



Sustainable Columbus Community Choice Aggregation

Powering Columbus with 100% clean energy

October 8, 2020

How we would like to work together

The role we hope you will play

1. Provide input on sustainability-focused community priorities
2. Share information on aggregation with your organization and community members

Suggested group norms

1. Use video whenever possible
2. Minimize distractions
3. Practice the democracy of time
4. *Anything else?*

A few Zoom reminders for today

Advisory Group Members:

- **Please mute** when not speaking
- Please *also* **use the chat function to react**, ask questions, and comment!
- Please **rename yourself with name and org** by right clicking on the 3 dots on your image
- **Please note**: this meeting is being recorded and will be shared publicly

Members of the public observing today: Welcome! Please ask questions at any time, and we will address these at two points during the agenda.

Today's purpose is to discuss our renewable energy future

- What we heard from you last meeting
- Renewable Energy Products Overview
- Renewable Energy Transition Expected Benefits
- Setting up for Community Grants conversation
- Closing and next steps



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ANDREW J. GINTHER, MAYOR

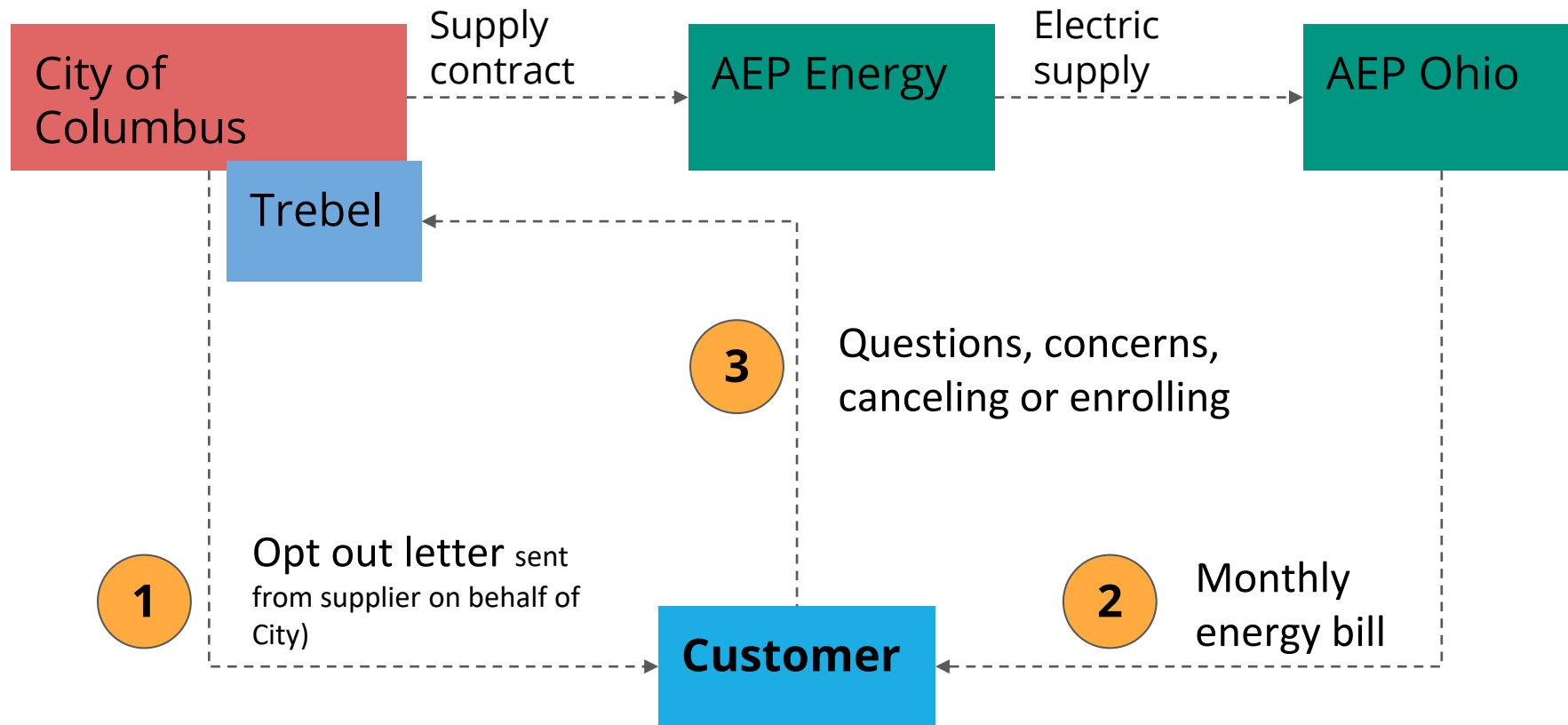
Community Choice Aggregation Advisory Committee Meeting #2 Recap

What did we discuss?

