



2020 Renewable Energy Plan

Public Service Company of Colorado | June 2019

Volume 2

Table 4-1 - Renewable Energy Standard (RES) Forecast
Public Service Company of Colorado
2020 Renewable Energy Standard Compliance Plan

Row	Calendar Year	Retail Sales (MWhs)	RES ¹ (Recycled Energy And RECs)	RES DG Requirement (RECs Only)	Retail DG Minimum (RECs Only)	Wholesale DG Minimum (RECs Only)	Non-DG Requirement (Recycled Energy And RECs)
1	2019	28,975,533	5,795,107	579,511	289,755	289,755	5,215,596
2	2020	29,184,789	8,755,437	875,544	437,772	437,772	7,879,893
3	2021	29,118,542	8,735,563	873,556	436,778	436,778	7,862,006
4	2022	29,109,911	8,732,973	873,297	436,649	436,649	7,859,676
5	2023	29,066,979	8,720,094	872,009	436,005	436,005	7,848,084
6	2024	29,276,999	8,783,100	878,310	439,155	439,155	7,904,790
7	2025	29,448,272	8,834,482	883,448	441,724	441,724	7,951,033
8	2026	29,708,872	8,912,662	891,266	445,633	445,633	8,021,396
9	2027	29,977,482	8,993,245	899,324	449,662	449,662	8,093,920
10	2028	30,418,684	9,125,605	912,561	456,280	456,280	8,213,045
11	2029	30,693,868	9,208,160	920,816	460,408	460,408	8,287,344
12	2030	31,070,231	9,321,069	932,107	466,053	466,053	8,388,962
13							
14	¹ RES Requirements						
	Year		RES %	DG%	Retail DG%	Wholesale%	Non-DG%
15							
16	2019		20%	2.00%	1.00%	1.00%	18.00%
17	2020		30%	3.00%	1.50%	1.50%	27.00%
18	2021		30%	3.00%	1.50%	1.50%	27.00%
19	2022		30%	3.00%	1.50%	1.50%	27.00%
20	2023		30%	3.00%	1.50%	1.50%	27.00%
21	2024		30%	3.00%	1.50%	1.50%	27.00%
22	2025		30%	3.00%	1.50%	1.50%	27.00%
23	2026		30%	3.00%	1.50%	1.50%	27.00%
24	2027		30%	3.00%	1.50%	1.50%	27.00%
25	2028		30%	3.00%	1.50%	1.50%	27.00%
26	2029		30%	3.00%	1.50%	1.50%	27.00%
27	2030		30%	3.00%	1.50%	1.50%	27.00%

Table 4-2(a) - Renewable Energy Credit Compliance Summary
Public Service Company of Colorado
2020 Renewable Energy Standard Compliance Plan

2020 Renewable Energy Standard Compliance Plan						Total RECs & Recycled Energy Available for 2019 RES Compliance	RES Renewable Energy Standard 2019	Recycled Energy & RECs Retired For 2019 RES Compliance (3)	RECs w/o Bonus Carried Forward After 2019 RES Compliance	
Renewable Resources	Capacity (MW) (4)	RECs Carried Forward After 2018 RES Compliance	RECs & Recycled Energy Available 2019	REC & Recycled Energy Bonus Applied (1) (2)	Additional Community REC Bonus Applied	e	f	g	h	
Column Reference		a	b	c	d					
Row										
1	Retail DG			c ≤ (b × 25%)		e = (a + b + c + d)			h = a + b + c - f	
2	Total Retail DG	471	887,399	598,873	29,944	0	1,516,216	289,755	289,755	1,226,461
3										
4	Wholesale DG			c ≤ (b × 25%)		e = (a + b + c + d)			h = a + b + c - f	
5										
6	Total Utility Solar	85		191,764		0				
7	Total Biomass	3		18,663		0				
8	Total Small Hydropower	59		183,895		0				
9	Total Wholesale DG Wind	23		67,696		0				
10										
11	Total Wholesale DG		1,924,387	462,017	115,504	0	2,501,908	289,755	289,755	2,212,153
12										
13	Non-DG			c ≤ (b × 25%)		e = (a + b + c + d)			h = a + b + c - f	
14	Total Recycled Energy	0		0		0				
15	Total Non-DG Wind	3,103		7,015,959		0				
16	Total Non-DG Solar	220		403,690		0				
17										
18	Total Non-DG		21,496,060	7,419,649	1,038,751	0	29,954,460	5,215,596	5,215,596	24,738,864
19										
20	Total Non Retail DG Renewable Resources		23,420,447	7,881,666	1,154,255	0	32,456,368	5,505,351	5,505,351	26,951,017
21	Total Renewable Resources		24,307,846	8,480,539	1,184,199	0	33,972,584	5,795,107	5,795,107	28,177,478

Notes:

(1) Includes bonus for Non Retail facilities COD prior to 01/01/2015; a 1.25 bonus for all Non-Retail resources placed in service ≤ 12/31/2014

(2) Bonus applied to Retail DG based on purchase transactions entered into prior to August 11, 2010

(3) Estimated; final values will be determined in the 2019 RES Compliance Report; Wholesale DG RECs could be retired in excess of Wholesale DG requirement which would reduce Non-DG RECs required

(4) Retail DG capacity presented in DC; all others in AC

2020 Renewable Energy Standard Compliance Plan

Row

(4) Retail DG capacity presented in DC; all others in AC

Table 4-2(c) - Renewable Energy Credit Compliance Summary
Public Service Company of Colorado
2020 Renewable Energy Standard Compliance Plan

