PEPPERDINE UNIVERSITY

The Journal of Business, Entrepreneurship & the Law

Volume 17 | Issue 1 Article 3

6-15-2024

Death, Taxes, and Clean Energy: How the Inflation Reduction Act Harnesses Tax Law to Revitalize American Clean Energy

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DEATH, TAXES AND CLEAN ENERGY: HOW THE INFLATION REDUCTION ACT HARNESSES TAX LAW TO REVITALIZE AMERICAN CLEAN ENERGY

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I. INTRODUCTION

In 1789 when Benjamin Franklin quipped that, "in this world, nothing is certain except death and taxes,"[2] he probably had no idea that American federal tax law would enshrine tax credits, incentivizing investment in clean energy.[3] With the recent passage of the Inflation Reduction Act of 2022 (IRA), investors have newfound opportunities, through both the federal investment tax credit (ITC) and production tax credit (PTC), to receive tax breaks in exchange for funding qualifying clean energy projects.[4] The IRA provides investors with novel approaches to take advantage of these credits, including credit transfers and direct cash payments for certain tax-exempt entities in lieu of tax credits.[5] In addition, the IRA promotes worker equity by requiring prevailing wages and apprenticeships for projects to qualify for the full value of the federal tax credits.[6] Over the next decade, the IRA promises to supercharge the American clean energy transition, expand the clean energy market, enhance workforce equity, and position the U.S. to achieve its Paris Agreement commitment of reducing greenhouse gas (GHG) emissions 50%–52% by 2030.[7] In this world few things are certain, but the IRA tax reform will certainly leave its mark on American clean energy infrastructure and markets for years to come.[8]

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[2] NCC Staff, *Benjamin Franklin's Last Great Quote and the Constitution*, NAT'L CONST. CTR. (Nov. 13, 2022), https://constitutioncenter.org/blog/benjamin-franklins-last-great-quote-and-the-constitution.

[3] *See* Inflation Reduction Act of 2022, Pub. L. No. 117–169, 136 Stat. 1818, https://www.congress.gov/bill/117th-congress/house-bill/5376/text [hereinafter Inflation Reduction Act].

[4] *Id.* The IRA refers to "zero-emission" technology, which for the purposes of this article carries the same meaning as "clean energy." *Id.*

[5] *Id.*

[6] *Id.*

[7] Daniel Esposito & Energy Innovation: Policy and Technology, *Inflation Reduction Act Benefits: Clean Energy Tax Credits Could Double Deployment*, FORBES (Aug. 23, 2022), https://www.forbes.com/sites/energyinnovation/2022/08/23/inflation-reduction-act-benefits-clean-energy-tax-credits-could-double-deployment/.

[8] *Id.*

II. ARTICLE OVERVIEW

This article discusses the nature and impact of the IRA's historic tax reform on U.S. clean energy markets with respect to businesses, American workers, the global community, and the climate. First, the article provides background on federal tax credits for clean energy and certain tax law concepts pertinent to the discussion of the IRA's design and significance.[9] A comparison of the German and American approaches to incentivizing clean energy places the American approach in context and illustrates the market-based approach the IRA takes through the Federal Tax Code to incentivize private and public investment in clean energy.[10] Next, the article provides background on the IRA's design, walking through five key provisions of the law regarding federal clean energy tax credits.[11] The background discussion highlights: (1) the extension of the current ITC and PTC through 2024; (2) the creation of two new credits that vastly expand upon the current ITC and PTC; (3) the transferability of tax credits and direct payment options for tax-exempt entities; (4) the prevailing wage and apprenticeship requirements benefitting American workers; and (5) the additional tax credits available for projects that meet certain domestic content and siting requirements.[12]

The article then analyzes the practical significance of the IRA for a range of stakeholders, particularly investors, project developers, American workers, and everyday Americans.[13] First, the analysis discusses how the extension and expansion of the federal ITC and PTC opens the U.S. clean energy market to more projects and investors.[14] With technology-neutral language, the IRA extends tax incentives to cover important, new clean technologies.[15] Moreover, the article analyzes how the IRA's tax credit transferability and, for certain tax-exempt investors, direct payments in lieu of the ITC opens the American clean-energy market to more investors, particularly public funding sources, such as municipal utilities and public pension funds.[16]

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[9] *See infra* Section III.
[10] *See infra* Section III.
[11] *See* Esposito & Energy Innovation, *supra* note 7.
[12] *See id.*
[13] *See infra* Section IV.
[14] *See* Esposito & Energy Innovation, *supra* note 7.
[15] *See id.*
[16] *Id.*

Specifically, the analysis highlights how these transferability and direct pay provisions carry great significance for enhancing the overall equity pool for U.S. clean-energy projects, improving market efficiency, and granting investors more flexibility for deploying capital toward such projects.[17] Second, the article examines the IRA's significance for American workers through the prevailing wage and apprenticeship requirements, which provide a low-cost on-ramp for workers to join the clean-energy transition and earn prevailing wages.[18] Lastly, the article analyzes the IRA's global significance with respect to American global competitiveness with China and the European Union and to the U.S. achieving its ambitious GHG emissions reduction goals.[19] To conclude, the article recaps the IRA's operative clean-energy tax credit provisions, highlights the significance of those provisions for businesses, American workers, the global community, and the climate, and reflects on the legacy such tax reform leaves for American posterity.[20]

III. BACKGROUND: FEDERAL TAX CREDITS AND CLEAN-ENERGY FINANCE

Originally, the American federal tax credits for clean energy, the ITC and PTC, started with the Energy Policy Act of 2005, modeled after Germany's Feed-in Tariff (FIT) system and signed into law by President George W. Bush.[21] In Germany, the FIT set the price of renewable energy as a percentage of the retail rate of electricity, effectively subsidizing renewable energy for utilities and prioritizing it over fossil fuels.[22] As a result of its FIT, Germany saw a rapid transition towards clean energy, with renewables growing from about 6.6% of total electricity generation in 2000, when the FIT came into effect, to 33.3% by 2017.[23] By contrast, U.S. law grants state-level public utility commissions the authority to set power prices, not the federal government.[24] Rather than fixing the price of a particular energy resource, the U.S. enacted the ITC and PTC through

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[17] *Id.*
[18] *Id.*
[19] *Id.*
[20] *See infra* Section V.
[21] Drew D'Alelio et al., *The Essence of Tax Equity*, YALE CTR. FOR BUS. AND THE ENV'T, CLEAN ENERGY FIN. F. (May 16, 2022), https://www.cleanenergyfinanceforum.com/2022/05/16/the-essence-of-tax-equity-part-one-in-series.
[22] *Id.*
[23] *Id.*
[24] *Id.*

26 U.S.C. §§ 48 and 45, respectively, for qualifying clean-energy projects.[25] The federal ITC delivers a one-time, upfront tax credit to the project owner "based on the total capital expenses required to build a particular project," and the PTC provides project owners an ongoing credit "awarded over time based on a project's annual energy production."[26] Thus, while both the German and American approaches have promoted clean-energy deployment, the U.S. has done so through the Federal Tax Code, incentivizing investors to own and contribute capital towards such projects.[27]

In addition to the tax credits, the Code allows businesses to accelerate the reporting of capital expenses related to renewable-energy projects as deductions, enabling such businesses to invest in qualifying projects and lower their taxable income, taking advantage of "accelerated depreciation."[28] Together, the federal tax credits and accelerated depreciation create powerful incentives for investors to use tax planning to invest in renewable-energy assets.[29]

The IRA's revamp of federal tax credits for clean energy comes at a crucial time when the U.S. faces mounting challenges due to climate change and must achieve swift greenhouse gas (GHG) emissions reductions to meet its Paris Agreement climate commitment.[30] In 2021 the

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[25] *Id.*; *see also The Energy Credit or Energy Investment Tax Credit (ITC)*, CONG. RSCH. SERV. (Apr. 23, 2021), chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://crsreports.congress.gov/product/pdf/IF/IF10479.

[26] D'Alelio et al., *supra* note 21.

[27] *Id.*

[28] *The Tax Break-Down: Accelerated Depreciation*, COMM. FOR A RESPONSIBLE FED. BUDGET (Sept. 20, 2013), https://www.crfb.org/blogs/tax-break-down-accelerated-depreciation (explaining the mechanics of accelerated depreciation for taxpayers).

[29] *Id.* However, tax-equity financing remains mostly limited to those large, low-risk projects and institutional investors that have the resources to navigate the complex transactions involved with tax equity. D'Alelio et al., *supra* note 21.

