



PCDS Meeting

January 17, 2024

WECC Staff

2034 ADS Update

Deflator

- Can't use Moody's anymore. Only permission to use it in some form of CEC-related project.
- Previous version of Moody's Deflator (2021)
 - 2022-2024\$: multiplier of 1.072
- CA Department of Finance (DOF) has a deflator (November 2023) (<https://dof.ca.gov/forecasting/economics/economic-forecasts-u-s-and-california/>)
 - 2022-2024\$: multiplier of 1.069

Fuel Prices

- Natural Gas
 - This cycle—We have the March 2023 Draft IEPR from CEC (not sure when it will be finalized, others have been finalized around September/October)
 - [Preliminary 2023 IEPR Electric Generation Price Model | California Energy Commission](#)
- Uranium
 - Last cycle—Used 0.72 from 2021, then inflated to 2022\$ (0.7375564) 2024\$ (0.788447792)
 - [Nuclear Fuel | US-REGEN Documentation \(epri.com\)](#)—Around \$0.7/MMBTU
- Coal and Other
 - EIA 923 5-yr average 2018-2022

Natural Gas

	1.069	January	February	March	April	May	June	July	August	September	October	November	December	2034 Average	2032 Average (2024\$)
NG_Alberta_NOVA		4.573244	4.477772	4.128899	4.062351	4.195803	4.29835	4.33055	4.298715	4.355901587	4.331974	4.534868	4.569412	4.346486557	3.879548522
NG_AZ_Opal Kern		5.447849	5.338537	4.941608	4.865256	5.015886	5.131396	5.167064	5.130095	5.194083258	5.166087	5.395203	5.433443	5.185542284	3.75885477
NG_AZ_North		5.818935	5.691261	5.224506	5.135524	5.314168	5.451461	5.49462	5.45209	5.528688002	5.496739	5.768332	5.814634	5.515913022	3.774444442
NG_AZ_North-South		5.639771	5.525301	5.105181	5.025503	5.187081	5.311413	5.350888	5.313094	5.382738483	5.354484	5.600063	5.642429	5.369828848	3.726372937
NG_AZ/Cal_Blythe		5.539981	5.419101	4.975286	4.891156	5.061928	5.19335	5.235116	5.195241	5.268885564	5.239089	5.498635	5.543461	5.255102542	3.82313472
NG_BC_Sumas		4.480772	4.387335	4.045874	3.980745	4.111373	4.211752	4.243275	4.212124	4.268104917	4.244693	4.443291	4.47711	4.258870665	3.878516224
NG_BC_Westcoast		4.543333	4.449896	4.108436	4.043307	4.173934	4.274313	4.305837	4.274685	4.330666394	4.307254	4.505853	4.539671	4.321432142	3.660589884
NG_Cal_Kern		5.498299	5.37775	4.93679	4.85279	5.021683	5.151506	5.192378	5.152274	5.22474758	5.194643	5.4514	5.495251	5.212459189	4.62822481
NG_Cal_PG&E BB		7.08449	6.960969	6.509809	6.423695	6.596173	6.728689	6.770248	6.729016	6.802878908	6.771871	7.034107	7.078689	6.790886089	5.704064005
NG_Cal_PG&E LT		8.31818	8.188411	7.714586	7.624106	7.805174	7.944274	7.98786	7.944511	8.0220173	7.989403	8.264706	8.311461	8.00955745	5.704064005
NG_Cal_Rosarito		5.666103	5.545223	5.101408	5.017278	5.18805	5.319472	5.361239	5.321363	5.395007661	5.365211	5.624757	5.669584	5.381224639	3.956320271
NG_Cal_SDG&E		7.261232	7.127479	6.636513	6.543417	6.732276	6.877606	6.923764	6.879618	6.961036632	6.928039	7.215078	7.264618	6.945889755	5.663228472