2020 Renewable Energy Standard Compliance Plan						Total RECs & Recycled Energy Available for 2021 RES Compliance	RES Renewable Energy Standard 2021	Recycled Energy & RECs Retired For 2021 RES Compliance (3)	RECs w/o Bonus Carried Forward After 2021 RES Compliance	
<u>Renewable Resources</u>	<u>Capacity (MW) (4)</u>	<u>RECs Carried Forward After 2020 RES Compliance</u>	<u>RECs & Recycled Energy Available 2021</u>	<u>REC & Recycled Energy Bonus Applied (1) (2)</u>	<u>Additional Community REC Bonus Applied</u>	e	f	g	h	
Column Reference		a	b	c	d					
Row										
1	<u>Retail DG</u>			c ≤ (b × 25%)		e = (a + b + c+ d)			h = a + b +c -f	
2	Total Retail DG	628	1,517,975	802,231	25,671	0	2,345,877	436,778	436,778	1,909,099
3										
4	<u>Wholesale DG</u>			c ≤ (b × 25%)		e = (a + b + c+ d)				h = a + b +c -f
5										
6	Total Utility Solar	85		190,137		0				
7	Total Biomass	3		18,728		0				
8	Total Small Hydropower	56		172,975		0				
9	Total Wholesale DG Wind	23		67,843		0				
10										
11	Total Wholesale DG		2,352,115	449,683	112,421	0	2,914,218	436,778	436,778	2,477,440
12										
13	<u>Non-DG</u>			c ≤ (b × 25%)		e = (a + b + c+ d)				h = a + b +c -f
14	Total Recycled Energy	0		0		0				
15	Total Non-DG Wind	4,072		13,344,597		0				
16	Total Non-DG Solar	220		383,429		0				
17										
18	Total Non-DG		27,880,866	13,728,025	1,921,924	0	43,530,815	7,862,006	7,862,006	35,668,809
19										
20	Total Non Retail DG Renewable Resources		30,232,981	14,177,708	2,034,345	0	46,445,034	8,298,784	8,298,784	38,146,249
21	Total Renewable Resources		31,750,956	14,979,939	2,060,016	0	48,790,911	8,735,563	8,735,563	40,055,348

Notes:

(1) Includes bonus for Non Retail facilities COD prior to 01/01/2015; a 1.25 bonus for all Non-Retail resources placed in service \leq 12/31/2014

(2) Bonus applied to retail DG based on purchase transactions entered into prior to August 11, 2010.

(3) Estimated; final values will be determined in the 2021 RES Compliance Report; Wholesale DG RECs could be retired in excess of Wholesale DG requirement which would reduce Non-DG RECs required

