

Data-Driven Approach to Sustainability

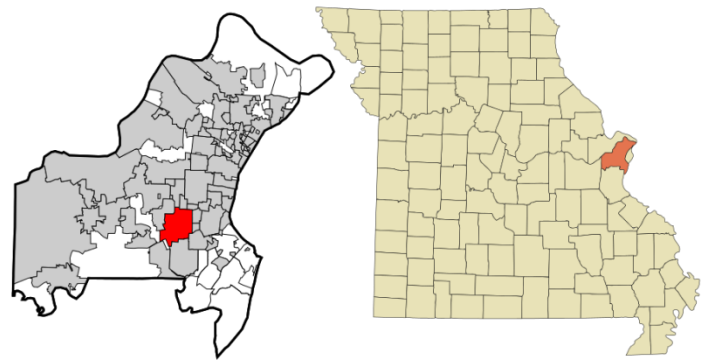
The City of Kirkwood, Missouri found that through creating a greenhouse gas inventory in ClearPath, they have been able to achieve further sustainability goals and become a leader on sustainability in Missouri. Their data-driven approach gave them the ability to begin a number of projects, all with bipartisan support. These projects include traffic signal modernization, a greater reliance on wind generation, a plan for renewable energy storage, and an increase in charging convenience for electric vehicles. This transition has not only led to improvement of the greenhouse gas (GHG) emissions inventory, but of the City's economy as well.

Case study

October 2018

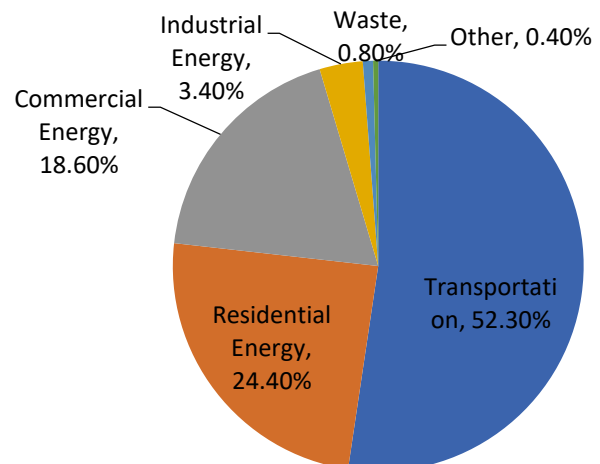
Project Context

The City of Kirkwood began to look at their carbon footprint in 2009. The City has created a greenhouse gas inventory in ClearPath that has led them to achieve sustainability goals and become a leader on sustainability in Missouri. ClearPath is used as a first step in justifying their sustainability projects, such as traffic signal improvement and an increased use of wind energy. ICLEI's 5 milestones also lead to other sustainability initiatives through its data-driven approach. Kirkwood looked at where emissions were coming from and using a baseline inventory, chose to prioritize strategies in the transportation and energy sectors. Since there was a significant amount of emissions from vehicles, the congestion mitigation air quality (CMAQ) traffic signal project was chosen to be the first big project. The planning and implementation of these strategies kick starts other initiatives.



Population/land area

27,653 / 9.20 sq. mi



Kirkwood Community GHG Emissions, 2009

Regional Context

Kirkwood is a suburb of St. Louis in St. Louis County, Missouri, and is a part of the Missouri Public Utility Alliance, the collection of municipal utilities in Missouri. They provide gas, wind, and solar energy to the community, as well as net metering. Missouri cities are working together to move renewable energy forward and some, like the City of Columbia, have instituted a renewable portfolio standard (RPS). While Kirkwood's partner city, Springfield, has no RPS at the moment, they are making a lot of progress with solar and wind and are working on an energy storage project. As a group, these cities have been able to implement a number of renewable energy projects. This was made possible by being part of the Missouri Joint Municipal Electric Utility Commission.

Project Profiles

Traffic Signal Modernization

The first big project for the City was the traffic signal modernization project. The severity of vehicle contribution to the GHG inventory pointed to the need for congestion and traffic mitigation. Once the \$4 million grant from the Missouri Department of Transportation was approved, work was done on 11 traffic signal intersections along the main road. These traffic signals will relieve traffic backups and congestion, reduce idling, and therefore improve air quality. This project is a good example of how data led to a successful project plan and implementation.

Clean Energy Generation

Kirkwood signed on with Missouri Public Utility Alliance for wind energy generation to be delivered to the City. Through a partnership with other towns that have similar goals, Kirkwood will receive about 50% of Kirkwood's peak MW usage (55 MW). As Kirkwood shows greater leadership when it comes to renewable energy, more and more nearby towns are following in their footsteps. The City has issued a RFP to advance energy storage in order to take advantage of the variable resources from wind and solar so they will have a supply whenever it is needed. This means the City could utilize wind energy generated at night during the day. Energy storage can be bought low and sold at higher prices, which people like. The more renewable energy being created, the more the City can move towards energy storage, and the more energy storage the City has, the more renewable energy it will use.

Electric Vehicles

In order to reduce GHGs while utilizing existing road infrastructure, the City plans to install electric vehicle (EV) charging stations. This will help the industry as a whole to get EVs out there. These stations will provide those traveling long distances and those with range anxiety a place to charge. The City is offering a rebate for customers who want to install chargers.



“[ICLEI's] tools for collecting information helped Kirkwood move forward with projects from environmental and economic perspective, and with bipartisan consensus. We're not just talking, we're doing! We can show data that goes along with projects, and we have research needs to go forward.” — Mark Petty, City of Kirkwood Electric Director

Key Contacts

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Results

There are a number of concrete results:

- 25 MW of wind energy is in Kirkwood's portfolio under their local control.
- The transition to renewable energy has created jobs and economic development.
- Through developing regional partnerships and leading by example, Kirkwood has influenced other cities, such as Odesa, Missouri.

Lessons Learned

The improvements made in the City of Kirkwood highlight the successful use of data for planning and implementing a project. The City found that working with multiple partners was helpful. People tend to not expect this type of work from the Midwest so this also brought Kirkwood to the forefront as a leader in the Midwest.

Budget and Finance

The City of Kirkwood was able to get a \$4 million grant approved in 2016 for the traffic signal modernization project. There is a market for energy from wind and solar with favorable prices for renewable energy generation. This makes it easier to get people on board. Even when people do not understand the other benefits of renewable energy, people understand the money. This also makes it possible to be proposed in a non-partisan setting. Since the City was able to get these projects up and running through grants, they have not had to do much other financing to do these projects.

Next Steps

Since the traffic signal modernization project grant got approved in 2016, construction is expected to start this summer. Kirkwood is also working on having community solar energy. The next major move will be to transition to 100% renewable energy but in order to do this, reliability of power, particularly during intermittent service, needs to be improved.

ICLEI – Local Governments for Sustainability is the world's leading network of over 1,500 cities, towns and metropolises committed to building a sustainable future. By helping our Members to make their cities sustainable, low-carbon, resilient, biodiverse, resource efficient, healthy and happy, with a green economy and smart infrastructure, we impact over 25% of the global urban population.