



RIVERSIDE PUBLIC UTILITIES

Electric Committee

ELECTRIC COMMITTEE

DATE: JANUARY 12, 2022

SUBJECT: PROPOSED STUDY TO ACHIEVE CARBON NEUTRAL ENERGY BY 2040

ISSUE:

Receive a presentation and provide direction on a proposal to study and develop approaches for Riverside Public Utilities to achieve carbon neutral energy by 2040.

RECOMMENDATIONS:

That the Electric Committee recommend that the Board of Public Utilities:

1. Receive and discuss the presentation on the staff proposal to study and develop approaches for Riverside Public Utilities to achieve carbon neutral energy by 2040;
2. Direct staff to work with the United State Department of Energy, National Renewable Energy Laboratory to develop a proposed scope of work, including optional tasks, for the preparation of a study to evaluate various scenarios and approaches for Riverside Public Utilities to achieve carbon neutral energy by 2040; and,
3. Direct staff to bring a proposal for the preparation of the RPU Carbon Neutrality by 2040 Study to the Board of Public Utilities by the end of May 2022.

LEGISLATIVE HISTORY:

The State of California has established both a state-wide carbon neutrality goal and a 100% clean energy (carbon-free) target for utilities. On September 10, 2018, then Governor Brown issued Executive Order B-55-18 (EO) setting a goal for the State to achieve carbon neutrality by 2045. Taking the first step to implement this goal, Senate Bill 100 (SB 100) was also signed on the same date which, among several items, included two key directives:

1. Directed State agencies to develop plans to achieve 100% zero-carbon clean energy by 2045; and,
2. Increased the State's Renewable Portfolio Standard (RPS) targets through 2030.

Implementation of SB 100 is considered the cornerstone mechanism necessary for the State to achieve carbon neutrality. Carbon neutrality is dependent on a shift away from the use of fossil fuels such as gasoline and natural gas to zero carbon energy including electricity generated by renewable resources (e.g., solar, wind and geothermal) as well as large hydroelectric dams and nuclear generation. Electricity can take the place of fossil fuels for uses such as transportation

and for applications in buildings including heating, water heating, and cooking. Other industrial and commercial activities that rely on natural gas are also expected to transition at some point before 2045.

State agencies including, but not limited to, the California Energy Commission (CEC) and the California Air Resources Board (CARB), are putting plans in place to achieve carbon neutrality. Both are developing new regulations to implement the requisite actions necessary to transition to clean energy. Updates to building codes, appliance energy standards, and fleet and vehicle rules are currently underway to support electrification of a variety of uses in buildings and transportation.

Riverside Public Utilities (RPU) will be affected by these changes. Directly, RPU is required to meet the RPS requirements established in SB 100. For example, the RPS target for December 31, 2030 was increased to 60% from the prior target of 50%. This increment means that 60% of a utility's retail sales must come from renewable resources which will change the types of generation resources the utility purchases for customers. RPU will also be affected by the electrification of buildings and the transportation sector. As customers replace fossil fuel energy, electricity use will increase. And, as building codes are changing to require more rooftop solar and energy storage, RPU's distribution system will need to adapt to support increased two-way flows of electricity for which it was not originally designed to handle.

BACKGROUND:

In 2020, the City of Riverside also adopted carbon neutrality and zero-carbon electricity goals. However, the City's goals have a target year of 2040, 5-years earlier than the State. Both goals are found in the City Council's Envision Riverside 2025 Strategic Plan (Strategic Plan) adopted on October 20, 2020. The Strategic Plan outlines a vision for the City's future and establishes priorities and goals important to the Council.

The City's carbon neutrality goals are found under the Strategic Plan's Priority 4: Environmental Stewardship. The two goals state:

- Goal 4.1. Rapidly decrease Riverside's carbon footprint by acting urgently to reach a zero-carbon electric grid with the goal of reaching 100% zero-carbon electricity production by 2040 while continuing to ensure safe, reliable and affordable energy for all residents.
- Goal 4.6. Implement the requisite measures to achieve citywide carbon neutrality no later than 2040.

RPU initiated the discussion around carbon-free electricity with the City Council and Board in late 2020 and early 2021 (respectively). A workshop titled "Riverside's Clean Energy Future" was provided and included presentations from the Local Government Commission, the University of California-Riverside, and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL). The workshop identified the components of a clean energy future for RPU and highlighted strategies and actions that the City and RPU could take to achieve carbon neutrality, including expanding renewable energy procurement, electrification of buildings and transportation, and ensuring all customers can participate in the clean energy future.

DISCUSSION:

As noted above, the City's and State's carbon neutrality goals align except for the target date being 2040 in Riverside instead of 2045 as adopted by the State. Also similar is the challenge of how RPU and all electric utilities will effectively implement the necessary actions to achieve these goals while also ensuring safe, reliable, and affordable electricity for customers.

