

Climate Change and the COVID-19 Response

*Productive response would target energy efficiency
measures to low- and moderate-income families*

Joseph Wilensky
David Osterberg

May 2020

The Iowa Policy Project

20 E. Market Street, Iowa City, Iowa 52245
(319) 338-0773
www.IowaPolicyProject.org

Authors and Acknowledgments

Joseph Wilensky worked with IPP during the 2019-2020 school year at the University of Iowa, where he has just completed study for an M.S. degree in the School of Urban and Regional Planning. His emphasis is on transportation and land use planning. Joseph's previous work experience has been in the field of International Development and Governmental Relations, and he received a B.A. in Political Science and C.L.E.G (Communications, Law, Economics, and Government Studies) in 2008 from The American University in Washington, D.C.

David Osterberg is Professor Emeritus in the Department of Occupational and Environmental Health at the University of Iowa and a former state representative known for his passion and expertise in energy and environmental issues. David holds an M.S. in water resources management and another in agricultural economics from the University of Wisconsin-Madison. As co-founder of the Iowa Policy Project, he served as director for the first 12 years of the organization and remains as IPP's lead staff researcher on issues affecting policy on energy and the environment.

The authors would like to acknowledge the editorial contributions of IPP staff member Nathan Shepherd.

We gratefully acknowledge the support of the **McKnight Foundation** and the **Fred and Charlotte Hubbell Foundation** for their general support of our work on environmental and other issues. Views expressed are solely the perspective of the authors and the Iowa Policy Project.

The Iowa Policy Project

Formed in 2001, the Iowa Policy Project is a nonpartisan, nonprofit organization located at 20 E. Market Street, Iowa City, IA 52245.

The Iowa Policy Project promotes public policy that fosters economic opportunity while safeguarding the health and well-being of Iowa's people and the environment. By providing a foundation of fact-based, objective research and engaging the public in an informed discussion of policy alternatives, the Iowa Policy Project advances accountable, effective and fair government.

All reports produced by the Iowa Policy Project are made available to the public, free of charge, via the organization's website at <http://www.iowapolicyproject.org>.

The Iowa Policy Project is a 501(c)3 organization. Contributions to support our work may be tax-deductible. We may be reached at the address above, by phone at (319) 338-0773, by email at ipp@Lcom.net, or through other contacts available at our website.



The Iowa Policy Project

20 E. Market St. • Iowa City, Iowa 52245 • (319) 338-0773
www.IowaPolicyProject.org

May 2020

Climate Change and the COVID-19 response

Productive strategy would target low- and moderate-income families

By Joseph Wilensky and David Osterberg

Climate change is an existential threat to all of us and is largely driven by the accumulation of greenhouse gases (GHG) in our atmosphere. While the causal link between atmospheric GHG and climate change is a well-established one, not enough has been done to reduce GHG, certainly on a national level, but also in individual states. Often, the problem seems too big or abstract to make headway. Where would you begin to tackle such a large problem? Thankfully, there are resources readily available in Iowa to point the way to immediate and ongoing GHG reduction strategies.¹