[30] *See* Esposito & Energy Innovation, *supra* note 7 (noting that the IRA "puts the U.S. within reach of its Paris Agreement commitment to cut emissions 50% to 52% by 2030"); *see also* HANS-O. PÖRTNER ET AL., SUMMARY FOR POLICYMAKERS 8-10 (IPCC, 2022), https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Summ

transportation and electricity sectors contributed the most to overall U.S. GHG emissions, about 28% and 25%, respectively.[31] To achieve emissions reductions, American governments at all levels have set goals for increasing clean energy supply.[32]

In addition to debt, renewable energy project developers secure capital for projects through tax equity.[33] Tax equity occurs when an investor owns and contributes capital to a project in exchange for receiving tax deductions and credits to lower its net tax liability.[34] How much has tax equity contributed to clean energy investment? In 2021, tax equity accounted for $19–$20 billion out of a total $105 billion invested in the U.S. renewables industry, or about 19% of total capital investment.[35] Tax equity for an average solar project comprises about 35–40% of total capital with the remaining capital coming from a project sponsor, lender, or both.[36] In addition to claiming value through federal tax credits, 26 U.S.C. § 168(g)(C)(3) allows investors to take advantage of accelerated depreciation, whereby businesses can save on taxes by lowering their taxable income.[37] Accordingly, such an investor benefits from the tax attributes of clean energy assets over the initial five-year period it owns

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aryForPolicymakers.pdf (stating the IPCC's observed and projected impacts and risks to natural and human systems caused by human-induced climate change).

[31] *Sources of Greenhouse Gas Emissions*, U.S. EPA, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions (Aug. 25, 2023).

[32] *Summary Maps*, DSIRE, https://programs.dsireusa.org/system/program/maps (last visited Feb. 17, 2023).

[33] Brian C. Greene et al., *Tax-Equity Financing*, 3 THE PROJECT FIN. L. REV. 153, 154–55 (2021).

[34] D'Alelio et al., *supra* note 21.

[35] *Id.*

[36] Greene et al., *supra* note 33. The term "tax equity financing" in this context generally refers to "investment structures in which a passive equity investor looks to achieve a target internal rate of return based primarily on US federal income tax benefits derived from an investment in a particular asset. Tax-equity investors are typically profitable tax-paying entities such as banks, insurance companies, certain utilities[,] and general corporate entities. . . . [T]ax-equity investors generally invest alongside a developer who cannot make efficient use of the tax benefits associated with the underlying asset." *Id.*

[37] *Id.* (noting that certain equipment used in renewable energy projects may qualify for "depreciation over an accelerated five-year period"). Accordingly, an investor may accelerate its reporting of capital expenditures incurred by financing the clean energy asset, typically over the first five years of the asset's lifetime, allowing the investor-taxpayer to lower its taxable income during that time. *Id.*; *see also* 26 U.S.C. § 168(g)(3)(C).

the assets, during which time it may lower its taxable income on an accelerated basis.[38]

The IRA sets forth five main tax credit provisions with significance for investors—especially public investors—project developers, American workers, everyday Americans, and the global community.[39] First, the IRA extends the existing federal investment tax credit (ITC) and production tax credit (PTC).[40] Second, the IRA creates two new tax credits: the Clean Electricity Investment Credit and the Clean Electricity Production Credit.[41] These credits significantly expand upon the previous ITC and PTC.[42] For example, the IRA contains technology-neutral language allowing for standalone battery storage and clean hydrogen projects to qualify for the ITC.[43] Similarly, the new law allows for new clean technology to qualify for the PTC, so developers and investors may choose between either the ITC or PTC for more types of projects.[44] Third, the law allows investors to transfer their tax credits, and it allows certain tax-exempt entities to receive direct payments for capital expenses associated with clean energy projects.[45] Fourth, the IRA contains important worker equity stipulations, including prevailing wage and apprenticeship requirements for projects to qualify for the full value of the ITC or PTC.[46] Such labor provisions bolster the earnings of workers and create a low-cost pathway to employment in the clean energy industry.[47]

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[38] COMM. FOR A RESPONSIBLE FED. BUDGET, *supra* note 28 (explaining the mechanics of accelerated depreciation for taxpayers).
[39] Esposito & Energy Innovation, *supra* note 7.
[40] Inflation Reduction Act, *supra* note 3.
[41] *Id.* For simplicity, this article refers to the Clean Electricity Investment Credit as the "new ITC" and the Clean Electricity Production Credit as the "new PTC."
[42] Esposito & Energy Innovation, *supra* note 7.
[43] *Id.*
[44] *Id.* Various assumptions drive whether to choose the ITC or PTC, but the PTC now applies to solar projects, increasing financing options for such projects. *Id.*; *see also* Adam Schurle et al., *The Inflation Reduction Act: Key Provisions Regarding the ITC and PTC*, FOLEY & LARDNER LLP (Aug. 12, 2022), https://www.foley.com/en/insights/publications/2022/08/inflation-reduction-act-key-provisions-itc-ptc (noting that the IRA reinstates the PTC for qualifying solar energy facilities, which previously were largely excluded from the PTC).
[45] Esposito & Energy Innovation, *supra* note 7.
[46] Inflation Reduction Act, *supra* note 3; *see infra* Section III.D.
[47] *FACT SHEET: The Inflation Reduction Act Supports Workers and Families*, THE WHITE HOUSE (Aug. 19, 2022), https://www.whitehouse.gov/briefing-

Lastly, the law contains bonus tax credits, which offer an additional economic incentive for projects meeting certain domestic content requirements or siting requirements.[48] These provisions enhance investors' ability to deploy capital for clean energy projects (through flexible tax credit financing structures), incentivize high-paying jobs, promote American manufacturing, and catalyze economy-wide GHG emissions reductions.[49]

A. *Extension of the Current ITC and PTC*

The first key provision of the IRA extends the existing federal ITC and PTC, allowing investors to receive the full value of these credits for projects through 2024.[50] Thus, the ITC extension applies to new projects that are not yet placed in service.[51] In addition to extending the ITC, the IRA extends the existing PTC through 2024 for "wind, biomass, landfill gas, trash, qualified hydropower, and other designated electricity generation facilities." The previous law phased out the PTC for wind power plants between 2017 and 2021.[52] These tax credit extensions provide investors and project developers regulatory certainty while the new incentives take root in the market.[53]

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room/statements-releases/2022/08/19/fact-sheet-the-inflation-reduction-act-supports-workers-and-families/.

[48] Inflation Reduction Act, *supra* note 3; *see infra* Section III.E.

[49] THE WHITE HOUSE, *supra* note 47.

[50] Kevin Pearson & Michael Such, *Inflation Reduction Act and renewable energy development: its advantages and limitations*, REUTERS (Sept. 23, 2022), https://www.reuters.com/legal/legalindustry/inflation-reduction-act-renewable-energy-development-its-advantages-limitations-2022-09-23/ (The IRA creates "[a]n extension through 2024 of the existing 30% investment tax credit ('ITC') for solar, qualified fuel cell, waste energy recovery, geothermal and other designated electricity generation facilities."); *see also* Schurle et al., *supra* note 44 (detailing the IRA's extension and expansion of the federal ITC and PTC). Previously, the 30% ITC benefitting solar energy property was set to downsize between 2020 and 2023; however, some solar facilities placed in service prior to 2022 only qualify for a 26% ITC. Pearson & Such, *supra* note 50.

[51] Pearson & Such, *supra* note 50.

[52] *Id.*

[53] Esposito & Energy Innovation, *supra* note 7. The IRA broadens the scope of the federal tax credits for clean energy to include "any electricity generating facility of a type that the Secretary of Treasury determines on an annual basis has an 'anticipated greenhouse gas emissions rate' that is not greater than zero." Pearson & Such, *supra* note 50. Additionally, standalone battery storage facilities will benefit from the Clean Electricity Investment Credit, which will phase out for qualified facilities with construction beginning after the year in which yearly GHG emissions from electricity production is less than 25% of the

B. *The New ITC and PTC*

In the second provision, the IRA establishes two new tax credits, which "operate similarly to the current ITC and PTC but are technology neutral."[54] The IRA calls these credits the Clean Electricity Investment Credit and the Clean Electricity Production Credit.[55] They apply to projects placed in service after 2024.[56] The new tax credits serve the same purpose as the current ITC and PTC but differ significantly in scope.[57] The new credits, characterized by technology-neutral language, apply to any zero-emissions technology, such as battery storage and clean hydrogen.[58] In addition, the new PTC now covers solar facilities, whereas the existing PTC primarily covered wind projects.[59] Thus, taxable investors may claim either tax credit, but not both, for a qualifying project, requiring them to choose the credit that offers a better return.[60]

C. *Transferability and Direct Pay*

In the third provision, the IRA allows one-time tax credit transfers between entities and direct pay for tax-exempt entities.[61] Transferability allows parties to transfer their tax credits to another tax investor, whereas under the previous federal tax credit scheme an initial investor could not sell their tax credits.[62] Additionally, the IRA allows certain tax-exempt entities to receive direct cash payments in lieu of receiving tax credits.[63]

2022 level, or in 2032, whichever is later. Pearson & Such, *supra* note 50. The "Placed-in-Service" date is the milestone when an electric generating facility starts to deliver its power to the grid. Keith Martin, *Placed-in-Service Date*, NORTON ROSE FULBRIGHT LLP (Apr. 12, 2016), https://www.projectfinance.law/publications/2016/april/placed-in-service-date/.