We discussed the day-to-day work of aggregation

- The work of **contracting an energy supplier** (periodic)
- **Enrolling or disenrolling all eligible residents** according to their preference
 - At the beginning of the program
 - Periodic sweeps to ID new residents (minimum quarterly)
 - Proactive communication with residents who have chosen another energy supplier
- **Helping residents with any questions** they have
- Ensuring the aggregation program is **meeting community goals for public health, economic development, equity, and sustainability**

Behind the scenes, it looks like this



What we have heard from you in Meeting #2

You said:	We are responding:
<p>We need to share information about how the municipal utility is also advancing goals for public health and climate.</p>	<p>By preparing information addressing each of these areas, which we will discuss today and will be included in public messaging to customers.</p>
<p>We need to provide information on how the community will have opportunities for input in the aggregation program structure</p>	<p>We have presented at 22 neighborhood meetings and held 2 public meetings, as well as 1-on-1 meetings with you. We will hold 2 additional public meetings after the ballot initiative on the operations and governance plan and continue to have 1-on-1 meetings with you.</p>
<p>We need to be sensitive to any unintended consequences for low-income customers</p>	<p>We will incorporate this into meeting #4, include equitable engagement as part of the CAP process, and create communications materials for organizations enrolling PIPP customers to avoid unintended consequences.</p>
<p>We need to message appropriately and underscore renewable features</p>	<p>We will design resources for residents who have already shopped for an alternative supplier, using messaging that emphasizes the renewable angle.</p>

Temperature Check

- **What questions do you have from last meeting?**
- **Have we captured this feedback correctly?**



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Renewable Energy Products Overview

How will we achieve our goals?

Key terms we're using today

- **Renewable Energy Certificates (RECs):** RECs represent the **clean energy attributes of renewable electricity**, rather than directly supplying renewable energy to local consumers. Types of RECs are priced differently depending where they are from.
 - **Advantage:** Easy to purchase, available at a range of price points.
 - **Disadvantage:** Does not necessarily result in new renewables; requires payment separately for the attributes of being renewable.
- **Power Purchase Agreement (PPA):** **PPAs are energy contracts** where a customer agrees to purchase energy over time at a predetermined price. Types of PPAs include Physical PPAs, and Financial PPAs.
 - **Advantage:** Contributes new renewable energy to the grid and can be located locally
 - **Disadvantage:** Takes time and effort to arrange.

Cincinnati has recently signed a large PPA

- Cincinnati negotiated an off-site renewable physical power purchase agreement of **65 MW for their community choice aggregation program**
 - Defined “local” as 100 miles from City Hall
 - Contract included project labor agreement to guarantee job training and wage rates
 - City retains renewable energy credits (RECs)
- This PPA accounts for ~16% of the aggregation program’s total electricity needs

CINCINNATI ELECTRIC AGGREGATION PROGRAM

The combined 100 MW solar array will be approximately 1,000 acres



310,000 solar panels



the same as
750 football fields



the equivalent of keeping
157,000
pounds of coal in the ground every year



that's like planting
2.4 million trees every year



\$0
upfront costs

city of
CINCINNATI

San Jose has signed three power purchase agreements

- **San Jose Clean Energy Community Choice Aggregation**
 - Established in 2019, with City of San Jose residents as only eligible customers
 - 328,000 residential and business customers
- **Renewables:** negotiated three off-site physical power purchase agreements for aggregated load in eight months
 - **262 MW of solar with 275 miles of San Jose**
 - 2019 PPA - 20-year contract (100MW)
 - 2020 PPAs - 15-year contract (100MW) and 12-year contract (62MW)
 - Infrastructure built with **union labor**
 - **Competitive pricing** will lower operating costs
- **Regionality:** joined with another local CCA program, East Bay Community Energy, in contracting the two 2020 PPAs

