


Issue Brief: The Nuclear Production Tax Credit

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In 2005, Congress created the nuclear production tax credit (PTC), as part of the Energy Policy Act, to incentivize the installation of new nuclear facilities. Despite the availability of up to \$6 billion in tax credits, and a suite of other existing subsidies, the intended expansion of U.S. nuclear generation has not materialized, largely because of the same financial and technological problems historically experienced by the industry.

Nearly all nuclear reactors currently operating in the U.S. were built before 1990. The large up-front capital requirements, construction difficulties, and cost escalations that characterized the wave of nuclear construction in the preceding decades made new nuclear investment an unappealing and uneconomic choice for U.S. utility companies thereafter.

After being open for 15 years, the nuclear PTC's eligibility window is set to close at the beginning of 2021, but some members of Congress have proposed both extending and expanding the credit. Currently, legislation has been introduced in the Senate (and passed the House) that would allow the credit to become a \$6 billion blank check to any future nuclear project, and could end up benefiting narrow interests.



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Understanding the Nuclear PTC

The “Credit for Production from Advanced Nuclear Power Facilities” was created as section 45J of the U.S. Tax Code in Sec. 1306 of the Energy Policy Act of 2005.ⁱ The provision allows an eligible nuclear power facility to reduce its tax liability in a given year by an amount equal to 1.8 cents for every kilowatt hours of electricity it produces and sells to an unaffiliated buyer in its first eight years of operation.

The tax credit is available to any “advanced nuclear facility” which is defined as any facility whose nuclear reactor design was approved after 1993 and is put into service by the end of 2020. The total amount of tax credits nuclear plants can accrue is limited by a national cap on qualifying nuclear capacity, and an annual cap per facility:

National Limitation

An advanced nuclear facility that otherwise qualifies can only earn the PTC for producing electricity in proportion to the amount of national capacity it has been allocated. The total amount of national capacity the Secretary of the Treasury can allot is limited to 6,000 megawatts (MW). How that allocation is made was left up to the Treasury Department and the IRS to determine. Guidance on how they would proceed was first published by the agencies in May 2006,ⁱⁱ and was later re-published with certain clarifications in 2013.ⁱⁱⁱ

In that guidance, the IRS indicated it would only allocate the national capacity to facilities that had applied for it, received the proper licensing from the Nuclear Regulatory

Commission, and started pouring concrete before 2014. If the nameplate capacity¹ of all qualifying facilities that apply for the credit is less than 6,000 MW, each facility is allocated national capacity in an amount equal to its nameplate capacity. If the total nameplate capacity of these facilities is more than 6,000 MW, the national capacity will be allocated to each facility in the proportion of its individual nameplate capacity to the total qualifying nameplate capacity.

For example, if the total nameplate capacity of facilities applying for the credit is 8,000 MW, then a plant with a nameplate capacity of 1,000 would receive 1/8 of the 6,000 MW national capacity, or 750 MW of national capacity.

Annual Limitation

In a given year, a facility may only receive \$125 million in tax credits for every 1,000 MW of national capacity it has been allocated. For example, if a certain plant has been allocated 1,200 MW of national capacity, it can only accrue \$150 million in a given year.

Through these limitations, Congress effectively capped the total amount of tax credits that could be earned in a given year, and thus, in total. The annual limitation entails that only \$750 million in credits can be generated in a given year. Moreover, because qualifying nuclear plants can earn the credit for their first eight years of operations, the total amount that could possibly be earned by all advanced nuclear facilities is \$6 billion. When the credit was enacted, the Energy Information Administration estimated it would cost the federal government \$5.692 billion in lost revenue, taking into consideration that power plants typically produce less than their capacity in the first few years of operations and therefore wouldn't reach the \$125 million cap immediately.^{iv}

The PTC in Practice

The nuclear PTC was intended to spur investment in new nuclear facilities, sparking what industry supporters termed a “nuclear renaissance” in the civilian nuclear energy sector. The ‘renaissance’ never materialized. Following the introduction of the PTC in 2005, U.S. utilities began to explore building as many as 30 new nuclear reactors that could benefit from the tax incentive.^v By the beginning of 2017, however, only two nuclear projects were under way with an expected completion date before the credit's 2021 placed-in-service deadline: the construction of [Units 3&4 at Plant Vogtle in Georgia](#), and the [V.C. Summer 2&3 reactors in South Carolina](#). From the outset, the two projects have experienced numerous setbacks, some of which have now proven insurmountable.

