



Nuclear Information and Resource Service
6930 Carroll Ave., Suite 340 • Takoma Park, MD 20912
(301) 270-NIRS (6477) • nirs@nirs.org • www.nirs.org
FB: [nirsnet](https://www.facebook.com/nirsnet) • Twitter: [@nirsnet](https://twitter.com/nirsnet) • IG: [@nirs_net](https://www.instagram.com/nirs_net)

TO: Interested Parties
FROM: Nuclear Information and Resource Service
SUBJECT: Cost of Proposed Nuclear Energy Subsidies: Build Back Better Act and Bipartisan Infrastructure Bill
DATE: November 3, 2021
CC:

NIRS has updated our analysis of the projected costs and implications of subsidies for existing nuclear power plants in the Build Back Better Act (BBBA, now H.R. 5376). Previous memos have detailed the costs in prior versions of BBBA and a similar, but separate subsidy, in the bipartisan infrastructure bill (BIF). We have reviewed the revised bill text published by the House Rules Committee on November 3, 2021. (This memo supersedes a previous estimate we posted on October 29.)

Changes made to the Zero-Emissions Nuclear Production Credit (Sect. 136108) in the October 28, 2021 and current versions of the bill unnecessarily complicated the calculation of the Nuclear PTC. On net, the cost of the credits has substantially increased since the prior version in September. In analyses of previous versions of BBBA, the projected cost of the Nuclear Production Credit (Nuclear PTC) had been reduced from [\\$45.6 billion](#) to [\\$28.5 billion](#), primarily by reducing the period of the subsidy from 10 years to 5 years, even while expanding eligibility for the credit to include nuclear power plants owned by utility companies. ***Based on the November 3 text of the bill, we now project the cost at \$35.3 billion over 6 years--a 24% increase from the previous version.***

The revisions to the program in the bill published last week change the way the Nuclear PTC is calculated, but in ways that do not change the annual value of the credits. However, by extending the period of the Nuclear PTC from 5 years to 6 years, it increases the total cost substantially, by approximately \$7 billion. The notable changes to the language include:

- Reducing the values of the base credit and “Reduction Amount” by a factor of 5.
- Shifting the Credit Increase in the Wage Requirements clause from a penalty to a bonus, multiplying the factors above by a factor of 5.
- The period of the program has increased 20%, from 5 years to 6 years (ending on December 31, 2027).

As mentioned in a previous memo, the Congressional Budget Office scored the cost of the Nuclear PTC in the previous version of BBBA at a cost of \$15.9 billion over five years. CBO’s updated scoring of the bill increases the projected cost to approximately \$23.0 billion.

That is substantially lower than our estimate. As previously explained, we believe CBO’s estimate to be unrealistically low, likely due to assumptions that electricity prices will trend substantially higher over the next several years. This does not reflect the realities of gas and electricity markets over the last 12 years, over which time prices have remained low, despite periodic and/or regional spikes due to weather-related and transmission disruptions. There is little tolerance for sustained increases in market prices over the last decade, among both consumers and regulators. In addition, the growth of

renewable energy, energy efficiency, storage, and transmission capacity due to market trends and the trillion-dollar investments in BBBA and the BIF will likely put further downward pressure on market electricity prices going forward.

Our projection is based on a budgetarily conservative assumption that merchant reactors claim the Nuclear PTC at or near the full value of the credit at \$15 per megawatt-hour (or 1.5 cents/kWh), and that utility-owned nuclear plants claim it at reduced level of \$3/MWh, on average. The Nuclear Energy Institute published in October 2020 that [total generating costs](#) for utility-owned plants averaged \$33.65 in 2019, or 3.365 cents/kWh. If electricity rates for utility-owned reactors include a 10% rate of return, utility-owned reactors may still qualify for the credit in the \$3/MWh range.

In addition, an eligibility restriction barring federal government entities from claiming the Nuclear PTC appears to have been lifted. If so, this would enable the Tennessee Valley Authority to claim the credit for its three nuclear power plants, under the direct payment provision in the bill (Browns Ferry, Sequoyah, and Watts Bar).

