

# Reconciliation bill includes numerous energy incentive tax proposals

August 11, 2022

## In brief

On August 7, the Senate passed the [Inflation Reduction Act of 2022](#) (the bill), which included incentives for clean, renewable, and traditional energy sources. The House is expected to act on the bill on August 12, clearing the measure for President Biden to sign.

The bill would reinstate and significantly expand current incentives by providing an estimated \$370 billion of new energy-related tax credits over the next 10 years. The legislation also would have a significant impact for companies relying on financing arrangements for energy-related projects, permitting more flexibility with direct-pay and transferable credit options.

Taken as a whole, these incentives could be of significant interest not only for traditional energy companies but also for a wide range of “business-to-business” (B2B) and “business-to-consumer” (B2C) companies, including those in the transportation, real estate, and manufacturing industries. The bill aims to advance the economy further into the environment, social, and governmental (ESG) policy space.

Collectively, the energy tax provisions in the bill would represent the largest US effort to spur reductions in greenhouse gas emissions and are intended to catalyze material investments by the corporate sector with several major themes:

- **Decarbonizing energy generation:** The bill would extend the current system of tax credits for renewable energy through 2024 and then would transition those incentives into a “technology-neutral” clean electricity credit beginning in 2025. New credits would support nuclear energy and other lower-carbon technologies.
- **Decarbonizing transportation:** The bill would extend renewable fuels credits and add a new credit for sustainable aviation fuel and clean hydrogen. Many of these would be replaced by a technology-neutral clean fuels credit beginning in 2025. The bill also includes major extensions, expansions, and enhancements of credits intended to support the widespread adoption of electric vehicles for both passenger and commercial use, as well as incentivizing efforts to “on-shore” parts of the electric vehicle supply chain.

- **Building energy efficiency:** The bill contains extended and expanded provisions to support investments in building energy efficiency by both commercial real estate owners and homeowners.
- **Carbon capture:** The bill would enhance the existing tax credits for carbon capture and utilization or storage, including a new provision intended to incentivize the commercialization of direct air capture technologies.
- **Lower-carbon manufacturing and green jobs:** Most of the proposed credits are available at significantly higher levels if prevailing wage and apprenticeship requirements are met. In addition, the bill would revive the tax credit program for building advanced energy manufacturing facilities in the United States.
- **Credit monetization:** While the existing US tax code includes refundable credits, the bill would add several at once, and would allow eligible taxpayers to elect to be treated as having made a payment of tax equal to the value of these credits. Taxpayers ineligible for the direct-pay election instead opt to transfer any applicable credit to another taxpayer.

As discussed in more detail below, each of these thematic areas would present significant investment opportunities and choices for companies to consider.

The bill retains, with some modifications, many of the clean energy incentives included in the 'Build Back Better' (BBB) reconciliation bill that was approved by the House in November 2021 but later stalled in the Senate. For prior coverage, see PwC Tax Insight, [Revised 'Build Back Better' bill retains most ESG tax proposals, adds new credits](#), November 19, 2021.

The bill would structure many new and existing clean-energy and energy-efficiency tax incentives as two-tiered incentives with a 'base rate' and a 'bonus rate.' The bonus rate would equal five times the base rate and would apply to projects that meet certain wage and apprenticeship requirements. A taxpayer must satisfy both requirements to receive the bonus credit rate; otherwise, the taxpayer may claim the relevant credit at the base rate.

Some of the credits in the bill also would include bonus rates based on the domestic content of the property to which the credit would apply.

These incentives are intended to encourage additional accelerated investment in lower-carbon technologies. That result would represent a significant step toward adoption and promotion of these technologies by businesses and individuals, by helping to bend their cost curve in light of various climate-related goals adopted by the Biden Administration for accelerating decarbonization of the US economy, including a [goal](#) to reduce emissions by 50% by 2030, against a 2005 baseline.

**Observation:** The revised structure of these credits makes it important for companies to analyze not only *what* low-carbon investments they are making but also *how* those projects will be built and *where*. The bill would add a social benefit lens to environmental credits, and companies will want to consider the entire range of their ESG goals and strategies when planning investments intended to take advantage of these credits. Furthermore, companies should apply a tax lens in assessing their ESG goals and strategies for attaining them. These incentives could have a significant effect on the after-tax costs of capital investments or other innovations to achieve those goals.

**Action item:** Given the range of potentially significant consequences, businesses should analyze these proposals and model their impact in the broader context of their overall ESG goals. Businesses also should consider potential changes to their manufacturing or operating models intended to align with the specific tax incentives in the bill, also taking into account the perspective of active stakeholders — both shareholders and customers — increasingly interested in actions a business may be taking or considering in the environmental area.

**Action item:** Companies should evaluate whether extended incentives for renewable energy and expanded incentives for electric vehicles could help fund their transition toward cleaner energy and attainment of near-term ESG commitments. In the longer term, new incentives such as those for clean hydrogen, carbon capture, and electric transmission property could drive strategies for capital expenditures. Finally, the return of the Section 48C credit for advanced energy manufacturing property may incentivize companies to locate more such facilities in the United States.

**Note:** One BBB credit that is not in the bill was the proposed ITC for property for the manufacturing of semiconductors and semiconductor tooling equipment, including buildings and equipment that are integral to such manufacturing. This credit was enacted as part of the CHIPS legislation signed by President Biden on August 9. For prior coverage, see PwC Tax Insight, [Senate approves CHIPS funding and tax credit bill to promote US semiconductor manufacturing](#), July 27, 2022.

## In detail

This section describes the key aspects of each of the credits and incentives in the proposed legislation, with additional observations and analysis.

### Labor and domestic content provisions

Under the bill's *prevailing wage requirements*, with respect to a project the taxpayer must ensure that any laborers and mechanics employed by contractors and subcontractors are paid prevailing wages during the project construction and, in some cases, for the alteration and repair of the project for a defined period after the project is placed into service. Under the bill's *apprenticeship requirements*, with respect to a project the taxpayer must ensure that no fewer than the applicable percentage of total labor hours are performed by qualified apprentices. For most of the credits discussed below, meeting these requirements would allow taxpayers to claim a bonus rate tax credit that is five times the base rate credit.