AEP Energy provides a portfolio of PPAs: Integrated Renewable Energy



Wind PPAs



Solar PPAs



Integrated Renewable Energy Product

ALL BASED IN OHIO

Temperature Check

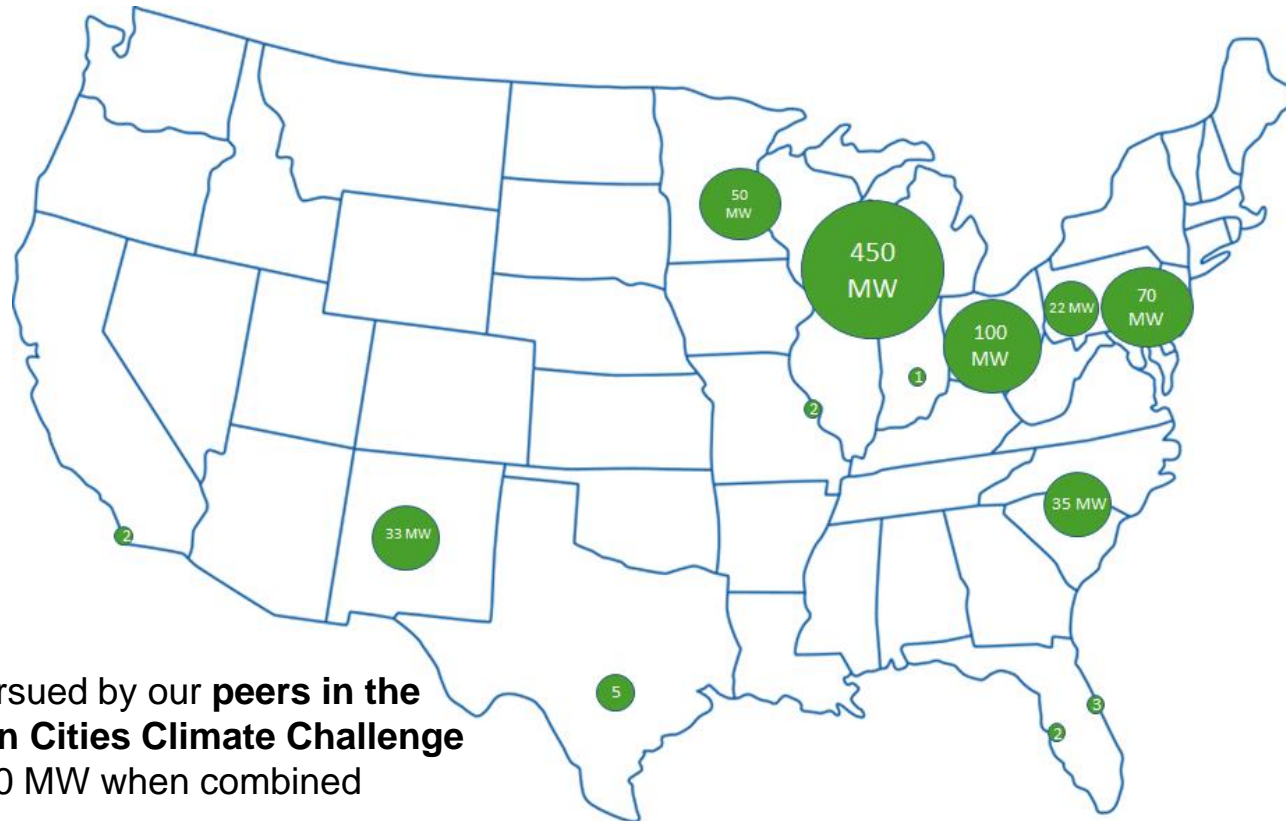
How comfortable do you feel with what has been shared so far?

- *1 finger: What language are you speaking?*
- *5 fingers: I should be explaining this to YOU*

What questions do you have?

