



The Inflation Reduction Act: A spotlight on infrastructure

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In one of the most important pieces of energy legislation in U.S. history, the Inflation Reduction Act (IRA) was signed into law by President Biden on August 16th. The IRA's overall spending package of \$739 billion aims to reduce the deficit and make major investments in climate change, domestic energy production and healthcare.

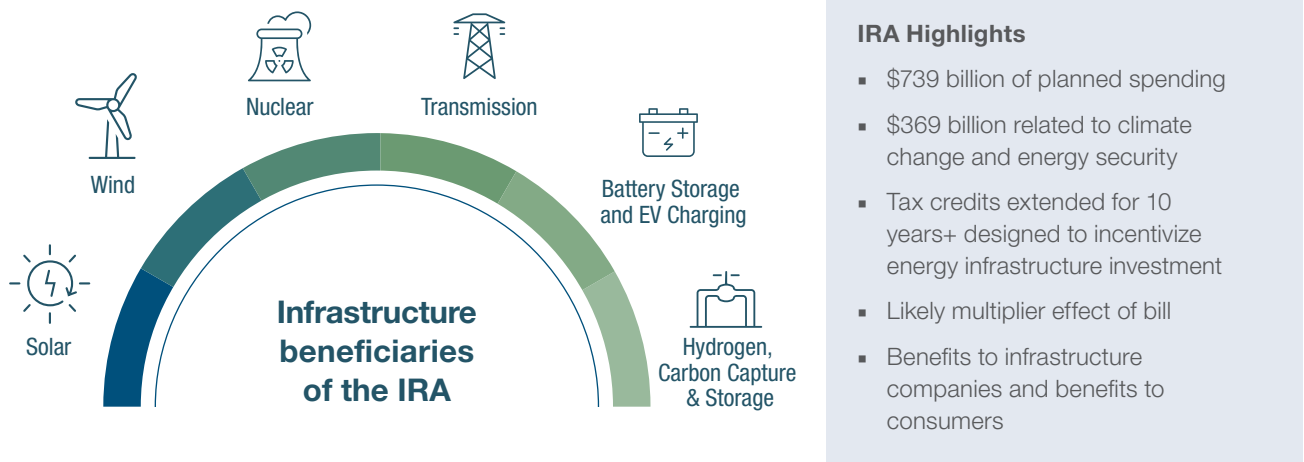


Around half of the bill's funds (\$369 billion) are dedicated to the twin challenges of fighting climate change and providing energy security. At CBRE Investment Management, we see listed and private infrastructure at the heart of investment to accomplish the Inflation Reduction Act's goals of decarbonization and energy security.



The asset class is at the center of essential investment. Globally, infrastructure companies lead the development of wind and solar power, the upgrading of transmission assets, the operation of baseload nuclear generation and the development of technologies such as battery storage, electric vehicle charging, hydrogen electrolysis and carbon capture/storage. Infrastructure companies should be a beneficiary not only of the IRA bill, but also of the associated multiplier effect on investment that should accompany it as companies and consumers transition to a decarbonized economy. Such rising investment, by companies known for regulated or contracted returns, should lead to rising cash flows for infrastructure companies and dividends for infrastructure investors.

Figure 1: Infrastructure is at the heart of the Inflation Reduction Act



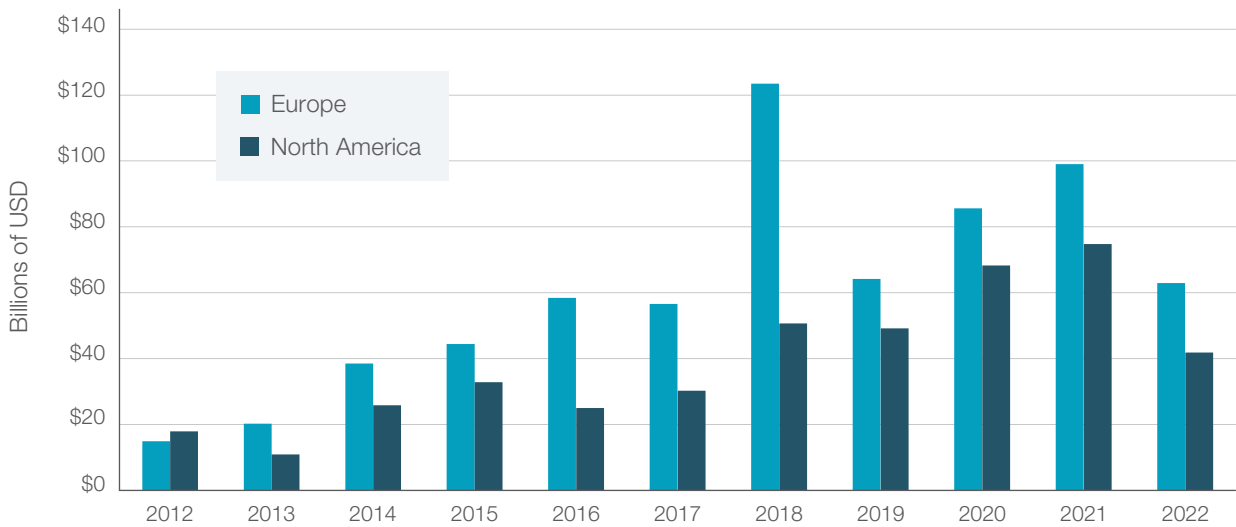
Source: CBRE Investment Management, Congressional Research Service, Congressional Budget Office, and Princeton University Rapid Policy Evaluation and Analysis Toolkit, August 2022.

