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U.S. Inflation Reduction Act Highlights Diverging Approaches With Europe

Gauging the credit impacts across the U.S. and EU in the power, oil and gas, autos, midstream, agribusiness, and health care sectors

March 1, 2023

This report does not constitute a rating action

Primary Contacts

Nora Wittstruck
New York
212-438-8589
nora.wittstruck@spglobal.com

Michael Ferguson
New York
212-438-7670
michael.ferguson@spglobal.com

Pierre Georges
Paris
+33-14-420-6735
pierre.georges@spglobal.com

Chris Johnson
New York
212-438-1433
chris.johnson@spglobal.com

Aneesh Prabhu
New York
212-438-1285
aneesh.prabhu@spglobal.com

A complete list of contacts can be found at the bottom of this article.

Key Takeaways

- The U.S. Inflation Reduction Act (the act or law) is proving consequential in the likelihood it will turbocharge renewables development and the broader goal of a net-zero future.
- The act's subsidies and incentives could shift production to the U.S. for tax reasons, emphasizing the EU's competitiveness concerns, as it was already under pressure from energy price differentials triggered by the Russia-Ukraine war.
- Certain segments in the power sector, autos, midstream utilities, agribusiness, and health care may experience positive credit impacts from improved cash flows and reduced development and technology costs for renewables and carbon capture.

Why This Matters

President Biden signed the U.S. Inflation Reduction Act into law on Aug. 16, 2022. As federal agencies approach the six-month implementation mark, a financial and economic divide between the U.S. and Europe is emerging. **This could lead to countervailing credit pressures between countries and regions**.

What We're Watching

Net-zero economic shift
Federal subsidies to incentivize the transition to net-zero emissions could, from a credit perspective, favorably position U.S. entities over EU-based organizations.

Energy transition in high gear
Turbocharging renewables development while protecting nuclear and oil and gas base-load generation underscores broad-based provisions for the power sector.

Economic growth
Near-term financial benefits in the act are unlikely to dramatically offset S&P Global Ratings economists' 2023 full-year baseline or downside scenario forecasts.

Fine print
As federal agencies approach the implementation deadline, the final rules could influence outcomes and limit participation by some entities.

Recap Of The Act's Primary Purpose

The law aims to lower the cost of clean energy technologies and incentivize consumers to adopt low-carbon technologies. We believe this could spur further decarbonization efforts in the U.S. while promoting energy security through tax credits and providing opportunities for ongoing investment in oil and natural gas supply. It is expected to invest $437 billion over 10 years, raise $737 billion in new revenue, and support more than $300 billion in deficit reduction, according to estimates by the Joint Committee on Taxation and the Congressional Budget Office.

Table 1

Congressional Budget Office Score Of The Inflation Reduction Act

	Bil. $
Energy and climate	366
Clean electricity tax credits	161
Air pollution, hazardous materials, transportation, and infrastructure	40
Individual clean energy incentives	37
Clean manufacturing tax credits	37
Clean fuel and vehicle tax credits	36
Conservation, rural development, forestry	35
Building efficiency, electrification, transmission, industrial, DOE grants and loans	27
Other energy and climate spending	14

Source: S&P Global Ratings

The U.S.' subsidy-based approach may provide a competitive advantage over EU-based peers

The incentive-laden act could go a long way toward propelling the U.S. to a net-zero future, consistent with the Biden Administration's goals. It helps fund technologies that we believe are central to global decarbonization, including green hydrogen, electric vehicles (EVs), renewable energy, and battery storage. Furthermore, it supplements funding in the Bipartisan Infrastructure Law (BIL), which helps improve the climate resiliency of the country's transit and energy infrastructure. By itself, the act does not layer additional mandates and therefore, could be marginally credit accretive to entities that benefit from its numerous provisions.

However, the longer-term wild card is whether the U.S. approach will be more or less successful than that of the EU in achieving energy transition, or whether either approach will evolve by necessity over time.