Under the bill's *domestic content requirements*, with respect to the facility for which a tax credit is claimed, the taxpayer must ensure that the facility is composed of steel, iron, or products manufactured in the United States. The domestic content requirements generally would apply for purposes of the production tax credits (PTC) and investment tax credits (ITC). Projects meeting the requirements could receive higher-value credits. Projects not meeting the requirements may be restricted in the amount of the credit that is eligible for the direct pay elections provided for most credits under the bill.

Additionally, the bill includes a credit for electric vehicles that is significantly modified from the House-passed BBB bill, including new content requirements. In general, to qualify for the credit, the final assembly of a vehicle must occur in North America. In addition to this assembly requirement, the bill introduces two new content requirements for vehicle batteries, and restricts eligibility by barring vehicles manufactured by foreign entities of concern.

To meet the *critical mineral requirement*, the applicable percentage of critical minerals contained in the battery must be extracted or processed in a country with which the United States has a free trade agreement, or have been recycled in North America. To meet the *battery content requirement*, the applicable percentage of the components contained in the battery used in the vehicle must be manufactured or assembled in North America. For calendar years after 2023, a clean vehicle may not contain any battery components that were manufactured by a foreign entity of concern (as defined in 42 U.S.C. 18741(a)(5)), and, after calendar year 2024, a clean vehicle may not contain any critical minerals that were extracted, processed, or recycled by a foreign entity of concern.

**Action item:** Businesses should analyze the proposed prevailing wage, apprenticeship, and domestic content requirements in seeking to qualify for the bonus rate of each credit.

## Credit monetization (direct-pay options and transferability)

The bill would allow taxpayers that fall within the definition of “applicable entities” to elect to be treated as having made a payment of tax equal to the value of the credit for which they otherwise would be eligible for under the following credits (discussed in more detail below):

- Section 48 investment tax credit
- Section 45 production tax credit
- Section 45Q credit for carbon capture and sequestration
- Section 30C alternative fuel vehicle refueling property credit
- Section 48C advanced energy project credit
- Section 45U zero-emission nuclear power production credit
- Section 45V clean hydrogen production credit
- Section 45W credit for qualified commercial clean vehicles
- Section 45X advanced manufacturing production credit
- Section 45Y clean electricity production credit
- Section 48E clean electricity investment credit
- Section 45Z clean fuel production credit.

Rather than opting to carry forward credits to years when their credits could offset their tax

liability, taxpayers could elect to treat the amount of credit as a payment of tax. This would allow eligible entities with little or no tax liability to accelerate utilization of these credits. However, the definition of “applicable entities” would be limited to tax-exempt entities, state and local governments (and subdivisions thereof), tribal governments, the Tennessee Valley Authority, and certain rural electric cooperatives.

This limitation defining “applicable entities” would not apply for purposes of taxpayers claiming credits under Sections 45Q, 45V, or 45X. For purposes of credits under Section 45X, this exception would be limited to a single period of five consecutive years. Any election by a partnership or S corporation would have to be made at the entity level, not the partner or shareholder level.

**Observation:** The definition of applicable entities is narrower than under the direct-pay provisions of the House-passed BBB, which also would have allowed other taxpayers with no taxable income to avail themselves of the direct-pay option.

Taxpayers electing this treatment with respect to facilities placed into service under sections 45, 45Q, 45V, and 45Y would have to make a one-time, irrevocable election to have this treatment apply during the tax year the facility is placed into service.

In the case of a facility placed in service after December 31, 2022, for which a credit is allowed under the Section 48 ITC, Section 45 PTC, Section 45Y clean electricity PTC, or Section 48E clean electricity ITC, the amount of

payment allowed under this provision would equal the amount of credit for which the taxpayer otherwise would be eligible with respect to such facility multiplied by the applicable percentage, as defined under sections 45 and 45Y. The applicable percentage for facilities that satisfy domestic content requirements and facilities with a maximum net output of less than one megawatt would be 100%.

Treasury would be directed to provide appropriate exceptions to domestic content requirements if such requirements would increase the overall cost of construction of the project by more than 25% or if the relevant domestic products are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality.

**Effective date:** These provisions would apply to tax years beginning after December 31, 2022.

Taxpayers ineligible for the direct-pay election instead could opt to transfer any applicable credit to another taxpayer. This transfer may be for all or a portion of a credit, but any credit (or portion thereof) could be transferred only once. Credits eligible to be transferred would include:

- Section 30C alternative fuel refueling property credit
- Section 45 renewable electricity production credit
- Section 45Q credit for carbon oxide sequestration
- Section 45U zero-emission nuclear power credit
- Section 45V clean hydrogen production credit
- Section 45X advanced manufacturing production credit
- Section 45Y clean electricity production credit
- Section 45Z clean fuel production credit
- Section 48 energy investment tax credit
- Section 48C advanced energy project credit
- Section 48E clean electricity investment credit.

**Observation:** The transferability provision, while available to more taxpayers than the direct-pay provision, would be less valuable than direct pay because the taxpayer would need to leave a margin for the buyer of the credits.

**Observation:** With tax credits becoming potentially refundable, accounting for the credits may be impacted. When there is no connection to income taxes payable or taxable income and when the credits are refundable regardless of whether an entity has an income tax liability, typically we believe the benefit should be accounted for outside the income tax model and presented within pre-tax income. When a credit is transferable, other considerations may be necessary to determine how the credit should be accounted for.

**Observation:** From a public utility normalization perspective, the refundability of Section 48 energy credits does not necessarily alter the need to conform to the ITC normalization rules in Section 50(d)(2), absent additional exculpatory language.

## Clean electricity and reducing carbon emissions

### Extend and modify credit for electricity produced from certain renewable resources

The bill would extend the current-law Section 45 PTC, for facilities that begin construction before January 1, 2025. The PTC provides a tax credit for each kilowatt of electricity produced from qualifying facilities and sold to an unrelated party. Qualifying resources are generally sources of renewable electricity, including wind, biomass, municipal solid waste (including landfill gas and trash), geothermal, hydropower, and marine and hydrokinetic energy. The bill also would revive the PTC for solar energy (previously sunset in 2006) for facilities that commence construction before January 1, 2025.