(4) Retail DG capacity presented in DC; all others in AC

			Recycled Energy Generated &	City of Boulder	Wholesale REC	RECs Retired	RECs Retired for Renewable*	RECs	Total Recycled Energy & RECs
	Renewable Resources	Capacity (MW) (1)	RECs Acquired 2020	Transfers 2020	Allocation 2020 (2)	for Windsourse 2020 (3)	Connect 2020	Sold 2020 (4)	Available 2020
Row	Column Reference	a	b	c	d	e1	e2	f	g
1	Retail DG								g = (b - c - d - e - f)
2	Small Customer-Owned (<25 kW)	do	145.00	183,657					
3	Small Third Party Developer (<25 kW)	do	141.30	178,486					
4	Medium (25.01 - 500 kW)	do	148.50	174,129					
5	RFP Large	do	37.30	69,881					
6	REC Only	do	2.06	1,499					
7	SR Community	do	68.60	94,936					
8									
9									
10	Total Retail DG			702,588	0	0	0	0	702,588
11									
12	Wholesale DG								
13									
14	Wholesale DG Solar								g = (b - c - d - e - f)
15	Power Purchase w/RECs:								
16	SunE Alamosa		6.20	16,894		1,048			
17	Cogentrix		30.00	61,981		6,977			
18	Greater Sandhill		19.00	47,423		2,223			
19	San Luis Solar		30.00	75,384		0			
20	SunE at SolarTAC		0.00	0		0			
21	Amoris at SolarTAC		0.00	0		0			
22	EPRI at SolarTAC		0.00	0		0			
23	Total Wholesale DG Solar			201,681	0	10,248	0	0	191,433
24									
25	Wholesale DG Biomass								g = (b - c - d - e - f)
26	Power Purchase w/RECs:								
27	75th St Digester		0.00	0		0			
28	WM Denver/Aurora Disposal Site		3.28	20,198		1,513			
29	Total Wholesale DG Biomass			20,198	0	1,513	0	0	18,685
30									
31	Wholesale DG Small Hydropower								g = (b - c - d - e - f)
32	Company-Owned Generation:								
33	Ames		2.80	9,500					
34	Georgetown		1.40	4,430					
35	Salida		0.65	1,714					
36	Shoshone		14.40	85,000		13,537			
37	Tacoma		4.40	9,490					
38	Power Purchase w/RECs:								
39	Bridal Veil		0.00	0					
40	Betasso/Silver Lake/Lakewood		9.80	20,297		10,149			
41	Boulder Canyon		0.00	0		0			
42	Grand Valley/Orchard Mesa		3.00	11,531					
43	Kohler		0.00	0		0			
44	Maxwell		0.00	0		0			
45	Orodel		0.00	0		0			
46	Sunshine		0.00	0		0			
47	Dillon Dam		1.80	10,293					
48	Foodhills		3.10	5,527					
49	Hilcrest		2.00	6,706					
50	Roberts Tunnel		5.50	11,914					
51	Strontia Springs		1.00	6,630					
52	Gross Reservoir		7.80	18,171		785			
53	Lake George		0.00	0					
54	Ouray		0.00	0					
55	Vallecito Dam		0.00	0					
56	Redlands		1.40	7,365					
57	Stagecoach		0.00	0					
58	Mt. Elbert		0.00	0					
59	Total Wholesale DG Small Hydropower			208,569	10,149	14,322	0	0	184,098
60									
61	Wholesale DG Wind								g = (b - c - d - e - f)
62	Company-Owned Generation								
63	Ponneguin II-VI		0.00	0		0			
64	Power Purchase w/RECs:								
65	Northern Colorado Wind II		22.50	71,428		3,457			
66	NREL Siemens		0.00	0		0			
67	Ponneguin I		0.00	0		0			
68	Ridgcrest		0.00	0		0			
69									
70	Total Wholesale DG Wind			71,428	0	3,457	0	0	67,971
71									
72	Total Wholesale DG			501,876	10,149	29,540	0	0	462,185
73									
74	Non-DG								
75									
76	Recycled Energy								
77	Power Purchase Offsetting Requirement:								
78	Recycled Energy		0.00						
79	Total Recycled Energy			0	0	0	0	0	0
80									
81	Non-DG Wind								g = (b - c - d - e - f)
82	Company-Owned Generation								
83	Rush Creek		600.00	2,299,093		0		0	
84	Power Purchase w/RECs:								
85	Cedar Creek		300.50	811,200		164,705		47,000	
86	Cedar Creek II		250.80	742,627		103,004		70,000	
87	Cedar Point		252.00	793,239		0		14,000	
88	Colorado Green		162.00	653,391		238,957			
89									
90	Golden West		249.40	831,256		27,887			
91	Logan		201.00	587,953		0		10,000	
92	Northern Colorado Wind I		151.80	434,599		25,374		15,000	
93	Peeetz Table		199.50	602,679		0		20,000	
94	Limon Wind		200.00	721,562		0		26,000	
95	Limon Wind II		200.00	597,176		0		17,000	
96	Limon Wind III		200.60	812,558		0		28,000	
97	Spring Canyon		60.00	195,466		32,164	104,629	1,000	
98	Twin Buttes		75.00	252,946		20,234	104,629		
99									
100									
101	Total Non-DG Wind			10,335,766	0	612,325	209,258	0	9,266,183
102									
103	Non-DG Solar								g = (b - c - d - e - f)
104	Solar Star III		50.00	137,349		0			
105	Titan Solar		50.00	134,581		0	134,581		
106	Comanche Solar		120.00	306,252		41,455			
107	Total Non-DG Solar			578,182	0	41,455	0	134,581	402,146
108									
109	Total Non-DG			10,913,948	0	653,780	209,258	134,581	9,668,325
110									
111									
112	Total Non Retail DG Renewable Resources (Wholesale + Non DG)			11,415,823	10,149	683,320	209,258	134,581	10,130,516
113	Total Renewable Resources			12,118,411	10,149	683,320	209,258	134,581	10,833,104