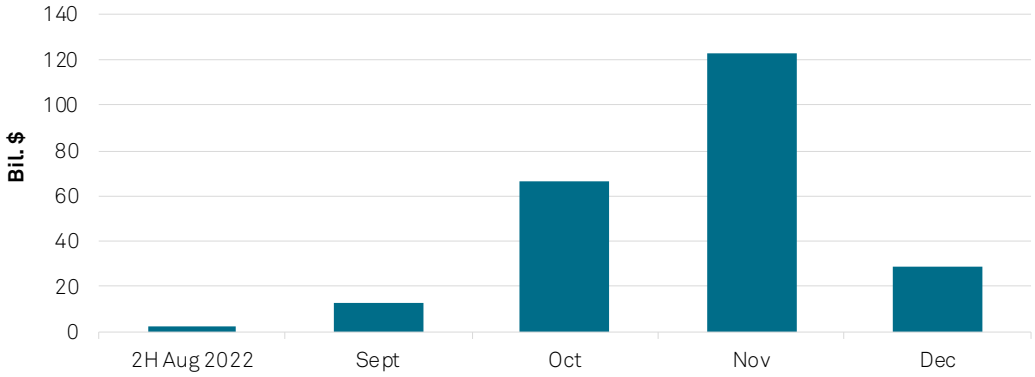
This approach is somewhat at odds with the more stringent regulations within the EU, notably distinguishing itself by the simplicity of its implementation through the corporate tax code. As a result, we already see clean energy investment accelerating in the U.S. (see chart 1), which could cause the EU to fall behind absent policy modifications, of which some are underway. The European grant mechanisms are:

- Generally longer and more complex, due to the administrative burden at both the EU and country levels;
- There are layers of multisector support mechanisms, making visibility more difficult for investors; and
- Slow build up of public support may add another difficulty.

Chart 1

Total Deal Volume

U.S. and transnational climate and cleantech financial and capital markets deals after the act



Source: S&P Global Commodity Insights, as of Jan. 26, 2023

Analysis was conducted on a selected set of 305 verified deals collected from S&P Global CapIQ, Connect, Ipreo platforms and from deals reported to S&P Global Commodities Insights Financial and Capital Markets by counterparties or publicly announced. Deals were excluded where they could not be verified, where the financial terms were unavailable, and where the underlying portfolio of assets was not clearly cleantech, climate or energy transition focused. Corporate capital expenditures and JVs were excluded. Private equity funds included had explicit energy transition and climate mandates, or climate parameters in their investment parameters.

The EU has been attempting to ease the act's impact on competitiveness by announcing some improvements to facilitate state aid rules. Policymakers from Germany and France have also visited Washington, D.C. to urge favorable treatment of European businesses, particularly automakers. That said, another complexity comes from the technological bias of the European support schemes, while the act is generally technology agnostic. This could favor the U.S. in clean technologies development compared with Europe and ultimately lead to a smaller competitive edge for some European companies. Broader political imperatives--in the light of the war in Ukraine and strained relations with China--will likely prevent an escalation into a trade conflict between the U.S. and EU, but the consequences of the act will likely remain in focus.

Differences in the law's local content requirement could result in selection of U.S.-based suppliers over EU-based production. This may mean that entities outside the U.S. will consider scaling up their presence and facilities in the U.S. to benefit from the act-led growth or to at least avoid losing market share. They may also need to rethink their supply chain to increase the local content of their products to remain eligible for the tax incentives. In contrast, the European approach sees local sourcing as a desirable outcome but currently does not intend to require a domestic supply chain.

What's more, the EU Green Deal and Fit for 55 policies are based on stronger carbon pricing as the main policy instrument, and binding sector targets, to both decarbonize and reduce dependence on fossil fuels. The intention is to curb demand for more carbon-intensive products and services. This comes at a cost, which may affect the competitiveness of European export industries--notably, but not only, toward the U.S.

Regardless of how it compares with EU initiatives, the act's environmental impacts are significant. The U.S. has previously targeted specific sectors for greenhouse gas emissions (GHG) reduction plans, most notably utilities. However, the law's provisions cover a wide swathe of the economy, potentially helping to decarbonize several sectors that are major contributors to the country's collective emissions.

The power sector, particularly nuclear and carbon capture, will see the biggest positive impacts

Power

Tax credits promote nuclear and green hydrogen production.