Within this paper, we review the history behind the Inflation Reduction Act, the bill itself and consider the likely impact on global infrastructure. When considering the passage of the Inflation Reduction Act and the dual mandates of decarbonization and energy security, we are optimistic for the infrastructure asset class in the years ahead.

The story behind the IRA: A great leap forward for the U.S.

Historically, the U.S. has lagged Europe and China in terms of clean energy investment. Over the last decade, renewable deal flow (by value) has been ~60% higher in Europe, while renewable installations by capacity have been larger in both Europe and China. With the passage of the IRA, the U.S. is looking to continue to drive clean energy development and spur increased investment by providing credit certainty for traditional solar and wind technologies and by introducing new credits for emerging technologies, like stand-alone battery storage, EV charging, hydrogen and carbon capture. From a capital deployment perspective, in the two months following the bill’s passage we have already seen an increase in U.S. deal flow, with German, French and U.S. integrated utilities announcing notable, multi-billion dollar acquisitions of U.S.-based renewable pipelines with solar, wind, battery storage and renewable natural gas assets.

Figure 2: The U.S. is catching up: Renewables deal flow in Europe versus North America





Source: Infralogic, October 2022.

A summary of the Inflation Reduction Act

The Inflation Reduction Act, passed in August 2022, includes \$739 billion of spending with \$369 billion related to climate change and energy security. Major spending items include those as seen in Figure 3.

Figure 3: Major spending items in the IRA

| | 2022-2031 (USD billions) | |
|---|-----------------------------|---|
| Tax credits for clean electricity (wind, solar, standalone energy storage etc.) | 127 |  <p>Climate change</p> |
| Tax credits and rebates for energy efficiency for buildings (commercial and residential) | 47 | |
| Energy manufacturing and energy security | 37 |  <p>Domestic manufacturing</p> |
| Tax credits for nuclear | 30 | |
| Tax credits for hydrogen | 13 | |
| Clean vehicles (new, previously-owned, commercial etc.) | 12 | |
| Clean fuels (biodiesel, renewable diesel, sustainable aviation etc.) | 9 | |

Source: Congressional Research Service, Congressional Budget Office, August 2022.