Table 4-3(c) - Renewable Energy Credits Acquired/Transferred Public Service Company of Colorado 2020 Renewable Energy Standard Compliance Plan								
Renewable Resources Column Reference	Capacity (MW)(1) a	Recycled Energy Generated & RECs Acquired 2021 b	City of Boulder Transfers 2021 c	Wholesale REC Allocation 2021 (2) d	RECs Retired for Windsource 2021 (3) e1	RECs Retired for Renewable* Connect 2021 e2	RECs Sold 2021 (4) f	Total Recycled Energy & RECs Available 2021 g
Retail DG								g = (b - c - d - e - f)
Small Customer-Owned (<25 kW)	170.85	209,759						
Small Third Party Developer (<25 kW)	166.07	203,854						
Medium 1 (25.01 - 500 kW)	168.50	198,877						
RFP Large	42.30	79,813						
REC Only	2.06	1,499						
SR Community	77.90	108,429						
Total Retail DG		802,231	0	0	0	0	0	802,231
Wholesale DG								
Wholesale DG Solar								g = (b - c - d - e - f)
Power Purchase w/RECs:								
SunE Alamosa	6.20	16,750		1,018				
Cogentrix	30.00	61,495		6,778				
Greaser Sandhill	19.00	47,037		2,160				
San Luis Solar	30.00	74,810		0				
SunE at SolarTAC	0.00	0		0				
Amonix at SolarTAC	0.00	0		0				
EPRI at SolarTAC	0.00	0		0				
Total Wholesale DG Solar		200,093	0	9,956	0	0	0	190,137
Wholesale DG Biomass								g = (b - c - d - e - f)
Power Purchase w/RECs:								
75th St Digester	0.00	0		0				
WMT Denver/Aurora Disposal Site	3.28	20,198		1,470				
Total Wholesale DG Biomass		20,198	0	1,470	0	0	0	18,728
Wholesale DG Small Hydropower								g = (b - c - d - e - f)
Company-Owned Generation:								
Ames	2.80	9,500						
Georgetown	1.40	4,430						
Salida	0.65	1,714						
Shoshone	14.40	85,000		13,151				
Tacoma	4.40	9,490						
Power Purchase w/RECs:								
Bridal Veil	0.00	0						
Betasso/Silver Lake/Lakewood	9.80	20,297	10,149					
Boulder Canyon	0.00	0	0					
Grand Valley/Orchard Mesa	0.00	0						
Koller	0.00	0	0					
Maxwell	0.00	0	0					
Orodel	0.00	0	0					
Sunshine	0.00	0	0					
Dillon Dam	1.80	10,293						
Foothills	3.10	5,527						
Hillcrest	2.00	6,706						
Roberts Tunnel	5.50	11,914						
Strontia Springs	1.00	6,630						
Gross Reservoir	7.80	18,171		763				
Lake George	0.00	0						
Curry	0.00	0						
Vallecito Dam	0.00	0						
Redlands	1.40	7,365						
Stagecoach	0.00	0						
Mt. Elbert	0.00	0						
Total Wholesale DG Small Hydropower		197,038	10,149	13,914	0	0	0	172,975
Wholesale DG Wind								g = (b - c - d - e - f)
Company-Owned Generation:								
Ponmequin II-VI	0.00	0		0				
Power Purchase w/RECs:								
Northern Colorado Wind II	22.50	71,201		3,358				
NREL Siemens	0.00	0		0				
Ponmequin I	0.00	0		0				
Ridgecrest	0.00	0		0				
Total Wholesale DG Wind		71,201	0	3,358	0	0	0	67,843
Total Wholesale DG		488,530	10,149	29,698	0	0	0	449,683
Non-DG								
Recycled Energy								
Power Purchase Offsetting Requirement:								
Recycled Energy	0.00							
Total Recycled Energy		0	0	0	0	0	0	0
Non-DG Wind								g = (b - c - d - e - f)
Company-Owned Generation:								
Rush Creek	600.00	2,292,705		0			0	
Power Purchase w/RECs:								
Cedar Creek	300.50	808,392		226,135			0	
Cedar Creek II	250.80	740,132		141,422			0	
Cedar Point	252.00	791,217					0	
Colorado Green	162.00	651,649		328,081				
Mountain Breeze	169.00	619,455						
Golden West	248.40	628,920		38,288				
Logan	201.00	586,084					0	
Northern Colorado Wind I	151.80	433,318		34,838			0	
Peez Table	199.50	600,685					0	
Limon Wind	290.00	719,973					0	
Limon Wind II	200.00	595,620					0	
Limon Wind III	200.60	610,349					0	
Spring Canyon	60.00	194,878		44,160	106,431		0	
Twin Buttes	75.00	252,411		27,781	106,431		0	
Cheyenne Ridge	500.00	2,220,008						
Bronco Plains	300.00	1,252,369						
Total Non-DG Wind		14,398,164	0	840,705	212,862	0	0	13,344,597
Non-DG Solar								g = (b - c - d - e - f)
Solar Star III	50.00	136,303		0				
Titan Solar	50.00	133,618		0		133,618		
Comanche Solar	120.00	304,041		56,916				
Total Non-DG Solar		573,963	0	56,916	0	133,618	0	383,429
Total Non-DG		14,972,127	0	897,621	212,862	133,618	0	13,728,025
Total Non Retail DG Renewable Resources (Wholesale + Non DG)		15,460,656	10,149	926,319	212,862	133,618	0	14,177,708
Total Renewable Resources		16,262,887	10,149	926,319	212,862	133,618	0	14,979,939

Notes:

- (1) Retail DG capacity presented in DC; all others in AC
- (2) Wholesale RECs transferred based on projected production and forecast wholesale load ratio share. Actual RECs transferred will be presented in the 2021 RES Report.
- (3) Windsource retirement method will use proportional allocation of Retail DG, Wholesale DG, and non-DG and third-party verified generation.
- (4) REC vintages from the last half of the prior year could be used for the Standard Windsource retirement, per Green-e Standards. Actual RECs retired will be presented in the 2021 RES Report. Currently executed REC sales. Actual REC sales will be sourced from multiple wind generators, but generation from specific generators is unknown at the time of this filing.