Columbus' aggregation program will be one of the largest CCAs in the country

Columbus residents will see **700 MW** of Solar and Wind installed in Ohio



PPAs pursued by our **peers in the American Cities Climate Challenge** total ~700 MW when combined

To put this in perspective, looking across the other American Cities Climate Challenge cities pursuing PPAs, it is roughly **equivalent to all other cities combined**

We expect the CCA will be powered by:



3 Installations
416 Megawatts of capacity



7 Installations
687 Megawatts of capacity



**Request for Proposal out for
additional capacity**

ALL BASED IN OHIO

We will transition quickly to 100% local renewable energy, with a “bridge” phase

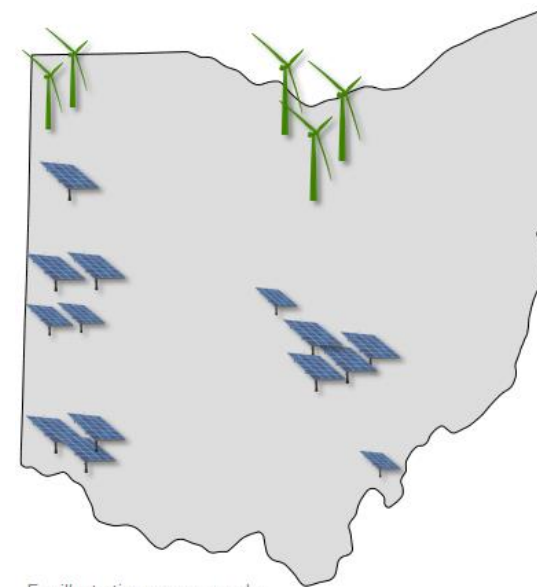
BRIDGE PHASE
(RECs)

New Ohio solar and wind projects begin to come online

LOCAL PROJECT GENERATION PHASE
CCA sourced by new wind & solar generation in Ohio



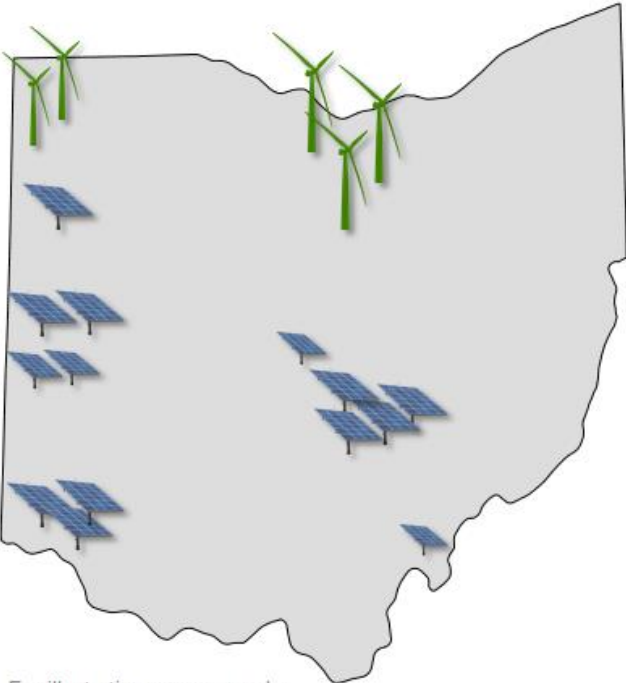
Building **new wind and solar generation in Ohio takes time**, especially to produce enough electricity to meet demand in Columbus. **RECs form a bridge** from today's grid mix to local renewables in 2023



Approximate locations of existing or potential AEP renewable installations under contract

For illustrative purposes only

Several similar solar and wind installations are already under contract across Ohio