On March 29, 2017, Westinghouse Electric Company, LLC – the contractor for the Summer and Vogtle projects – filed for bankruptcy.^{vi} In subsequent months, the owners of the Vogtle and Summer plants prepared new estimates of the cost and schedule associated with completing construction of their reactors. The owners of the V.C. Summer plant – South Carolina Electric & Gas (owned by SCANA Corp.) and Santee Cooper – reported that their projected capital costs alone had increased from \$11.4 billion to roughly \$18 billion.^{vii} After unsuccessfully seeking^{viii} a \$3 billion grant from the Department of Energy, and turning down a counter-offer of an undisclosed amount in loan guarantees, the two companies decided to abandon the project on July 31, 2017.^{ix}

¹ Nameplate capacity is a measure of a power plant's total energy output under certain conditions in a certain period of time, typically an hour. Traditional nuclear reactors typically have a nameplate capacity between 700 and 1,300 MW.

Unlike their South Carolina counterparts, the owners of Plant Vogtle have benefitted from \$8.3 billion in Department of Energy (DOE) loan guarantees provided through the Title XVII program^x – another subsidy enacted in the Energy Policy Act of 2005. Federal taxpayers, therefore, have a vested interest in the complications^{xi} that have been associated with Vogtle construction to the extent they have increased the likelihood of the owners defaulting on their guaranteed loans.

The magnitude of those complications became clear in August 2017 when the owners collectively reported that, taking into account the Westinghouse bankruptcy, the total project cost had increased to more than \$25 billion.^{xii} Georgia Power, the largest owner and a subsidiary of Southern Company, also projected that the construction timetable could be extended to as late as March 2022 for Unit 3 and March 2023 for Unit 4^{xiii} – well outside of the PTC deadline. Compared to the project's original estimates, construction of the two reactors is more than \$10 billion over budget and as much as six years behind schedule. Despite this, the DOE offered an additional \$3.7 billion in loan guarantees to the Vogtle owners in September 2017, increasing taxpayers' stake in the risky project.^{xiv}

It is now clear that no new nuclear facility will qualify for the PTC, as enacted.

Efforts to Expand the Credit

As it became increasingly clear that ongoing nuclear projects would struggle to meet the 2021 deadline, certain Members of Congress have led efforts to expand and extend the PTC. In 2016, Rep. Tom Price (R-SC) introduced H.R. 5879,^{xv} a bill that would have effectively eliminated the placed-in-service deadline and expanded the definition of qualifying facilities to include non-taxable entities, like municipal and cooperative utilities. The bill would have allowed those entities to transfer the credit to project partners, not having any federal tax liability of their own to which the credit could be applied. Two of the [Vogtle owners](#) fit into this category and would be able to transfer any credit they receive to other partners, like Southern Company. The bill was not passed by either chamber of Congress.

In 2017, companion bills nearly identical to the 2016 bill were introduced in both the House and Senate. Like the 2016 iteration, the legislation would allow any new nuclear facility to be allotted any amount of the 6,000 MW of national capacity not allotted to nuclear power plants built on or before December 31, 2020.

The House bill, H.R. 1551, passed the chamber in June 2017.^{xvi} The Senate version, S.666,^{xvii} has not yet been brought up for consideration. If passed, the tax credits could be claimed by any nuclear facility with a reactor design approved after 1994, regardless of when they come online. Once again, if claimed, the credits could result in up to \$6 billion in lost revenue to the federal government. Neither bill provides an offset for the renewed giveaway.