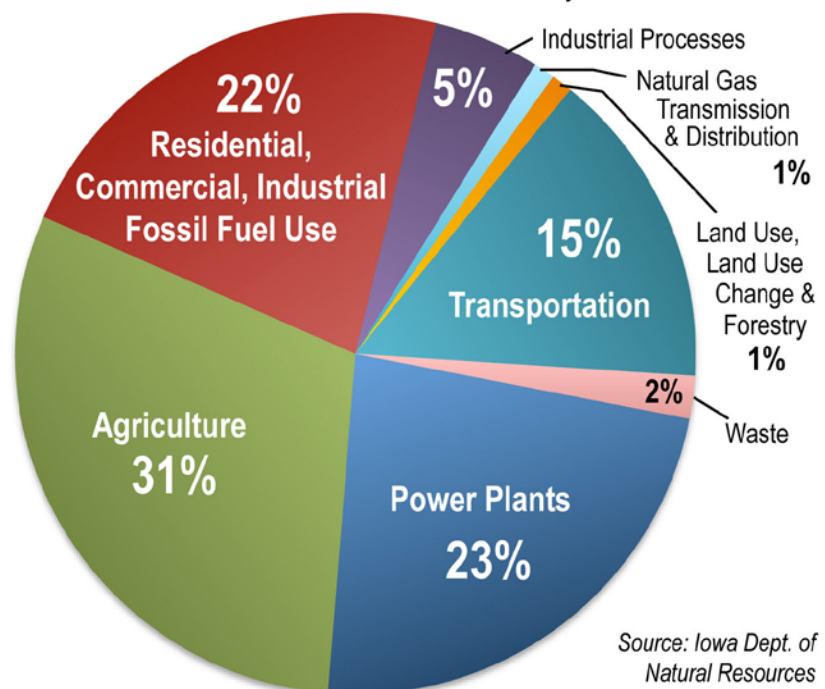
The U.S. federal government has responded to another, more immediate existential threat, the COVID-19 pandemic, with four stimulus and aid packages to reduce the effect on the economy and on individuals. A fifth package is in the works at this writing. If federal stimulus activity is to be used for the other existential problem for the world, climate change, it must be in a sector that matters and would ideally be tied to relief for low-income consumers who bear high energy burdens — i.e., those who pay a large portion of their income on energy bills.

The Iowa Department of Natural Resources publishes an annual report outlining the top-down, broad picture of GHG emissions in Iowa. For 2018, the top four categories for emissions were:²

- Agriculture
- Power Plants
- Residential, Commercial, and Industrial Fossil Fuel Use
- Transportation Sector

In this report we focus on opportunities to reduce GHG from two sectors that, combined, account for nearly half of total GHG emissions in the state: power plants and residential, commercial, industrial (RCI) fossil fuel use. Additional ideas on reducing vehicle emissions may be found in our companion piece.³

Figure 1. Agriculture, Businesses and Homes All Contribute Heavily to Greenhouse Gas Emissions in Iowa
2018 Iowa Greenhouse Gas Emissions by Sector



Source: Iowa Dept. of Natural Resources

There are two angles of attack for this problem, one from the power production side and the other from the power consumption side. Iowa has already taken steps to reduce emissions from the power production sector by installing over 10 gigawatts of wind power capacity, producing more electricity in 2019 than coal.⁴ However, federal assistance in this sector is already waning as the production tax credit is being decreased over time. New federal assistance might be forthcoming by addressing consumption.

Efficiency Upgrades

Fossil fuel consumption to produce electricity in the power plant sector and fuel consumed directly by the RCI sector can be reduced through efficiency. Attacking this production should begin with efficiency upgrades.

Nearly one-third of home energy use is devoted to heating and cooling, with the other largest energy use coming from appliances.⁵ Commercial spaces have different energy needs from homes. Here, a larger share of power consumption is devoted to lighting, refrigeration, and hardware, but a third of the sector's total energy use is for heating, cooling, and ventilation.⁶

A prominent way of reducing these energy expenditures in the RCI sector is found in a structural weatherization program, designed to improve the "envelope" that separates the inside and outside air of a home or business, and to reduce the infiltration of outside air. These steps can maintain a more even internal temperature, and use less energy in the process. Through a combination of tightening the external building envelope, improving internal heating, ventilation and air conditioning (HVAC) systems, and air pressure maintenance, homes and businesses can reduce energy use on average by 15 percent while recouping the costs of efficiency upgrades in a year.⁷ Replacing incandescent lighting with LEDs also can reduce electricity use with a fast payoff.

For low- and moderate-income families, there is great potential for federal action. Iowa already has a Weatherization Assistance Program (WAP) for low-income families. The program is primarily funded by the federal government and has operated since the 1970s oil shock. In addition, 15 percent of Iowa's yearly amount of the federal Low-Income Home Energy Assistance Program (LIHEAP) was in the past dedicated to weatherization.⁸ The enhanced needs of the low-income community mean that for the present year, both weatherization programs could be used to keep customers as close to current on their electric and gas bills.