We think the act is a gamechanger for certain segments within the power sector. The long-term extension of production tax credits (PTC) and investment tax credits (ITC) for onshore and offshore wind and solar generation create tailwinds for these segments (see table 2). New PTCs for nuclear generation and stand-alone storage are also significant for those sectors. Also important is the act's technology-neutral aspect, which allows for certain U.S. regions to take advantage of renewable technology that best suits their respective needs and capabilities, leaving room for new technology as it develops. However, we caution that inflationary pressures, and the electric load carrying capability of renewables in certain regions of the U.S. may limit growth despite these incentives.

We believe the act will have an immediate positive impact on the nuclear power generation and carbon capture segments of the energy market. Tailwinds include asset sales or consolidation in the nuclear segment and new transactions in carbon capture in 2023. With the approval of the PTCs, nuclear generation has a nine-year visibility with floor pricing of $44/megawatt hour (MWh). However, we expect the IRS will issue guidelines that defines revenue to help determine the size of the credit.

For carbon capture, the act increases the value for dedicated storage of CO_2 in the power industry to $85/ton, up from $50/ton. The lower capture thresholds of 18,750 tons per year, instead of 500,000 tons will also expand the number of projects eligible for the tax credits. Yet, even though benefits are robust, the number of entities that can take advantage of those credits is likely constrained by access to caverns capable of storing the captured carbon.

Importantly, the direct pay and expanded transferability features would substantially increase cash flows and obviate the need for complex tax equity structuring that makes it easier for companies to monetize renewables credits. In particular, the act contains a valuable cash payment option that allows organizations to treat certain tax credits including ITC, PTC, clean hydrogen, and carbon capture credits, as payments of tax thereby receiving a refund for taxes that are deemed paid. Under this direct pay option, the carbon capture project entity will be treated as if it had paid taxes in the amount of the tax credit, for which it then receives a cash refund. The act also allows eligible taxpayers that do not elect the direct pay option to transfer certain credits to unrelated taxpayers including ITC, PTC, clean hydrogen, and carbon capture credits. This could be particularly important for public power entities that do not pay taxes. As a result, these entities may undertake building and owning renewables, rather than committing to long-term purchase power agreements from third-party developers.

We think the green hydrogen PTC is the most significant provision as it could make green hydrogen economical and accelerate deployment, a decade sooner than expected. In addition, it could create an incremental opportunity and a substantial market for green hydrogen production. Based on some general assumptions, we estimate the average cost of generating hydrogen is about $3.75/kilogram (Kg) to $3.85/Kg before the PTC. With a $3/Kg PTC benefit, the net cost is about $0.8/Kg, or equivalent to about $7.25/MCf natural gas. As a result, properly located electrolyzers should be able to produce green hydrogen competitively compared with current natural gas-derived gray hydrogen. This means that the existing 10 million tons per annum market would open to green hydrogen. Importantly, the act allows green hydrogen to benefit from both the green hydrogen PTC and a PTC from wind and solar – both important for bringing down the levelized average cost of hydrogen production. This could also facilitate the pairing of hydrogen projects with large base-load generators like nuclear power stations.

However, hydrogen transportation remains tricky and it is unclear how that infrastructure will develop.

Table 2

U.S. Tax Credits By The Numbers

	Technology	Duration in taxable years	Pricing*
	Nuclear	2023 to 2032	Provides an all-in energy margin floor of up to $40/MWh-$44/MWh
	Onshore wind/solar	10+ years	PTC credit of up to $26/MWh + 10% qualified bonus each (see details) ITC credit of up to 30% of investment costs + 10% qualified bonus each
	Stand-alone battery storage	Through 2032	ITC credit of 30% of investment costs
	Offshore wind	Through 2035 (with Safe Harbor)	PTC credit of up to $26/MWh + 10% qualified bonus ITC credit of up to 30% of investment costs + 10% qualified bonus
	Hydrogen	2023 to 2032	~95.5% reduction in CO2 - Up to $3/kg 85%-95% reduction - Up to $1/kg 75%-85% reduction - Up to $0.75/kg 60%-75% reduction - Up to $0.60/kg
	Carbon capture and sequestration	Through 2032	Implied increase in 45Q credit of $35/ton

Source: S&P Global Ratings. *Subject to additional conditions as described in "Inflation Reduction Act Update: Between Cheap, Firm, And Clean Power--Pick Any Two", Sept. 8, 2022. 45Q--U.S. tax credits for carbide oxide sequestration.