Calendar Year	Retail DG	Retail DG RECs	Retail DG	Bonus	Community- Based	Retail DG	Wholesale	New Wholesale	Wholesale DG	Wholesale	Wholesale DG	Wholesale	Existing	New	Recycled	Non-DG RECs	Non-DG	Non-DG Bonus	Recycled	
	RECs (1)	Retired for Windsource or R'C	Sold (2)	RECs (3)	Bonus RECs	Total RECs	DG RECs (1)	DG RECs (1)	Retired for Windsource or R'C	DG RECs	Bonus RECs (4)	Total RECs	Non-DG RECs (1)	Non-DG RECs (1)	Energy	Retired for Windsource or R'C	Sold (2)	For RECs & Recycled Energy	Energy & Non-DG Total RECs	
Column Reference Calculation	a	b	c	d	e	f f = (a + b + c + d + e)	g	h	i	j	k k = (g + h + i + j) x 0.25	L L = (g + h + i + j + k)	m	n	o	p	q	r	s (m + n + o + p + q + r)	
Row																				
1	2019	598,873	-	-	29,944	-	628,817	462,017	-	-	-	115,504	577,521	10,186,894	-	-	339,595	2,427,650	1,038,751	8,458,400
2	2020	702,588	-	-	26,698	-	729,286	462,187	-	-	-	115,547	577,734	10,260,168	-	-	343,839	248,000	1,353,566	11,021,895
3	2021	802,231	-	-	25,671	-	827,902	449,683	-	-	-	112,421	562,104	14,074,506	-	-	346,480	-	1,921,924	15,649,949
4	2022	902,576	-	-	20,762	-	923,338	487,522	-	-	-	121,881	609,403	14,126,190	-	-	349,482	-	1,461,705	15,238,413
5	2023	1,002,795	-	-	20,762	-	1,023,557	469,106	-	-	-	117,277	586,383	15,461,499	-	-	352,556	-	1,439,085	16,498,029
6	2024	1,102,484	-	-	20,762	-	1,123,246	457,114	-	-	-	114,279	571,393	15,504,217	-	-	355,987	-	1,445,258	16,593,488
7	2025	1,201,923	-	-	20,762	-	1,222,685	450,673	-	-	-	112,668	563,341	15,258,314	-	-	358,921	-	1,391,863	16,291,257
8	2026	1,300,818	-	-	20,762	-	1,321,580	446,963	-	-	-	111,741	558,704	15,096,380	-	-	362,215	-	1,353,152	16,087,317
9	2027	1,399,236	-	-	20,762	-	1,419,998	395,563	-	-	-	98,891	494,454	14,879,169	-	-	361,564	-	1,299,323	15,816,928
10	2028	1,497,041	-	-	10,381	-	1,507,422	368,503	-	-	-	92,126	460,629	13,702,399	-	-	361,196	-	958,690	14,299,893
11	2029	1,594,568	-	-	10,381	-	1,604,949	348,728	-	-	-	87,182	435,910	13,643,373	-	-	360,271	-	953,021	14,236,123

Notes:
(1) RECs presented are net of Wholesale Transfers and City of Boulder transfers (if applicable) and do not include in-state bonus
(2) RECs sold based on executed transactions with Trading/Origination
(3) Bonus applied to Retail DG based on purchase transactions entered into prior to August 11, 2010
(4) Bonus applies to Non Retail facilities COD prior to 01/01/2015; a 1.25 bonus applies for all Non-Retail resources placed in service ≤ 12/31/2014

Table 4-5 - Planned Procurement of RECs Renewable*Connect Public Service Company of Colorado 2020 Renewable Energy Standard Compliance Plan				
		Renewable* Connect RECs	Non-DG RECs Retired for Renewable* Connect ⁽¹⁾	RECS Remaining
<u>Calendar Year</u>				
	Column Reference Calculation	a	b	c c = a - b
Row				
1	2018	2,482	-	2,482
2	2019	134,964	134,964	0
3	2020	134,581	134,581	0
4	2021	133,618	133,618	0
5	2022	132,950	132,950	0
6	2023	132,285	132,285	0
7	2024	131,909	131,909	0
8	2025	130,965	130,965	0
9	2026	130,311	130,311	0
10	2027	129,659	129,659	0
11	2028	129,291	129,291	0
12	2029	128,366	128,366	0
Notes:				
(1)	Renewable*Connect RECs Retired on behalf of customers			

Table 7-1

**Public Service Company of Colorado
 Renewable Energy Standard Adjustment Estimate
 For the Years 2019-2029**

Table 7-1						
Renewable Resource Costs Base Case (NO CARBON) (\$000)						
UNLOCKED Renewable Resources				LOCKED Renewable Resources		
Year	<u>Total</u> Costs to be Recovered	<u>Incremental</u> Costs Recovered by RESA	<u>Avoided</u> Costs Recovered by ECA	<u>Total</u> Costs to be Recovered	<u>Incremental</u> Costs Recovered by RESA	<u>Avoided</u> Costs Recovered by ECA
2019	\$9,852	(\$2,460)	\$12,312	\$315,108	\$74,716	\$246,211
2020	\$10,932	\$1,080	\$9,852	\$318,768	\$50,519	\$282,127
2021	\$67,595	\$21,868	\$45,727	\$317,612	\$17,951	\$324,716
2022	\$63,564	\$20,486	\$43,078	\$316,903	\$10,131	\$341,894
2023	\$59,496	(\$50,470)	\$109,966	\$325,803	\$0	\$383,582
2024	\$54,074	(\$59,493)	\$113,566	\$333,645	\$0	\$408,466
2025	\$48,189	(\$70,264)	\$118,453	\$335,713	\$0	\$430,088
2026	\$45,379	(\$95,097)	\$140,476	\$338,892	\$0	\$451,726
2027	\$380,210	(\$34,704)	\$493,734	\$8,657	\$1,111	\$7,546
2028	\$404,200	(\$72,727)	\$567,260	\$5,807	\$0	\$5,815
2029	\$492,736	(\$100,141)	\$696,111	\$5,723	\$0	\$5,723

Table 7-2 (a)
Public Service Company of Colorado
Renewable Energy Standard Adjustment Estimate
For the Years 2019-2029