Weatherizing buildings is far beyond a low-income family question. However, the WAP program is "the largest residential whole-house energy efficiency program in the country"⁹ and the most likely to be expanded as part of the COVID-19 stimulus actions by the federal government.

By employing local contractors to perform weatherization and through reduced energy bills, investing in building efficiency through the WAP program is estimated to have added millions of dollars in value to the state's economy.¹⁰ Once it is safe to resume the type of in-person work that residential weatherization entails, this is one area where federal COVID-19 relief funds could help in Iowa, to enhance WAP implementation across the state with a focus on those most in need of assistance, the poor. Iowa also could consider seeking federal funds for weatherization work on recently shuttered municipal establishments like schools, indoor recreation facilities, and libraries as part of support for local governments.

Solar Investments

Looking at the production end of energy, Iowa already has significant wind energy production, ranking second among the states and generating roughly 42 percent of its energy from wind in

2019.¹¹ While there is always room to improve wind generation, growth in solar power presents a much larger opportunity. Iowa only generates 0.17 percent of its total power mix from solar resources and ranks 39th of 50 states in solar power production.¹² There is obviously room to grow, and community solar projects may be the best way to do so.

Community Solar

Many people are familiar with solar panels located on individual roofs generating power for that household or business and provide a way to distribute power generation in communities. These projects are somewhat limited in their reach, however, as these projects usually come with high initial costs and longer repayment periods of up to eight years. While this extended payback period can be seen as a better return than a household can earn investing in stocks and bonds, there exists barriers to entry that prevent full community participation. Not only are low and moderate income households typically priced out, but many families who could afford the investment often have a poor location for capturing the sun's energy, and families of all income levels often do not own a roof upon which to place a photovoltaic panel.

A much more efficient process can be found in larger, utility or investor-scale projects many of which already exist in Iowa. A utility scale investment can serve as an investment for a utility just as is a wind farm or gas peaking plant. However, a utility could also set up a project and allow their customers to purchase "shares" in an installation's power production and receive a credit on their utility bill commensurate with their ownership stake. Solar credits and bill reductions can be mobile with the "owner" so long as they remain within that utility's service area.

These larger panel installations can be owned in several ways including through:

- Utility-Sponsored Model — A utility owns or operates a project that is open to voluntary ratepayer participation;
- Special Purpose Entity (SPE) Model — Individual investors join in a business enterprise to develop a community solar project; and,
- Nonprofit "Buy a Brick" Model — Donors contribute to a community installation owned by a charitable nonprofit corporation.¹³

All three of these models already exist in Iowa, with one of the largest facilities in the state (Cedar Falls Utility's Simply Solar program) following the Utility Sponsored Model outlined above.¹⁴

Larger projects like these have numerous benefits to traditional solar installation, including spreading the fixed costs of a project out across a larger number of panel subscribers to attain economies of scale. A centralized location makes repairs and snow removal more efficient. And a large project can be sited in locations that can reduce distribution and transmission costs.

Community Solar and Low and Moderate Income Households

For those facing housing insecurity or those who move frequently, community solar, if subsidized, could become a COVID-19 stimulus investment that plays the same part in reducing energy expenditures as the WAP does. This could be done as an expansion in the already existing federal program.

Seeking assistance for just low-income customers of a community solar installation can make the entire installation a better investment. This is the link of expanding solar energy to the present federal action on the virus crisis.

Other States' Example

Neighboring states Minnesota and Illinois provide Iowa with a roadmap for expanding solar power access to those underserved communities.