[54] Pearson & Such, *supra* note 50.

[55] Inflation Reduction Act, *supra* note 3.

[56] Pearson & Such, *supra* note 50.

[57] *Id.*

[58] *Id.*

[59] *Id.*

[60] *Id.*

[61] Esposito & Energy Innovation, *supra* note 7.

[62] *Id.*

[63] Charles C. Cardall et al., *Inflation Reduction Act Levels the Renewable Energy Playing Field for Tax-Exempt Entities*, ORRICK, HERRINGTON & SUTCLIFFE LLP

Specifically, direct payments allow tax-exempt entities to receive direct cash payments in lieu of tax credits for qualifying projects funded by tax-exempt debt, up to 85% of the ITC or PTC amount.[64] Tax-exempt entities that may benefit from the direct payment option include state governments, local and tribal governments, public pension funds, municipal and cooperative utilities, 501(c)(3) organizations, and other tax-exempt entities.[65] The amount of the direct payment tax-exempt entities receive depends on whether the project meets the prevailing wage and apprenticeship requirements underlying the new ITC and PTC.[66] This means public investors, including governments, public pension funds, and municipal and cooperative utilities, may now directly benefit from federal funds by receiving direct payments for capital investments in clean energy projects.[67]

D. *Worker Equity Provisions of the New ITC and PTC*

Fourth, the IRA's prevailing wage and apprenticeship requirements create a new regime for projects to qualify for the ITC or PTC.[68] For projects to qualify for the full value of the ITC or PTC, certain prevailing wage and apprenticeship requirements must be met.[69] The prevailing wage provision requires that "all employees, contractors and subcontractors involved in the construction and alteration or repair of a project must be paid the applicable prevailing wage, as determined by the Secretary of Labor."[70] In addition, the apprenticeship requirement stipulates that a qualified apprentice must perform a certain percentage of project labor hours.[71] The U.S. Treasury Department issued recent guidance on how to comply with these worker equity provisions and thus claim the full value of the ITC and PTC.[72] These labor provisions add a

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(Aug. 26, 2022), https://www.orrick.com/en/Insights/2022/08/Inflation-Reduction-Act-Levels-Renewable-Energy-Playing-Field-for-Tax-Exempt-Entities.

[64] *Id.*

[65] *Id.*

[66] Schurle et al., *supra* note 44.

[67] *See* Cardall et al., *supra* note 63.

[68] Pearson & Such, *supra* note 50.

[69] *Id.*

[70] *Id.*

[71] *Id.*; *see also* Keith Martin, *Solar Tax Equity Structures*, NORTON ROSE FULBRIGHT LLP (Dec. 14, 2021), https://www.projectfinance.law/publications/2021/december/solar-tax-equity-structures/. The amount of apprenticeship hours required by the IRA depends on the year in which project construction begins, ranging from 10–15% for project owners to claim the full ITC or PTC. Schurle et al., *supra* note 44.

[72] I.R.S. Notice 2022-61, 87 FR 73580, 73581 (Nov. 30, 2022).

social equity dimension to the federal tax credits for clean energy projects with the aim to provide fair pay and low-cost workforce development for projects receiving federal funds.[73]

E. *Bonus Tax Credits*

In addition to the worker equity provisions of the new ITC and PTC, the IRA includes two primary bonus tax credits for projects meeting domestic content and siting requirements.[74] These bonus tax credits provide an additional 10% to the ITC or PTC and can stack on top of the base credits—the ITC or PTC—offering taxpayers additional funds for qualifying projects.[75] Specifically, these bonus tax credits provide an additional 10% to either the ITC or the PTC for projects that either source domestic content or are located in designated energy communities or both.[76] A project may thus qualify for both bonus tax credits.[77]

To satisfy the IRA's domestic content requirements, projects must source a certain percentage of manufactured products domestically, with the exact percentage ramping up from 40% to 55% by 2027.[78] The domestic content requirements call for projects to source 100% of iron and steel components from the U.S. and a certain minimum percentage of total project manufactured products from U.S. sources, starting at 40% of total costs of manufactured products for projects beginning before 2025, and

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[73] Jessie HF Hammerling, *The Inflation Reduction Act Charts a Path that is Pro-Climate and Pro-Worker*, UC BERKELEY LAB. CTR. (Aug. 18, 2022), https://laborcenter.berkeley.edu/ira-charts-a-path-that-is-both-pro-climate-and-pro-worker/.

[74] Inflation Reduction Act, *supra* note 3, at 1910.

[75] *Id.* at 1912. The IRA defines an "energy community" as one of the following: a brownfield site, a statistical area with 25% or more of local revenues come from fossil fuels and unemployment rate that exceeds the national average, or a census tract where a coal mine or coal plant has recently retired. *Id.*

[76] *Id.* at 1910–12.

[77] *Id.*

[78] Cardall et al., *supra* note 63. Certain exceptions to the domestic content requirements apply for offshore wind products until 2028, for projects where meeting the domestic content requirements would increase project costs by over 25%, or if product quantity or quality is domestically unavailable. Schurle et al., *supra* note 44.

stepping up after that.[79] Importantly, the domestic content definition includes manufacturing facilities located not just in U.S. but also "any country with which the U.S. has a free trade agreement."[80] Thus the domestic content requirement may be satisfied by sourcing materials not only from the U.S. but also from U.S. free-trade countries, including Canada, Mexico, Chile, Australia, and sixteen others.[81] Relatedly, the PTC applies to advanced manufacturing production itself if the components are American-made and sold to an unrelated party, another way in which the IRA incentivizes domestic clean technology manufacturing.[82]

Second, projects may qualify for another 10% bonus tax credit if located in an "energy community," qualifying low-income area, or Native American Tribal land.[83] As with the domestic content requirements, the bonus tax credit for projects meeting these siting requirements can stack on top of the 30% ITC or full PTC investors receive, creating an even greater upside for tax equity investors in qualifying projects.[84] However, if a project fails to meet the underlying prevailing wage and apprenticeship requirements, the value of the domestic content and energy community bonus credits falls from 10% to 2%, strongly encouraging such projects to meet the pay and apprenticeship requirements.[85] The U.S. Treasury Department, Department of Energy and Internal Revenue Service recently issued federal guidance on the bonus tax credit siting requirements, offering investors and project developers clarity on how to comply, the qualification criteria for siting projects, and necessary recordkeeping and reporting requirements.[86]

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[79] Cardall et al., *supra* note 63.
[80] *See* Inflation Reduction Act, *supra* note 3.
[81] *See* Inflation Reduction Act, *supra* note 3; *Free Trade Agreements*, OFF. OF THE U.S. TRADE REP., https://ustr.gov/trade-agreements/free-trade-agreements.
[82] THE WHITE HOUSE, *supra* note 47. "For the first time ever, the Inflation Reduction Act establishes Make it in America provisions for the use of American-made equipment for clean energy production." *Id.*
[83] *See* Inflation Reduction Act, *supra* note 3. The IRA defines an "energy community" to include "certain brownfield sites, statistical areas that satisfy employment or local tax revenue thresholds and have an unemployment rate above the average national unemployment rate for the previous year, and census tracts or adjoining census tracts in which a coal mine was closed after 1999 or a coal-fired electric generating unit has been retired after 2009." Additional ITC amounts are available for projects that meet domestic content requirements and those located in low-income communities or on tribal land. Pearson & Such, *supra* note 50.
[84] Pearson & Such, *supra* note 50.
[85] Schurle et al., *supra* note 44.
[86] *Treasury, Energy Release Guidance on Inflation Reduction Act Programs to Incentivize Investments in Underserved Communities, Hard-Hit Coal*

IV. THE IRA'S SIGNIFICANCE: NEW MARKETS, AMERICAN JOBS, AND CLIMATE PROGRESS

The IRA tax incentives carry major significance not just for the existing clean energy industry but for investors, project developers, American workers, the global community, and the climate.[87] The IRA expands the market for clean energy by allowing for more clean energy projects to qualify for the federal tax credits and more investors, including subsequent owners and tax-exempt entities such as local governments and public pension funds, to receive monetary benefit from clean energy investment.[88] By incentivizing domestic content and advanced manufacturing, the IRA also significantly expands job opportunities in clean energy manufacturing, project development and construction across the U.S., and strengthens the nation's global competitiveness.[89] The IRA's worker equity provisions promote prevailing wages and apprenticeships across the industry, making those green jobs both good-paying and low-cost.[90] At a higher level, the IRA significantly advances American progress towards greater grid reliability and GHG emissions reductions.[91] The IRA accomplishes all of this through innovative federal tax law reforms, the most significant of which expand the clean energy market itself.[92]

Communities, U.S. DEP'T OF THE TREASURY (Feb. 13, 2023), https://home.treasury.gov/news/press-releases/jy1269. The IRA allocated up to $10 billion overall for the low-income bonus tax credits that may be applied to qualifying projects under 26 U.S.C. 48C(e), and $4 billion of this is reserved for projects in designated coal communities. *Id.*

[87] *Id.*

[88] *See* Esposito & Energy Innovation, *supra* note 7.