For wind facilities, the current-law credit reduction and phaseout would be eliminated for any facility that is placed in service after December 31, 2021. Those facilities would be eligible to receive tax credits at full value, rather than the reduced values under current law.

The bill would provide taxpayers the option of a base credit rate of 0.5 cents/kilowatt hour, or a bonus credit rate of 2.5 cents/kilowatt hour (inflation-adjusted values) for facilities that meet the *prevailing wage and apprenticeship requirements*. To claim the credit at the bonus credit rate, taxpayers would have to satisfy the prevailing wage requirements for the duration of the construction of the project and for each year during the 10-year credit period, and apprenticeship requirements during the construction of the project.

If a facility meets the *domestic content requirements*, the credit rate would be increased by 10%. For facilities that do not meet the domestic content requirements, the amount of the credit that is eligible for a direct pay election under new Section 6417 would be reduced.

The credit rate also would be increased by 10% for any facility placed in service in an “energy community,” defined as a brownfield site, an area with significant fossil fuel employment, or a census tract or any immediately adjacent census tract in which, after December 31, 1999, a coal mine has closed, or, after December 31, 2009, a coal-fired electric generating unit has been retired.

The bill would eliminate the current-law half-credit reduction for hydropower and marine and hydrokinetic facilities. It also would modify the current definition of marine and hydrokinetic facilities to allow the inclusion of projects generating power from water distribution systems.

The bill would amend the rules governing projects that use both tax-exempt financing and claim the tax credits. Under current law, the credits are reduced by the lesser of 50% or the fraction of the basis of the facility that is financed with tax-exempt debt. Under the bill, for facilities that begin construction after the date of enactment and are financed with tax-exempt debt, the amount of credit is reduced by the lesser of 15% or the fraction of proceeds of a tax-exempt obligation used to finance the facility over the aggregate amount of additions to the capital account of the facility.

**Observation:** Relaxing the overlap rules between tax-exempt financing and the tax credits could facilitate additional deployment of renewables in projects that rely on a mix of public and private financing.

**Effective dates:** The modification of credit rates, including elevated rates facilities meeting for the wage and apprenticeship requirements, generally would apply to facilities placed in service after December 31, 2021. The modifications related to the use of tax-exempt bonds would apply to facilities that commence construction after the date of enactment. All other amendments made by this provision generally would apply to facilities placed in service after December 31, 2022.

## Extend and modify energy credit

The bill would extend the Section 48 energy ITC, which allows taxpayers to claim a tax credit for the cost of energy property. In most cases, the bill would extend the credit for property that begins construction before January 1, 2025.

The bill would provide a base credit rate of 2% or 6% of the basis of energy property or a bonus credit rate of 10% or 30% of the basis of energy property. These credit rates would apply with respect to facilities placed into service after December 31, 2021. To claim the ITC at the bonus credit rate, taxpayers must satisfy the prevailing wage requirements for the duration of the construction of the project and for five years after the project is placed into service and must meet the apprenticeship requirements during the construction of the project.

The 6% base and 30% bonus rates would be provided for solar energy property, geothermal property, fiber-optic solar property, fuel cell property, microturbine property, small wind property, offshore wind property, combined heat and power property, and waste energy recovery property that begins construction before January 1, 2025.

The ITC would be extended with 6% base and 30% bonus rates for geothermal heat pump property that begins construction before January 1, 2033. The base credit rate would phase down to 5.2% for property that begins construction in 2033 and 4.4% for property that begins construction in 2034. The bonus credit rate would phase down to 26% in 2033 and 22% in 2034. No credit would be allowed for property that begins construction after December 31, 2034.

The ITC would be extended with 2% base and 10% bonus rates for microturbine property that begins construction before January 1, 2025. The ITC would be expanded to include energy storage technology, biogas property, microgrid controllers, dynamic glass, and linear generators. These technologies would be eligible for a 6% base credit rate or a 30% bonus credit rate for any property that begins construction before January 1, 2025.

Taxpayers could claim an increased credit with respect to energy property placed into service after December 31, 2022, if such property meets the domestic content requirements. The increase would be 2 percentage points (or 10 percentage points if the taxpayer meets the prevailing wage and apprenticeship requirements).

For any energy property that is placed in service within an energy community, the credit percentage would be increased by 2 percentage points (or 10 percentage points if the taxpayer meets the prevailing wage and apprenticeship requirements). An energy community is defined as a brownfield site, an area with significant fossil fuel employment, or a census tract or any immediately adjacent census tract in which, after December 31, 1999, a coal mine has closed, or, after December 31, 2009, a coal-fired electric generating unit has been retired.

In the case of energy property financed using tax-exempt bonds that begins construction after the date of enactment, the basis of such energy property would be reduced by the proceeds of a tax-exempt obligation in a manner similar to the rule under Section 45(b)(3) (as modified under Section 13001). For purposes of this credit, energy property would include expenditures paid or incurred for interconnection property in connection with the installation of energy property (excluding microgrid controllers) that has a maximum net output of less than five megawatts.

The bill would amend Section 7701(e)(3) to apply special rules for contracts or arrangements to the operation of a storage facility for purposes of determining whether a contract that is purported to be a service contract should be treated as a service contract.

**Observation:** The extension of the ITC as well as its expansion to include standalone battery storage, microgrid controllers, biogas property, and other technologies potentially could accelerate power resiliency and future decarbonization efforts.

**Effective dates:** The amendments made by this provision generally would apply to property placed in service after December 31, 2022, but only to the extent the basis of such property is attributable to the construction, reconstruction, or erection after December 31, 2022. The extension of credits and modification of credit rates (including the higher rates for projects meeting the wage and apprenticeship requirements) would apply to property placed in service after December 31, 2021. The modifications to rules relating to tax-exempt bonds would apply to property that begins construction after the date of enactment.

### **Increase energy credit for solar and wind facilities placed in service in connection with low-income communities**

The bill would provide an enhanced incentive for solar and wind facilities qualifying for the Section 48 ITC with respect to which Treasury makes an allocation of environmental justice solar and wind capacity limitation. Property eligible for the credit would include energy storage technology related to such solar or wind property.