Oil and gas

The act will have a limited impact on the near-term credit outlook for domestic oil and gas companies. In the wake of the Russia-Ukraine war, it's clear the act is structured to ensure energy security while facilitating and balancing a smooth transition to cleaner burning fuels. The specific provisions in the act directly affecting oil and gas companies relate to higher royalty rates for onshore leases and fees on methane emissions. They will not impose a meaningful increase in costs or capital expenditures for exploration and production companies or materially reduce fossil fuels competitive position in relation to other competing energy sources. S&P Commodity Insights estimates the overall cost impact for domestic oil and gas producers will equate to less than $3/barrel. Also, the act opens additional federal land for lease sales and Gulf of Mexico, which counters the Biden Administration's original platform to restrict federal lands for oil and gas drilling. The government is also required to provide hydrocarbon development opportunities for oil and gas companies if renewable energy is promoted.

Oil and gas producers likely affected in the long run absent carbon capture technology investment.

The act will certainly energize the energy transition and it could lead to higher costs for many domestic oil and gas producers over the long term without adequate investment in carbon/GHG technology. To make their operations more sustainable, we believe U.S. producers will begin to significantly ramp up investments in carbon sequestration and technology aimed at reducing methane emissions. However, producers that are not as well capitalized and not connected to pipelines for methane removal, that don't have the ability to utilize methane for their own energy use, and those that have not built sufficient methane monitoring systems, will be at a disadvantage. Moreover, despite tax credits, the capital cost of carbon sequestration may be prohibitive for smaller producers and will primarily be reserved for larger producers. Over time, we believe smaller producers will find it difficult to compete, which will spur a significant increase in M&A activity and create meaningful barriers to entry for new market participants.

Midstream

Midstream companies are already investing in projects that capture carbon, renewable natural gas, and evaluating hydrogen projects to take advantage of the investment tax credits included in the law. A key gating item for large scale carbon capture, sequestration, and utilization development is EPA approval of class VI wells, which are used to permanently inject CO2 into deep underground geological formations. The EPA approval process could take several years for class VI wells and the states of Texas and Louisiana are applying to have primary jurisdiction to facilitate the permitting, construction, and operation of such wells. Currently only two states – North Dakota and Wyoming – have been granted primacy over class VI wells and in North Dakota, several carbon capture projects are already in the early stages of development that could lead to more than $6 billion in investment.

Midstream is already ramping up projects to take advantage of the act's provisions.

Some sectors will benefit more than others

Automakers of EVs, agribusiness, and health care providers are also beneficiaries, with pharmaceutical companies likely experiencing revenue pressure in the longer term.

Automakers

Europe's electrification of autos began earlier than in the U.S. and its current EV mix of total sales is more than double that of the U.S. European automakers are advanced on battery research on both technology and cost sustainability, which have been mainly funded on corporate cash flows. The act will help level the field, leading S&P Global Ratings to expect a modest boost in volume and profitability targets for some automakers, especially those qualifying for the subsidies. In fact, European automakers like Volkswagen, BMW, and Mercedes are announcing plans to produce more EV models in the U.S. with some localized battery sourcing to ensure product competitiveness. However, we believe the impact from the act on credit quality will likely be muted in the near term as we expect additional pressure on profits and cash flow for at least the next five years until more automakers operating in North America achieve the combined benefits of scale and vertical integration.

Europe's early lead in auto electrification could come under pressure.

We expect automakers to benefit from additional production credits worth $45/kilowatt hour (kWh) for batteries and packs made in the U.S., subject to certain sourcing requirements. This will significantly benefit automakers that have invested in vertical integration, especially battery capacity. This could lead to a significantly faster path toward lower battery pack costs for these automakers, leading to potentially meaningful competitive advantage over the next few years.