For illustrative purposes only

AEP Energy Existing and Potential Ohio Renewable Portfolio

Project	Public?	Fuel	Size (MW)	Location	COD	Term	Annual MWh	Estimated Direct, Indirect and Induced pre-operations Jobs	Estimated Direct, Indirect and Induced post-operations Jobs	
Emerson Creek	Yes	Wind	240	Huron Co, OH	May-22	12	700,000	960	48	
Unnamed Project 1	No	Solar	200	Central Ohio	Dec-22	15	405,000	800	40	
Unnamed Project 2	No	Solar	49	Southwest Ohio	Jun-22	12	105,000	196	10	
Unnamed Project 3	No	Solar	150	Southwest Ohio	Dec-22	12	333,000	600	30	
Unnamed Project 4	No	Solar	48	Southeast Ohio	Dec-21	12	100,000	192	10	
Unnamed Project 5	No	Solar	49.5	Central Ohio	Dec-22	15	77,000	198	10	
Unnamed Project 6	No	Solar	80	Western Ohio	Dec-22	12	172,000	320	16	
Unnamed Project 7	No	Solar	70	Western Ohio	Dec-22	12	150,000	280	14	
Emerson Creek	Yes	Wind	60	Huron Co, OH	May-22	12	175,000	240	12	
Unnamed Project 8	No	Wind	116	Northwest Ohio	Sep-21	12	310,000	464	23	
			Total Capacity	1,063			Total Output	2,527,000	4,250	213
			Columbus Requirement	700			Columbus Requirement	1,700,000		

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Renewable Energy Transition Expected Benefits

How will our community benefit?

Aggregation will support clean energy job creation

Installed capacity for the CCA creates Ohio jobs

- AEP's capacity that would support the CCA's 700 MW in Columbus is projected to create or induce **roughly 4,463* jobs**.
- We can rely on local job training programs and provide job reporting as the projects get underway.

** Per projections for AEP's Ohio renewable installations. See Slide 19 for details.*

Job Types for Utility Scale Solar

A: Needed Across all Phases

- Electrical Engineers
- Engineering Technicians

B: Manufacturing

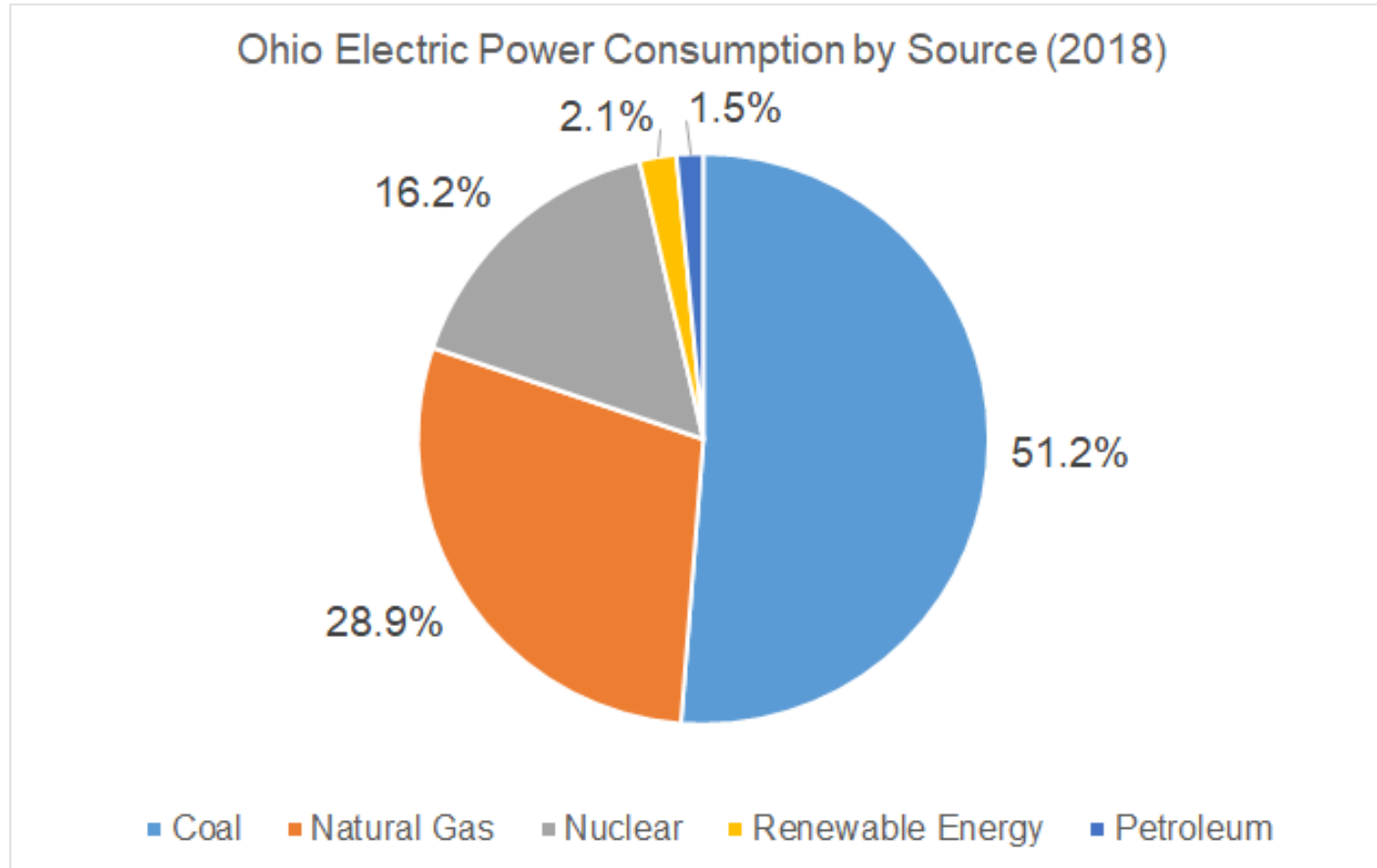
- Advanced Manufacturing Technicians
- Computer Control Operators
- Industrial Engineers
- Mechanical Engineers
- Environmental Engineers
- Materials Scientists