The amount that may be allocated is limited to an annual capacity limitation of 1.8 gigawatts for each of calendar years 2023 and 2024 (zero for calendar years thereafter). Any unused allocations would be carried over, increasing the capacity limit for the following year. Any excess capacity limitation after 2024 would be carried over to the annual capacity limitation under Section 48E, the clean electricity investment tax credit.

Projects receiving an allocation of environmental justice solar capacity limitation would receive an additional 10% credit if located in a low-income community (as defined within the New Markets Tax Credit program under Section 45D) or on Indian land. Projects receive an additional 20% credit if the project is a “qualifying low-income residential building project” or a “low-income economic benefit project.”

**Observation:** With availability of enhanced credit rates for paying prevailing wages, implementing apprenticeship programs, using domestic content, and installing systems in energy communities and environmentally impacted areas, it will be important to model expected benefits and keep documentation demonstrating eligibility.

**Effective date:** This provision would take effect on January 1, 2023.

### **Extend and modify credit for carbon oxide sequestration**

The bill would extend the credit for carbon oxide sequestration for facilities that begin construction before the end of 2032. It also would modify the minimum capture requirements for qualified facilities. To qualify for the credit, direct air capture facilities must capture no less than 1,000 metric tons of carbon oxide per year. Electricity generating facilities must capture no less than 18,750 metric tons of carbon oxide and 75% of the baseline carbon emissions from each generating unit on which carbon capture equipment is installed. Other facilities must capture no less than 12,500 metric tons of carbon oxide.

The bill would provide a base credit rate of \$17 or a bonus credit rate of \$85 per metric ton of carbon oxide captured and sequestered in geological storage, and a base credit rate of \$12 or a bonus credit rate of \$60 per metric ton of carbon oxide captured and utilized in an enhanced oil recovery project or for a commercial use that results in permanent sequestration. The bill also would provide an enhanced credit for direct air capture facilities at a base rate of \$36 or a bonus rate of \$180 per metric ton of carbon oxide captured for geological storage, and a base rate of \$26 or a bonus rate of \$130 per metric ton of carbon captured and utilized for an allowable use by the taxpayer.

To claim this credit at the bonus credit rate, taxpayers must satisfy the prevailing wage requirement during the construction of the project and for each year during the 12-year credit period and satisfy the apprenticeship requirement during the construction of the project.



In the case of carbon capture equipment financed using tax-exempt bonds that begins construction after date of enactment, the amount of credit allowed under this provision with respect to such equipment would be reduced by the lesser of 15% or the fraction of proceeds of a tax-exempt obligation used to finance such project over the aggregate amount of additions to the capital account of such project.

**Observation:** The carbon capture thresholds would be significantly reduced under the bill as compared to the current statutory language in order to qualify for the Section 45Q tax credit. Accordingly, this would allow for smaller carbon capture projects to potentially qualify for the tax credit.

**Observation:** The enhanced Section 45Q tax credit with respect to direct air capture facilities may incentivize the commercialization of direct air capture technologies.

**Effective dates:** This provision generally would apply to facilities or equipment placed in service after December 31, 2022. The modifications to the capture requirements for qualified facilities, as well as the modifications to the rules relating to facilities or equipment financed with tax-exempt debt, would apply to facilities and equipment for which construction begins after the date of enactment. In the case of any carbon capture equipment placed in service before February 9, 2018 (the date of enactment of the Bipartisan Budget Act of 2018), no credit would apply with respect to carbon oxide captured after the earlier of December 31, 2022, or the end of the calendar year in which Treasury certifies that a total of 75 million metric tons of qualified carbon oxide have been taken into account.

In the case of facilities placed into service on or after the enactment of the Bipartisan Budget Act of 2018, the taxpayer may elect to have the 12-year credit period begin on the first day in which a credit under this provision is claimed after the date of enactment of the Bipartisan Budget Act of 2018. A taxpayer may make such an election only if no taxpayer claimed a credit under this provision with respect to such carbon capture equipment for any prior tax year; the qualified facility at which such carbon capture equipment is placed in service is located in an area affected by a federally declared disaster, and the federally declared disaster referred resulted in a cessation of the operations of the qualified facility or carbon capture equipment after the carbon capture equipment was originally placed in service.

### **Provide zero-emission nuclear power production credit**

The bill would provide a new credit for the production of electricity from a qualified nuclear power facility. It would provide a base credit rate of 0.3 cents/kilowatt hour and a bonus credit rate of 1.5 cents/kilowatt hour for electricity produced by the taxpayer and sold to an unrelated person during the tax year.

The credit would be reduced as the sale price of such electricity increases. Under the credit reduction formula, the credit for any qualified nuclear power facility is reduced (but not below zero) by 80% of the excess of the gross receipts (including Federal, State, and local zero-emissions grants) from any electricity produced and sold by such facility over the product of 0.5 cents times the amount of electricity sold during the tax year.

A qualified nuclear power facility is any nuclear facility that is owned by the taxpayer, uses nuclear energy to produce electricity, and is placed in service before the date of enactment.

In order to claim this new credit at the bonus credit rate, taxpayers must satisfy prevailing wage and apprenticeship requirements for the tax year.

**Effective date:** The provision would apply to electricity produced and sold after December 31, 2023, and would terminate on December 31, 2032.

## Clean fuels

### Extend incentives for biodiesel, renewable diesel, and alternative fuels

The bill would extend the income and excise tax credits for biodiesel and biodiesel mixtures at \$1.00 per gallon through December 31, 2024; extend the \$0.10-per-gallon small agri-biodiesel producer credit through December 31, 2024; and extend the \$0.50 per gallon excise tax credits for alternative fuels and alternative fuel mixtures through December 31, 2024.

**Effective date:** This provision would apply to fuels sold or used after December 31, 2021, and direct Treasury to establish procedures for credit claims for periods after December 31, 2021, and before the date of enactment.

### Extend second-generation biofuel incentives

The bill would extend the second-generation biofuel income tax credit for fuel produced and sold before January 1, 2025, effective for fuel produced and sold after December 31, 2021.