2020 Renewable Energy Plan												
UNLOCKED Renewable Resources Incremental and Avoided Costs												
Base Case (NO CARBON)												
A	B	C	D	E	F	G	H	I	J	K	L	M
Unlocked Renewable Resources except On-Site Solar						Unlocked On-Site Solar			Unlocked Totals			
	Central Solar Total Cost	Wind Total Cost	Other Renewable Total Cost	Total Cost (B+C+D)	B, C, D Modeled Incremental Cost [1]	B,C,D Calculated Avoided Cost (E-F) [2]	On-Site Solar Total Cost	Modeled On-Site Solar Avoided Cost [2]	Calculated On-Site Solar Incremental Cost (H-I) [1]	Total Costs (E+H)	Incremental Costs (F+J) [1]	Avoided Costs (G+I) [2]
2019	0	9,852,137	0	9,852,137	(2,460,245)	12,312,382	0	0	0	9,852,137	(2,460,245)	12,312,382
2020	0	10,931,963	0	10,931,963	1,080,141	9,851,822	0	0	0	10,931,963	1,080,141	9,851,822
2021	0	67,595,307	0	67,595,307	21,868,173	45,727,134	0	0	0	67,595,307	21,868,173	45,727,134
2022	0	63,563,944	0	63,563,944	20,486,203	43,077,741	0	0	0	63,563,944	20,486,203	43,077,741
2023	5,632,426	53,863,208	0	59,495,634	(50,470,413)	109,966,048	0	0	0	59,495,634	(50,470,413)	109,966,048
2024	5,616,968	48,456,641	0	54,073,609	(59,492,840)	113,566,449	0	0	0	54,073,609	(59,492,840)	113,566,449
2025	5,576,103	42,613,333	0	48,189,436	(70,263,649)	118,453,084	0	0	0	48,189,436	(70,263,649)	118,453,084
2026	5,548,722	39,829,901	0	45,378,623	(95,096,994)	140,475,617	0	0	0	45,378,623	(95,096,994)	140,475,617
2027	5,520,561	290,803,406	0	296,323,967	(77,001,232)	373,325,198	83,885,605	120,409,065	42,297,054	380,209,572	(34,704,177)	493,734,263
2028	5,505,634	309,496,085	0	315,001,719	(115,742,540)	430,744,259	89,198,074	136,515,711	43,015,090	404,199,793	(72,727,450)	567,259,970
2029	5,465,803	394,282,065	0	399,747,869	(143,141,733)	542,889,602	92,988,402	153,221,391	43,000,660	492,736,271	(100,141,073)	696,110,993

[1] Incremental costs of renewable resources are recovered through the RESA.

[2] Avoided costs of renewable resources are recovered through the ECA.

Table 7-2 (b)

**Public Service Company of Colorado
 Renewable Energy Standard Adjustment Estimate
 For the Years 2019-2029**

2020 Renewable Energy Plan												
LOCKED Renewable Resources Incremental and Avoided Costs												
Base Case (NO CARBON)												
A	B	C	D	E	F	G	H	I	J	K	L	M
Locked Renewable Resources except On-Site Solar						Locked On-Site Solar			Locked Totals			
	Central Solar Total Cost	Wind Total Cost	Other Renewable Total Cost	Total Cost (B+C+D)	B, C, D Locked Incremental Cost [1]	B,C,D Calculated Avoided Cost (E-F) [2]	On-Site Solar Total Cost	Locked On-Site Solar Avoided Cost [2]	Calculated On-Site Solar Incremental Cost (H-I) [1]	Total Costs (E+H)	Incremental Costs (F+J) [1]	Avoided Costs (G+I) [2]
2019	0	273,915,271	0	273,915,271	69,334,792	204,580,478	41,192,657	41,630,245	5,381,288	315,107,927	74,716,080	246,210,723
2020	0	270,349,037	0	270,349,037	45,416,070	224,932,966	48,418,979	57,194,431	5,102,489	318,768,015	50,518,559	282,127,398
2021	0	262,982,682	0	262,982,682	14,302,480	248,680,201	54,629,117	76,035,480	3,648,153	317,611,798	17,950,634	324,715,681
2022	0	256,732,575	0	256,732,575	6,470,605	250,261,970	60,169,950	91,632,259	3,659,942	316,902,525	10,130,548	341,894,229
2023	5,911,152	254,281,589	0	260,192,741	(12,934,805)	273,127,546	65,610,128	110,454,446	1,995,190	325,802,869	(10,939,615)	383,581,992
2024	5,893,330	256,738,091	0	262,631,421	(18,762,369)	281,393,790	71,013,987	127,071,821	663,396	333,645,407	(18,098,973)	408,465,611
2025	5,847,554	253,474,886	0	259,322,440	(27,015,323)	286,337,763	76,390,817	143,749,805	254,242	335,713,257	(26,761,081)	430,087,568
2026	5,816,355	251,388,430	0	257,204,786	(33,751,113)	290,955,899	81,687,365	160,770,305	(994,200)	338,892,151	(34,745,313)	451,726,204
2027	5,785,177	0	0	5,785,177	1,660,000	4,125,177	2,871,730	3,420,501	(548,771)	8,656,907	1,111,229	7,545,678
2028	5,767,679	0	0	5,767,679	0	5,767,679	39,620	47,191	(7,571)	5,807,299	(7,571)	5,814,870
2029	5,722,779	0	0	5,722,779	0	5,722,779	0	0	0	5,722,779	0	5,722,779

[1] Incremental costs of renewable resources are recovered through the RESA

[2] Avoided costs of renewable resources are recovered through the ECA

Table 7-2 (c)

Public Service Company of Colorado
 Renewable Energy Standard Adjustment Estimate
 For the Years 2019-2029