Most recently, a copy of H.R. 1551 appeared as section 3506 in the House tax proposal^{xviii} released in [November 2017](#), but the provision was not included in either the Senate version or the final tax package passed into law in December 2017. The legislative language then resurfaced in the latest tax extenders package that was introduced this December by Senate Finance Committee Chairman Orrin Hatch (R-UT).^{xix}

Conclusion

Despite billions in government loan guarantees and tax incentives, new nuclear power generation projects remain uneconomical. Current proposals to indefinitely extend the nuclear production tax credit would transform the subsidy into a blank check for any future nuclear power project. Further, expanding the eligibility to claim the credit to entities that don't pay tax could amount to a backdoor windfall for a select few nuclear corporations. Continuing a failed tax break for a politically favored industry would create an outstanding liability to taxpayers for billions of dollars for untold decades to come.

ⁱ P.L. 109-58 – Aug. 8, 2005; 119 STAT. 997

ⁱⁱ IRS Notice 2006-40, 2006-1 C.B. 855

ⁱⁱⁱ IRS Notice 2013-68

^{iv} Energy Information Administration, Office of Integrated Analysis and Forecasting, “Analysis of Five Selected Provisions of the Conference Energy Bill of 2003,” February 2004, SR/OIAF/2004-01.

<https://www.taxpayer.net/wp-admin/upload.php?item=49858>

^v Congressional Research Service. “Nuclear Power: Outlook for New U.S. Reactors.” March 29, 2017

https://www.everycrsreport.com/files/20070309_RL33442_8192b61bcf80ab58000a8fdd8e9bcad187767c25.pdf

^{vi} Westinghouse Electric Company, LLC. “Westinghouse Announces Strategic Restructuring.” 29 March 2017.

<http://www.westinghousenuclear.com/About/News/View/WESTINGHOUSE-ANNOUNCES-STRATEGIC-RESTRUCTURING>

^{vii} Charlotte Business Journal. “SCANA withdraws — for now — petition to abandon \$18 billion nuclear project.” August 15, 2017. <https://www.bizjournals.com/charlotte/news/2017/08/15/s-c-electric-gas-has-withdrawn-its-petition-to.html>

^{viii} Axios. “Utility made failed plea for billion-dollar nuclear grant.” August 4, 2017. <https://www.axios.com/utility-made-failed-plea-for-billion-dollar-nuclear-grant-1513304652-a6241c67-bae7-4cc7-a719-fd9fbde532b9.html>

^{ix} Utility Dive. “Santee Cooper, SCANA abandon Summer nuclear plant construction.” July 31, 2017.

<https://www.utilitydive.com/news/santee-cooper-scana-abandon-summer-nuclear-plant-construction/448262/>

^x U.S. Department of Energy. “Sec. Moniz to Georgia, Energy Department Scheduled to Close on Loan Guarantees to Construct New Nuclear Power Plant Reactors.” 19 February 2014. <https://energy.gov/articles/sec-moniz-georgia-energy-department-scheduled-close-loan-guarantees-construct-new-nuclear>

^{xi} Taxpayers for Common Sense. “Stop wasting tax dollars on failing nuclear projects.” October 23, 2017.

<https://www.taxpayer.net/energy-natural-resources/stop-wasting-tax-dollars-on-failing-nuclear-projects/>

^{xii} CBS News. “\$25 billion nuclear projects at Georgia's troubled Plant Vogtle to continue.” December 21, 2017.

<https://www.cbsnews.com/news/nuclear-projects-at-georgias-plant-vogtle-to-continue/>

^{xiii} Southern Company. “Earnings Conference Call - Second Quarter 2017” presentation. Aug. 2, 2017.

<http://s2.q4cdn.com/471677839/files/SO-2Q-2017-EC-Slide-Deck-FINAL.pdf>

^{xiv} Reuters. “U.S. offers Vogtle nuclear plant \$3.7 billion in loan guarantees.” September 29, 2017.

<https://www.reuters.com/article/us-usa-nuclearpower-vogtle/u-s-offers-vogtle-nuclear-plant-3-7-billion-in-loan-guarantees-idUSKCN1C42BG>

^{xv} <https://www.congress.gov/bill/114th-congress/house-bill/5879>

^{xvi} <https://www.congress.gov/bill/115th-congress/house-bill/1551>

^{xvii} <https://www.congress.gov/bill/115th-congress/senate-bill/666>

^{xviii} <https://www.congress.gov/bill/115th-congress/house-bill/1/text/eh>

^{xix} <https://www.congress.gov/bill/115th-congress/senate-bill/2256>