About half of the greenhouse gas emissions in Northeast Ohio comes from the production of the electricity we use. The region has relatively carbon-intensive electricity because more than 70 percent is generated from the burning of coal.

The GreenCityBlueLake Institute’s Climate Action Plan for the region proposes how we can reduce these emissions 90 percent by 2050. This will require a major transition in the way we use and generate electricity, including greatly expanded programs for energy conservation and efficiency, the gradual phase-out of coal-burning power plants, and a shift to clean, renewable power sources.

We can accomplish this transition if we work steadily in the coming decades. This work will build a clean energy future that will spur innovation, create good jobs and improve the health of our community.

What you can do

- Turn off unnecessary lighting and use power strips to stop energy “vampires” (as much as 5-8 percent of home electricity is consumed by appliances and electronic devices in passive or standby mode).
- Switch to compact fluorescent light (CFL) bulbs, which use up to 75 percent less energy than traditional incandescent bulbs. Or switch to LED (light emitting diode) bulbs, which use even less energy.
- Buy efficient appliances and electronics with Energy Star ratings. Start with the refrigerator, which uses the most electricity in an average home.

Did you know?

Nationally, wind power was 35 percent of all new generating capacity over the past four years.

Locally, wind power projects on and near Lake Erie could provide a significant portion of Northeast Ohio’s energy, while promoting economic development.
Transition steps

Reduce demand for electricity by promoting efficiency and conservation

• Change regulatory policies so utilities have a greater incentive to promote conservation than sell more electricity.

• Support stronger standards for appliance and lighting efficiency, and offer incentives to encourage rapid adoption of more efficient technologies in homes and businesses.

• Educate consumers about cost-effective ways to reduce power consumption.

• Reduce electricity consumption in buildings through high-performance, green design.

Change the mix of power sources, shifting to more efficient generation and cleaner fuel sources

• Develop efficient plants to produce combined heat and power close to consumers to reduce transmission losses.

• Retire aging coal-fired power plants at the end of their useful lives.

• Rapidly phase in wind, solar, and other clean power sources.

Build a smart power grid to take advantage of intermittent, distributed sources of power

• Make the electric grid more like the Internet—capable of connecting and managing many sources of power.

• Develop storage capacity (e.g., with compressed air, pumped water, fuel cells and advanced batteries) to smooth out power supply.

• Connect electric vehicles into the grid to create a mass network of storage devices.

Future scenario: Power generation in 2050

To give you an idea of what our electric power sector could be like in 2050, here’s one scenario that will reduce carbon emissions by 90 percent while still supplying Northeast Ohio with the power it needs:

• **Wind** (36 percent) – 1,500 large wind turbines ranging in size from 2.5 to 5 MW in Lake Erie.

• **Solar photovoltaic** (31 percent) – 260,000 installed arrays. Two thirds would be small arrays (1-10 kW), and the remaining would be larger arrays suited to the rooftops of big box stores and parking lot covers.

• **Biomass** (15 percent) – This represents about two-thirds of the region’s biomass potential, most of which is municipal solid waste. Technologies to convert such waste and sewage biosolids to energy are emerging, although still controversial.

• **Natural gas** (18 percent) – Natural gas is a nonrenewable fossil fuel, which burns cleaner than coal in terms of greenhouse gases and air pollution (although there are concerns about the overall carbon emissions from new hydrofracturing methods to extract natural gas). In addition, most of the region’s natural gas infrastructure is relatively new and has a long useful life. For these reasons, natural gas used to fuel highly efficient combined heat and power (or cogeneration) plants is included as a transition fuel in this scenario.

Electricity generation transition scenario

More information

See a detailed climate transition plan for the power sector of Northeast Ohio at: www.gcbl.org/research/climatechange

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