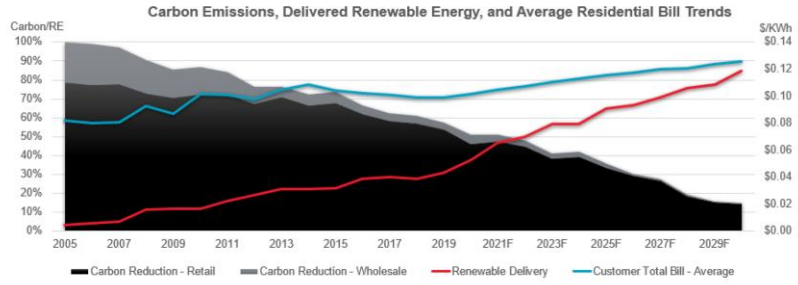
Boulder City Council Study Session—June 8,2021

Questions for Xcel on their Electric Resource Plan (ERP--21A-0141E) And Boulder Partnership

1) Rate Increases v Renewable Dividend: Utility bills can be a significant burden for low-income families. We expect wind, solar and storage costs to continue to drop in the coming decades, but Xcel is planning to raise rates at about the rate of inflation for the next decade. (See AKJ-D-1) Other utilities are keeping rates stable or providing extra services to their customers with the "renewable dividend." Why can't Xcel do that also—especially since Xcel had $588 million in after-tax profits in Colorado in 2020?

Figure AKJ-D-1



Note: Customer total bill shown at 2% per year. Actual bids and build year will determine impact and is expected more variable year over year than depicted.

2) Meeting Boulder's Goal of 100% Renewable Electricity by 2030: What plans does Xcel have to ensure that Boulder meets its goal of 100% renewable electricity by 2030?

3) Bringing More Decentralized, "Microgrid" Resources to Boulder: Boulder has a strong interest in developing more decentralized resources like microgrids that can "keep the lights on" when the big grid goes down. What can Xcel do to help make that happen?

4) Using a Lower Discount Rate: Xcel's financial analyses (e.g. in JFH-D-6) are done with a discount rate of approximately 7% which tends to favor fuel-dependent resources like coal and natural gas over fuel-independent resources like wind, solar, storage and demand management. Could you provide us with the financial analyses done at a lower discount rate (like 3%)? (Lower discount rates favor fuel-independent resources like wind, solar and storage because future fuels costs are no longer "discounted" so heavily and made to look like they will be a small fraction of what they will actually be.)

Figure JFH-D-6: SCC ERP and CEP Portfolio Projected Costs

	Portfolio	SCC 1	SCC 2	SCC 3	SCC 4	SCC 5	SCC 6	SCC 7	SCC 8
	Resource Need:	ERP	CEP	CEP	CEP	CEP	CEP	CEP Preferred	CEP
	Pawnee Action:	Retire EOY 2041	Retire EOY 2028	Retire EOY 2028	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2024
	Comanche 3 Action:	Retire EOY 2069	Retire EOY 2029	Retire EOY 2039 Red Ops	Convert Nat Gas EOY 2027	Retire EOY 2029	Retire EOY 2039	Retire EOY 2039 Red Ops	Retire EOY 2039 Red Ops
1	PVRR Utility Cost 2021-2055 ($M)	$ 38,814	$ 39,582	$ 39,429	$ 39,373	$ 39,450	$ 39,230	$ 39,306	$ 39,453
	PVRR Utility Cost Delta vs. SCC 1								
2	2021-2030 ($M)	$ -	$ 271	$ 192	$ 284	$ 265	$ 177	$ 206	$ 302
3	2021-2040 ($M)	$ -	$ 951	$ 621	$ 622	$ 786	$ 387	$ 479	$ 591
4	2021-2055 ($M)	$ -	$ 768	$ 616	$ 560	$ 637	$ 417	$ 492	$ 639
5	NPV CO2 2021-2055 ($M)	$ 8,625	$ 6,296	$ 6,719	$ 6,295	$ 6,234	$ 6,809	$ 6,646	$ 6,329
6	PVRR Utility Cost + NPV CO2 2021-2055 ($M)	$ 47,439	$ 45,877	$ 46,148	$ 45,669	$ 45,684	$ 46,040	$ 45,951	$ 45,782
	PVRR Utility Cost + NPV CO2 Delta vs. SCC 1								
7	2021-2030 ($M)	$ -	$ (124)	$ (77)	$ (271)	$ (226)	$ (153)	$ (158)	$ (370)
8	2021-2040 ($M)	$ -	$ (1,063)	$ (970)	$ (1,410)	$ (1,289)	$ (1,112)	$ (1,185)	$ (1,389)
9	2021-2055 ($M)	$ -	$ (1,561)	$ (1,290)	$ (1,770)	$ (1,755)	$ (1,399)	$ (1,487)	$ (1,657)