[89] Robert Pollin et al., *Job Creation Estimates Through Proposed Inflation Reduction Act*, POL. ECON. RSCH. INST. (Aug. 4, 2022); *see also* Carly Wanna, *100,000 Green Jobs Announced Since US Adopted Climate Law: Study*, BLOOMBERG L. ENV'T & ENERGY (Feb. 6, 2023), https://news.bloomberglaw.com/environment-and-energy/100-000-green-jobs-announced-since-us-adopted-climate-law-study (noting the 100,000 green jobs created since the passage of the IRA in August 2022).

[90] Hammerling, *supra* note 73.

[91] Esposito & Energy Innovation, *supra* note 7.

[92] *See* Inflation Reduction Act, *supra* note 3.

A. *Clean Energy Market Expansion: More Projects, More Investors*

First, the extension and expansion of the federal tax credits carry massive significance for clean technology manufacturers and investors alike, helping to lower the risk of such projects and likewise deploy capital in the market.[93] The ten-year extension and expansion of the ITC and PTC provides regulatory certainty in the marketplace.[94] Investors will no longer wonder whether, or to what extent, federal tax credits will remain available for their clean energy investments.[95] Instead, investors can rest assured the tax credits will remain at their full value and coverage for another decade, and can even expand their ventures to include projects with new clean technologies now covered under the IRA.[96]

Some argue tax credits serve as inefficient tools to finance renewable energy projects and that they contribute to the national deficit by costing taxpayers money without providing sufficient results.[97] However, the IRA has important structural elements that aim to improve efficiency and help reduce the federal deficit.[98] For instance, the IRA sets a minimum corporate tax to 15% on certain corporations, assesses a fee on stock buy-backs, and enhances IRS enforcement, all of which raise revenue to cover the anticipated costs of the law's federal tax credits.[99] In addition, the IRA allows for credit transferability and direct payments, enhancing flexibility, and access to capital for such projects.[100] These provisions help increase efficiency through simpler transactions and more access to funding and investors.[101]

1. More Projects: Technology-Neutral Tax Credits

The expansion of the tax credits to cover *any* zero-emissions technology that meet certain criteria, including battery storage and nuclear

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[93] *Id.*
[94] *Id.*
[95] *Id.*
[96] *Id.*
[97] Felix Mormann, *Beyond Tax Credits: Smarter Tax Policy for a Cleaner, More Democratic Energy Future*, 31 YALE J. ON REGUL. 303, 323 (2014), https://openyls.law.yale.edu/bitstream/handle/20.500.13051/8197/12_31YaleJonReg303_2014_.pdf?sequence=2&isAllowed=y.
[98] THE WHITE HOUSE, *supra* note 47.
[99] *Id.*
[100] *See* David Riester, *The End of Tax Equity as You Know It*, SEGUE SUSTAINABLE INFRASTRUCTURE (Sept. 6, 2022), https://segueinfra.com/articles/the-end-of-tax-equity-as-you-know-it.
[101] *Id.*

energy, expands the market and creates an opportunity for tax investors to finance a variety of clean energy technologies.[102] The IRA opens up the market to technologies and projects that previously did not qualify investors for the tax credits by expanding the pool of projects from which investors can provide capital and reap federal tax benefits.[103] For example, in recent years, standalone battery storage installations in the United States increased to 7.8 gigawatts, and the pattern will likely continue as developers and power plant owners plan to add 20.8 gigawatts of battery storage capacity over the next three years.[104] As the IRA expands the federal tax credits to include more zero-emissions technology, certain technologies such as standalone battery storage and hydrogen will enjoy new incentives[105]

The expansion of the ITC to standalone energy storage facilities marked a significant change in tax law, because under the former ITC, storage facilities only qualified if they were "at least 75% charged by a qualified solar or other ITC-qualified renewable electricity generating facility."[106] Under the new ITC, no such restrictions apply and more investors may reap the benefits of the ITC for standalone battery storage facilities.[107] The IRA includes additional zero-emission technologies as qualifying for the new tax credits, expanding the credits' current scope.[108] Clean hydrogen presents a special opportunity because hydrogen serves as a form of energy storage and may help complement battery storage technology.[109]

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[102] *See* Inflation Reduction Act, *supra* note 3.
[103] *Id.*; Esposito & Energy Innovation, *supra* note 7.
[104] Suparna Ray, *U.S. Battery Storage Capacity Will Increase Significantly by 2025*, ENERGY INFO. ADMIN. (Dec. 8, 2022), https://www.eia.gov/todayinenergy/detail.php?id=54939.
[105] *Id.*; Pearson & Such, *supra* note 50.
[106] Pearson & Such, *supra* note 50.
[107] *Id.*
[108] *Id.* The "[e]xtension and addition of new tax credits related to qualified carbon oxide sequestration facilities, zero-emission nuclear power production facilities, biodiesel, renewable diesel and alternative fuels, clean hydrogen production, advanced energy projects, advanced manufacturing of certain renewable energy projects and alternative refueling property." *Id.*
[109] *See* Ethan Howland, *IRA 'Turbocharging' of Clean Energy Tax Credits Could Boost NextEra, AES, Other Renewable Developers: S&P*, UTILITY DIVE (Sept. 13, 2022), https://www.utilitydive.com/news/ira-inflation-reduction-tax-credits-nextera-aes-report/631709/.

For utilities, the new ITC and PTC create a more level playing field for investment in renewables.[110] Before the IRA, the tax law required utilities to recover costs through the ITC "over an asset's life rather than claim the full value upfront."[111] Utilities opted for less upfront capital-intensive fossil fuel projects as a result;[112] however, the new PTC provides utilities an increased incentive to invest in renewables because the credit pays out over a ten-year period for solar energy projects.[113] The IRA also gives investors, including utilities, the ability to transfer tax credits, allowing them to recoup costs of renewables and thus develop clean energy instead of fossil fuel facilities.[114]

2. More Investors: Transferability and Direct Pay

The transferability and direct pay provisions of the IRA constitute landmark changes to the clean energy tax credit framework, opening the market to more investors and giving them greater financial flexibility.[115] Transferability allows owners of qualifying clean energy projects to transfer their tax credits through a cash sale to a subsequent owner, which can then claim the project's tax credits against its federal tax liability.[116] Thus, transferability affords finance parties greater flexibility to sell their tax credits, if desired.[117] This creates greater flexibility for investors to sell assets with those credits rather than holding onto the assets because the tax attribute could not legally transfer.[118]

The IRA's transferability provision also expands the pool of investors that can benefit from the ITC by allowing developers to transfer their credits.[119] Now, investors can share the value of their tax credits by

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[110] Esposito & Energy Innovation, *supra* note 7.
[111] *Id.*
[112] *Id.*
[113] *Id.*
[114] *Id.*
[115] *See id.*; *see also* Carolyn Berndt & Michael Gleeson, *Inflation Reduction Act Clean Energy Project Eligibility for Local Governments*, NAT'L LEAGUE OF CITIES, https://www.nlc.org/article/2022/09/23/inflation-reduction-act-clean-energy-project-eligibility-for-local-governments/ (last visited Sept. 13, 2023).
[116] *See* Schurle et al., *supra* note 44. Such tax credit sales are irrevocable. *Id.* Further, the buyer may not deduct the amount paid for the credit from its taxable income nor may it subsequently transfer the credit. *Id.*
[117] *See* Esposito & Energy Innovation, *supra* note 7.
[118] *See id.*
[119] *Id.*

selling them.[120] By allowing credit purchases, the IRA affords original investors greater asset liquidity.[121] Transferability thus promises to both invite more investors and make more efficient use of government funds by allowing investors to freely sell assets and tax credits based upon the market.[122] Transferability also impacts how clean energy project finance teams calculate financing via debt versus tax equity.[123] For example, if interest rates rise, then such increased rates will make tax equity more attractive and "contribute to transferability upside."[124] Thus, depending on interest rates and market conditions, the IRA promotes market efficiency and grants investors greater financial decision-making power.[125]

Transferability also creates efficiency, and thus allows for quicker deployment of clean energy projects.[126] Under prior law, only the true owner of the clean energy asset could claim the tax credits.[127] Additionally, under the previous ITC scheme, tax equity deals constituted highly complex transactions, the costs of which accounted for nearly a third of total project costs.[128] By disallowing tax credit transfers, the former federal tax credit scheme limited the supply of investors to those taxable entities with sufficient tax appetite to take full advantage of the tax credits.[129]

Next to the IRA's transferability modification, the IRA's direct payment provision represents perhaps its most revolutionary change to the federal tax incentive scheme.[130] For the first time ever, public entities, such