NG_Cal_SoCalGas		7.267782	7.134029	6.643064	6.549967	6.738826	6.884156	6.930315	6.886168	6.967586905	6.934589	7.221628	7.271168	6.952440028	5.75334241
NG_Colorado_Cheyenne		4.875132	4.77398	4.404578	4.334056	4.475252	4.583728	4.617735	4.58396	4.644414314	4.619009	4.833686	4.870166	4.634641347	3.671229552
NG_Colorado_WhiteR		4.063894	3.981704	3.681926	3.624601	3.739003	3.826858	3.85431	3.826788	3.875685784	3.854952	4.028907	4.058352	3.868081798	3.433084057
NG_Idaho_Opal		5.364628	5.255316	4.858386	4.782034	4.932664	5.048174	5.083842	5.046874	5.110861608	5.082865	5.311981	5.350222	5.102320634	3.671259841
NG_Montana		4.875132	4.77398	4.404578	4.334056	4.475252	4.583728	4.617735	4.58396	4.644414314	4.619009	4.833686	4.870166	4.634641347	3.671229552
NG_Nevada_North		5.635597	5.517902	5.088891	5.006785	5.170379	5.295987	5.335171	5.295705	5.365569646	5.335817	5.584582	5.626608	5.354916013	3.624187495
NG_Nevada_South		5.447849	5.338537	4.941608	4.865256	5.015886	5.131396	5.167064	5.130095	5.194083258	5.166087	5.395203	5.433443	5.185542284	3.75885477
NG_New Mexico_North		5.622259	5.506488	5.081126	5.000571	5.164387	5.290484	5.330629	5.292501	5.363212888	5.334748	5.583709	5.626799	5.349742794	3.635527714
NG_New Mexico_South		5.733289	5.615374	5.181376	5.099376	5.266878	5.395883	5.437133	5.398455	5.47092459	5.442113	5.696645	5.740928	5.456531184	3.631924026
NG_Oregon_Sumas		5.817161	5.695844	5.252263	5.167715	5.33752	5.468026	5.509067	5.468668	5.541490203	5.511147	5.769299	5.81333	5.52929419	3.937004243
NG_Oregon_Malin		5.52744	5.405944	4.962389	4.877675	5.047146	5.177331	5.21811	5.177511	5.250040427	5.219491	5.477164	5.520907	5.238429056	3.359355305
NG_Washington_Oregon		5.168559	5.060749	4.666697	4.591553	4.74233	4.858197	4.894601	4.85867	4.923299716	4.896301	5.12553	5.164584	4.912589179	3.748844654
NG_Oregon_OR and WA		5.248704	5.140894	4.746842	4.671698	4.822474	4.938342	4.974746	4.938814	5.003444574	4.976446	5.205675	5.244729	4.992734037	3.579425258
NG_Utah_Opal Kern		5.34854	5.239228	4.842299	4.765947	4.916577	5.032087	5.067755	5.030786	5.09477427	5.066778	5.295894	5.334134	5.086233296	3.654327059
NG_Washington_Sumas		5.817161	5.695844	5.252263	5.167715	5.33752	5.468026	5.509067	5.468668	5.541490203	5.511147	5.769299	5.81333	5.52929419	3.937004243
NG_Washington_King		5.171825	5.064014	4.669963	4.594819	4.745595	4.861463	4.897866	4.861935	4.926565511	4.899567	5.128796	5.16785	4.915854974	3.582862716
NG_Oregon_Washington		5.338398	5.230587	4.836535	4.761391	4.912168	5.028035	5.064439	5.028508	5.093137818	5.066139	5.295368	5.334422	5.08242728	3.659469127
NG_West Texas_Waha		5.651514	5.533599	5.099601	5.017601	5.185104	5.314109	5.355359	5.316681	5.389150263	5.360339	5.614871	5.659153	5.374756857	3.545620092
NG_Wyoming		4.875132	4.77398	4.404578	4.334056	4.475252	4.583728	4.617735	4.58396	4.644414314	4.619009	4.833686	4.870166	4.634641347	3.671229552

