ERIN MENDENHALL
Mayor

DEBBIE LYONS
Director

DEPARTMENT OF SUSTAINABILITY

Comments

To:	Public Service Commission of Utah
From:	Salt Lake City Corporation Christopher Thomas, Sr. Energy and Climate Program Manager
Date:	March 4, 2022
Re:	Docket No. 21-035-09: Rocky Mountain Power's 2021 Integrated Resource Plan

Background

Salt Lake City Corporation (SLC Corp) is the local governing body for Utah's Capitol city. SLC Corp has established renewable energy and carbon emission reduction targets that are substantially affected by PacifiCorp's 2021 Integrated Resource Plan (IRP) and preferred portfolio. SLC Corp appreciates the opportunity to provide these comments on PacifiCorp's 2021 IRP.

Discussion

PacifiCorp's Preferred Portfolio Relies on Unlicensed and Non-Commercial Technologies

The preferred portfolio should ideally reflect a least-cost, least-risk approach to resource planning. However, for the first time in recent memory, PacifiCorp's 2021 preferred portfolio relies on resource types that are either unlicensed, non-commercial, or both.

For the first time, the preferred portfolio includes a 500-Megawatt (MW) advanced nuclear (Natrium™) sodium fast reactor demonstration project in 2028[1]. The Federal Nuclear Regulatory Commission (NRC) website indicates that the agency is engaged in "pre-application" activities regarding the Natrium™ sodium fast reactor design[2]—meaning that this reactor design is not licensed, and the license has not even been applied for. Additionally, there appear

[1] See PacifiCorp 2021 IRP vol. 1 numbered page 8
[2] See NRC's Natrium web page, accessed 3/2/2022

DEPARTMENT OF SUSTAINABILITY
OFFICE OF THE DIRECTOR
451 SOUTH STATE ROOM 404
SALT LAKE CITY, UTAH 84111

WWW.SLCGOV.COM
WWW.SLCGREEN.COM
TEL 801-535-6470

to be only two commercial sodium fast reactors in operation today, both in Russia[3]. These facts do little to suggest that a first-of-its-kind Natrium™ demonstration project could be licensed, constructed, and online by 2028.

The preferred portfolio also includes—for the first time—a resource called "non-emitting peaker"[4]. This technology is also not commercially available today. The Long Ridge power plant in Ohio is the first major hydrogen-burning power plant in the United States and was slated to achieve commercial operation in 2021[5]. It will reportedly initially use a fuel mixture that is only 5% hydrogen and 95% methane, with a plan to "transition to 100% green hydrogen over the next decade."[6] Though non-emitting peaking resources are not commercially available today, major equipment suppliers have publicly announced their intention to offer hydrogen systems. Nevertheless, "Moody's Investors Service is skeptical the power sector will play a major role in the development of hydrogen on economic grounds, at least over the next decade."[7]

PacifiCorp Did not Consider Long-Duration Battery Storage Technology

One emerging resource type that PacifiCorp did not assess in its 2021 IRP is long-duration storage with characteristics like the Iron Air battery being developed by Form Energy, a company who counts Bill Gates-backed Breakthrough Energy Ventures among its investors[8]. Form Energy's iron-air battery technology is targeting 100 hours of stored energy delivery at a cost of less than $20 per kilowatt-hour (compare to lithium-ion market average battery costs of around $137 per kilowatt-hour today[9]). Form Energy recently announced that it will collaborate with investor-owned utility Georgia Power on a 15 MW/1,500 Megawatt-hour iron-air battery.

[3] See Wikipedia web page on Sodium-cooled fast reactor, accessed 3/2/2022
[4] See PacifiCorp 2021 IRP vol. 1 numbered page 8
[5] See S&P Global "First major US hydrogen-burning power plant nears completion in Ohio", accessed 3/3/2022
[6] Ibid.
[7] Ibid.
[8] See Utility Dive "Form Energy announces partnership with Georgia Power to test 100-hour iron-air battery", accessed 3/4/2022
[9] See BloombergNEF "Battery Pack Prices Cited Below $100/kWh for the First Time in 2020, While Market Average Sitts at $137/kWh", accessed 3/4/2022

Form Energy's first iron-air battery project, with Great River Energy in Minnesota, should come online by the end of 2023[10].