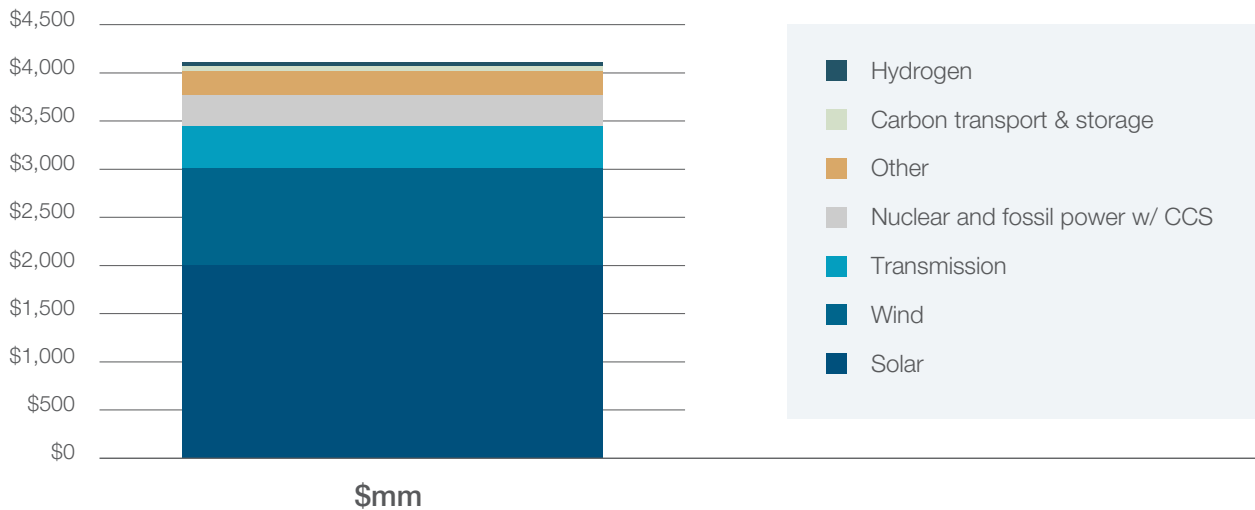
Across the board, these items lend tremendous visibility to investment in the themes of decarbonization and energy security. The extension of solar and wind investment tax credits for a 10-year period (at a minimum) dwarfs the visibility provided by prior tax credit extensions. The new and expanded credits for nuclear and geothermal technologies will encourage development of fossil-fuel free baseload generation. The new and expanded credits for hydrogen, battery storage, EV charging, and carbon capture initiatives should continue to increase the competitiveness and deployment of technologies that are essential to support the influx of renewable generation and decarbonize difficult to abate sectors to achieve net zero goals. With increasing renewable development, battery-storage capability, secured baseload generation and incentives to increase domestically-manufactured renewable components, the Act should further solidify U.S. energy self-reliance while the development of U.S. energy infrastructure such as LNG export facilities should continue to enhance the energy security of allies in Europe who are diversifying their own energy sources.

Beyond the \$739 billion in the IRA, investors should also consider the multiplier effects of the bill. The new tax credits for carbon capture, hydrogen, EVs and battery storage should significantly improve the fundamental business case for investment in these emerging technologies and attract the infrastructure capital required to build these technologies at scale. For established technologies such as wind and solar, the duration of tax credits and associated visibility should also drive yet more investment. In total, Princeton's University's Rapid Energy Policy evaluation team estimates that the IRA could drive nearly \$4 trillion of cumulative investment in American energy supply infrastructure through 2032; this includes CO2 transport, storage, hydrogen, wind and solar, battery and EV spending.

The impact on listed and private infrastructure

Infrastructure, both listed and unlisted, is at the vanguard of investment to accomplish the IRA's goals, with opportunities across renewables, associated transmission, EV charging, the development of battery storage and hydrogen and carbon capture and storage technologies. As a frame of reference, investor-owned entities control over half of all U.S. renewable capacity—they are well positioned to deploy traditional renewables and drive the deployment of emerging technologies. With portfolios that comprise the most scaled and well-capitalized platforms in the world, these companies can see the lion's share of increased growth from improved economics in clean energy and from a newfound focus on energy security. In Figure 4, we consider the multiplier effect of the bill and Infrastructure's ability to capitalize on that investment.

Figure 4: Infrastructure: The direct beneficiary of the Inflation Reduction Act



Source: Princeton University, CBRE Investment Management. S&P Capital IQ, August 2022



Investor-owned companies control over half of all U.S. renewable capacity; they are the direct beneficiary of the IRA and the potential \$4.1 trillion of additional infrastructure investment that can accompany it.

Increased expectations for infrastructure

As of this writing, the IRA is already impacting the infrastructure market in a dramatic manner. In the U.S., an integrated utility with a 50GW U.S. renewables pipeline now expects to hit the upper end or better of its earnings growth guidance (for the next several years) as a result of the bill. U.S. renewables, representing over 80% of the company’s pipeline, has a presence in low-income areas that could add another 10% to the IRA’s base 30% investment tax credit. In hydrogen, the company is pursuing a 1GW green development opportunity, which is seeing enhanced economics post bill passage (with the inclusion of tax credits as seen below). This company is also looking to supply renewables to at least two of the six “hydrogen hubs” now being established as part of the IRA.