PROPOSAL

To move into the next stage of decarbonizing the electric grid and achieving carbon neutrality goals, RPU will need to develop a comprehensive strategy that considers:

1. Additional carbon-free electricity generation resources
2. Changes in electricity demand due to transportation and building electrification as well as energy efficiency
3. Impacts from expanding installation of customer-sited rooftop solar and energy storage
4. Impacts to the distribution system from these changes in demand and distributed electricity generation
5. Changes to rates structures and new rate tariffs as well as electric rules to accommodate new technology
6. How to integrate all of the changes in a cost effective and equitable manner that ensures that all customers benefit

While RPU has developed excellent tools such as the integrated resource plan (IRP), a geographic information system (GIS) that allows for distribution system modeling, and engineering design processes for the evaluation of development project and distribution system planning, these systems operate independent of one another. Performing modeling to test various scenarios and how decisions on one aspect of the utility's operations or policy interact with others is complex. It will require modeling systems that communicate with one another and can be run under several test scenarios.

Testing a variety of scenarios is necessary because there is no one right way to achieve carbon-neutrality. A comprehensive, system-wide analysis will provide detailed information for decision making on more than simply procuring new carbon-free generation resources. Staff proposes a process to study a variety of alternatives that will assess different scenarios of customer demand, different approaches to achieving carbon-neutral generation, and how changes in these areas affect the distribution grid.

To study the feasibility and cost effectiveness of different scenarios to achieve carbon neutrality by 2040, staff proposes to engage with NREL. NREL charted a path with the City of Los Angeles, Department of Water and Power over the last several years by completing the Los Angeles 100% Renewable Energy Study (LA 100) – a study that was “a first-of-its-kind objective, highly detailed, rigorous, and science-based study to analyze potential pathways the community can take to achieve a 100% clean energy future.” As noted in the LA 100 plan, the significant benefit of engaging with NREL is that NREL is one of the U.S. Department of Energy's national research labs, “... [has] decades of experience in energy systems analysis, and offers unbiased, best-in-class expertise and modeling capabilities.”

At the RPU's Board of Public Utilities Electric Committee (Committee) meeting, staff will present for discussion an outline of the proposed study and possible topics for consideration by NREL (see attached presentation). Staff will seek input from the Board members and the public on the

topics for analysis identified in the presentation and any other topics that should be considered.

NEXT STEPS

Staff has initiated discussions with NREL to verify interest and readiness to pursue a Carbon Neutrality by 2040 study (RPU Study). If supported by the Committee, staff will continue working with NREL to define a proposed project scope and develop a menu of options to complete the RPU Study.

Staff recognizes that it may be cost prohibitive for RPU to prepare as comprehensive as the LA 100 study. Therefore, staff will work with NREL to develop options for the analyses and the various components of the RPU Study, including identifying critical path analysis versus desirable but optional analyses. The Board and City Council will then be able to provide staff with direction on what portions of the proposal should be included in the final RPU Study effort.

Additionally, if directed to proceed with the development of the Study, staff will engage with other City departments to identify where and when collaboration would be optimal. This process will include coordinating with projects such as the City's update to the General Plan and the development of a Citywide Climate Action Plan. Staff will also coordinate specifically with Public Works to identify if scenario options should be developed using biodigester gas from the Riverside Water Quality Control Plant.

RPU will not be required to competitively bid this project if the RPU Study is completed by NREL. Purchasing Policy 23256 Section 702.F allows a waiver of the competitive bid process “[w]here payment for Services is to be made to a Federal, State, and/or other public entity.”

STRATEGIC PLAN ALIGNMENT:

The RPU Carbon Neutrality by 2040 Study will most closely align and help the City achieve two goals under Priority 4, Environmental Stewardship. Specifically, the RPU Study will help the City achieve the following:

- Goal 4.1: Rapidly decrease Riverside's carbon footprint by acting urgently to reach a zero-carbon electric grid with the goal of reaching 100% zero-carbon electricity production by 2040 while continuing to ensure safe, reliable and affordable energy for all residents.
- Goal 4.6: Implement the requisite measures to achieve citywide carbon neutrality no later than 2040.

This item aligns with each of the five Cross-Cutting Threads based on the following definitions:

1. Community Trust – The Study will provide a transparent stakeholder process as it develops and evaluates various scenarios to help the City achieve carbon neutrality by 2040.
2. Equity – The Study will specifically focus on evaluating how different paths to achieve carbon neutrality will affect all customers, specifically considering affordability, access, and equity.
3. Fiscal Responsibility – By completing the Study, decision-makers will have a comprehensive, robust, science-based report on which to make cost effective decisions for

how RPU should achieve carbon neutrality by 2040.

4. Innovation – Preparing the Study with a national and international research leader such as NREL will ensure that best available technology and program design is evaluated and that results provide robust and credible data for decision-making.
5. Sustainability & Resiliency – The Study will help identify a variety of paths for RPU to achieve carbon-neutral electricity for the City that ensure reliability, safety, and affordability as well as helping the City achieve carbon neutrality and other environmental goals.

FISCAL IMPACT:

There is no fiscal impact associated with this staff report. This staff report presents a conceptual proposal seeking direction for staff to pursue future development of an RPU Carbon Neutrality by 2040 Study.

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Approved by: Kris Martinez, Assistant City Manager
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Certifies availability of funds: Edward Enriquez, Chief Financial Officer/City Treasurer

Attachment: Presentation