Minnesota's community solar programs are considered the best in the country, with ten times the number of projects either online or in the process of coming online as anywhere else in the history of United States energy production.¹⁵ Minnesota has achieved this amount of growth through the aggressive courting of third-party panel ownership and maintenance, without a cap on the number of projects being developed in any one year. Through this third-party ownership, 84 percent of residential subscribers have seen immediate energy savings, even with most of the power generation (87 percent) going to commercial and municipality subscribers. Minnesota is currently considering guaranteeing portions of solar generation for low-income subscribers and hope to ensure these energy reductions are enjoyed by larger segments of the population.¹⁶

Illinois' answer to low-income subscriptions include programs specifically created to subsidize the construction and ongoing maintenance costs of solar facilities with a guarantee of access and reduced energy costs for low-income households.¹⁷ Launched in 2019 the Illinois Solar for All program has \$12.5 million available to fund projects each year and should greatly expand solar availability to all communities in Illinois.

Conclusion

Iowa can learn from examples in other states to encourage larger-scale solar developments. Ensuring low-income access through community solar subscription quotas could open an Iowa program to COVID-19 stimulus funds. This along with added weatherization program funds provide an opportunity to fund vitally needed energy improvements in the state while also reducing GHG emission sources and assisting those most in need. With record unemployment filings across the country, Iowa should work proactively to keep solar installers and weatherization technicians on the job and reduce the energy burden of those who can least afford to withstand a lost paycheck.

¹ Iowa Department of Natural Resources. 2018 Iowa Statewide Greenhouse Gas Emissions Inventory Report. <https://bit.ly/3blu0iB>

² Ibid.

³ Joseph Wilensky. Churchill's words for Iowa's Future. Iowa Policy Project blog. March 30, 2020. <https://iowapolicypoints.org/2020/03/30/churchills-words-for-iowas-future/>

⁴ U.S. Department of Energy. *Wind Energy in Iowa*. 2020. Online Available at: <https://windexchange.energy.gov/states/ia>

⁵ U.S. Energy Information Administration. *2015 Residential Energy Consumption Survey*. June 5, 2018. <https://bit.ly/2zsMKiz>

⁶ U.S. Energy Information Administration. *Energy Use in Commercial Buildings*. September 28, 2018. <https://bit.ly/2AiGDOB>

⁷ Institute of Medicine of the National Academies. *Climate Change, the Indoor Environment, and Health*. 2011. The National Academies Press. Washington, D.C.

⁸ Iowa Department of Human Rights. *Iowa Low-Income Home Energy Assistance Program – 2019 Fact Sheet*. <https://bit.ly/2yL4eXL>

⁹ Mariel Wolfson. Healthy Homes for All: the untapped power of energy efficiency programs. American Council for an Energy Efficient Economy blog May 1, 2020. <https://www.aceee.org/blog-post/2020/05/healthy-homes-all-untapped-power-energy-efficiency-programs>

¹⁰ Iowa Department of Human Rights. *Weatherization Assistance Program*. Accessed on May 5, 2020. Online Available at: <https://humanrights.iowa.gov/dcaa/weatherization>

¹¹ Power Technology. *Top Ten US states by Wind Energy Capacity*. April 15, 2019. Online Available at: <https://www.power-technology.com/features/us-wind-energy-by-state/>

¹² Solar Energy Industries Association. *Solar Spotlight – Iowa*. June 2019. Online Available at: https://www.seia.org/sites/default/files/2019-09/Factsheet_Iowa.pdf

¹³ U.S. Department of Energy. *A Guide to Community Solar: Utility, Private, and Non-profit Project Development*. November 2010. Online Available at: <https://www.nrel.gov/docs/fy11osti/49930.pdf>

¹⁴ Email with Mike Litterer. February 24, 2020.

¹⁵ Institute for Local Self-Reliance. *Why Minnesota's Community Solar Program is the Best*. May 4, 2020. Online Available at: <https://bit.ly/2YYSPOL>

¹⁶ Walker Orenstein. *Minnesota's Community Solar Program has been Wildly Popular. Why Some Want to Limit It*. Minnesota Post. May 8, 2019. Online Available at: <https://www.minnpost.com/environment/2019/05/minnesotas-community-solar-program-has-been-wildly-popular-why-some-want-to-limit-it/>

¹⁷ Illinois Power Agency. *Illinois Solar for All*. Accessed May 5, 2020. Online Available at: <https://www.illinoissfa.com/programs/community-solar/>