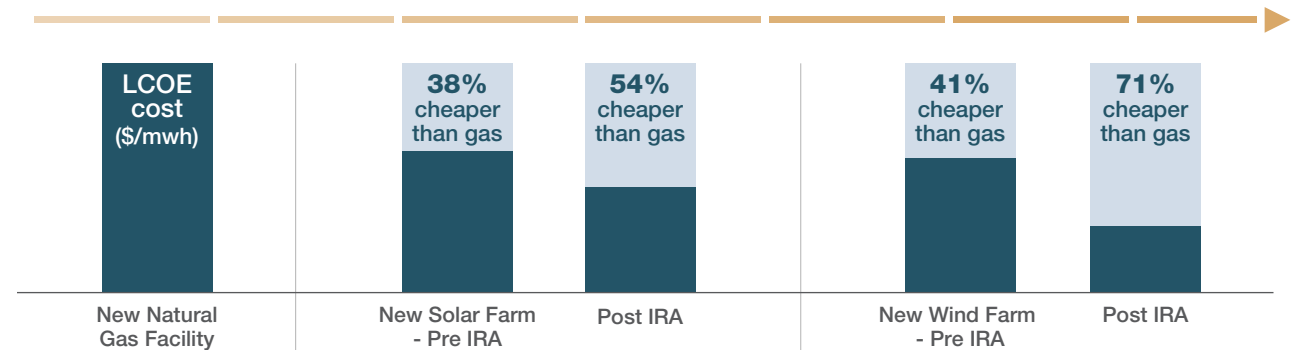
Figure 5: Improved “45V” tax credits available for hydrogen producers through the IRA

| Life-cycle emissions (kgCO2e / kgH2) | Investment Tax Credit | Production Tax Credit value (2022\$ / kgH2) |
|---|-----------------------|--|
| 2.5-4 | 6% | \$0.60 |
| 1.5-2.5 | 8% | \$0.75 |
| 0.45-1.5 | 10% | \$1.00 |
| <0.45 | 30% | \$3.00 |

Lower customer bills and higher company growth

Infrastructure companies are further using the IRA to perpetuate a virtuous cycle of customer refunds, lower customer bills, higher spending and higher growth. As we’ve discussed, one outcome of the bill is an enhanced production tax credit, which will extend through the later of 2032 or when GHG emissions are reduced 75% from 2022 levels. This is a dramatic change both in magnitude (in terms of improved competitiveness for wind and solar power) and in terms of the improved visibility that renewable developers now have. In September, as a result of new tax credits, a large U.S. renewable operator headquartered in Florida announced significant refunds for its utility customers to alleviate bill pressure and aid the case for reinvestment. Also in September, a large Midwestern utility with a 1GW solar program filed to take advantage of the IRA’s simplification of the tax credit monetization process—by avoiding tax equity partners, the utility can now direct the bulk of its investment directly into rate base, which could in turn take company earnings above long-term guidance.

Figure 6: Tax credits enhance wind and solar economics in a post IRA world

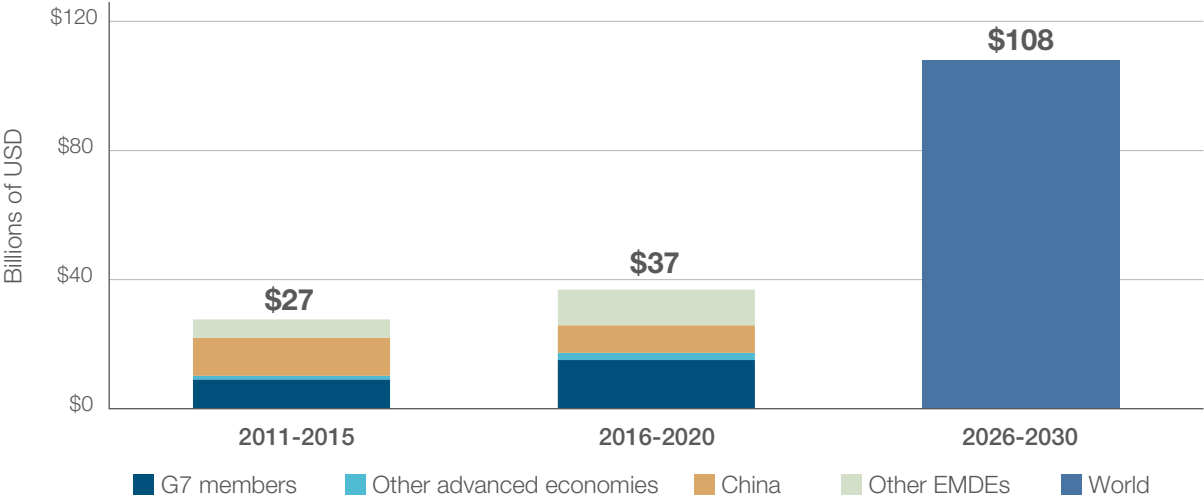


Sources: CBRE Investment Management, NextEra Energy, September 2022. Chart represents the levelized cost of energy (LCOE) in \$/mwh on a comparative basis.

