MEMORANDUM

Date: May 2, 2022

To: City Council

From: Climate and Environment Commission

Subject: Commission Report to City Council on the Integrated Electric Resource and Master Plan (IERMP), Volume 1 and 100% Renewable Energy for Columbia Water & Light

On February 22, 2022, the Climate and Environment Commission (CEC) finalized and approved its report on the IERMP, Volume 1. The attached report provides the Council with the CEC's evaluation of the IERMP and suggested related actions that may support the IERMP and City of Columbia's Climate Action and Adaptation Plan. The CEC hopes that providing this in advance of the Council's discussion of the IERMP with City of Columbia Electric Utility staff on May 16, 2022, will provide helpful additional information for consideration.

Sincerely,

Leanne Tippett Mosby, Chair
Climate and Environment Commission

Report from Climate and Environment Commission to Columbia City Council –

The IERMP and 100% Renewable Energy for Columbia Water & Light

The Columbia Climate and Environment Commission (CEC) recommends to the City Council to formally adopt a goal via ordinance for Columbia Water and Light (CWL) that will achieve 100% clean, renewable energy for electricity by 2030, rather than by 2035 as recommended in the Climate Action and Adaptation Plan (CAAP). (CAAP Action E-1.3.2) This change is driven by new scientific information available from the IPCC on the urgent need to reduce greenhouse gas emissions and the analysis available in the 2021 Integrated Resource and Master Plan (IERMP), Volume 1.

To facilitate achieving this goal, the CEC recommends the City Council initiate an urgent legal review of the three coal-fired power plant contracts to seek opportunities to terminate these contracts or reduce the minimum purchase amounts. Additionally, the CEC recommends the City Council direct the city staff to collaborate with other customers of the three power plants to seek early closure.

These are the reasons we support this recommendation:

1. UN Secretary-General António Guterres summarized the latest Intergovernmental Panel on Climate Change (IPCC) report as follows: “Today’s IPCC Working Group 1 report is a code red for humanity. The alarm bells are deafening, and the evidence is irrefutable: greenhouse-gas emissions from fossil-fuel burning and deforestation are choking our planet and putting billions of people at immediate risk. Global heating is affecting every region on Earth, with many of the changes becoming irreversible.

The internationally agreed threshold of 1.5°C is perilously close. We are at imminent risk of hitting 1.5°C in the near term. The only way to prevent exceeding this threshold is by urgently stepping up our efforts and pursuing the most ambitious path.

We must act decisively now to keep 1.5°C alive. We are already at 1.2°C and rising. Warming has accelerated in recent decades. Every fraction of a degree counts. Greenhouse-gas concentrations are at record levels. Extreme weather and climate disasters are increasing in frequency and intensity.”

2. The UN Emissions Gap Report 2019 says that the reduction in greenhouse gas (GHG) required by 2030 is 55% of the 2018 production to keep global warming below 1.5 degrees C (2.7F) required to prevent the most severe problems.

“There is no sign of GHG emissions peaking in the next few years; every year of postponed peaking means that deeper and faster cuts will be required. By 2030, emissions would need to be 25% and 55% lower than in 2018 to put the world on the least-cost pathway to limiting global warming to below 2˚C and 1.5°C respectively.”

Columbia MO			
Inventory Year	2018 Actual*	2019 Actual*	Goal 2030
% Reduction over 2018 as baseline	0%	3%	55%
Total annual emissions Metric Tons CO2e	2,318,070	2,248,340	1,043,132
Reduction in Metric Tons CO2e over 2018		69,730	1,274,938

Note: Emissions data available at Climate Action and Adaptation - Web Page - City of Columbia Missouri (como.gov)

2019 emissions from CWL for electricity were 42% (947,198 MTCO2e) of 2019 community GHG emissions, providing the largest segment over which the city has control to meet our goals. It is impossible for Columbia to meet UN goals without aggressive conversion of CWL energy production to clean, renewable energy.

3. The IERMP documents the costs of 100% renewable energy by 2030 scenario will potentially increase energy costs by $50 million over 20 years or in today's dollars, $2.38 million a year. Renewable energy prices have experienced dramatic reductions in recent years making these the least cost fuel sources in the United States.