Rider Shut Off Year
 2030

RESA Revenue %	
2.000%	2016
1.000%	2021

2020 Renewable Energy Plan												
Estimated RESA Balance												
Base Case (NO CARBON)												

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Renewable Resource Total Costs		RESA Related Costs			RESA Related Revenues/Credits				ECA Related Costs					
	Unlocked Costs (Table 7-2a, Col K)	Locked Costs (Table 7-2b, Col K)	Unlocked Incremental Costs (Table 7-2a, Col L)	Locked Incremental Costs (Table 7-2b, Col L)	RESA Program & Admin Costs	RESA Rider Revenue	WindSource Revenue	REC Margin Revenue	Wholesale Customer RESA RJA Credit	Unlocked Avoided Costs (Table 7-2a, Col M)	Locked Avoided Costs (Table 7-2b, Col M)			
2019	9,852,137	315,107,927	(2,460,245)	74,716,080	1,456,107	55,559,647	3,069,462	5,023,020	4,564,114	12,312,382	246,210,723	2019		
2020	10,931,963	318,768,015	1,080,141	50,518,559	1,501,142	52,474,134	3,138,870		3,243,527	9,851,822	282,127,398	2020		
2021	67,595,307	317,611,798	21,868,173	17,950,634	1,527,126	27,010,362	3,192,930		2,289,488	45,727,134	324,715,681	2021		
2022	63,563,944	316,902,525	20,486,203	10,130,548	1,572,940	27,535,770	3,247,990		1,751,563	43,077,741	341,894,229	2022		
2023	59,495,634	325,802,869	(50,470,413)	(10,939,615)	1,620,128	28,824,301	3,304,061		0	109,966,048	383,581,992	2023		
2024	54,073,609	333,645,407	(59,492,840)	(18,098,973)	1,668,732	29,112,544	3,361,171		0	113,566,449	408,465,611	2024		
2025	48,189,436	335,713,257	(70,263,649)	(26,761,081)	1,718,794	29,403,669	3,419,268		0	118,453,084	430,087,568	2025		
2026	45,378,623	338,892,151	(95,096,994)	(34,745,313)	1,770,358	29,697,706	3,478,369		0	140,475,617	451,726,204	2026		
2027	380,209,572	8,656,907	(34,704,177)	1,111,229	1,823,468	29,994,683	3,538,492		0	493,734,263	7,545,678	2027		
2028	404,199,793	5,807,299	(72,727,450)	(7,571)	1,878,172	30,294,630	3,599,654		0	567,259,970	5,814,870	2028		
2029	492,736,271	5,722,779	(100,141,073)	0	1,934,517	30,597,576	3,661,874		0	696,110,993	5,722,779	2029		

Totals			
Total Renewable Resource Costs (B+C)		Total RESA Costs (D+E+F)	Total RESA Revenue (G+H+I+J)
2018			
2019	324,960,064	73,711,943	68,216,243
2020	329,699,978	53,099,841	58,856,531
2021	385,207,105	41,345,932	32,492,779
2022	380,466,469	32,189,690	32,535,323
2023	385,298,504	0	32,128,362
2024	387,719,016	0	32,473,715
2025	383,902,693	0	32,822,937
2026	384,270,774	0	33,176,075
2027	388,866,479	0	33,533,175
2028	410,007,092	0	33,894,284
2029	498,459,050	0	34,259,450

Calculations			
Annual Excess/ (Deficiency) (R-Q)	Interest	Annual Excess/ (Deficiency) w/ Interest (S+T)	RESA Rolling Balance (Deferred)
2018			48,578,155
2019	(5,495,699)	2,971,828	46,054,284
2020	5,756,690	3,573,921	55,384,894
2021	(8,853,153)	3,209,760	49,741,501
2022	345,633	3,455,010	53,542,144
2023	32,128,362	5,909,551	91,580,057
2024	32,473,715	8,557,229	132,611,001
2025	32,822,937	11,411,633	176,845,571
2026	33,176,075	14,487,293	224,508,939
2027	33,533,175	17,799,745	275,841,860
2028	33,894,284	21,365,599	331,101,743
2029	34,259,450	25,202,615	390,563,808

Interest Rate	6.898%
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Table 7-2 (d) - UNLOCKED GROUP B ASSETS
 Public Service Company of Colorado
 Renewable Energy Standard Adjustment Estimate
 For the Years 2019-2029