As a result of these changes and interaction with state policies, we now project the total cost of the Nuclear PTC to be \$35.3 billion. This is \$6.8 billion more than the cost of the version of the bill published in September. The tables below detail the cost projections on a reactor-by-reactor basis, by state, annually and over the proposed 6-year term of the program.

We also provide a table showing the 20 largest corporate beneficiaries. We note that Exelon remains the top beneficiary, at \$13.5 billion. Energy Harbor remains the second-largest recipient, at \$3.0 billion. Together, the two companies account for 47% of the cost of the Nuclear PTC. The corporations are each at the heart of federal corruption cases involving nuclear subsidy legislation in Illinois and Ohio.

As explained in our previous memos, proposed subsidies for existing reactors would have no impact on power sector greenhouse emissions, lead to no net increases in employment, and divert resources from real, desperately needed climate and environmental justice solutions. Dedicating a large portion of the budget for CEPP to subsidizing existing nuclear power plants would be a policy failure with real world consequences: undermining progress on climate, preventing investments in Justice40 and remedies to environmental injustice, and setting a precedent that bailing out status quo industries and business models is a higher priority than advancing real solutions to urgent problems. The Nuclear PTC is wasteful and counterproductive, and will perpetuate injustice, irreparably harm the environment, and prevent desperately needed social programs from being implemented.

Figure 1: Estimated Tax Credits for Merchant Nuclear Power Plants

State	Reactor	Controlling Owner	Capacity (MW)	Annual Gen., 2020 (MWh)	Annual Tax Credit (\$)	TOTAL (2022-2031)
CT	Millstone 2	Dominion	853	6,690,501	\$100,357,515	\$602,145,090
CT	Millstone 3	Dominion	1,220	9,024,354	\$135,365,310	\$812,191,860
IL	Braidwood 1	Exelon	1,183	10,604,454	\$159,066,810	\$954,400,860
IL	Braidwood 2	Exelon	1,154	9,767,222	\$146,508,330	\$879,049,980
IL	Byron 1	Exelon	1,164	9,853,735	\$147,806,025	\$886,836,150
IL	Byron 2	Exelon	1,136	9,671,159	\$145,067,385	\$870,404,310
IL	Clinton	Exelon	1,065	9,462,481	\$141,937,215	\$851,623,290

IL	Dresden 2	Exelon	902	7,966,534	\$119,498,010	\$716,988,060
IL	Dresden 3	Exelon	895	7,512,354	\$112,685,310	\$676,111,860
IL	LaSalle 1	Exelon	1,131	9,535,886	\$143,038,290	\$858,229,740
IL	LaSalle 2	Exelon	1,134	10,159,798	\$152,396,970	\$914,381,820
IL	Quad Cities 1	Exelon	908	8,075,967	\$121,139,505	\$726,837,030
IL	Quad Cities 2	Exelon	911	7,636,478	\$114,547,170	\$687,283,020
MD	Calvert Cliffs 1	Exelon	866	7,371,348	\$110,570,220	\$663,421,320
MD	Calvert Cliffs 2	Exelon	842	7,709,209	\$115,638,135	\$693,828,810
NH	Seabrook	NextEra	1,250	9,865,196	\$147,977,940	\$887,867,640
NJ	Hope Creek	PSEG	1,172	10,592,697	\$139,272,354	\$835,634,124
NJ	Salem 1	PSEG	1,153	7,142,172	\$135,050,835	\$810,305,010
NJ	Salem 2	PSEG	1,142	9,003,389	\$158,890,455	\$953,342,730
NY	FitzPatrick	Exelon	838	6,608,234	\$0	\$0
NY	Ginna	Exelon	581	4,353,098	\$0	\$0
NY	Nine Mile Point 1	Exelon	625	5,473,000	\$0	\$0
NY	Nine Mile Point 2	Exelon	1311	10,167,608	\$0	\$0
OH	Davis-Besse	Energy Harbor	894	7,228,063	\$108,420,945	\$650,525,670
OH	Perry	Energy Harbor	1,240	10,990,962	\$164,864,430	\$989,186,580
PA	Beaver Valley 1	Energy Harbor	907	8,047,731	\$120,715,965	\$724,295,790
PA	Beaver Valley 2	Energy Harbor	901	7,345,662	\$110,184,930	\$661,109,580
PA	Limerick 1	Exelon	1,120	9,133,195	\$136,997,925	\$821,987,550
PA	Limerick 2	Exelon	1,122	10,211,569	\$153,173,535	\$919,041,210
PA	Peach Bottom 2	Exelon	1,265	10,211,819	\$153,177,285	\$919,063,710
PA	Peach Bottom 3	Exelon	1,285	11,580,515	\$173,707,725	\$1,042,246,350
PA	Susquehanna 1	Talen	1,247	9,332,238	\$139,983,570	\$839,901,420
PA	Susquehanna 2	Talen	1,247	10,658,665	\$159,879,975	\$959,279,850
TX	Comanche Peak 1	Luminant	1,205	9,781,846	\$146,727,690	\$880,366,140
TX	Comanche Peak 2	Luminant	1,195	9,698,102	\$145,471,530	\$872,829,180
TX	South Texas Project 1	NRG	1,280	10,409,819	\$156,147,285	\$936,883,710
TX	South Texas Project 2	NRG	1,280	11,548,938	\$173,234,070	\$1,039,404,420
WI	Point Beach 1	NextEra	620	4,828,765	\$0	\$0
WI	Point Beach 2	NextEra	620	4,942,568	\$0	\$0
TOTAL			41,997	346,192,454	\$4,598,500,644	\$27,537,003,864