### Provide sustainable aviation fuel credit

The bill would provide a refundable blenders tax credit for each gallon of sustainable aviation fuel sold as part of a qualified fuel mixture. The value of the credit would be determined on a sliding scale, equal to \$1.25 plus an additional \$0.01 for each percentage point by which the lifecycle emissions reduction of such fuel exceeds 50% (as compared to petroleum-based jet fuel). Taxpayers may elect to claim this credit as an excise tax credit against Section 4041 excise tax liability.

To claim the credit, taxpayers must certify to Treasury that such fuel reduces lifecycle greenhouse gas emissions by at least 50%, determined in accordance with the requirements of the most recent Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) adopted by the International Civil Aviation Organization (ICAO) with the support of the United States, or under any similar methodology which satisfies the criteria under Section 211(o)(11) of the Clean Air Act. Taxpayers must also register with Treasury and provide third-party verification that they meet the relevant requirements of the CORSIA scheme (or other similar regime), including reporting and traceability requirements.

The bill would terminate the \$1.00 Section 40A tax credit for aviation fuel produced from biodiesel beginning after December 31, 2022.

“Sustainable aviation fuel” does not include any fuel that is produced from palm fatty acids or by co-processing lipids with fuels derived from oil, natural gas, or coal.

**Effective date:** This provision would apply for fuel sold or used after December 31, 2022. The credits allowed under this provision would expire after December 31, 2024.

**Observation:** It has proven difficult to create aviation fuels that meet the current biofuels excise tax standards. The sustainable aviation fuel credit could spur wider adoption of lower-carbon aviation fuels.

### Create new clean-hydrogen credit

The bill would create a new tax credit for the production of clean hydrogen produced by a taxpayer at a qualified clean-hydrogen facility during the 10-year period beginning on the date such facility is placed in service.

The amount of the credit would equal the applicable percentage of the base rate of \$0.60 or the bonus rate of \$3.00, indexed to inflation, multiplied by the volume (in kilograms) of clean hydrogen produced by the taxpayer at a qualified facility during the tax year.

To claim the hydrogen production credit at the bonus credit rate, taxpayers must satisfy the prevailing wage requirements for the duration of the construction of the project and for each year during the 10-year credit period and satisfy the apprenticeship requirements during the construction of the project.

The applicable percentage would be determined by the lifecycle greenhouse gas emission rate achieved in producing clean hydrogen.

Taxpayers may claim the Section 45 PTC or the Section 45U zero-emission nuclear PTC for electricity produced by the taxpayer if the electricity is used at a qualified clean hydrogen facility to produce qualified clean hydrogen.

A taxpayer may elect to treat a qualified clean hydrogen facility as energy property for purposes of the Section 48 ITC in lieu of the credit for the production of clean hydrogen. For taxpayers making such an election, the credit allowed under Section 48 would equal the applicable percentage multiplied by the energy percentage. With respect to facilities for which the taxpayer elects to claim the Section 48 ITC in lieu of the hydrogen production credit, the provision provides a base credit rate of 6%, or a bonus credit rate of 30%, of the basis of qualified energy property.

No credit would be allowed for clean hydrogen produced at a facility that includes property for which a credit is allowed under Section 45Q. Taxpayers may claim either the credit under Section 45Q or the clean hydrogen production credit but not both with respect to the same facility. In the case of a facility financed using tax-exempt bonds which begins construction after date of enactment, the amount of credit allowed under this provision with respect to the facility shall be reduced by the lesser of 15% or the fraction of proceeds of a tax-exempt obligation used to finance such project over the aggregate amount of additions to the capital account of such project.

Not later than one year after the date of enactment of this provision, Treasury shall issue regulations or other guidance to carry out the provision, including for determining lifecycle greenhouse gas emissions and the process for requiring verification by unrelated third parties of production and sale of clean hydrogen.

No credit would be allowed for facilities which begin construction after December 31, 2032.

## **Clean energy and energy-efficiency incentives for individuals**

### **Extend, increase, and modify the nonbusiness energy property credit**

Beginning in 2022, the bill would extend, modify, and expand the Section 25C nonbusiness energy property credit to property placed in service before the end of 2032 by increasing the percentage of the credit for installing qualified energy efficiency improvements from 10% of the cost to 30%; replacing the lifetime cap on credits with a \$1,200 annual credit limitation, with a higher, \$2,000 limitation for heat pumps and biomass stoves; updating various standards and associated limits to reflect advances in energy efficiency and removing eligibility of roofs, advanced main air circulating fans, and certain windows; requiring that manufacturers and taxpayers comply with reporting the identification number of certain property placed into service in order to access the credit; and expanding the credit to cover the costs of home energy audits, up to a maximum credit of \$150, and electrical panel upgrades necessary for other efficiency improvements, up to a maximum credit of \$600.

### **Extend the credit for residential clean energy property expenditures**

The bill would extend the Section 25D credit for the cost of qualified residential clean energy property expenditures, including solar electric, solar water heating, fuel cell, small wind energy, and geothermal heat pumps. The provision

would extend the full 30% credit for eligible expenditures through the end of 2032. The credit then would phase down to 26% in 2033 and 22% in 2034, and expire after the end of 2034. The provision also would expand the definition of eligible property to include battery storage technology.

### **Update and expand the energy-efficient commercial buildings deduction**

Starting in 2022, the bill would update and expand the energy-efficient commercial buildings deduction by increasing the maximum deduction, determined on a sliding scale. It also would change this maximum from a lifetime cap to a three-year cap. The provision would update the eligibility requirements so that property must reduce associated energy costs by 25% or more in comparison to a building that meets the latest American Society of Heating, Refrigerating, and Air-Conditioning Engineers 90.1 standard affirmed by Treasury as of four years prior to the date such building is placed into service.

This provision would allow taxpayers to elect to take an alternative, parallel deduction for energy efficient lighting, HVAC, and building envelope costs placed into service in connection with a qualified retrofit plan.

To claim the bonus deduction amount, taxpayers must satisfy prevailing wage and apprenticeship requirements for the duration of the construction of the project. To qualify for the alternative deduction, a building retrofit project must reduce a building's energy usage intensity (EUI) by no less than 25%.

This provision would allow tax-exempt entities to allocate the deduction to the designer of the building or qualified retrofit plan.

The amendments made by this provision would expire after December 31, 2031.

