We are *not on track* to meet the Paris Agreement's objectives. What should we do?

World Energy Markets
Observatory 2024 | 26th Edition

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IRA *impact* and progress

Miguel Sossa
VP
Americas Sustainability

Elfije Lemaitre
Executive Vice President - U.S. Resources & Energy Transition Business Unit Lead

Mina Lee
North America GTM Capgemini, Group Sustainability Accelerator

Farah Abi Morshed
Senior Strategy Manager – U.S. Resources & Energy Transition Business Unit

Striking IRA old while it's still hot

1. The Inflation Reduction Act (IRA) has been effective in accelerating clean energy development. To keep up with this demand, the United States has accelerated policy development to expedite the expansion of clean electric generation and underlying transmission lines.
2. Revisions to tax incentives, including Direct Pay and Transferability, has allowed local governments, public utilities, and entities to ensure the advancement of planned and ongoing renewable energy projects.

Introduction

In 2022, the Biden Administration passed the Inflation Reduction Act (IRA), landmark legislation and largest investment towards reducing greenhouse gas emissions and the impacts of climate change in United States history. The legislation's goals being to decrease greenhouse gas emissions by 41% by 2030, compared to 2005, levels and to achieve 100% carbon-/pollution-free electricity by 2035.

In total, the IRA has earmarked $142 billion, including $37B for federal loans and loan guarantees, and $105B for grants, awards, and other direct spending by federal agencies. In addition, the IRA has several tax credits which span across multiple areas, which include renewable energy, electric vehicles and infrastructure, and energy efficiency. The estimated value of total tax credits could be between $780 billion to $1.2 trillion over the IRA's 10-year life.

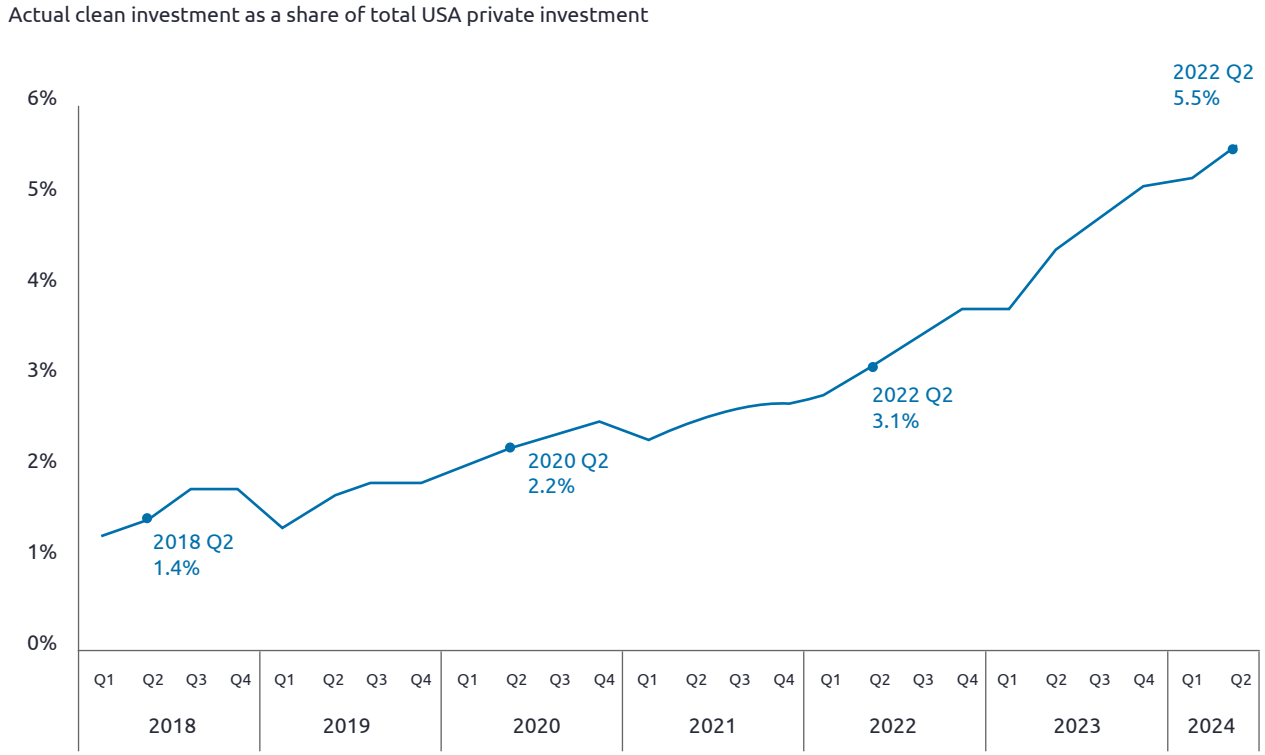
In the two years since the inception of the IRA, total American investment has been ~$493 billion, with clean energy and transportation seeing the largest investments. Clean investments account for 5.5% of all investments, and account for more than half of all USA private investment growth. Clean energy production and industrial decarbonization is at $161 billion, with a utility scale solar at a 56% increase compared to pre-IRA.