Figure 2: Estimated Tax Credits for Utility-Owned Nuclear Power Plants

State	Reactor	Controlling Owner	Capacity (MW)	Annual Gen., 2020 (MWh)	Annual Tax Credit (\$)	TOTAL (2022-2031)
AL	Browns Ferry 1	TVA	1113	9,174,116	\$27,522,348	\$165,134,088
AL	Browns Ferry 2	TVA	1113	10,098,922	\$30,296,766	\$181,780,596
AL	Browns Ferry 3	TVA	1113	9,501,812	\$28,505,436	\$171,032,616

AL	Farley 1	Southern	851	7,802,415	\$23,407,245	\$140,443,470
AL	Farley 2	Southern	860	6,973,382	\$20,920,146	\$125,520,876
AR	ANO 1	Entergy	836	7,436,378	\$22,309,134	\$133,854,804
AR	ANO 2	Entergy	987	7,626,671	\$22,880,013	\$137,280,078
AZ	Palo Verde 1	APS	1335	9,818,477	\$29,455,431	\$176,732,586
AZ	Palo Verde 2	APS	1335	10,466,373	\$31,399,119	\$188,394,714
AZ	Palo Verde 3	APS	1335	11,267,583	\$33,802,749	\$202,816,494
CA	Diablo Canyon 1	PG&E	1118	8,910,575	\$26,731,725	\$80,195,175
CA	Diablo Canyon 2	PG&E	1122	7,348,123	\$22,044,369	\$88,177,476
FL	St. Lucie 1	NextEra	1134	6,556,421	\$19,669,263	\$118,015,578
FL	St. Lucie 2	NextEra	1150	6,062,561	\$18,187,683	\$109,126,098
FL	Turkey Point 3	NextEra	813	8,726,843	\$26,180,529	\$157,083,174
FL	Turkey Point 4	NextEra	813	8,073,527	\$24,220,581	\$145,323,486
GA	Hatch 1	Southern	924	9,562,447	\$28,687,341	\$172,124,046
GA	Hatch 2	Southern	924	9,295,371	\$27,886,113	\$167,316,678
GA	Vogtle 1	Southern	1215	6,410,209	\$19,230,627	\$115,383,762
GA	Vogtle 2	Southern	1215	7,557,670	\$22,673,010	\$136,038,060
KS	Wolf Creek	Evergy	1250	10,582,482	\$31,747,446	\$190,484,676
LA	River Bend	Entergy	974	8,961,217	\$26,883,651	\$161,301,906
LA	Waterford 3	Entergy	1180	7,988,370	\$23,965,110	\$143,790,660
MI	D.C. Cook 1	AEP	1048	8,303,660	\$24,910,980	\$149,465,880
MI	D.C. Cook 2	AEP	1107	9,962,985	\$29,888,955	\$179,333,730
MI	Fermi 2	DTE	1122	6,070,778	\$27,318,501	\$163,911,006
MN	Monticello	Xcel	671	5,593,314	\$16,779,942	\$100,679,652
MN	Prairie Island 1	Xcel	548	4,337,576	\$13,012,728	\$78,076,368
MN	Prairie Island 2	Xcel	548	4,746,398	\$14,239,194	\$85,435,164
MO	Callaway	Ameren	1279	7,742,120	\$30,194,268	\$181,165,608
MS	Grand Gulf	Entergy	1478	6,470,934	\$34,943,044	\$209,658,262
NC	Brunswick 1	Duke	935	6,917,770	\$20,753,310	\$124,519,860
NC	Brunswick 2	Duke	935	8,088,450	\$24,265,350	\$145,592,100
NC	McGuire 1	Duke	1129	9,434,118	\$28,302,354	\$169,814,124
NC	McGuire 2	Duke	1129	9,612,831	\$28,838,493	\$173,030,958
NC	Shearon Harris	Duke	900	8,275,593	\$24,826,779	\$148,960,674
NE	Cooper	NPPS	810	6,188,551	\$18,565,653	\$111,393,918
SC	Catawba 1	Duke	1129	9,235,519	\$27,706,557	\$166,239,342
SC	Catawba 2	Duke	1129	10,121,151	\$30,363,453	\$182,180,718
SC	Oconee 1	Duke	846	6,859,973	\$20,579,919	\$123,479,514
SC	Oconee 2	Duke	846	7,670,158	\$23,010,474	\$138,062,844
SC	Oconee 3	Duke	846	7,012,136	\$21,036,408	\$126,218,448
SC	Robinson 2	Duke	724	6,124,626	\$18,373,878	\$110,243,268
SC	V.C. Summer 1	Dominion	966	7,727,525	\$23,182,575	\$139,095,450
TN	Sequoyah 1	TVA	1148	9,846,769	\$29,540,307	\$177,241,842