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[120] *Id.*
[121] *See id.*
[122] *See id.*
[123] Riester, *supra* note 100.
[124] *Id.*
[125] Esposito & Energy Innovation, *supra* note 7.
[126] *Id.*
[127] *Id.*; *see also* D'Alelio et al., *supra* note 21.
[128] Esposito & Energy Innovation, *supra* note 7.
[129] D'Alelio et al., *supra* note 21; *see also* Martin, *supra* note 71 (explaining the common project finance structures used in solar tax equity deals).
[130] Berndt & Gleeson, *supra* note 115. Though beyond the scope of this article, the direct payment option for public entities also carries great significance for electric vehicle (EV) adoption. *Id.* Under the IRA, tax credits may apply to the purchase of qualified new and used EVs. *Id.* As transportation accounted for over a quarter of overall U.S. GHG emissions in 2020, the IRA's direct pay provision will allow state and local governments to receive direct payments for

as municipal utilities and public pension funds, can directly benefit from the federal tax incentives for clean energy.[131] For context, the U.S. has over 6,000 public sector retirement systems, representing $5.6 trillion in assets under management—the equivalent of about 21% of U.S. gross domestic product[132]—and benefitting over eleven million retirees.[133] The direct pay option enables such tax-exempt investors to deploy capital in clean energy and receive federal funds for doing so.[134] For example, rather than opting for a cost-saving power generating facility, which usually resulted in increased fossil fuels, some municipal utilities now find renewables to be the more economical choice as compared to fossil fuel projects.[135] As a result, the IRA expanded the market by incentivizing public utilities to invest in clean energy and streamlined financing by allowing these utilities to fund projects directly without the help of outside finance.[136]

The IRA's direct pay provision presents a special opportunity to use public pension funds to enhance the overall equity available to finance clean energy.[137] Such pension fund portfolios can now receive direct payments in lieu of tax credits for investing in qualifying clean energy projects.[138] In general, diversification of investments for such funds is critical to achieve an acceptable level of risk,[139] and in recent years public pension funds have trended towards diversifying investments into

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electrifying their fleets and expediting the decarbonization of the U.S. transportation sector. *See* U.S. EPA, *supra* note 31.

[131] Esposito & Energy Innovation, *supra* note 7.

[132] *Gross Domestic Product, Fourth Quarter and Year 2022 (Second Estimate)*, U.S. DEP'T OF COM., BUREAU OF ECON. ANALYSIS (Feb. 23, 2022, 8:30 AM), https://www.bea.gov/news/2023/gross-domestic-product-fourth-quarter-and-year-2022-second-estimate (noting U.S. gross domestic product of about $26 trillion in 2022).

[133] *National Data*, PUB. PLANS DATABASE, https://publicplansdata.org/quick-facts/national (last visited Feb. 15, 2023). Public pension funds take the form of trust funds, to which employees and their employers contribute during the employees' working lives and from which employees receive distributions during retirement. *Id.*

[134] Esposito & Energy Innovation, *supra* note 7.

[135] *Id.*

[136] Sarah Gimont, *What Counties Need to Know About Direct Pay in the Inflation Reduction Act*, NAT'L ASS'N OF CNTYS. (Jan. 25, 2023), https://www.naco.org/resources/what-counties-need-know-about-direct-pay-inflation-reduction-act.

[137] *See* Pearson & Such, *supra* note 50.

[138] *See* Esposito & Energy Innovation, *supra* note 7.

[139] *See* PUB. PLANS DATABASE, *supra* note 133.

infrastructure.[140] For instance, infrastructure as an asset class, which includes clean energy assets, has grown from about 10% of global public pension fund asset allocation in 2009 to about 14% by 2019.[141] Now that the IRA allows such public sponsors to receive direct payments up to 85% of the tax credit value, clean energy projects that qualify for the IRA's direct payments will more readily generate these funds' target returns.[142] Furthermore, public pension funds' investment earnings are not taxed;[143] instead, pension funds are taxed at the employee's ordinary federal income tax rate at the time of distribution.[144] This allows pension funds to grow more rapidly through time and provides tax savings on investment earnings, such as those from infrastructure assets.[145] By offering direct payment for tax-exempt debt up to 85% of the ITC or PTC value,[146] the IRA creates an opportunity for public pension funds to invest in clean energy projects and receive tax-free returns.[147] Institutional investors like public pension funds, with the benefit of regulatory certainty, will find a greater supply of such clean energy assets available,[148] and with the benefit of the direct payment bringing down the capital expense of such projects, public investors have new incentives to invest in these assets for years to come.[149] By expanding market incentives to include public funding sources, such as public pension funds, the IRA transferability and direct

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[140] Elliot Hentov & Jennifer Alé, *How Do Public Pension Funds Invest?*, STATE ST. GLOB. ADVISORS (Feb. 2021), https://www.investmentofficer.nl/sites/default/files/How%20do%20Public%20Pension%20Funds%20Invest.pdf.

[141] *Id.*

[142] *See* Cardall et al., *supra* note 63. In addition, "[t]he long-term nature of public pension fund investment goals permits investors to focus on long-term results." PUB. PLANS DATABASE, *supra* note 133. Thus, the nature of public pension fund investment lends itself well to infrastructure projects with steady, long-term income streams. *See id.*

[143] Craig Anthony, *How Capital Gains Tax Works on Pension Funds*, INVESTOPEDIA, https://www.investopedia.com/articles/markets-economy/083116/how-capital-gains-tax-works-pension-funds.asp (Sept. 29, 2022).

[144] *Id.*

[145] *Id.*

[146] Cardall et al., *supra* note 63.

[147] *See* PUB. PLANS DATABASE, *supra* note 133.

[148] Esposito & Energy Innovation, *supra* note 7.

[149] Pearson & Such, *supra* note 50.

pay provisions enhance the overall equity pool available to finance clean energy in the U.S.[150]

Overall, the IRA establishes a broader, more flexible market for clean energy projects, inviting more investors, developers, and finance parties to the table for years to come.[151] With the tax credit's expansion, the IRA offers developers and investors greater flexibility in deciding how to reap the benefits from the tax incentives.[152] For example, investors in solar may now choose whether to claim the ITC or PTC to receive a more favorable return.[153] Given that until now only taxable investors could benefit from the tax credits, the direct payment provision offers a new incentive for public investors to participate in the American clean energy market.[154] Together, the transferability and direct payment options significantly expand the types of clean energy projects that qualify for the tax incentives and the overall equity available to finance them.[155]

3. Market Limitations and Uncertainties

Some market limitations and uncertainties around provisions of the new law weigh in favor of traditional debt and tax equity financings.[156] For example, although tax investors may now transfer their tax credits, they may not transfer their accelerated depreciation, so a tax equity structure is "still necessary to monetize accelerated depreciation."[157] This means the time-value of money a tax investor receives from owning a clean energy asset will favor investors holding onto such assets for the five-year period during which they can claim accelerated depreciation.[158] In practice, inertia will likely cut in favor of tax investors continuing to do business via traditional tax equity structures with trusted partners.[159]

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[150] *See id.*
[151] *Id.*
[152] *Id.*
[153] *Infographic - How Relevant Would That Little PTC Option Be For Solar?*, SEGUE SUSTAINABLE INFRASTRUCTURE (Feb. 3, 2022), https://segueinfra.com/infographics/infographic-how-relevant-would-that-ptc-option-be-for-solar. One study found that solar facilities with a net electrical output of 18% or greater would benefit more from the PTC than ITC, although the overall difference between the ITC and PTC amounts for solar is rather small. *Id.*
[154] Esposito & Energy Innovation, *supra* note 7.
[155] Pearson & Such, *supra* note 50.
[156] *Id.*
[157] Riester, *supra* note 100.
[158] *Id.*
[159] *Id.*

Some uncertainties remain as to how the U.S. Treasury Department will implement the law, but recent Treasury guidance lessens these concerns.[160] Uncertainties as to the IRS's interpretation of the various new tax law provisions may inhibit risk-averse lenders and tax investors from swiftly claiming the new tax credits.[161] For example, what exactly constitutes an "energy community" for purposes of receiving the 10% bonus credit?[162] The text of the IRA includes brownfield sites and communities where coal, oil, or natural gas have a certain impact on local tax revenue, or where unemployment in those areas is above the national average.[163] While these qualification criteria appear well-defined, investors may need additional guidance from the Treasury to bank on it.[164] On the other hand, these novel bonus tax credits provide an opportunity for entrepreneurial investors to act early and claim additional value on their projects.[165]

Uncertainty remains as to how tax credit transfers will be scrutinized by the IRS.[166] The law does not specify whether individuals can utilize tax credits purchased from the owner of a qualified facility.[167] In addition, how much will subsequent owners pay for transfer credits? Other tax credit schemes may provide indicators for how much tax credits are worth, such as federal Low-Income Housing Tax Credits, but such figures for clean energy tax credits remain uncertain.[168]

Another potential drawback of the IRA is that some businesses will see an increase in their federal corporate income tax rates, negating the tax credits' benefit such businesses would receive.[169] The IRA pays for its costs by instituting a minimum corporate tax of fifteen percent on certain corporations, assessing a fee on stock buybacks, and enhancing