5) Coal Retirement by 2025: Xcel's SCC (Social Cost of Carbon) scenarios (e.g.in JFH-D-6) don't have any options with coal retirements by 2025, but the NRDC/Grid Labs study concluded (see page 9) that the lowest cost pathway to meet our climate goals is to retire all Colorado coal plants by 2025. Could you provide us with scenarios that retire the remaining coal plants by 2025?

6) Native American Names for Xcel's Coal Plants: Does Xcel have agreements with the Pawnee and Comanche tribes to use their names on your coal plants? If not, will you be changing those names out of respect for Native American tribes?

7) Full Level of Profits on Coal to 2039: It appears that Xcel is attempting to earn its full level of profit on burning coal at the Pueblo Unit 3 plant until 2039. Do you think Boulder citizens will find that anything but unconscionable given how clear it is already that the climate crisis threatens so much about Colorado that we love and cheaper, cleaner resources exist in abundance in our state?

8) Broader Range of Wind, Solar, Storage and Demand Response Resources: The scenarios presented by Xcel (see JFH-D-3) only present narrow ranges of wind, solar, storage and distributed resources. Can you provide us with a broader range of scenarios (e.g. higher wind, but lower solar and vice versa and include scenarios that include much higher levels of distributed resources, storage and demand management (with the financial analysis at a discount rate of 3% or less)?

Figure JFH-D-3 SCC ERP and CEP Portfolio
Generic Resource Additions and CO2 Reduction

	Portfolio	SCC 1	SCC 2	SCC 3	SCC 4	SCC 5	SCC 6	SCC 7	SCC 8
	Resource Need:	ERP	CEP	CEP	CEP	CEP	CEP	CEP Preferred	CEP
	Pawnee Action:	Retire EOY 2041	Retire EOY 2028	Retire EOY 2028	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2027	Convert Nat Gas EOY 2024
	Comanche 3 Action:	Retire EOY 2069	Retire EOY 2029	Retire EOY 2039 Red Ops	Convert Nat Gas EOY 2027	Retire EOY 2029	Retire EOY 2039	Retire EOY 2039 Red Ops	Retire EOY 2039 Red Ops
	2030 CO2 % Reduction	**-69%**	**-88%**	**-85%**	**-86%**	**-88%**	**-81%**	**-84%**	**-85%**
	Resource Additions 2021-2030 (Nameplate MW)								
1	Wind	1,650	2,350	2,300	2,300	2,300	1,850	2,300	2,350
2	Utility-Scale Solar	1,150	1,550	1,550	1,500	1,550	1,250	1,550	1,550
3	Distributed Solar	1,158	1,158	1,158	1,158	1,158	1,158	1,158	1,158
4	Storage	400	450	400	450	400	400	400	400
5	Firm Dispatchable	1,276	2,352	1,960	1,568	1,764	1,505	1,276	1,233

9) Shaving the Peak to Reduce the Need for Gas Turbines: It appears that Xcel is planning around the peak load which by definition is only experienced for one hour a year with the top several hundred MW of load only being needed for a few hours of the year, leaving gas turbines sitting idle for well over 90% of the time. Can you provide us with analyses that show what happens when you use demand management and short-term storage to shave the peak rather than having enough gas turbines sitting idly by for most of the year. (Note that this calls for a few hours of storage to use during peak events-- a very different use of storage than trying to have enough storage to get Xcel's system through a multi-day "dark-calm" period.)