C: Onsite Labor (Const. + O&M)

- Electricians (Solar PV Installers)
- IT Specialists
- Software Engineers
- Structural Engineers

This boosts local employment and supports the local and regional economy

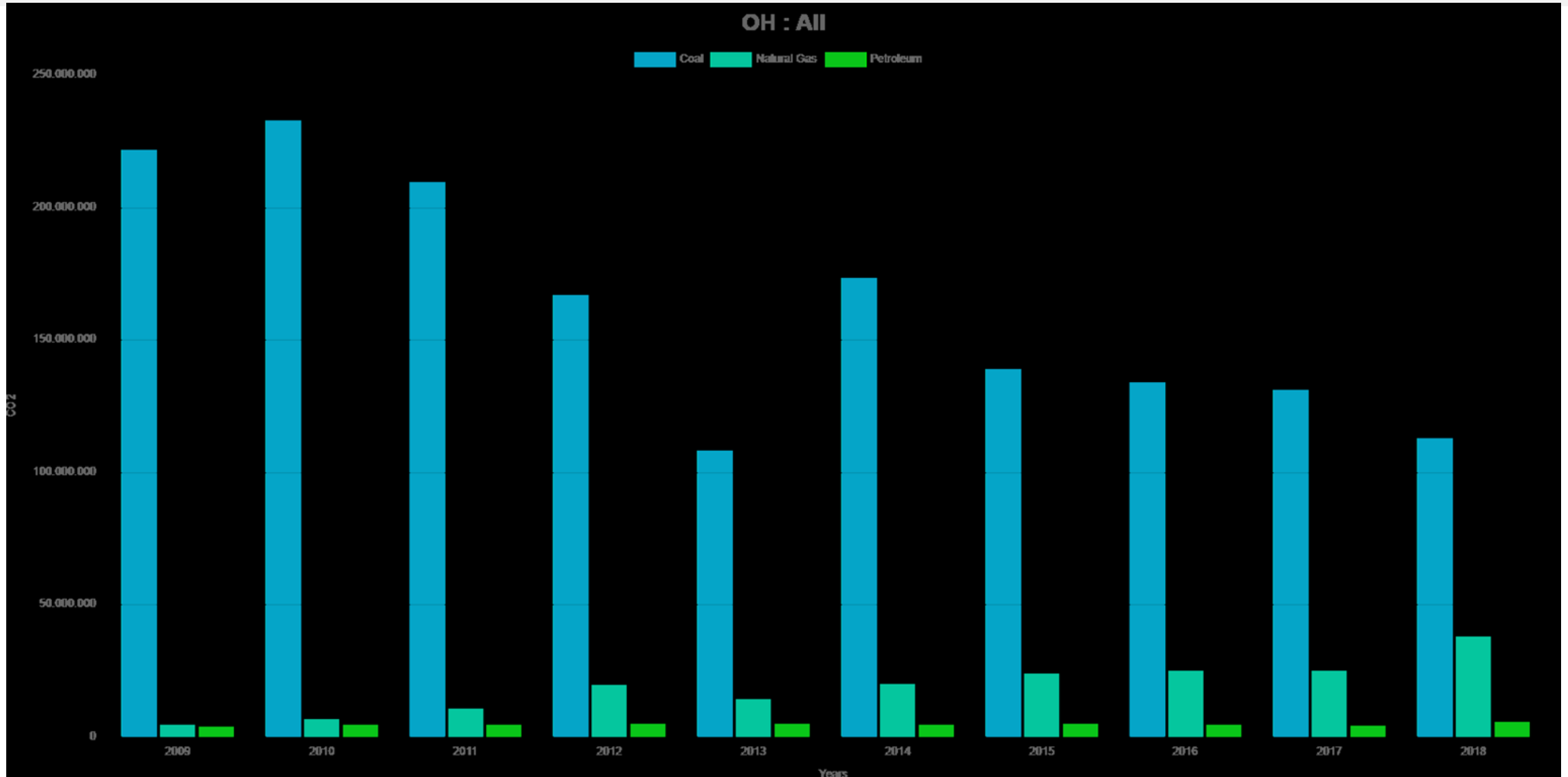
Electricity generation mix for Columbus residents is currently ~80% from fossil fuels