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[160] Pearson & Such, *supra* note 50 (noting general uncertainties regarding implementing various provisions of the IRA but noting that additional guidance from the Treasury Department provides investor assurance).
[161] *Id.*
[162] Inflation Reduction Act, *supra* note 3.
[163] *Id.*
[164] Pearson & Such, *supra* note 50.
[165] *See id.*
[166] *Id.*
[167] *Id.*
[168] *Id.*
[169] *Id.*

IRS enforcement.[170] Overall, these adjustments to the code help ensure sufficient revenues to lower the national deficit;[171] however, the IRA's increased minimum corporate tax and fee on stock buybacks might lessen the tax benefits some wealthy corporations ultimately receive.[172]

B. *American Workers, Jobs, and Global Competitiveness*

The IRA's prevailing wage and apprenticeship requirements carry great significance for millions of American workers, as investors incorporate the law's worker equity provisions into their projects to maximize the value of the federal tax incentives.[173] Given that apprenticeship "[p]rograms are free for participants, meaning that workers can complete apprenticeships without taking on debt to pay tuition," this law promotes cost-effective workforce development through the projects that qualify for the federal tax incentives.[174] The IRA thus promotes well-paying jobs and low-cost pathways for workers to join the labor force working on these projects in communities across the United States.[175]

For American workers, the IRA provides a historic amount of green job opportunities.[176] Over the next decade, some estimate the IRA could create 1.3 million new jobs and double the deployment of clean energy in the United States.[177] In just five months since the passage of the IRA, companies have announced over ninety new clean energy projects in over thirty-one states amounting to nearly $90 billion of new investment and 100,000 green jobs created across the United States.[178] Additionally, the IRA's provisions are expected to sustain millions of existing green jobs, providing job security for millions of Americans.[179] These green job

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[170] Pearson & Such, *supra* note 50.
[171] THE WHITE HOUSE, *supra* note 47.
[172] Pearson & Such, *supra* note 50."[T]he IRA adds a 15% alternative minimum tax on certain domestic corporations that report average adjusted financial statement income of more than $1 billion for any consecutive three-year period." *Id.*
[173] Hammerling, *supra* note 73.
[174] *Id.*
[175] *Id.*
[176] *See* Pollin et al., *supra* note 89 (stating job creation estimates due to public and private investment under the IRA); *see also* Wanna, *supra* note 89.
[177] Esposito & Energy Innovation, *supra* note 7.
[178] Wanna, *supra* note 89.
[179] *9 Million Jobs from Climate Action: The Inflation Reduction Act*, BLUE GREEN ALL., https://www.bluegreenalliance.org/site/9-million-good-jobs-from-climate-action-the-inflation-reduction-act/ (last visited Feb. 15, 2023).

opportunities include jobs in clean energy manufacturing, project development, construction, operations, and maintenance.[180]

Since the passage of the IRA, states such as Georgia have already seen a significant uptick in clean energy investment and jobs.[181] For example, Qcells, a leading South Korean solar manufacturing company, announced plans to invest $2.5 billion in a new Georgia solar manufacturing facility.[182] Relatedly, Georgia governor Brian Kemp's administration committed to building worker housing in and around the locations where companies have announced new facilities, spurring further jobs and local economic development.[183] Other companies, such as Hyundai, Hyundai-SK On, and Rivian, similarly announced massive factory investments for electric vehicle (EV) and battery plants in Georgia.[184] These economic development projects across Georgia total nearly $20 billion investment and promise to create over 22,000 green jobs.[185] Governor Kemp has called such investments strategic to incentivize long-term economic development across the State and to provide "good job[s] where [Georgians] grew up."[186]

For manufacturers and American workers, the domestic content bonus means not just more jobs but also a more globally competitive domestic clean energy economy.[187] The domestic content and

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[180] Pollin et al., *supra* note 89, at 3 (noting that jobs created span the electricity, building, and manufacturing sectors, among others).

[181] Drew Kann & Greg Bluestein, *In Clean Energy Transition, Georgia is at the Tip of the Spear*, ATLANTA J.-CONST. (Jan. 27, 2023), https://www.ajc.com/news/in-clean-energy-transition-georgia-is-at-the-tip-of-the-spear/CGNZ6LWJK5AUXDEN4FEQYPUSHA/. The IRA provides over $10 billion for manufacturing solar, wind, and battery storage components in the U.S., and companies such as Qcells, a South Korean solar manufacturer, announced billion-dollar investments in Georgia manufacturing. *Id.*

[182] *Id.*

[183] *Id.*

[184] *Id.* In addition to the federal tax incentives, Georgia has announced state-level incentives, including "tax breaks, infrastructure and free land" to further attract companies to Georgia rather than other states. *Id.*

[185] *Id.*

[186] *Id.*

[187] Cardall et al., *supra* note 63. *But see* Joe Song, *Getting By On Your Own Supply*, SEGUE SUSTAINABLE INFRASTRUCTURE (Dec. 20, 2022), https://segueinfra.com/articles/getting-by-on-your-own-supply (noting that the

manufacturing incentives boost American global competitiveness with other countries, particularly China and the European Union (EU), that provide critical clean energy technology.[188] However, the IRA's inclusion of free-trade countries has caused controversy in the EU, which is concerned that the IRA threatens the EU's domestic manufacturing, especially with respect to EVs.[189] The U.S. has no free trade agreement with the EU or its member countries, which has stirred controversy over the IRA's discrimination against the bloc's manufacturing, particularly for electric vehicles.[190]

The U.S. and EU are in ongoing discussions about how to create a workable path forward to promote both American and European economic interests while reducing reliance on China.[191] For example, the U.S. and EU have proposed exemptions to certain IRA provisions, such as an exemption to the EV domestic content requirements that would negatively impact EU's auto industry otherwise.[192] The domestic manufacturing provisions of the IRA are sure to bolster American manufacturing and that of U.S. free-trade countries, but the U.S. needs to find ways to partner with, rather than simply compete against, other important trade allies, particularly the EU.[193] Additionally, tax law does

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IRA references the "Buy America" Act, 49 C.F.R. 661, which requires manufactured products such as solar photovoltaic systems and their components, such as modules, inverters and piers, to be manufactured in the U.S.). Some complexity and uncertainty remain as to what percentage of materials, such as those in solar photovoltaic systems, would be needed for solar equipment to qualify for the domestic content incentive. *Id.*

[188] Tobias Gehrke & Majda Ruge, *A United Front: How the US and the EU Can Move Beyond Trade Tensions to Counter China*, EUR. COUNCIL ON FOREIGN RELS. (Dec. 20, 2022), https://ecfr.eu/article/a-united-front-how-the-us-and-the-eu-can-move-beyond-trade-tensions-to-counter-china/.

[189] Silvia Amaro, *EU Says It Has Serious Concerns About Biden's Inflation Reduction Act*, CNBC (Nov. 7, 2022), https://www.cnbc.com/2022/11/07/us-inflation-reduction-act-eu-raises-concerns-risks-wto-dispute.html.

[190] *See* Ahmet Gencturk, *EU to Seek Exemption from US Inflation Reduction Act for European Companies*, ANADOLU AGENCY (Dec. 16, 2022), https://www.aa.com.tr/en/economy/eu-to-seek-exemption-from-us-inflation-reduction-act-for-european-companies/2765202.

[191] *See id.*; *see also* Gehrke & Ruge, *supra* note 188 (noting China has dominated the production of key clean technology, producing about 75% of global battery cells and 85% of global solar photovoltaics). To increase American market share of these technologies, the IRA incentivizes manufacturers and project developers to build and source technology domestically to receive an additional 10% federal tax credit for qualifying projects. *See* Inflation Reduction Act, *supra* note 3.

[192] *See* Gencturk, *supra* note 190.

[193] *See* Gehrke & Ruge, *supra* note 188.

not occur in a vacuum, and geopolitics due to the war in Ukraine highlight the importance of the U.S. and EU developing and implementing solutions to promote both American and European energy security, economic competitiveness, and climate goals.[194]

In addition to the domestic content requirement, the 10% bonus tax credit for projects located on brownfield sites, energy communities, designated low-income communities, or Native American Tribal land significantly incentivizes investment in communities vulnerable to the shift away from fossil fuels and serves to attract investment in underserved communities as part of the green transition.[195]

For Native American Tribes, the IRA provisions granting investors an additional 10% tax credit will incentivize clean energy investment in Tribal nations for the next decade.[196] Additionally, the IRA supports Tribes directly through other programs promoting Tribal electrification and zero-emissions energy development.[197] Similar to how the IRA incentivizes investment in economically disadvantaged communities, the IRA's bonus tax credits will promote partnerships between investors and Tribes around the U.S. to build clean energy projects.[198] In so doing, the IRA stands to make economic development and environmental justice a reality for Native American Tribes.[199] Together with prevailing wage and apprenticeship requirements, the IRA's bonus tax credits promote American manufacturing, worker equity

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[194] *EU-US Climate and Energy Relations in Light of the Inflation Reduction Act*, THINK TANK EUROPAPARLAMENTET (Jan. 19, 2023), https://www.europarl.europa.eu/thinktank/sv/document/EPRS_BRI(2023)739300 (noting the international diplomacy aspects of the Inflation Reduction Act regarding energy security and climate goals).