Clean tech investment growth

The USA economy has experienced double-digit growth, benefiting from clean technologies spanning from renewable energy, grid infrastructure, storage, alternative fuels, transportation, built environment, and have provided incentives in the creation of net-zero products impacting construction, pharmaceuticals, consumer goods, and aviation. The IRA incentive provides an accelerated advantage to boost and secure resources, capabilities, and infrastructure domestically.

FIGURE 1

Annualized basis, total private investment in all structures, equipment, and durable consumer goods



Source: Rhodium Group/ MIT-CEEPR Clean Investment Monitor

The IRA has catalyzed significant investments across manufacturing, clean energy, and transportation, doubling total USA private investments to 4.5% compared to 2.5% pre-IRA.

Manufacturing represents 18% of total clean investments at $89 billion, a 305% increase from pre-IRA at $22 billion.

Energy represents 43% increase, totaling $161 billion.

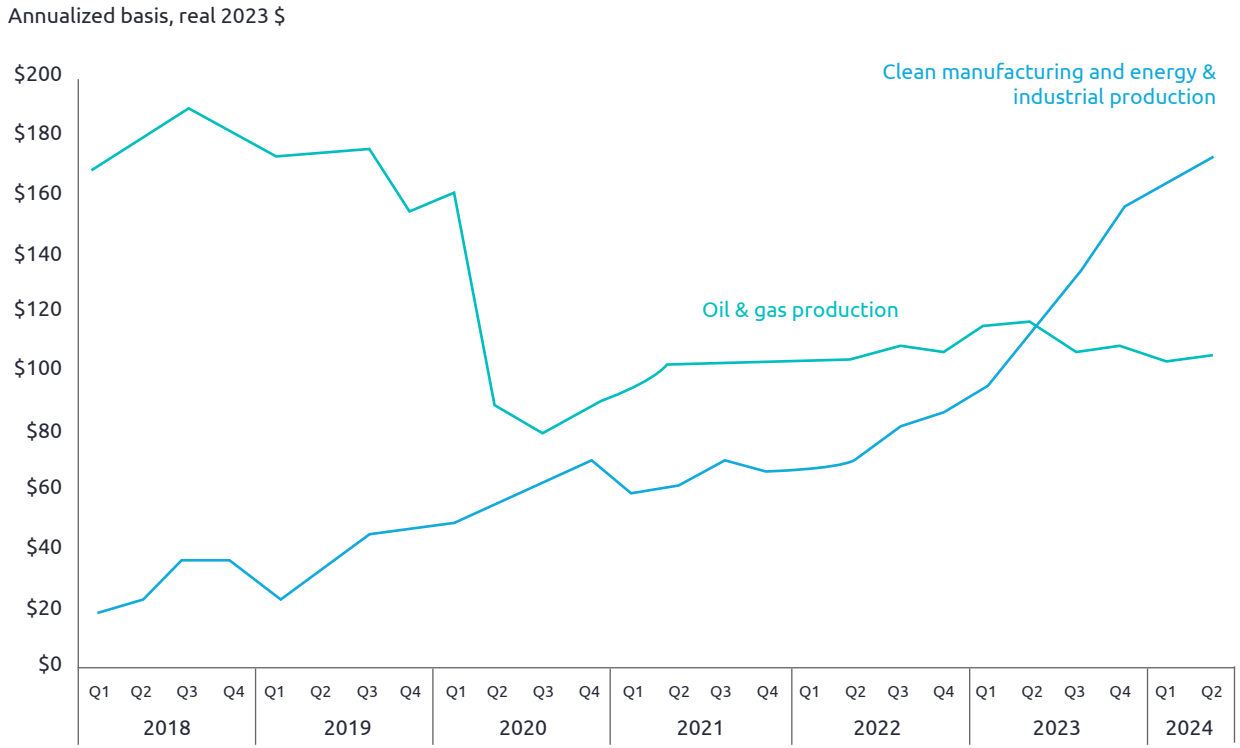
Overall, investments in manufacturing and energy combined, exceeded investments in oil and gas production with a 64% gap.

