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■ **SPECIAL REPORT ARTICLE** January 2023

Green energy incentives created or modified by the Inflation Reduction Act

BY ANDREW EASTMAN

In the wake of increasing inflation and as a means of codifying several of the Biden administration's legislative priorities, the Senate passed the \$750bn Inflation Reduction Act on 7 August 2022 by a 51 to 50 party-line vote. The Act, which is comprised of sweeping healthcare, energy and tax measures, was approved by the House of Representatives on 12 August 2022, and signed into law by president Biden on 16 August 2022, creating a significant number of renewable energy sector benefits.

While economists disagree over the Act's ability to curb inflation in the near term, most analysts agree it will materially impact carbon emissions by deploying nearly \$370bn earmarked for clean energy and climate change measures. Some predict the

Act will reduce domestic carbon emissions by up to 40 percent by 2030, but nearly all agree that the Act represents the largest climate investment in US history, allocating nearly \$430bn in anticipated tax revenue between healthcare, carbon emissions reduction and incentives for what Joe Manchin, a senator from West Virginia, calls "the energy of the future" – domestic renewable power projects.

Analysts expect the Act will more than triple renewable energy production, creating up to an additional 550 gigawatts of electricity from wind, solar and other clean power sources (an amount the American Clean Power Association estimates could power 110 million homes), including by creating new and expanded tax credits for low-carbon technologies.

Notably, several such credits are meant to survive for 10 years – a period designed to provide certainty to green energy developers, whose projects are often underpinned by tax incentives and who often face financing uncertainty caused by historically recurring lapses in tax incentives.

Production tax credit

The Act extends the production tax credit (PTC) available to facilities generating electricity from renewable sources from those starting construction prior to the end of 2005 to those starting construction before 1 January 2025. Such facilities which generate electricity from sun, wind, biomass, municipal solid waste, geothermal sources or hydrokinetic energy may receive

a base credit rate of 0.3 cents or a bonus credit rate of 1.5 cents per kilowatt hour produced, so long as they meet prevailing wage and apprenticeship requirements. Facilities satisfying domestic content requirements (including that minimum amounts of steel, iron and manufactured products used are domestically produced) will also be eligible to receive a rate increase of 10 percent. Those located in an energy community (an area which is a brownfield site or a community in which significant employment is provided by the energy industry) will also be eligible for a 10 percent increase. The Act further eliminates the previously existing credit rate reduction for hydroelectric production.

In addition to modifications of the existing PTC, the Act creates a new emissions-based PTC, called a section 45Y credit, equally available to clean electricity technologies. Operators are permitted to choose between it and the also-new section 48D investment tax credit. Those electing the section 45Y credit will be entitled to a base credit rate of 0.3 cents and a bonus credit rate (subject to satisfying prevailing wage and apprenticeship requirements) of 1.5 cents (similar to existing section 45 credits), in each case based on grams of carbon dioxide equivalent emitted per kilowatt hour either sold to a third party or metered and used by the generating operator. To qualify for the section 45Y credit, facilities must have been placed in service after 21 December 2024, and may not exceed maximum greenhouse gas emissions rates.

Investment tax credit

The Act also provides for the extension and modification of the investment tax credit (ITC) available to geothermal energy facilities, including by extending it to facilities starting construction before 1 January 2035, and to solar energy facilities starting construction before 1 January 2025. Further, the Act establishes a base credit rate of 2 percent (for microturbine operations) or 6 percent (for solar, fuel cell, waste energy recovery, and combined heat and power operations), and bonus credit rates that increase the rate to a maximum of either 10 percent or 30 percent, subject

to the satisfaction of prevailing wage and apprenticeship requirements.

Eligible technologies will be expanded to include energy storage technology, qualified biogas property (which does not generate electricity), microgrid controllers and linear generators (in addition to previously eligible technologies, like solar arrays). A 6 percent base credit rate increase (up to a 30 percent bonus credit) will be available to certain geothermal projects, and a bonus credit rate of 2 percent will be available to projects meeting domestic content requirements (increasing to a bonus credit rate of 10 percent for projects meeting prevailing wage and apprenticeship requirements).