Conclusions and Recommendations

Because the IRP process covers a 20-year planning horizon, there is tension between the desire to forecast technologies that will become commercial over that time period, on the one hand, and the desire to increase certainty that a preferred portfolio can realistically be achieved, on the other.

SLC Corp believes strongly that emerging clean energy technologies should be analyzed by PacifiCorp in the IRP. However, preferred portfolios that rely on unlicensed or non-commercial technologies—especially in the first half of the 20-year plan—lose credibility when offered as "least-cost and least-risk" approaches to energy planning.

SLC Corp offers the following recommendations to the Commission that we hope will effectively balance these considerations:

- Encourage continued assessment and modeling of emerging clean energy technologies as part of the IRP process
- Encourage the modeling of long-duration storage resources like Form Energy's iron-air battery to determine if such a technology could play a cost-effective role in ensuring future system reliability
- Discourage, but do not disallow, reliance on unlicensed and/or non-commercial resources in the first 10 years of the 20-year preferred portfolio
- When the preferred portfolio relies on unlicensed or non-commercial technology, any emissions forecast based on that preferred portfolio should carry a disclaimer stating this fact

[10] See Great River Energy "Battery project includes Minnesota flair", accessed 3/4/2022

SLC Corp separately suggests that future PacifiCorp IRPs show a comparison of forecasted vs. actual carbon dioxide emissions over the past five years. Furthermore, unless a preferred portfolio entails a functional limit on the amount of CO2 emitted, any emissions forecasts based on that preferred portfolio should carry a disclaimer stating this fact.

DATED March 4, 2022

Respectfully submitted,

/s/ Christopher Thomas

Christopher Thomas

Sr. Energy and Climate Program Manager

CERTIFICATE OF SERVICE
Docket No. 21-035-09

I hereby certify that a true and correct copy of the foregoing was served by email this 4th day of March 2022, on the following:

ROCKY MOUNTAIN POWER

Jana Saba	jana.saba@pacificorp.com
Utah dockets	utahdockets@pacificorp.com
Data Request Response Center	datarequest@pacificorp.com

DIVISION OF PUBLIC UTILITIES

Patricia Schmid	pschmid@agutah.gov
Justin Jetter	jjetter@agutah.gov
William Powell	wpowell@utah.gov
DPU Data Request	dpudatarequest@utah.gov

OFFICE OF CONSUMER SERVICES

Steven Snarr	stevensnarr@agutah.gov
Robert Moore	rmoore@agutah.gov
Michele Beck	mbeck@utah.gov

WESTERN RESOURCE ADVOCATES

Sophie Hayes	sophie.hayes@westenresources.org
Callie Hood	callie.hood@westernresources.org

UTAH CLEAN ENERGY

Hunter Holman	hunter@utahcleanenergy.org
Thomas Kessinger	thomas@utahcleanenergy.org

KROGER CO.

Kurt Boehm	kboehm@BLKlawfirm.com
Jody Kyler Cohn	jkylercohn@BKLlawfirm.com
Justin Bieber	jbieber@energystrat.com

NUCOR STEEL-UTAH

Peter Mattheis	pjm@smxblaw.com
Eric Lacey	ejl@smxblaw.com
Jeremy Cook	jcook@cohnekinghorn.com

UTAH ASSOCIATION OF ENERGY USERS

Phillip Russel	prussel@jdrslaw.com
Kevin Higgins	khiggins@energystrat.com
Justin Bieber	jbieber@energystrat.com

WALMART

Vicki Baldwin	vbaldwin@parsonsbehle.com
Andrew Teague	Andrew.Teague@walmart.com
Stephen Chriss	Stephen.chriss@walmart.com

UNIVERSITY OF UTAH

Christopher Benson	chris.benson@utah.edu
Katie Carreau	katie.carreau@utah.edu
Phillip Russel	prussel@jdrslaw.com

SALT LAKE CITY CORPORATION

Sara Montoya	sara.montoya@slcgov.com
Christopher Thomas	christopher.thomas@slcgov.com

/s/ Christopher Thomas