Rider Shut Off Year
2030

RESA Revenue %	
2.000%	2016
1.000%	2021

2020 Renewable Energy Plan												
Estimated RESA Balance												
Base Case (NO CARBON)												

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Renewable Resource Total Costs		RESA Related Costs			RESA Related Revenues/Credits				ECA Related Costs					
	Unlocked Costs	Locked Costs	Unlocked Incremental Costs	Locked Incremental Costs	RESA Program & Admin Costs	RESA Rider Revenue	WindSource Revenue	REC Margin Revenue	Wholesale Customer RESA RJA Credit	Unlocked Avoided Costs	Locked Avoided Costs			
2019	379,652,923	7,014,432	140,204,534	1,224,193	1,456,107	55,559,647	3,069,462	5,023,020	8,318,456	239,448,388	4,823,434	2019		
2020	384,480,228	6,991,558	135,362,577	548,383	1,501,142	52,474,134	3,138,870		7,447,298	249,117,651	5,136,919	2020		
2021	410,855,781	6,943,606	120,104,703	65,729	1,527,126	27,010,362	3,192,930		5,231,415	290,751,078	5,332,081	2021		
2022	435,350,138	6,911,029	127,126,256	790,183	1,572,940	27,535,770	3,247,990		5,975,642	308,223,882	4,978,420	2022		
2023	442,295,924	6,873,119	53,296,786	705,790	1,620,128	28,824,301	3,304,061		2,042,288	388,999,138	4,993,203	2023		
2024	442,581,969	6,850,383	37,213,246	174,562	1,668,732	29,112,544	3,361,171		1,195,644	405,368,723	5,235,904	2024		
2025	439,928,626	6,802,962	20,885,297	(120,736)	1,718,794	29,403,669	3,419,268		79,992	419,043,330	5,342,912	2025		
2026	437,698,856	6,717,316	(38,026,874)	(465,058)	1,770,358	29,697,706	3,478,369		0	475,725,729	5,486,028	2026		
2027	445,304,471	6,426,496	(52,733,356)	1,111,229	1,823,468	29,994,683	3,538,492		0	498,037,827	5,315,267	2027		
2028	466,521,691	39,620	(104,085,651)	(7,571)	1,878,172	30,294,630	3,599,654		0	570,707,107	47,191	2028		
2029	557,801,009	0	(119,099,590)	0	1,934,517	30,597,576	3,661,874		0	679,622,272	0	2029		

Totals			
Total Renewable Resource Costs (B+C)	Total RESA Costs (D+E+F)	Total RESA Revenue (G+H+I+J)	
2018			
2019	386,667,355	142,884,835	71,970,586
2020	391,471,786	137,412,102	63,060,302
2021	417,799,387	121,697,558	35,434,707
2022	442,261,167	129,489,379	36,759,401
2023	449,169,043	55,622,703	34,170,650
2024	449,432,352	39,056,540	33,669,359
2025	446,731,589	22,483,354	32,902,929
2026	444,416,171	0	33,176,075
2027	451,730,967	0	33,533,175
2028	466,561,311	0	33,894,284
2029	557,801,009	0	34,259,450

Calculations			
Annual Excess/ (Deficiency) (R-Q)	Interest	Annual Excess/ (Deficiency) w/ Interest (S+T)	RESA Rolling Balance (Deferred)
2018			48,578,155
2019	(70,914,249)	(1,540,744)	(72,454,993)
2020	(74,351,800)	(6,775,811)	(81,127,611)
2021	(86,262,852)	(13,193,618)	(99,456,470)
2022	(92,729,978)	(20,500,228)	(113,230,206)
2023	(21,452,053)	(23,394,096)	(44,846,150)
2024	(5,387,181)	(25,379,429)	(30,766,610)
2025	10,419,574	(26,411,360)	(15,991,785)
2026	33,176,075	(25,944,730)	7,231,346
2027	33,533,175	(25,421,279)	8,111,897
2028	33,894,284	(24,836,811)	9,057,473
2029	34,259,450	(24,186,837)	10,072,613

Interest Rate	6.898%
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Table 7-3 (a)
Public Service Company of Colorado
Renewable Energy Standard Adjustment Estimate
For the Years 2019-2029

Locked Incremental Costs (Transferred from the ECA to the RESA)

Total Incremental Cost (\$000)	
SunE Alamosa [1]	
2019	1,989
2020	1,911
2021	1,846
2022	1,947
2023	1,928
2024	1,837
2025	1,784
2026	1,722
2027	1,660
2028	0
2029	0

Locked Avoided Costs (Transferred from the RESA to the ECA)

Total Avoided Cost (\$000)	
Solar Rewards Prior to 2009 [1]	
2019	3,106
2020	3,348
2021	3,510
2022	3,273
2023	3,291
2024	3,449
2025	3,534
2026	3,632
2027	3,421
2028	3,373
2029	47

[1] Locked down costs in Docket No. 08A-532E were locked on a total dollar basis

Table 7-3 (b)

**Public Service Company of Colorado
 Renewable Energy Standard Adjustment Estimate
 For the Years 2019-2029**

Locked Incremental Costs (Transferred from the ECA to the RESA)

Approved Plan	Resource	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2009 RES Plan	SunE Alamosa [1]	Incremental Cost (\$000)	\$ 1,989	\$ 1,911	\$ 1,846	\$ 1,947	\$ 1,928	\$ 1,837	\$ 1,784	\$ 1,722	\$ 1,660	\$ -	\$ -
Total Locked Incremental Costs			\$ 1,989	\$ 1,911	\$ 1,846	\$ 1,947	\$ 1,928	\$ 1,837	\$ 1,784	\$ 1,722	\$ 1,660	\$ -	\$ -

Locked Avoided Costs (Transferred from the RESA to the ECA)

Approved Plan	Resource	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2009 RES Plan	On-Site Solar (Pre-2009) [1]	Locked Avoided Cost (\$000)	\$ 3,106	\$ 3,348	\$ 3,510	\$ 3,273	\$ 3,291	\$ 3,449	\$ 3,534	\$ 3,632	\$ 3,632	\$ 3,632	\$ 3,632
Total Locked Avoided Costs			\$ 3,106	\$ 3,348	\$ 3,510	\$ 3,273	\$ 3,291	\$ 3,449	\$ 3,534	\$ 3,632	\$ 3,632	\$ 3,632	\$ 3,632

[1] Locked down costs in Docket No. 08A-532E were locked on a total dollar basis