Like the newly created section 45Y credit, the Act also provides for the creation of a new ITC, called a section 48D credit, available to clean energy investments (regardless of technology). The section 48D credit is available to projects placed in service after 31 December 2024, including a 6 percent base credit rate (that can increase to a 30 percent bonus credit rate in the same manner as existing section 48 credits). Notably, projects must elect either the section 48D ITC or the section 45Y PTC; they cannot receive both.

Bonus credit related to low income communities

To spur environmental equity and the creation of high-quality jobs in low-income communities, the Act creates a 10 percent bonus investment credit for projects located in low-income communities or on Indian land (which credit increases to 20 percent if that project is a part of a low-income residential building project or a qualified low-income economic benefit project). Solar and wind facilities with a nameplate capacity of 5 percent or less, including energy storage properties installed in connection with solar property and interconnection property, would also qualify for this bonus credit.

Clean hydrogen credit

To make 'green' and 'blue' hydrogen more competitive with 'grey' hydrogen and natural gas, the Act also creates a new credit for qualified hydrogen produced at a qualifying facility during the facility's

first 10 years in operation. The base rate for the credit is 60 cents per kilogram multiplied by the applicable percentage range (20 to 100 percent, depending on the lifecycle greenhouse gas emissions rate related to the hydrogen). Eligible projects must begin construction before 1 January 2033, but facilities in existence prior to that date may qualify based on the date clean hydrogen-producing modifications to it are placed into service. However, the credit is unavailable to taxpayers already claiming a section 45Q carbon capture credit.

Curbing carbon emissions

Among the Act's primary carbon-related reforms is an extension and modification of the existing section 45Q credit programme, which incentivises the capture and storage of carbon oxide emissions by providing monetisable credits to operators capturing at least a minimum threshold of emissions. The Act extends the deadline for eligible projects to commence construction from 1 January 2025 to 1 January 2033 and introduces a variable capture threshold (measured by metric tonnes captured per taxable year). Under the Act, direct air capture facilities will benefit from the lowest capture threshold (1000 metric tonnes), whereas electricity generating facilities will be subject to the highest threshold (18,750 metric tonnes) and will also be required to capture at least 75 percent of their baseline carbon oxide. However, the capture rate is only 60 percent for facilities not yet in service or that were only recently put in service.

The Act is meant to reward oil and natural gas producers that address methane leaks along pipelines and penalise those failing to curb leaks with fines, while simultaneously rewarding operators for capturing and storing carbon emissions with tax credits. Such sequestration tax credits are designed to enable gas- and coal-burning plants to remain economically operable by adopting evolving technology to capture and store their emissions. Other industries will see annual carbon capture minimums of at least 12,500 metric tonnes.

Like ITCs and PTCs, section 45Q credits will include a base and bonus structure built on two tiers: (i) metric tonnes of

carbon captured will generate credits of \$17 each if sequestered and \$12 if used in enhanced oil recovery; and (ii) if projects meet prevailing wage requirements during construction and for 12 years thereafter and satisfy an apprenticeship requirement during construction, section 45Q credits will increase to a bonus of \$85 per metric tonne sequestered and \$60 per metric tonne used in enhanced oil recovery. In the case of direct air capture facilities, those incentives are richer still: \$36 per metric tonne sequestered (with bonuses bringing it up to \$180) and \$26 per metric tonne used in enhanced oil recovery (with bonuses bringing it up to \$130).

Greenhouse gas reduction fund

The Act also amends the Clean Air Act of 1963 by inserting an appropriation of \$7bn to the US Environmental Protection Agency (EPA) for fiscal year 2022 until 30 September 2024, which will be awarded as grants, loans and other forms of financing on a competitive basis to states, tribal governments, municipalities and other eligible recipients for the purposes of deploying zero-emission technologies, including distributed technologies on residential rooftops, and to carry out other greenhouse gas emission reduction activities. ■

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