Clean Power Generation Sees Doubling in Private Investments

- There Department of Energy (DOE) has enabled more private-sector investment towards clean energy noting the need for public-private sector partnerships, estimating $300 billion in private capital is needed annually, alongside government funding.
- In July 2024, the DOE saw market momentum with private-sector investments matching at a rate of 2 to 2.5 times. $50 billion from the government is translating to $100 to $150 in private-sector commitment.

FIGURE 2

Actual investment in clean manufacturing and energy & industry compared to oil & gas production



Source: Rhodium Group/ MIT-CEEPR Clean Investment Monitor

Onshoring Surge in the EV and Solar Supply Chain

Battery has tripled in growth, while solar sees 10-fold growth Battery Manufacturing

- The demand for clean transportation and the IRA's enactment to onshore manufacturing has created 45% growth vs pre-IRA, being 65% of total manufacturing investment, totaling $58 billion dollars.
- IRA incentives create more investment in the United States due its requirement of 60% of value components needing to be assembled in North America.
- Automakers and battery manufacturers have committed to invest $112 billion in domestic cell and module manufacturing, totaling the annual capacity at 1,000 gigawatt-hours before 2030.

Solar Manufacturing

- During the two years since the inception of the IRA, solar manufacturing has grown to $10 billion compared to pre-IRA at $890 million. Grid-scale storage investment grew by 130% to $37 billion, and utility-scale solar and battery storage investments for renewable energy, total $108 billion.

FIGURE 3

Manufacturing investment by technology

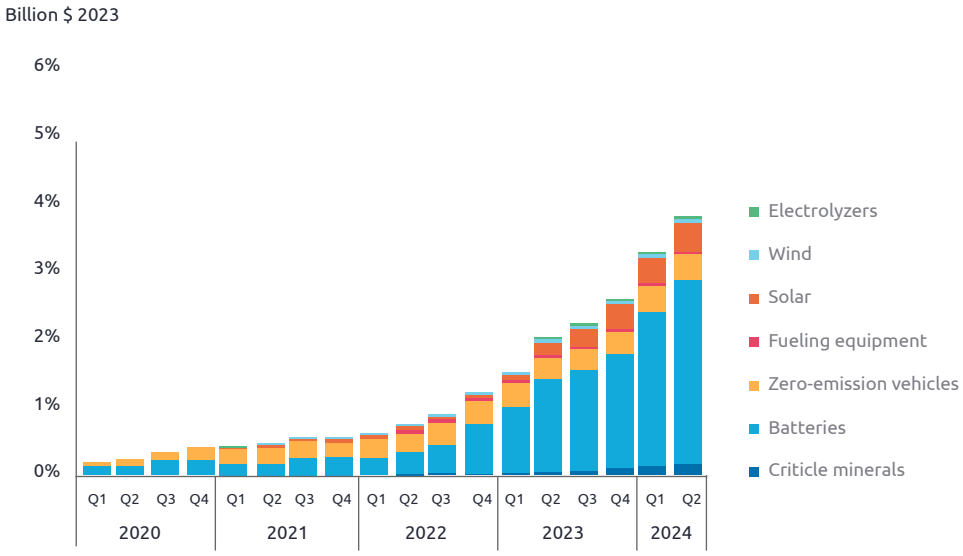
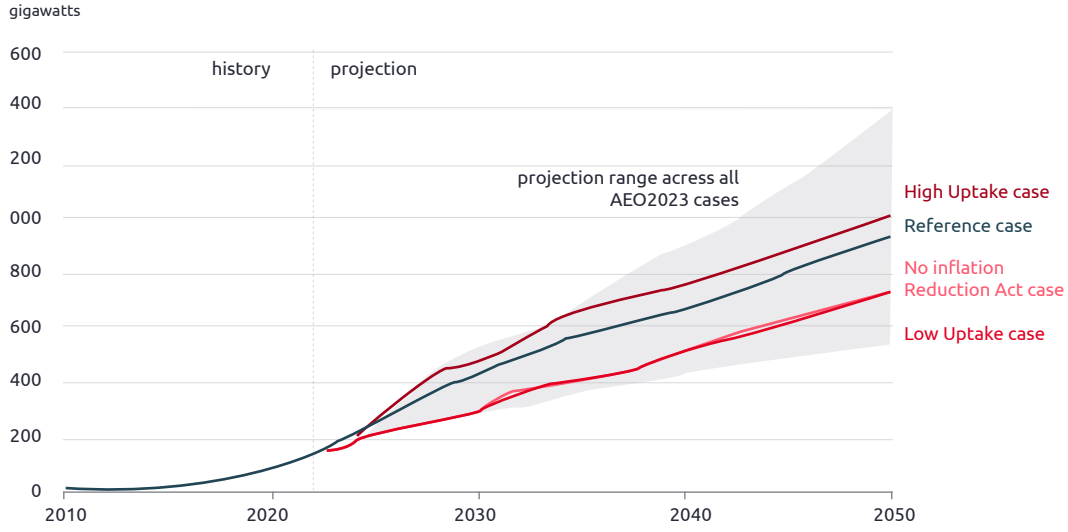