[195] Inflation Reduction Act, *supra* note 3; *see also How the Inflation Reduction Act Helps Tribal Communities*, THE WHITE HOUSE (Aug. 18, 2022), https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/18/fact-sheet-how-the-inflation-reduction-act-helps-tribal-communities/.

[196] *See* THE WHITE HOUSE, *supra* note 195.

[197] *Id.*

[198] *See id.*

[199] *See id.*

through well-paying jobs and low-cost workforce development, and clean energy investment in vulnerable and underserved communities.[200]

C. *Resilience and Sustainability*

Beyond the economic advantages of the IRA, the IRA enhances the U.S. power grid's resilience and sustainability,[201] and it puts the U.S. in a position to meet its Paris Agreement climate commitment.[202] The IRA promotes clean energy deployment, which provides grid reliability benefits in three major ways.[203] First, clean energy mitigates climate impacts that stress the electrical system, such as extreme weather events, by emitting little to no greenhouse gases.[204] Second, clean energy creates greater interconnectivity and resilient microgrids, allowing for more resilient and effective electrical transmission during times of peak demand.[205] Third, clean energy diversifies the fuel supply, hedging the risk of supply interruptions. For example, after Winter Storm Uri hit Texas in 2021 causing extensive power loss across the state, the governor of Texas blamed wind power as the cause of the massive power outages, but experts later determined that the central cause of the blackouts was the failure of unwinterized natural gas facilities.[206] The lack of winterization, reliance on natural gas, and a complete lack of interconnection to a power supply outside of the state all caused the power and water crisis that negatively impacted millions of Texans for days.[207] By incentivizing more clean energy and standalone battery storage, the IRA helps reduce carbon emissions, increase grid interconnectivity, and diversify states' fuel mixes.[208] This will improve grid resilience and lessen the risk of such disasters in the future.[209]

Battery storage facilities can supply power during peak demand and provide grid reliability benefits during these times.[210] The IRA further

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[200] THE WHITE HOUSE, *supra* note 195; *see also* Hammerling, *supra* note 73 (noting that apprenticeship programs do not require a four-year college degree and create low-cost employment pathways for workers).
[201] Alexandra Klass et al., *Grid Reliability Through Clean Energy*, 74 STAN. L. REV. 969, 983–91 (2022).
[202] Esposito & Energy Innovation, *supra* note 7.
[203] Klass et al., *supra* note 201, at 983–91.
[204] *Id.*
[205] *Id.*
[206] *See id.* at 975–76.
[207] *Id.* at 983–91.
[208] *Id.*
[209] *See* Klass et al., *supra* note 201, at 983–91.
[210] *Id.* at 1017.

incentivizes utilities and power project developers to deploy such standalone storage facilities.[211] For example, Eolian, a storage developer, recently announced a massive, 200-MW standalone battery facility in South Texas, which the company financed through a pioneering "tax equity investment enabled by the [IRA]."[212] This project is the first time a storage developer has used the ITC for a standalone battery facility, as opposed to storage paired with solar or wind.[213] Battery storage plays a central role in grid reliability, especially during extreme weather events,[214] and so the IRA's extension of tax credits to include such projects helps grid operators, especially those in places prone to extreme weather events, tackle resiliency challenges.[215] In addition, increased battery storage capacity has the power to unlock greater penetration of renewable energy, furthering the twin aims of reliability and sustainability.[216]

Importantly, the IRA's new PTC applies to existing nuclear facilities as well, as such facilities qualify under the technology-neutral, "zero-emissions" language.[217] Nuclear power provides nearly a fifth of the U.S. power supply,[218] and the IRA will help sustain nuclear facilities, which serve as important sources of carbon-free power, operational and online.[219] The tax credits also apply to new nuclear technology, such as small modular reactors, helping develop safer, distributed nuclear facilities that may further curb emissions.[220] Though such technology has not yet

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[211] Esposito & Energy Innovation, *supra* note 7; *see also* Robert Walton, *200-MW Texas Project is First to Leverage IRA Tax Credit for Standalone Energy Storage, Eolian Says*, UTILITY DIVE (Feb. 14, 2023), https://www.utilitydive.com/news/eolian-ira-credits-storage-texas/642694/ (discussing the first standalone battery storage facility to claim the ITC).
[212] Walton, *supra* note 211. For context, a 200-MW power facility provides roughly enough electricity to power 35,000 average American homes. *See What's in a Megawatt?,* SOLAR ENERGY INDUS. ASS'N, https://www.seia.org/initiatives/whats-megawatt (last visited Feb. 18, 2023).
[213] Walton, *supra* note 211.
[214] Klass et al., *supra* note 201, at 985.
[215] Walton, *supra* note 211.
[216] Klass et al., *supra* note 201, at 986.
[217] Pearson & Such, *supra* note 50.
[218] *What is U.S. Electricity Generation by Energy Source?*, U.S. ENERGY INFO. ADMIN. (Mar. 2, 2023), https://www.eia.gov/tools/faqs/faq.php?id=427&t=3.
[219] Esposito & Energy Innovation, *supra* note 7.
[220] *See* Pearson & Such, *supra* note 50.

reached commercial scale, the IRA's new tax credits help bring these zero-emissions projects to market.[221]

Transmission infrastructure remains a significant obstacle that may limit the rate at which new clean energy can be deployed in the US.[222] The IRA does not address grid governance issues with the Federal Energy Regulatory Commission (FERC) and other regulators inhibiting the construction of transmission, but the Bipartisan Infrastructure Law of 2021 (BIL) addresses transmission and includes important provisions that dovetail with the IRA.[223] For example, the BIL commits $20 billion of federal funds towards electrical transmission expansion, designates transmission corridors to streamline transmission project permitting, and grants express authority to the Department of Energy (DOE) to designate national transmission corridors for clean electricity projects.[224] Adequate transmission capacity is a prerequisite to unlocking the full potential benefits of the IRA, and so the BIL's investment in transmission infrastructure works in tandem with the IRA to enable more rapid clean energy deployment and thus a more resilient power grid.[225]

Relatedly, the IRA significantly advances U.S. progress toward achieving its climate goals.[226] While the IRA serves as a powerful tool to achieve meaningful emissions reduction, the law contains no emissions reduction requirements, so progress depends on the ability of the public and private sectors to act quickly.[227] One model by Energy Innovation

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[221] *Id.*
[222] Klass et al., *supra* note 201, at 988–89.
[223] *DOE Launches New Initiative from President Biden's Bipartisan Infrastructure Law to Modernize National Grid*, DEP'T OF ENERGY, OFF. OF ELECTRICITY (Jan. 12, 2022), https://www.energy.gov/oe/articles/doe-launches-new-initiative-president-bidens-bipartisan-infrastructure-law-modernize [hereinafter DOE]. *See also* Inflation Reduction Act, *supra* note 3.
[224] *Id.*; *see also* Benjamin Storrow, *Power Lines are Infrastructure Bill's Big Climate Win*, E&E NEWS, CLIMATE WIRE (Nov. 9, 2021 6:31 AM), https://www.eenews.net/articles/power-lines-are-infrastructure-bills-big-climate-win/ (discussing the investments the BIL makes in U.S. transmission and the need for greater transmission capacity to connect renewable energy to the grid).
[225] *See* DOE, *supra* note 223; *see* Storrow, *supra* note 224; *see* Klass et al., *supra* note 201, at 988 (noting the reliability benefits of a national transmission system).
[226] Esposito & Energy Innovation, *supra* note 7.
[227] *See* John Larsen et al., *US Decarbonization Priorities in the Wake of the Inflation Reduction Act*, RHODIUM GRP. (Feb. 9, 2023), https://rhg.com/research/us-decarbonization-priorities-in-the-wake-of-the-inflation-reduction-act (noting that speedy implementation of the clean energy tax incentives will determine the IRA's ultimate impact, and that the tax credit

projects overall emissions reduction in a scenario with high renewables penetration that would amount to a 43% reduction of economy-wide GHG emissions over 2005 levels by 2030, with most reductions occurring in the electricity sector (Figure 1).[228]