Coal Prices

Currentlty in 2032 ADS (2022\$)	Inflator to 2022\$	1	1.069807481	1.117834801	1.132874901	1.152987476			
		2022	2021	2020	2019	2018	Average		
		Fuel Cost	Fuel Cost	Fuel Cost	Fuel Cost	Fuel Cost		1.069	0.65
Currentlty in 2032 ADS (2022\$)		\$/MMBTU	\$/MMBTU	\$/MMBTU	\$/MMBTU	\$/MMBTU	Average 2022\$	Average 2024\$	% For fixed price contracts
2.06 Coal_Apache		2.99	2.95	2.99	3.06	3.14	3.03	3.24	2.10
1.53 Coal_Bonanza		2.38	2.46	2.67	2.14	2.76	2.48	2.65	1.72
1.68 Coal_Cholla		2.87	2.68	2.55	2.60	2.56	2.65	2.84	1.84
1.05 Coal_Comache		1.54	1.52	1.56	1.58	1.60	1.56	1.67	1.08
1.98 Coal_Coronado		3.05	2.71	2.61	2.99	3.10	2.89	3.09	2.01
1.71 Coal_Craig		2.49	2.03	2.37	2.64	2.43	2.39	2.56	1.66
0.73 Coal_Dave_Johnston		1.12	1.10	1.11	1.10	1.13	1.11	1.19	0.77
0.52 Coal_Dry_Fork		0.85	0.85	0.94	0.76	0.84	0.85	0.91	0.59
2.13 Coal_Four_Corners		3.70	3.32	3.14	3.24	3.36	3.35	3.59	2.33
1.73 Coal_Hayden		2.17	2.17	2.15	2.57	2.61	2.33	2.49	1.62
1.35 Coal_Hunter		1.82	1.82	2.01	2.04	2.05	1.95	2.08	1.35
1.49 Coal_Huntington		2.11	2.07	2.21	2.23	2.25	2.17	2.32	1.51
1.67 Coal_Intermountain		2.38	2.40	2.53	2.46	2.60	2.47	2.64	1.72
2.12 Coal_Jim_Bridger		2.50	2.85	3.09	3.03	3.33	2.96	3.17	2.06
0.80 Coal_Laramie_River		1.24	1.23	1.26	1.21	1.19	1.23	1.31	0.85
1.67 Coal_Naughton		2.35	2.78	2.73	2.71	2.57	2.63	2.81	1.82
0.66 Coal_Neil_Simpson		0.99	0.99	1.02	1.06	0.98	1.01	1.08	0.70
1.17 Coal_Nixon		1.78	1.74	1.79	1.79	1.75	1.77	1.89	1.23
0.93 Coal_Pawnee		1.40	1.33	1.37	1.40	1.40	1.38	1.47	0.96
1.00 Coal_Rawhide		1.65	1.44	1.48	1.52	1.53	1.52	1.63	1.06
1.41 Coal_San_Juan		0.92	2.07	2.48	2.26	2.32	2.01	2.15	1.40
1.31 Coal_Springerville1-2		2.73	2.32	2.20	2.25	2.28	2.36	2.52	1.64
1.71 Coal_Springerville3-4		2.73	2.32	2.20	2.25	2.28	2.36	2.52	1.64
1.26 Coal_Springerville		2.73	2.32	2.20	2.25	2.28	2.36	2.52	1.64
1.49 Coal_Sunnyside		1.49	1.49	1.49	1.49	1.49	1.49	1.59	1.03
2.25 Coal_Valmy		3.29	2.50	2.61	3.13	3.54	3.01	3.22	2.09
0.65 Coal_Wygen		0.99	0.99	1.02	1.06	0.98	1.01	1.08	0.70
0.90 Coal_Wyodak		1.32	1.30	1.36	1.31	1.38	1.33	1.43	0.93
1.32 Coal_Alberta		1.32	1.32	1.32	1.32	1.32	1.32	1.41	0.92
3.11 Coal_CA_South		3.11	3.11	3.11	3.11	3.11	3.11	3.33	2.16

CO₂ Prices

- California – 97.16 \$/Metric Ton (2024\$)
 - 2023 Price \$29.84/Metric ton
 - Last cycle \$62.697/Metric Ton
- [2023 IEPR Preliminary GHG Allowance Price Scenario](#) (2023)
 - <https://efiling.energy.ca.gov/GetDocument.aspx?tn=252692&DocumentContentId=87771> (2023)
- Alberta
 - Last cycle \$50/long ton
 - 2023 Price \$65/long ton
 - 2030 Price \$170/long ton
 - [Fuel Charge Rates for Listed Provinces and Territories for 2023 to 2030 - Canada.ca](#) (2021)

Fuel Charge Rates

“The fuel charge rates reflect a carbon pollution price of \$65 per tonne of carbon dioxide equivalent (CO₂e) in 2023 (the price currently reaches \$50 per tonne in 2022), which will rise by \$15 per tonne annually to reach \$170 per tonne in 2030. These rates are based on global warming factors and emissions factors used by Environment and Climate Change Canada to report Canada's emissions to the United Nations Framework Convention on Climate Change. Rate changes come into effect on April 1 of each year listed in the table.

The rates for gasoline and light fuel oil continue to take into account the average renewable content of these fuels.”

- British Columbia
 - Last cycle \$50/long ton
 - 2023 Price \$65/long ton
 - [British Columbia's Carbon Tax - Province of British Columbia \(gov.bc.ca\)](#)

CO₂ Prices

- Washington
 - Last cycle—Did not model
 - 2023 Price \$48.5/Metric Ton
 - [Washington Holds First Carbon Auction, Determining Price of \\$48.50 per Ton | South Seattle Emerald](#) (2023)
- Oregon
 - Last cycle—Did not model
 - 2020 Price \$40/Metric Ton
 - 2040 Price \$110/Metric Ton
 - [Report Template \(oregon.gov\)](#) (2020)

BTM Pumped Storage

- Can do Capacity Factor in the Pumped Storage Monthly Variable Schedule table
- Can define BTM PSH as option 3 and utility scale PSH is using option 4
- Option 3 will reduce run time



