



# National Renewable Energy Lab (NREL) Partnership Phase I Update

September 16, 2021

Allison Smith, Ph.D.

Assistant Director, Advanced Planning and Sustainability

# 100% Renewable Goals

- ***Clean electricity for LMG operations by 2030***
- Clean energy for LMG operations by 2035
- Clean energy community-wide by 2040

# National Renewable Energy Lab (NREL)

## Department of Energy

- **Phase I** began April 22, 2021
- **Project Focus:**
  - Compile data on Louisville Metro baseline energy usage, costs, building stock inventory, retail tariff structures, and other relevant information to *identify avenues for achievement of 100% renewable electricity* goal for Louisville Metro Government (LMG) operations by 2030
  - Detailed planning of Phase II activities and Statement of Work

# Ongoing Activities

- **Many (many) hours of interviews with LMG staff**
- **Desk-based research focused on:**
  - LMG's legal and institutional constraints in the electricity space
  - LG&E portfolio of assets, regulatory paradigm, etc.
  - Legal relationship between LMG and LG&E

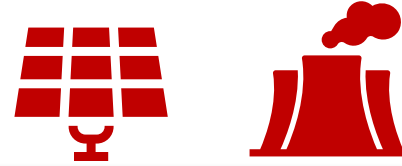
# Avenues for 2030 Goal Achievement: Electricity Supply and Demand

*Can we reduce demand for electricity?*



**Electricity Demand**

*Can we clean up the electricity supply?*

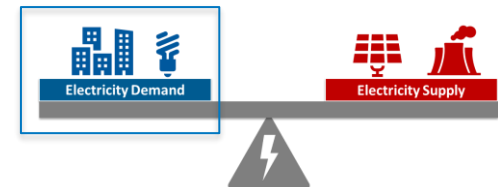


**Electricity Supply**



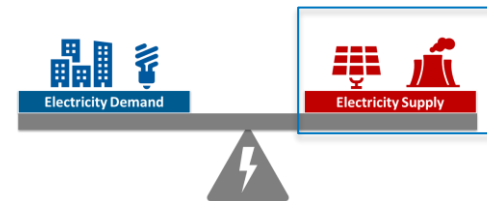
# Demand Side Avenues

- **Use Less Energy via Energy Efficiency Measures**
  - Changes in operational patterns for buildings with controls
  - Investment in control systems for buildings without controls
  - Energy efficient retrofits for municipal public lighting
  - Energy efficient retrofits for municipal buildings
    - Weatherization, lighting, space/water heating appliance replacement, etc.
- **Use On-Site Clean Energy via Distributed Energy Resources**
  - Rooftop (or otherwise on-site) solar located “behind the meter”
  - Geothermal water source heat pumps for heating and cooling



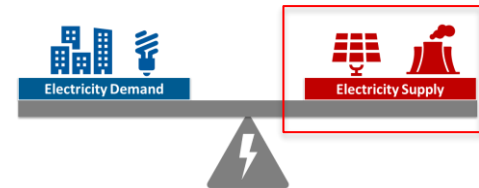
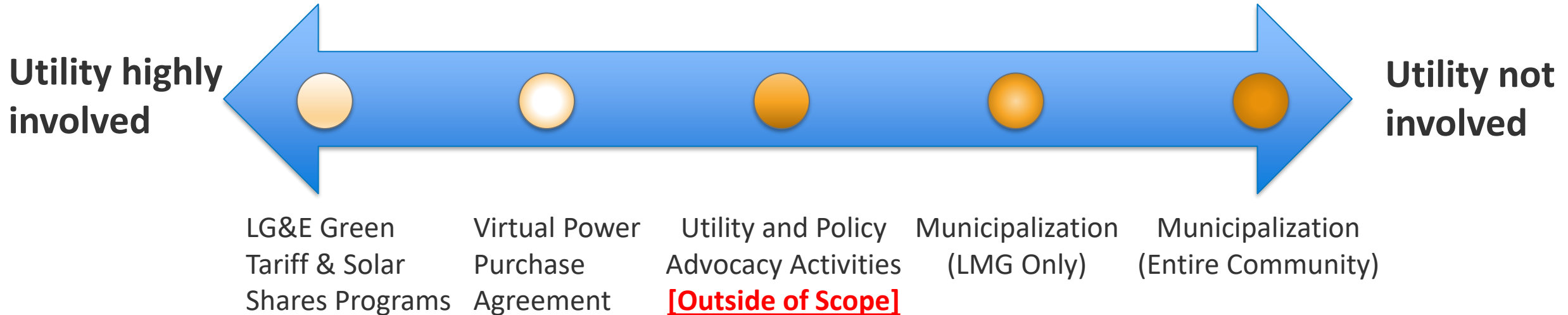
# Background: Supply-side Measures

- Metro Government currently purchases electricity and receives public lighting service from Louisville Gas & Electric (LG&E)
- LG&E is a regulated monopoly utility with a 97% fossil energy mix



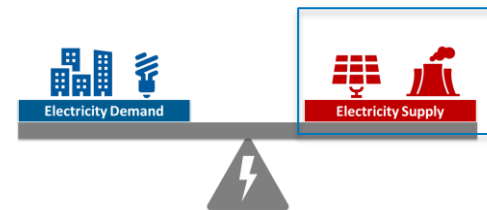
# Supply Side Avenues

*What options can LMG consider to decarbonize the electricity supply?*



# Phase II

- **Phase II Project Focus** is the technical, economic, legal, and practical feasibility of various avenues for achievement of 100% clean renewable electricity for LMG operations by 2030
  - Examine the costs, benefits and practical/implementation-related considerations of various energy pathways
  - Focus on defining the exact analytical tools, data sets, and modelling approaches to better understand energy options
  - Can be used by LMG leadership to inform and prioritize actions



# Beyond 2030

- **Clean energy for LMG operations by 2035**
  - Executive Order on prioritizing EV purchases
  - Working on EV infrastructure plan
- **Clean energy community-wide by 2040**
  - Energy efficiency improvements for low-income homeowners
  - Solarize campaign to support residential rooftop solar
  - Cool Roof Rebate (lowers energy use)
  - EPAD (financing mechanism for energy efficiency and renewables in commercial/industrial facilities)

- Actions for each goal
- Energy dashboard for LMG
- Solar over Louisville campaign
- Green Fleet Challenge