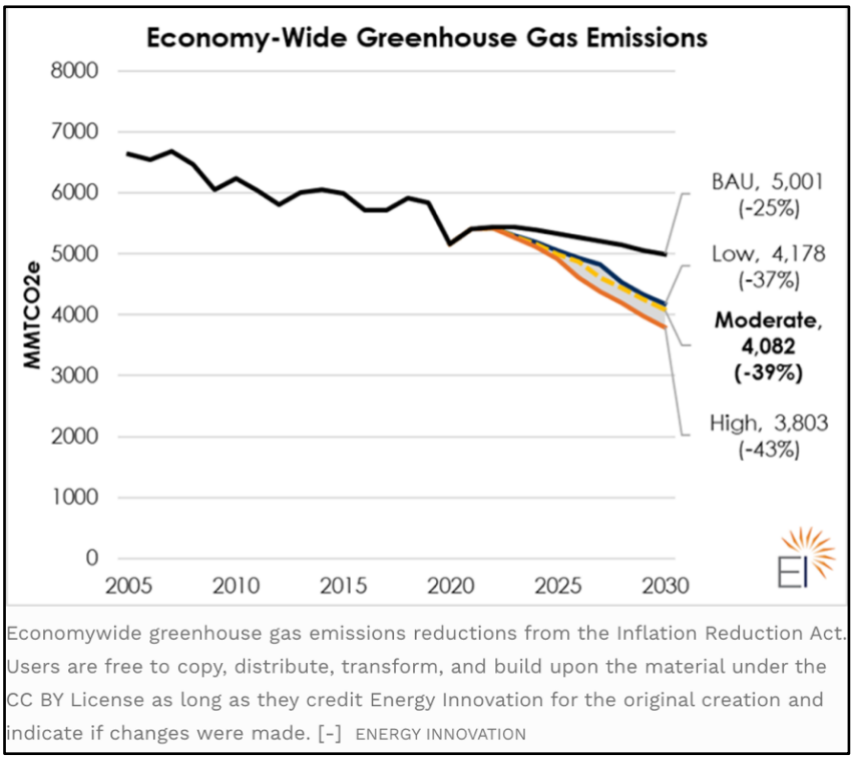

Figure 1. U.S. GHG emissions reduction scenarios under the IRA.

Accordingly, the IRA puts the U.S. within reach of meeting its Paris Agreement commitment of reducing its greenhouse gas emissions by 50–52% over 2005 levels by 2030.[229] The IRA will also help states and local governments hit their various emissions reduction targets over the

incentives have no upper limit, unlike the IRA's direct spending on grant programs and loans, for which Congress has set specific caps).

[228] Esposito & Energy Innovation, *supra* note 7.

[229] *Id.* (commenting that the IRA "puts the U.S. within reach of its Paris Agreement commitment to cut emissions 50% to 52% by 2030").

coming decades.[230] For example, California has committed to 100% carbon-free electricity by 2045, Florida has committed to 100% clean energy by 2050, and New York has committed to 100% carbon-free electricity by 2040.[231] Relatedly, the direct pay option allows municipal governments, including municipal utilities, to finance clean energy projects directly to meet their climate commitments and reap the federal tax benefits, incentivizing public sector investment.[232] The IRA's federal tax incentives will promote clean energy deployment nationwide, with projections showing the law will bring an additional 7–10% of GHG emissions reductions thus helping the nation achieve its various emissions reduction goals.[233]

V. CONCLUSION

The IRA takes a historic, multi-prong approach to shore up clean energy investment in the U.S. through federal tax law by expanding key tax credits, credit transferability, direct payments to tax-exempt entities, and worker equity provisions.[234] The expansion of the ITC and PTC provides investors with regulatory certainty for clean energy investment returns and expands access to capital for new projects.[235] The technology-neutral ITC allows for federal funds to finance projects with a broader swath of important clean technologies, including battery storage, hydrogen, and nuclear energy.[236] The IRA's extension of the PTC to

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[230] *See id.*

[231] Camila Domonoske, *California Sets Goal of 100 Percent Clean Electric Power by 2045*, NPR (Sept. 10, 2018) https://www.npr.org/2018/09/10/646373423/california-sets-goal-of-100-percent-renewable-electric-power-by-2045; Abbie Bennett, *Florida Sets Goal of 100% Renewable Energy by 2050*, S&P GLOBAL (Apr. 22, 2022), https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/florida-sets-goal-of-100-renewable-energy-by-2050-69945332; *Clean Energy Standard*, DSIRE (June 29, 2021), https://programs.dsireusa.org/system/program/detail/5883.

[232] Cardall et al., *supra* note 63.

[233] Larsen et al., *supra* note 227 (noting that, in tandem with several other policies, the IRA's federal tax incentives for clean energy can help "close the gap to the 2030 [emissions reduction] target"); *see* Wanna, *supra* note 89 (citing over ninety new clean energy projects announced across thirty-one states since the passage of the IRA).

[234] Inflation Reduction Act, *supra* note 3; *see* THE WHITE HOUSE, *supra* note 47; *see* Pearson & Such, *supra* note 50.

[235] Esposito & Energy Innovation, *supra* note 7.

[236] *Id.*

include solar energy also offers investors increased flexibility and decision making ability, presenting the choice between the ITC and PTC.[237]

The IRA makes historic changes to the market by allowing investors both tax credit transferability and direct payments for certain tax exempt entities.[238] Transferability allows for more tax investors to participate in the tax credit market and offers investors greater more financial flexibility.[239] While transferability may create a shift away from complex transactions toward simpler transfers, the issues of monetizing accelerated depreciation and inertia from risk-averse institutional investors will favor traditional tax equity structures through trusted business partnerships.[240] Additionally, direct payments allow tax-exempt entities to receive federal funds for clean energy investments, such as public pension funds, thus enhancing the overall equity pool available for clean-energy project financing.[241] The IRA's extended and expanded tax credits bolster the American clean energy markets and offer both traditional and entrepreneurial investors new opportunities to claim business-related tax benefits by pursuing clean-energy projects.[242]

For project developers and utilities, uncertainties remain as to how the IRS will interpret the IRA tax credit provisions, such as the prevailing wage, apprenticeship, domestic content, and siting requirements.[243] However, Treasury guidance helps create regulatory certainty, lower investment risk, and facilitate developer and investor market engagement.[244] The IRA pales in comparison to the BIL's investment in transmission infrastructure, but the IRA's inclusion of battery storage technology for tax credits will enhance grid reliability and decarbonization.[245] Meanwhile, the BIL's $20 billion investment in the nation's electrical grid will create transmission capacity and opportunities

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[237] *Id.*
[238] Inflation Reduction Act, *supra* note 3; *see* THE WHITE HOUSE, *supra* note 47; *see also* Pearson & Such, *supra* note 50.
[239] Esposito & Energy Innovation, *supra* note 7.
[240] *Id.*
[241] PUB. PLANS DATABASE, *supra* note 133.
[242] Pearson & Such, *supra* note 50.
[243] *Id.*; *see* Esposito & Energy Innovation, *supra* note 7.
[244] Esposito & Energy Innovation, *supra* note 7.
[245] *See* Klass et al., *supra* note 201, at 983–91; *see* DOE, *supra* note 223.

for developing and financing new clean energy projects across the country.[246]

For American workers, the IRA promotes labor equity through its prevailing wage and apprenticeship requirements.[247] The IRA's requirements, that workers receive prevailing wages and that projects include a minimum percentage of apprenticeships in order to receive the full value of the credits, ensure equitable employment pathways for workers in the American green transition.[248] Each of the bonus tax credits offers an additional 10% tax credit to the ITC or PTC for projects meeting certain domestic content or siting requirements, which incentivizes demand for domestic manufacturing and investment into underserved communities.[249] Though some uncertainty remains as to the IRS's implementation of the requirements for worker equity, domestic content, and siting provisions, the Treasury's recent guidance enables project developers and investors to proceed with projects pursuant to those measures and claim the full value of the federal tax credits available.[250] Already states are seeing green jobs created in their communities, and the IRA will multiply such jobs while strengthening the nation's resilience and lowering emissions.[251]

In sum, the tax reform embodied by the IRA creates vast opportunities for businesses, American workers, the global community, and the climate to benefit from increased clean energy investment.[252] Projections show the IRA will create 1.3 million American jobs in clean energy, including those in manufacturing, project development, finance, construction, operations, and maintenance.[253] The IRA will help deploy the capital necessary for the U.S., states, local governments, and the private sector to meet their respective climate commitments in the defining decade ahead.[254] The IRA's historic investments also make the U.S. more globally competitive with China and the EU in clean technology

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[246] DOE, *supra* note 223.
[247] *See* Hammerling, *supra* note 73.
[248] *See Id.*
[249] *See* Inflation Reduction Act, *supra* note 3; *see* THE WHITE HOUSE, *supra* note 47.
[250] *See* I.R.S. Notice, *supra* note 72 (providing guidance to project proponents on how to satisfy prevailing wage and apprenticeship requirements and noting the guidance takes effect as of January 30, 2023).
[251] *See* Wanna, *supra* note 89.
[252] *See* Esposito & Energy Innovation, *supra* note 7.
[253] *See id.*
[254] *See id.*

manufacturing.[255] Progress will be defined by what actions project developers and investors take over the next decade to realize the full potential of the IRA's numerous federal tax incentives, as the IRA enables the U.S. to achieve its ambitious emissions reduction goals.[256] Death and taxes remain certainties in life, but with the IRA shoring up federal tax incentives for American clean energy, so, too, is an accelerated, American-made, clean energy transition.

[255] *See id.*
[256] *See id.*