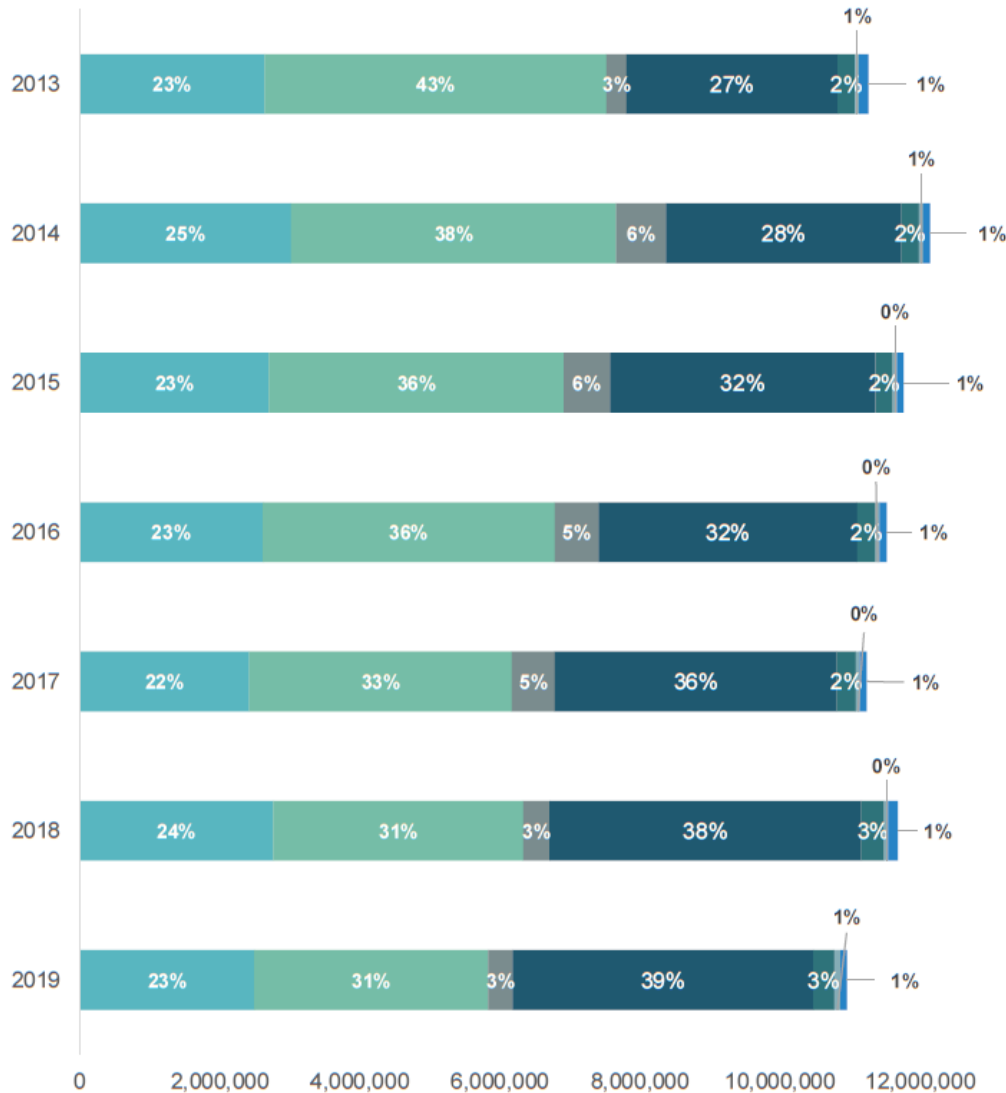
- The bulk of greenhouse gas (GHG) emissions from electric power in Ohio come from **coal**
- Share from **coal has decreased** as share from **natural gas has increased**
- However, **Ohio had 4th highest electricity sector emissions in 2017**

