall. We forecast U.S. gasoline refining margins will fall by 29% in 2023 and fall by 14% in 2024, leading to retail gasoline prices averaging around \$3.30 per gallon (gal) in 2023 and \$3.10/gal in 2024.
- **Diesel prices.** We forecast that U.S. refining margins for diesel will fall by 20% in 2023 and by 38% in 2024. We expect retail diesel prices to average about \$4.20/gal in 2023, down 16% from 2022. In 2024, prices will probably continue to fall, and average near \$3.70/gal.



## Natural gas prices

The Henry Hub natural gas spot price averages slightly less than \$5.00 per million British thermal units (MMBtu) in 2023 in our forecast—down close to 25% from last year—as domestic consumption declines and liquefied natural gas (LNG) exports remain relatively flat. In 2024, we expect natural gas prices to again average slightly below \$5.00/MMBtu, as dry natural gas production outpaces an increase in LNG exports that results from rising LNG export capacity.

## Electricity generation

We expect that the share of electricity generation from coal will fall from 20% in 2022 to 18% in 2023 and 17% in 2024. This decline will be partially offset by an increase in the forecast share of combined utility-scale solar and wind generation from 16% in 2023 to 18% in 2024.

## Emissions

EIA forecast energy-related CO<sub>2</sub> emissions have increased slightly in the United States during 2022, driven by more consumption of natural gas and petroleum and partly offset by less coal consumption. EIA's forecast of natural gas emissions increases the most because of rising demand for that fuel in the electric power sector.

Increases in CO<sub>2</sub> emissions from petroleum use reflect increased travel following the pandemic and increased industrial activity. EIA expect fossil fuel consumption (and related emissions) to decline in 2023 by almost 3%. EIA expect U.S. energy consumption to grow faster than CO<sub>2</sub> emissions in 2022, and to fall more slowly than emissions in 2023. This reflects a decrease in our projected carbon intensity of energy—the emissions output per unit of energy consumed—of around 1% in 2022 and around 2% in 2023.

*Economy, Weather, and CO<sub>2</sub> report is courtesy of December 2022, U.S. Energy Information Administration.*

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