The resiliency of nuclear power

Beyond renewables, the Inflation Reduction Act also provides significant support for nuclear generation. One U.S. company, with a ~32GW portfolio (86% nuclear by output), should benefit from the production tax credit floor for nuclear pricing with a positive inflation adjustment over time. Specifically, the Section 45U zero-emission nuclear power production tax credit applies a ten-year production credit for existing nuclear energy producers not already receiving federal credits, while the investment credit is 6% for most generators but can provide a 30% credit for microreactors producing less than 1 MWe. On top of tax credits, nuclear asset lives could also expand post IRA, with potential relicenses of up to 80 years. Lastly, newfound hydrogen credits and associated facility development should drive demand for the consistent baseload of nuclear energy that supports hydrogen electrolysis production. Investment in global nuclear is critical to ensure reliable baseload and to meet net zero targets; as seen below, the IEA estimates that nuclear investments must more than triple recent levels to accord with its Net Zero Scenario.

Figure 7: Average annual investment in nuclear power by country or region in the Net Zero Scenario, 2011-2030

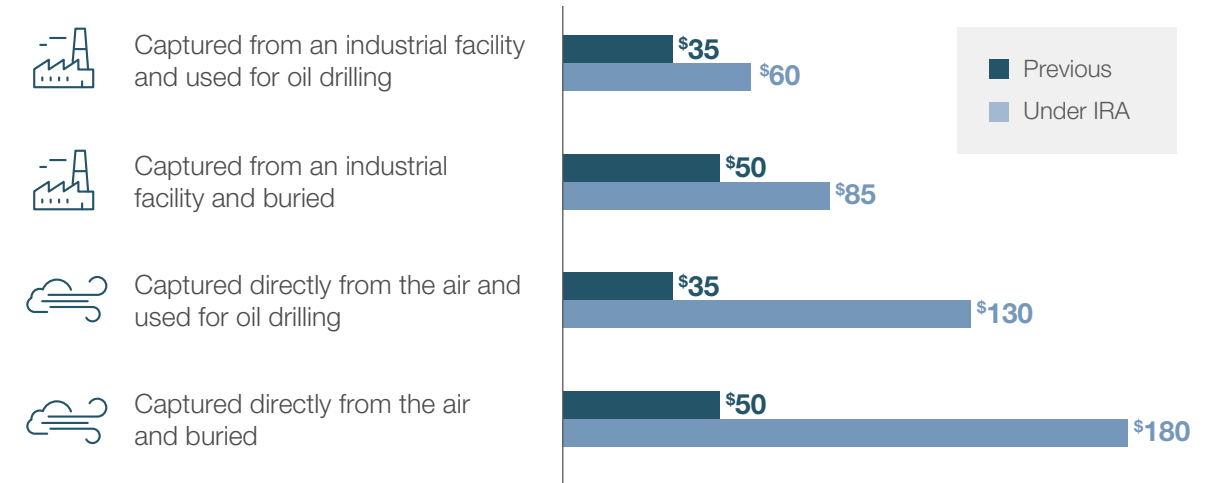


Source: IEA Nuclear Electricity tracking report, September 2022.

Enhanced carbon capture and storage

In midstream energy, new investment as a result of the IRA will largely come from carbon capture and sequestration (CCS) and the development of hydrogen projects, while the theme of energy security should continue to be supportive to the sector. Specifically, the IRA expands and enhances the 45Q tax credit, which incentivizes the use of carbon capture and storage, to make it more accessible to a broader array of developers and investors. In October, we saw an announcement from a global integrated oil company regarding the increased utilization of U.S. listed midstream to support new carbon capture projects, which likely would not have happened pre-IRA. Meanwhile, credit agencies such as S&P see the IRA as credit positive, with expectations for long-term improvements from hydrogen development following short-term improvements to project permitting. As new projects take shape, midstream companies should continue to retain resiliency and anchor global energy supply.