CCA Program will help clean up our grid

Emissions from electricity generation in Ohio have decreased as share of coal decreases



Going to 100% for 200k customers will reduce our emissions by 1.2 million metric tons (~11 percent)



City of Columbus

Community Scale CO₂e Emissions

Total Emissions by Sector Percentage and in Metric Tons
2013 - 2019

- Residential Energy
- Commercial Energy
- Industrial Energy
- Transportation
- Solid Waste
- Fugitive Emissions
- Water/Wastewater

Aggregation will also support public health - *Updated*

- 700MW of renewable energy displacing fossil fuel generation could result in **\$210 million of avoided healthcare costs in Ohio over 20 years.**
- Specifically, this means:
 - **22** fewer premature deaths,
 - **654** fewer cases of breathing illnesses,
 - **6,480** fewer school days missed, and
 - **1,080** fewer work days missed.

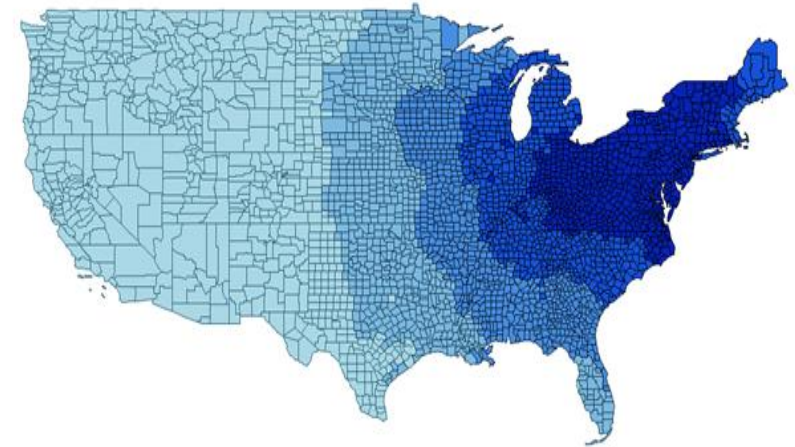


Figure 1 Distribution of reduction in particle pollution from 700MW renewable energy deployed in Ohio.

These benefits are for EVERYONE, whether or not you participate in the aggregation program

What questions do you have?

Preview of coming attractions...

- Meeting #4, will delve into how to use the CCA program to support community sustainability goals
- We will also connect our work to the Columbus Climate Action Plan that is in progress
- In advance of that meeting, we want to get your *initial reactions*: **what type(s) of strategies or focus areas would you most want to support through the CCA?**



Climate Solutions The Columbus Way:

Creating a Culture of Climate Action

Sustainable Neighborhoods: Adapting to Climate Changes and Creating Healthy Neighborhood Ecosystems

Buildings: Renewable Energy and Energy Efficiency

Transportation: Embracing Zero Emission Options and Mode Shift

Waste: Reducing Waste Generated and Increasing Waste Diversion

Our next meetings together

Meeting #1: Introductions and Aggregation 101 - September 10

Meeting #2: Aggregation in Action - Overview of Governance and Operation - September 24

Meeting #3: Columbus' Renewable Energy Future - Today

Meeting #4: Community Priorities and Sustainability Goals - October 22

Meeting #5: Wrap Up/Next Steps

THANK YOU!