### **Extend, increase, and modify the new energy-efficient home credit**

The bill would extend the Section 45L new energy-efficient home credit through 2032. In the case of new homes acquired after 2022 that are eligible to participate in the ENERGY STAR Residential New Construction Program or Manufactured Homes Program, the bill would provide a \$2,500 credit for energy-efficient single-family and manufactured new homes meeting certain energy star requirements. The bill would provide a higher-tier credit of \$5,000 credit for eligible single-family and manufactured new homes certified as a zero energy ready under the Department of Energy Zero Energy Ready Home Program.

In the case of new homes acquired after 2022 that are eligible to participate in the ENERGY STAR Multifamily New Construction Program, the bill would provide a base credit of \$500 and a bonus credit of \$2,500 for multifamily units that meet certain Energy Star requirements as in effect on the latter of January 1, 2022, or January 1 of two calendar years prior to the date the dwelling is acquired.

This bill would provide a higher-tier base credit of \$1,000 or a bonus credit of \$5,000 for eligible multifamily units certified as a zero energy ready under the Department of Energy Zero Energy Ready Home Program.

To claim the bonus credit amount with respect to a multifamily unit, the taxpayer must satisfy prevailing wage requirements for the duration of the construction of such units. Taxpayers claiming the credit do not have to reduce basis for purposes of calculating the Section 42 low-income housing tax credit.

## **Clean vehicles**

### **Amend the clean vehicle credit**

The bill would amend the existing Section 30D tax credit to apply to new clean vehicles placed into service by the taxpayer during the tax year. The amount of credit allowed by this provision with respect to a qualified vehicle is

equal to a maximum of \$7,500 with respect to a vehicle propelled primarily by electricity, with a battery of at least seven kilowatt hours, or with respect to a hydrogen fuel cell electric vehicle. Eligible vehicles must meet the critical mineral or battery component requirements. Vehicles that meet one of the requirements, but not both, are eligible for a credit of \$3,750.

To meet the critical mineral requirement, the applicable percentage of critical minerals contained in the battery must be extracted or processed in a country with which the United States has a free trade agreement, or have been recycled in North America. The applicable percentage is: for calendar years prior to 2024, 40%; for calendar year 2024, 50%; for calendar year 2025, 60%; for calendar year 2026, 70%; and for calendar years after 2026, 80%.

To meet the battery content requirement, the applicable percentage of the components contained in the battery used in the vehicle must be manufactured or assembled in North America. The applicable percentage is: for calendar years prior to 2024, 50% for calendar years 2024 and 2025, 60%; for calendar year 2026, 70%; for calendar year 2027, 80%; for calendar year 2028, 90%; and for calendar years after 2028, 100%.

Clean vehicles must be assembled in the United States. For calendar years after 2023, a clean vehicle may not contain any battery components that were manufactured by a foreign entity of concern (as defined in 42 U.S.C. 18741(a)(5)), and, after calendar year 2024, a clean vehicle may not contain any critical minerals that were extracted, processed, or recycled by a foreign entity of concern.

Clean vehicles must be sold by a qualified manufacturer. A qualified manufacturer must enter into a written agreement with Treasury to ensure each vehicle manufactured meets the requirements of this provision and is labeled with a unique vehicle identification number, and the manufacturer must periodically provide such vehicle identification numbers to Treasury in such a manner as Treasury may prescribe.

No credit would be allowed for vehicle by which the manufacturer's suggested retail price exceeds the applicable limitation: for vans, SUVs, and pick-up trucks, \$80,000; and for any other vehicle: \$55,000.

No credit would be allowed to a taxpayer with a modified adjusted gross income in excess of the threshold amount of \$300,000 for married filing jointly, \$225,000 for head of household, and \$150,000 in any other case. For a given tax year, the taxpayer may use modified adjusted gross income for that year or the immediately preceding year, whichever is lower.

The current per-manufacturer limitation would be repealed.

The taxpayer may elect to transfer the credit to the vehicle dealer, provided the dealer is registered as an eligible entity with Treasury and discloses the MSRP, credit amount, associated fees, and the amount to be paid to the taxpayer in the form of a down payment or otherwise with respect to the transfer of credit. Treasury shall establish a program to make advance payments to any eligible dealer equal to the cumulative amount of transferred credits.

**Effective dates:** This provision generally would apply to vehicles placed in service after December 31, 2022. The requirement that vehicles be assembled in North America would apply to vehicles sold after the date of enactment. The provision allowing transfers of the credit would apply to vehicles sold after December 31, 2023. The credit would not be allowed for any vehicle placed in service after December 31, 2032.

### **Create new credit for previously owned clean vehicles**

The bill would create a new credit (Section 25E) for the purchase of used plug-in and fuel-cell electric cars after the date of enactment through 2032. Buyers could claim a credit of up to the lesser of \$4,000, or 30% of the sale price. To qualify for this credit, used clean vehicles must generally meet the eligibility requirements in the existing Section

30D credit for new clean vehicles, not exceed a sale price of \$25,000, and be a model year that is at least two years earlier than the date of sale.

Buyers with up to \$75,000 (\$150,000 for married couples filing jointly and \$112,500 for head of household filers) in adjusted gross income could claim the credit. Buyers must purchase the vehicle from a dealership and cannot claim the credit more than once every three years. The credit would apply only to the first resale of a used vehicle and would include restrictions on sales between related parties.

The credit may be transferred to the seller of the previously owned vehicle to allow the purchaser to access the value of the credit at the time of sale. The rules governing transfers of the credit would be the same as those established for Section 30D.

### **Create a new credit for qualified commercial clean vehicles**

The bill would create a new credit (Section 45W) for qualified commercial electric vehicles placed into service by the taxpayer.

The amount of credit allowed by this provision with respect to a qualified commercial electric vehicle would equal to 30% of the cost of the vehicle, up to \$7,500 in the case of a vehicle that weighs less than 14,000 pounds, and up to \$40,000 for all other vehicles.

Tax-exempt entities would have the option of electing to receive direct payments.