Figure 8: 45Q credit value significantly increased by IRA for all capture activity (\$ per metric ton)

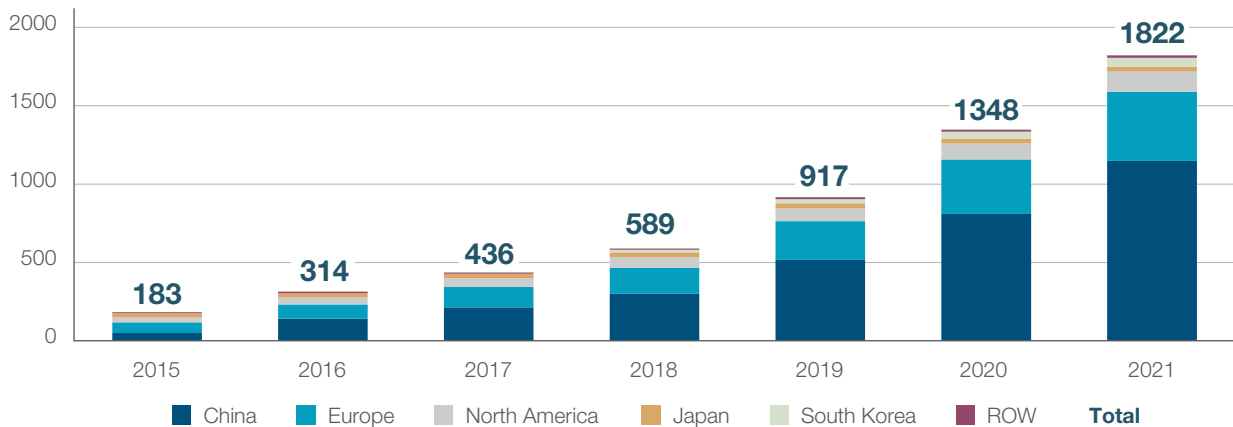


Source: Source: Gibson Dunn, August 2022.

The opportunities in EV charging

We expect that the IRA will create strong tailwinds for both personal and commercial EV adoption and the buildout of required EV charging networks. The IRA has extended the 30C tax credit for charging infrastructure and significantly increased the maximum expense per charger to \$100,000. In addition, the IRA has established tax credits for new and used light duty personal vehicles and for medium- and heavy-duty commercial vehicles. These IRA tax credits, together with other federal and state incentive programs, are seeking to break the EV-EV charging chicken-and-egg problem and encourage infrastructure capital to invest in the buildout of the EV charging networks that are required to electrify both personal car travel and the transportation of goods through our logistics networks. Third parties such as McKinsey estimate that as many as 1.2mIn EV chargers are needed to reach decarbonization targets, compared to ~130k today in the United States. The increased adoption of EVs and build out of EV charging networks will not only impact EV manufacturers and EV charging companies, but also the generation and transmission infrastructure that will be needed to support an increased draw on energy grids. To help prevent overloading grid capabilities, EV charging networks will need to be able to respond to grid signals by shifting demand to non-peak hours and by pushing power back to the grid through vehicle to grid technologies.

Figure 9: Global public charging infrastructure (connectors, thousands)



Source: BloombergNEF, December 31, 2021.

Alternative minimum tax considerations

One potential negative of the bill is a new Alternative Minimum Tax (AMT) of 15% and 1% excise tax on share buybacks for corporations that have an average annual adjusted financial statement income (AFSI) greater than \$1 billion over the prior three years. Notably, from an infrastructure perspective, we see a moderate to minimal effect on the companies themselves. U.S. utilities, which largely pass-through increases in tax rates to consumers, could see a moderate earnings headwind that is likely to be offset by the potential for increased investment. While midstream companies may pay cash taxes earlier than previously expected, neither CBRE nor S&P Global Ratings expects the impact of the AMT to impact net present value or alter a view of individual company financial profiles.

Infrastructure: The natural beneficiary of the Inflation Reduction Act

The landscape of listed and unlisted infrastructure is vast, spanning trillions of dollars of addressable market cap and potential investment spend. When we review the effects of the Inflation Reduction Act on the infrastructure asset class, we find companies that are essential to accomplish the IRA's dual mandates of decarbonization and energy security. These infrastructure companies are also the direct beneficiary of the increased investment needed to accomplish these goals. Rising investment, by companies known for regulated or contracted returns, should lead to rising cash flows. Today, post the passage of the IRA, the outlook for infrastructure cash flow and growth has been both simultaneously accelerated and elongated. The IRA improves upon a generational scale investment outlook for investors. As one of the world's leaders in specialized real assets, CBRE Investment Management is excited by the potential for this next decade in global infrastructure investment.

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