FIGURE 4

USA solar capacity, by Annual Energy Outlook 2023 (AEO2023) case (2010-2050)



Source: U.S. Energy Information Administration, Annual Energy Outlook 2023
Note: Does not include

Clean technology investment growth leads to 334,000 clean energy jobs within two years.

81% of total investment have gone to counties with below-average wages, with clean energy jobs paying 21% higher wages.

18% of total investment post-IRA towards Emerging Climate Technologies (ECT)

Strong demand for clean technology also means challenges across multi-jurisdictional state/local entities due to enablement of infrastructure, developing supply chains, and scarcity of resources.

To be noted after this investment acceleration, Nov. 5th presidential elections and related uncertainty are slowing down IRA investment, which have peaked in Q4 2023.

Emerging Climate Technologies

Significant Growth in Investment

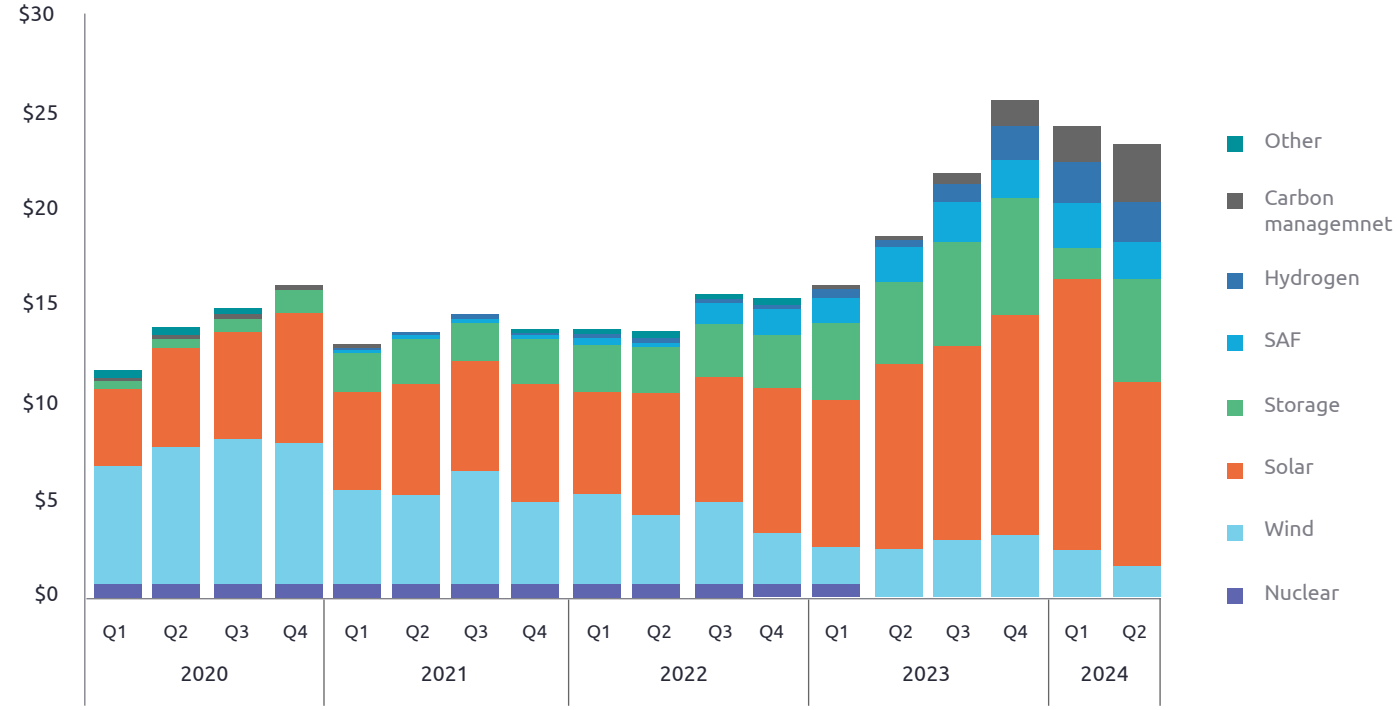
- Sustainable Aviation Fuels (SAF) 1655%, $14 billion post-IRA.
- Carbon Management 6x, $7 billion
- Hydrogen 14x, $8 billion