For purposes of the credit, a qualified commercial electric vehicle means any vehicle the original use of which commences with the taxpayer; acquired for use or lease by the taxpayer and not for resale; made by a qualified manufacturer; treated as a motor vehicle for purposes of title II of the Clean Air Act or mobile machinery for purposes of Section 4053(8); propelled to a significant extent by an electric motor that draws electricity from a battery which has a capacity of not less than 15 kilowatt hours (seven kilowatt hours for vehicles that weigh less than 14,000 pounds) and is capable of being recharged from an external source of electricity, or is a fuel cell vehicle based upon the requirements of Section 30B; and is of a character subject to the allowance for depreciation.

Vehicles powered by an internal combustion engine would be eligible for a reduced credit of 15%.

A qualified manufacturer means any manufacturer that enters into written agreement with Treasury to ensure each vehicle manufactured meets the requirements of this provision and is labeled with a unique vehicle identification number, and that such manufacturer will periodically provide such vehicle identification numbers to Treasury in such a manner as Treasury may prescribe. No credit would be allowed with respect to any qualified vehicle unless the taxpayer includes the vehicle identification number of such vehicle on their return for that tax year.

**Effective date:** This provision would take effect after December 31, 2022. No credit would be allowed under this provision for a vehicle acquired after December 31, 2032.

**Observation:** Expansion of electric vehicle incentives to larger, commercial vehicles, including certain off-road vehicles, may spur interest in electrification of such equipment.

### **Extend the alternative fuel refueling property credit**

The bill would extend the Section 30C alternative fuel vehicle refueling property credit through 2032. Beginning in 2022, the provision would expand the credit for zero-emissions charging and refueling infrastructure by providing a base credit of 6 percent and a bonus credit level of 30% for expenses up to \$100,000 for each charging station or refueling pump installed.

To claim the bonus credit amount with respect to eligible property, taxpayers must satisfy prevailing wage requirements for the duration of the construction of such property.

This provision also would clarify that bidirectional charging equipment is eligible property and would expand the list of eligible property to include electric charging stations for electric two- and three-wheeled motor vehicles manufactured for use on public streets, roads, and highways, but only if such stations are intended for use on public roads.

Starting in 2023, charging or refueling property would be eligible only if it is placed in service within a low-income or rural census tract.

## Investment in clean energy manufacturing and energy security

### Extend the advanced energy project credit

The bill would revive the Section 48C qualified advanced energy property credit, allowing Treasury to allocate an additional \$10 billion in tax credits to qualifying projects, starting in 2023. Four billion dollars would be set aside for qualifying projects in census tracts in which a coal mine or coal power plant has closed and in which no project received a Section 48C credit allocation in prior years, or in census tracts directly adjoining such tracts.

Projects would receive a base credit rate of 6% of qualified investments in qualified advanced energy projects. To receive a bonus rate of 30%, taxpayers must satisfy the prevailing wage requirements for the establishment, expansion, or re-equipping of a manufacturing facility and for five years after the project is placed into service, and satisfy the apprenticeship requirements during the construction of the project.

Requirements similar to those for the original credit would apply, though eligibility would be modified to include projects to establish, expand, or re-equip facilities for the production, manufacturing, or recycling or advanced grid, energy storage, and fuel cell equipment; equipment for the production of low-carbon fuels, chemicals, and related products; renewable energy and energy efficiency equipment; equipment for the capture, removal, use, or storage of carbon dioxide; and advanced light-, medium-, and heavy-duty vehicles and related components and infrastructure.

The credit also would be allowed for projects that reduce carbon emissions at existing industrial facilities by at least 20%.

Treasury would determine allocations to projects each year with a requirement that property is placed in service within four years of the date of the allocation.

**Observation:** The initial version of Section 48C included in the American Recovery and Reinvestment Act of 2009 attracted significantly more applicants than Treasury could fund. While the revised program has nearly four times as many credits available, companies interested in Section 48C should prepare to present a detailed, competitive application to Treasury and the Department of Energy.

### Provide an advanced manufacturing production credit

The bill would provide a production credit (Section 45X) for each eligible component that is produced and sold. Eligible components would include solar polysilicon, wafers, cells, modules, backsheets, longitudinal purlins, and structural fasteners; wind blades, nacelles, towers, and offshore foundations; inverters; battery electrode active materials, cells, and modules; and critical minerals.

The credits would be provided based on mass, watt-capacity, sales price, or production cost, and be provided for eligible components produced and sold before January 1, 2030. For components sold after that date, the credit

would be reduced by 25% each year, and be unavailable for components sold in 2033 and beyond. This phaseout would not apply to the credits for critical minerals.

## Methane emissions

### Impose methane emissions charge

The bill would impose a charge on methane emissions from selected entities in the oil and gas industry. The methane emissions charge would apply only to methane emissions from specific types of facilities that are required to report their greenhouse gas (GHG) emissions to the Environmental Protection Agency's (EPA's) Greenhouse Gas Emissions Reporting Program (GHGRP). The charge would start at \$900 per metric ton of methane, increasing to \$1,500 after two years, which equates to \$36 and \$60 per metric ton of carbon dioxide (CO<sub>2</sub>) equivalent, respectively. This charge would be the first time the federal government would directly impose a charge, fee, or tax on GHG emissions.

**Observation:** The methane charge has received considerable attention from members of Congress and a range of stakeholders. For example, some groups have raised concerns about potential economic impacts resulting from the methane charge, including impacts on natural gas prices, because methane is the primary component of natural gas. Some policymakers express concern about the charge in the context of EPA's proposed regulations to address methane emissions from the same categories of new and existing facilities that would be subject to the methane charge.

Others point out that methane is a potent GHG. When averaged over a 100-year time period — the time period often used in annual GHG inventories—methane's global warming potential is 25 times greater than that of an equivalent mass of CO<sub>2</sub>. While the charge could have a significant impact on traditional energy producers, supporters argue that it could incentivize companies to capture more of their methane emissions (which can be burned to create electricity) and also help push the economy towards renewable alternatives.

**Effective dates:** The methane emissions charge would start in calendar-year 2024 at \$900 per metric ton of methane, increase to \$1,200 in 2025, and increase to \$1,500 in 2026.