4. Co-benefits for Columbia of renewable energy include the following:

- Local jobs created for solar installations
- Energy fuel dollars can be invested in Boone County or Missouri solar or wind farms versus out of state fossil fuel sources
- Competitive advantage to attract businesses committed to 100% renewable energy sources
- Less air pollution
- Less demand for water
- Endless supply of wind and sun

Other recommendations for the City Council regarding the IERMP:

1. The CEC supports the future investment in Advanced Metering Infrastructure intelligent electric meters that would enable time of day pricing, drive conservation and unlock potential savings for both water and electricity for customers. The meter conversion should happen in a time frame to facilitate achieving the primary goal of 100% clean, renewable energy for electricity by 2030. (CAAP Action E-2.2.1)
2. The city needs to plan both for significant investments in improving energy efficiency in the community and for high seasonal temperatures. High seasonal temperatures are becoming increasingly likely for longer periods in the summer and possibly for short, very cold periods in the winter. According to the IERMP high seasonal load scenario the impact of these higher and lower temperatures on heating and cooling can be minimized or eliminated by doubling the energy efficiency improvements in the 2021-2030 period. The plan for the next 10 years must include assumptions for high seasonal loads based on current climate trends and projections.

Data for Missouri		
Time period	Historical Number of days annually > 95°F	Number of days annually > 95°F with median probability[1]
1981-2010 (Baseline)	9	
2020-2039		26
2040-2059		38
2080-2099		75

Notes:

Data from Climate Impact Lab at impactlab.org using High Emissions Scenarios (Representative Concentration Pathway 8.5), Climate Impact Lab did not provide data for 2010-2019 or 2060-2079.

[1]Median Probability described by Wikipedia is as follows: In statistics and probability theory, the median is the value separating the higher half from the lower half of a data sample, a population, or a probability distribution. For a data set, it may be thought of as "the middle" value. The basic feature of the median in describing data compared to the mean (often simply described as the "average") is that it is not skewed by a small proportion of extremely large or small values, and therefore provides a better representation of a "typical" value. Specifically for this data the 50% or median outcome can be interpreted as “more likely than not.”

Other recommendations for the City Council to consider to facilitate the achievement of 100% clean, renewable energy for electricity by 2030 and steps to bring the IERMP into closer alignment with the CAAP:

1. We recommend the City Council and CWL support more residential energy efficiency programs for low to moderate income households. Residential energy efficiency programs from CWL need to measure the participation of low income households and determine if the investment is equitable. If low income households are not participating at the same rates as other households, the energy efficiency programs need to be modified to enable greater participation by low to moderate income households. Programs that offer greater participation opportunities and energy efficiency benefits for low to moderate income households include programs to replace old refrigerators with newer more efficient models, old electric water heaters with heat pump water heaters and old electric heating such as baseboard heating systems, forced air furnaces, and electric wall heaters with ductless heat pumps. More on this topic can be found in the report, "Building Better Energy Efficiency Programs for Low-Income Households," see https://www.aceee.org/sites/default/files/publications/researchreports/a1601.pdf. https://www.aceee.org

   Increasing energy efficiency for low to moderate income households will facilitate achieving the CAAP goals and reduce the energy burden on these households, which can deliver a wide variety of benefits to the community and the household. The recommended data to be collected regarding energy efficiency programs includes income, education, home ownership, age, language spoken, and race/ethnicity. The report also recommends targeting outreach to low income high volume users and also users that are in arrears on their bills to determine the opportunity to help them with energy efficiency programs. This will aid both the customer and the utility in reduction of costs and potentially free up funds from bill assistance to fund more energy efficiency programs. (Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Income and Underserved Communities, see https://www.aceee.org/research-report/u1602). All programs should be reviewed to reflect current technology and building materials (CAAP Action H-1.1.2)

2. Commercial energy efficiency programs should be developed that provide incentives to reduce energy use in addition to peak demand reduction. All programs should be reviewed to reflect current technology and building materials. (CAAP Action H-1.2.3).