Carbon capture technologies will play a critical role across industries to achieve emission reduction commitments. As technology continues to improve, the IRA has expanded tax credits for the development of carbon capture projects which include technologies designed to capture, transport, and store carbon emissions to reduce emissions, especially for hard-to-abate industries like the power sector.

FIGURE 5

Energy & industry investment by technology

Billion $ 2023



Source: Rhodium Group/ MIT-CEEPR Clean Investment Monitor

Near Term Obstacles Still Remain but States See the Need

As interconnection lines run across states with varying jurisdictions, permitting between multiple state/local government rules can block or delay infrastructure, and this is especially the case for emerging climate technologies.

The top needs to enable clean technology growth sources by renewable energy requires the build-out of utility-scale infrastructure and the tremendous need for new transmission line corridors. The Department of Energy has earmarked $2.5 billion to develop new, large-scale, interregional transmission lines across six states, adding 3.5 GW of grid capacity—an additional $14 billion for states, tribes, and utilities for grid-enhancing technologies and upgrades. Overall, the IRA has made clean energy investments cost-competitive, with barriers being primarily related to siting, permitting, backlogged interconnection queues, and supply chain constraints.

Navigating the state/local jurisdictions can often be challenging. States, independently, are also taking lead to ensure their communities are resilient and connected. States like California and New York are leading the charge by investing into their transmission systems and enhancing regulatory processes to meet the accelerated demand.

As the IRA accelerates clean energy projects, leveraging tax credits offers significant benefits for both sellers and buyers.

However, it is crucial to navigate the associated risks effectively to ensure sustainable growth and compliance.

These risks are associated with the sales and purchase of these tax credits and can take different forms like compliance risk, financial risk, project performance risk, etc.

Benefits of Purchasing a Tax Credit for a Buyer:

Tax credits offer significant value to issuers by providing crucial capital for low-carbon projects and improving cash flow, which helps secure financing. Buyers of these credits also benefit from:

Financial Savings: The primary benefit of purchasing a tax credit is the potential to receive a discount on the purchase price relative to the value of the credit. For example, buying a credit at 95 cents for a dollar's worth of credit results in a savings of five cents for every dollar. These credits can be utilized against quarterly estimated tax payments. Buyers need to understand these mechanics before they can recognize the financial benefit.

Support for Sustainable Technologies: Purchasing tax credits can also support investments in clean or low-carbon technologies, aligning with a company's sustainability goals.

Simplified Transactions: Compared to previous tax equity investments, transactions involving tax credits are straightforward and do not involve complex accounting. This simplicity requires performing thorough due diligence on the tax credit itself to ensure compliance and validity.

What are some of the risks we are seeing?

Identified Risks When Purchasing Tax Credits:

1. Disallowance and Recapture Risks:

- There is a risk that the IRS could invalidate claimed tax credits.
- For example, for investment tax credits that are subject to recapture, if the credited property ceases to operate within the recapture period, the IRS may reclaim those credits.

2. Creditworthiness of the Counterparty:

- Typically, the seller indemnifies the buyer for any losses, penalties, and interest associated with these tax credits.
- However, a significant risk arises if the seller lacks the financial stability to fulfill their indemnity obligations.