TN	Sequoyah 2	TVA	1126	9,252,420	\$27,757,260	\$166,543,560
TN	Watts Bar 1	TVA	1121	9,075,100	\$27,225,300	\$163,351,800
TN	Watts Bar 2	TVA	1150	8,513,906	\$25,541,718	\$153,250,308
VA	North Anna 1	Dominion	903	8,468,833	\$25,406,499	\$152,438,994
VA	North Anna 2	Dominion	903	7,331,070	\$21,993,210	\$131,959,260
VA	Surry 1	Dominion	799	7,551,070	\$22,653,210	\$135,919,260
VA	Surry 2	Dominion	799	6,789,081	\$20,367,243	\$122,203,458
WA	Columbia	Energy NW	1170	9,427,050	\$28,281,150	\$169,686,900
TOTAL			53,954	428,953,410	\$1,318,464,547	\$7,786,503,367

Figure 3: Top 20 Corporate Beneficiaries of the Nuclear PTC

Corporation/ Utility	Annual Amount	Total Amount
Exelon	\$2,251,019,114	\$13,506,114,687
Energy Harbor	\$504,186,270	\$3,025,117,620
PSEG	\$470,228,706	\$2,821,372,235
Dominion	\$336,107,398	\$2,016,644,390
Luminant	\$292,199,220	\$1,753,195,320
Talen	\$254,492,575	\$1,526,955,451
NextEra	\$236,235,996	\$1,417,415,976
Duke	\$221,165,442	\$1,326,992,652
TVA	\$196,389,135	\$1,178,334,810
Entergy	\$127,486,647	\$764,919,883
Southern	\$91,769,737	\$550,618,425
NRG	\$58,773,950	\$352,643,700
AEP	\$54,799,935	\$328,799,610
Xcel	\$44,031,864	\$264,191,184
Ameren	\$30,194,268	\$181,165,608
Evergy	\$29,842,599	\$179,055,595
Energy NW	\$28,281,150	\$169,686,900
PG&E	\$28,062,109	\$168,372,651
APS	\$27,545,274	\$165,271,644
DTE	\$27,318,501	\$163,911,006