## Superfund

### Reinstate the Hazardous Substance Superfund Financing Rate on crude oil and imported petroleum products

This provision would reinstate the Hazardous Substance Superfund Financing Rate on crude oil and imported petroleum products at the rate of 16.4 cents/per gallon, indexed to inflation, and would reinstate the tax on taxable chemicals.

**Effective dates:** This provision would be made effective after December 31, 2022. It would reinstate the authority for advances to be appropriated to the trust fund through December 31, 2032.

**Observation:** This provision raises a variety of questions, such as which entities in the supply chain should bear the cost of this tax, that are not addressed in the text or legislative history and hence may need to be addressed through regulation.



## Incentives for clean energy and clean transportation

### Create clean electricity production and investment credits

The bill would create an emissions-based incentive that would be neutral and flexible between clean electricity technologies. Taxpayers could choose between a PTC under Section 45Y or an ITC under Section 48E that is provided based on the carbon emissions of the electricity generated, measured as grams of carbon dioxide equivalents (CO<sub>2</sub>e) emitted per KWh generated. Any power facility of any technology could qualify for the credits, so long as the facility's carbon emissions are at or below zero.

Taxpayers electing the PTC would receive a credit equal to up to 1.5 cents per kilowatt hour (KWh) of electricity produced and sold in the 10-year period after a qualifying facility is placed in service. Taxpayers electing the ITC would receive a credit worth up to 30% of the investment in the year the facility is placed in service. All taxpayers would be eligible for a PTC of 0.3 cents per kilowatt hour or an ITC of 6%. Taxpayers that pay wages at not less than local prevailing rates and utilize registered apprenticeship programs would be eligible to receive elevated credits of 1.5 cents per kilowatt hour or 30%. The prevailing wage and apprenticeship provisions apply in the same manner as for the Section 45 PTC and Section 48 ITC.

For combined heat and power systems (CHP), the emissions rate would be calculated using both electrical and useful thermal energy. Under the proposal, the British thermal units (BTUs) of useful thermal energy in a CHP system are converted to kilowatt hours using the facility's heat rate (the number of BTUs required to generate 1 KWh). These converted KWhs are also accounted for as production for purposes of the PTC.

Stand-alone energy storage property would be eligible for the full 30% ITC. Energy storage property is defined as under section 48, as modified under Section 13102 of the bill. Clean electricity projects smaller than five megawatts would be allowed to include the costs of interconnection under the clean electricity ITC.

Taxpayers could receive larger credits under certain circumstances, including investments in clean electricity or energy storage property in energy communities. Projects that comply with certain domestic content requirements similarly would qualify for elevated credit rates, including using steel, iron, and manufactured products that are mined, produced, or manufactured in the United States. These rules would apply in a similar manner to those applied to Sections 45 and 48.

The elevated credits generally would equal a 10% increase to the value of the PTC or a 10 percentage-point increase to the value of the ITC.

Treasury would be directed to publish emission rates for similar technologies each year for taxpayers to use for purposes of determining their eligibility.

The credits would phase out the latter of 2032 or when emission targets are achieved: when the electric power sector emits 75% less carbon than 2022 levels, the incentives would be phased out over three years. Facilities would be able to claim a credit at 100% value in the first year, then 75%, then 50%, and then 0%.

Taxpayers would be provided the same ability to elect direct pay for the clean electricity PTC and ITC as for the current Sections 45 and 48 PTC and ITC, including limitations with respect to domestic content.

**Effective date:** The provision would apply to facilities placed in service after December 31, 2024.

**Observation:** This revised incentive would be roughly equal in value to the existing PTC or ITC incentives but available on a "technology neutral" basis so that innovative technologies for producing or storing electricity could qualify for the incentive without having to match a predefined codified list of projects.

### **Cost recovery for qualified facilities, qualified property, and energy storage technology**

The bill would provide that any facility described in the clean electricity production credit and any qualified property or grid improvement property described in the clean electricity investment credit shall be treated as five-year property under GDS for purposes of Section 168.

**Effective date:** This provision would apply to facilities and property placed in service after December 31, 2024.

### **Create a clean-fuel production credit**

The bill would create a technology-neutral incentive for the domestic production of clean fuels. The level of the incentive would depend on the lifecycle carbon emissions of a given fuel.

Lifecycle emissions take into account the “well to wheel” emissions profile, from production of the feedstock for the fuel through to its use in a vehicle.

Fuels could qualify for the credit if the fuel’s lifecycle emissions are at least 25% less than the current US nationwide average. Zero-emission fuels would qualify for a base incentive of \$0.20 per gallon or gallon equivalent. Sustainable aviation fuel that meets certain ASTM standards and is not derived from palm oil would qualify for a base incentive of \$0.35 per gallon or gallon equivalent.

Qualifying production would be restricted to production in the United States of fuel that is used or sold. No credit would be allowed at a facility that includes property for which a credit is allowed under Section 45Q, Section 45X, or the Section 48 ITC for clean hydrogen production facilities during the tax year.

The base incentive amounts would be increased to the extent a fuel’s lifecycle emissions are below zero and reduced to the extent they are above zero, phasing out ratably between zero and the baseline emissions rate. Between now and 2030, qualifying fuels would have to become increasingly cleaner in order to qualify for the credit. Fuels produced before 2027 may qualify if the fuel’s lifecycle emissions are less than 50 kilograms of carbon dioxide equivalents per million British thermal units.

Also, fuels must be at least transportation grade — suitable for use in a highway vehicle or aircraft — but may be used for any business purpose, including as transportation fuel, industrial fuel, or for residential or commercial heat. All taxpayers would be eligible for credits of up to \$0.20 per gallon (\$0.35 in the case of aviation fuel). Taxpayers that pay wages at not less than local prevailing rates and utilize registered apprenticeship programs would be eligible for elevated credit rates of \$1.00 per gallon (\$1.75 in the case of aviation fuel). No credit would be allowed for non-aviation fuel that is derived from coprocessing biomass with a feedstock that is not biomass.

Taxpayers could elect direct payment of the credits, in a similar manner to other provisions.

Treasury would be directed to annually publish emissions rates for fuels that are produced using similar feedstocks and production pathways that taxpayers will use for purposes of determining their credit rates.

The credit would not be allowed for fuel produced and sold or used after December 31, 2027.

## Let's talk

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