3. Audit Compliance:

- While audit compliance does not inherently pose a risk, it can create an administrative burden. The buyer is subject to audit, but it is the seller who must provide the documentation to substantiate the tax credits.
- Generally, the buyer's strategy is to shift financial risk to the seller through the indemnity agreement.

Green banks continue to leverage public capital to attract private investment, reducing risk and making clean energy projects more accessible.

Public-private partnerships enable co-financing of clean energy projects, allowing for scalability in underserved markets.

Federal loan programs offer low-interest financing for innovative clean energy projects. Government grants provide funding for various stages of project development, including grid modernization, and renewable energy storage.

Financing Options Beyond Tax Credits

While tax credits provide significant benefits for buyers and sellers in clean energy projects, additional financing mechanisms are available to further enhance the financial feasibility of projects.

Green Banks and Public-Private Partnerships

Green banks continue to play a crucial role in financing clean energy projects by leveraging public capital to attract private investment. These institutions help reduce risk and make clean energy investments more accessible, particularly for smaller developers or in underserved markets. Through public-private partnerships, green banks can co-finance projects alongside private lenders, enabling greater scalability of clean energy solutions.

A great example of such a project is the Solar for All Program in Washington, D.C., which is co-financed through a public-private partnership involving the D.C. Green Bank and private lenders. The D.C. Green Bank partnered with local developers and private investors to finance solar installations on residential properties. The D.C. Green Bank provided low-cost financing to smaller developers who typically would not have access to traditional financial institutions due to the high risk of these projects.

The Solar for All program aims to install 100 megawatts of solar capacity by 2032, which will benefit up to 100,000 low-income residents.

Loan Programs and Government Grants

Federal loan programs, such as the Department of Energy's Loan Programs Office (LPO), continue to provide low-interest financing to innovative clean energy projects. For example, the LPO has committed billions of dollars to support electric vehicle (EV) infrastructure and large-scale renewable energy projects. Additionally, companies like Tesla have benefited from these loans, receiving early support for manufacturing and scaling clean technologies. Similarly, government grants, such as those offered through the Infrastructure Investment and Jobs Act (IIJA), support various stages of project development, including feasibility studies, storage solutions, and grid modernization.Not to forget sustainable financing options, like **green bonds** and **sustainability-linked bonds**, continue to gain popularity for funding large-scale renewable energy projects.

Introduction

The Inflation Reduction Act (IRA) has significantly accelerated the clean energy sector in the United States by fostering renewable energy projects and implementing supportive tax policies. Key achievements include a notable increase in renewable energy capacity and substantial investment in new clean energy projects.

Despite these successes, several challenges persist, including supply chain resiliency, the complexity of constructing new transmission lines, and the intricacies of managing tax credit risks.

Addressing these issues through innovative technologies and effective policy implementation is crucial to meeting the nation's ambitious clean energy goals.

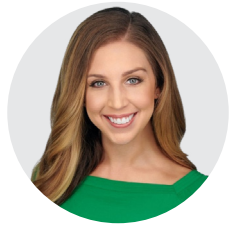
Conclusion

The continuous development and implementation of advanced technologies are essential to overcoming current obstacles in the clean energy transition. Investing in innovative solutions can enhance grid capacity, improve supply chain resilience, and streamline project implementation.

Collaboration among local governments, public utilities, and private entities is necessary to drive the expansion of electric generation and transmission lines.

Navigating the risks associated with tax credits is crucial for sustainable growth. Companies must focus on understanding compliance, financial, and performance risks to leverage tax credits effectively.

Partner Quote



Abby Massey, PE, LEED AP
VP of Energy Incentives, TaxTaker
email abby@taxtaker.com

TaxTaker

How do you think the market is evolving with respect to implementing projects under the Inflation Reduction Act?

“Entities are eager to implement projects that will trigger the various tax incentives from the Inflation Reduction Act, but face challenges as we wait for continued IRS guidance on how best to comply with the new legislation.

There are many opportunities to increase the value of these powerful incentives, but the complexities of these requirements call for experience and feedback to ensure projects are meeting the intent of the legislation. For many, these 'gray zones' in the law provide risk when claiming and selling large credits.

Despite these uncertainties, engaging the right expertise early on the project allows organizations to navigate these risks while also maximizing the value of these incentives."

About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

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