Loads and Resources Table Filed May 17, 2021 (21A-0141E)

Attachment A_L&R Table Comparison
Proceeding No. 21A-0141E
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UPDATED LOADS AND RESOURCES TABLE

	PSCo Summer L&R Table (MW)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
1	Owned Coal	1,980	1,980	1,655	1,655	1,655	1,278	1,278	1,278	1,278	1,278	
2	Purchased Coal	150	150	-	-	-	-	-	-	-	-	
3	**Total Coal-Fired Generation**	**2,130**	**2,130**	**1,655**	**1,655**	**1,655**	**1,278**	**1,278**	**1,278**	**1,278**	**1,278**	
4	Owned Gas Steam	310	310	310	310	310	310	310	-	-	-	
5	Owned Gas Combined Cycle	1,855	1,941	1,968	1,968	1,968	1,968	1,968	1,968	1,968	1,968	
6	Purchased Gas Combined Cycle	370	302	170	51	51	-	-	-	-	-	
7	Owned Gas Combustion Turbine	805	1,067	1,067	1,067	1,067	1,067	896	896	896	896	
8	Purchased Gas Combustion Turbine	1,013	758	758	758	758	733	458	238	238	238	
9	**Total Gas-Fired Generation**	**4,352**	**4,378**	**4,273**	**4,155**	**4,155**	**4,078**	**3,632**	**3,102**	**3,102**	**3,102**	
10	Owned Storage	162	243	276	276	276	276	276	276	276	276	
11	Purchased Storage	-	-	199	199	199	199	199	199	199	199	
12	Purchased Biomass	3	3	3	-	-	-	-	-	-	-	
13	Owned Hydro	14	14	14	14	14	14	14	13	13	13	
14	Purchased Hydro	18	18	18	18	17	17	9	-	-	-	
15	Owned Solar	0.9	0.9	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
16	Purchased Solar	202	363	673	669	666	663	659	653	650	647	
17	Purchased BTM Solar	172	195	119	119	125	130	136	144	153	164	
18	Community Solar	71	111	102	103	121	138	155	171	186	201	(1)
19	Owned Wind	131	131	147	147	147	147	147	147	147	147	
20	Purchased Wind	360	360	402	402	402	394	384	316	316	313	
21	Firm Transmission Import	47										
22	**Total Renewable/Other Generation**	**1,180**	**1,439**	**1,953**	**1,948**	**1,967**	**1,979**	**1,980**	**1,920**	**1,942**	**1,961**	
23	**TOTAL ACCREDITED CAPACITY**	**7,663**	**7,947**	**7,881**	**7,758**	**7,777**	**7,335**	**6,891**	**6,300**	**6,322**	**6,342**	A
24	Native Load Forecast - Spring2021	6,958	6,984	6,994	7,034	7,106	6,921	7,016	7,093	7,199	7,284	
25	Demand Response	(527)	(527)	(561)	(561)	(561)	(586)	(586)	(586)	(586)	(605)	
26	**FIRM OBLIGATION LOAD**	**6,431**	**6,457**	**6,433**	**6,473**	**6,545**	**6,335**	**6,430**	**6,507**	**6,613**	**6,679**	B
27	Target Planning Reserve Margin	1,158	1,162	1,242	1,243	1,257	1,210	1,157	1,171	1,190	1,202	
28	IREA & HCEA Backup Reserves	45	45	48	48	48	11	11	11	11	11	
29	**TOTAL PLANNING RESERVE MARGIN TARGET**	**1,203**	**1,207**	**1,290**	**1,291**	**1,305**	**1,221**	**1,168**	**1,182**	**1,201**	**1,213**	C
30	Actual Reserve Margin	1,231	1,490	1,448	1,285	1,232	1,000	461	(207)	(291)	(337)	A - B
31	**CAPACITY POSITION: LONG/(SHORT)**	**29**	**283**	**159**	**(6)**	**(72)**	**(221)**	**(707)**	**(1,389)**	**(1,492)**	**(1,550)**	A - B - C

	Announced Early Coal Retirements	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
32	Craig 2									(40)	(40)
33	Hayden 1									(135)	(135)
34	Hayden 2								(98)	(98)	(98)
35	**PREFERRED PLAN CAPACITY POSITION: LONG/(SHORT)**	**29**	**283**	**159**	**(6)**	**(72)**	**(221)**	**(707)**	**(1,487)**	**(1,765)**	**(1,823)**

(1) Includes 2.9 MW of accredited capacity for Company Owned Community Solar.

10) "Partners" Don't Behave Like This: It has only been a few months since Xcel entered into a partnership with Boulder, but Xcel has already been objecting to Boulder citizens intervening at the PUC (Steve Pomerance in 20A-0544FEG/Boulder Franchise and Leslie Glustrom in 21A-0141E/Xcel Electric Resource Plan) Is this what Boulder citizens can expect from Xcel as a "partner?"