Provisions in the act may lead European policymakers to implement countermeasures to support its domestic industry. In the short term, the European Commission is making resources

available under the RePowerEU Plan (approximately EUR 250 billion) and urges national governments to simplify processes and offer fiscal incentives for climate transition initiatives. However, there is risk of fragmentation of the initiatives between different European countries. In response to this concern, the EU announced plans to create a Sovereign fund designed to invest in joint European projects supporting the green economy and industry competitiveness. This initiative could be critical for the auto industry which is increasingly organized on a local-to-local basis to contain costs and reduce logistical risks. Any initiative that supports localizing supply chains, developing charging infrastructure, and investing in alternative technologies is credit positive for the industry in Europe.

Agribusiness and biofuel refiners for Sustainable Aviation Fuel (SAF)

Demand for renewable fuel is growing, notably in aviation.

Agribusiness is another sector that stands to benefit, but less so from the various farm subsidies and grants in the law, which include more than $20 billion for carbon reduction initiatives, $5 billion for forest management, and $2.6 billion for habitat conservation. More importantly, the act extends tax credits to the aviation industry through 2024 for the blending of SAF into their fuel stock. This will further incentivize sustainable fuel demand. However, the credit benefit remains modest as sustainable fuels remain a small share of the sector's overall fuel consumption. According to the International Air Transport Association (IATA) and its global outlook for air transport from December 2022, SAF production accounts for less than 1% of total jet-fuel consumption with IATA estimating it could reach 5% by 2030. However, the aviation industry relies heavily on SAF to achieve its net zero emissions objective by 2050 and expects its consumption of SAF to materially increase over the coming decades.

By contrast, growing renewable fuel demand, will keep feedstock inventories for agricultural commodities tight, which is good for pricing and margins. According to S&P Global Commodity Insights, U.S. renewable feedstock demand already exceeds domestic supply. It projects global renewable fuel production to grow (in response to regulatory mandates and tax incentives for blenders and other industrial users such as those extended under the act) more than 10% in 2023 to more than 1 million bushels per day. It projects similar growth rates through 2025 driven by SAF and renewable diesel demand, mostly from the U.S.

The favorable regulatory landscape makes room for significant capital investment into refining expansion for various forms of renewable fuels in the U.S., albeit if off a small base. According to the Energy Information Administration's latest data from November 2022, total operable U.S. production capacity for renewable diesel, biodiesel, and other biofuels, totals about 311,000 barrels per day. This is less than 2% of total refining capacity of about 18 million barrels per day. SAF capacity, while not tracked specifically, it is a small but growing portion. We estimate an additional 134,000 barrels per day of renewable fuel capacity could be added by 2024. We believe tight agricultural stocks and growing feedstock demand from these new projects will continue supporting strong margins over the next three to five years for agribusinesses that produce and supply feedstocks such as soybean oil, vegetable oil, and various waste fats, oils, and greases. Biofuel adoption remains less ambitious outside the U.S., particularly in the EU. The EU is phasing out palm oil-based feedstocks under its Renewable Energy Directive (RED) while member states such as Germany are considering outright bans on biofuels sourced from crops and feed.

Refiners may not benefit as much as agricultural producers as they must evaluate several factors when considering SAF production. The types and cost of various feedstocks is an important consideration and, in our view, can limit the economics of such projects. Also, we believe the larger, integrated refiners with the ability to blend SAF into their own jet fuel production, have better access to the various feedstocks, and can reduce GHG emissions

through carbon capture will have a significant competitive advantage over less equipped peers. That said, given the limited scale of renewable capacity and SAF production to date, we do not expect this to be a significant tailwind for credit ratings during the next several years.

Pharmaceutical companies and health care

The ability for Medicare to negotiate drug prices will have material ramifications for the pharma industry, but the negative effects of the law will be gradual. Starting late 2022, penalties went into effect for companies that increased drug prices faster than the rate of inflation. However, we believe the impact on revenue growth will be modest in 2023. Later this year Medicare will select 10 drugs for price negotiation, but new prices will not go into effect until 2026 and 2028 for drugs covered under Medicare Part D and Medicare Part B, respectively.

Price negotiations will likely put pressure on pharmaceutical companies.

The law extends expanded premium subsidies through 2025 to individuals purchasing health insurance on the exchanges. The extension prevents these individuals from losing access to expanded subsidies (which were initially set to expire Dec. 31, 2022) and paying higher premiums, allowing them continued access to affordable health insurance. This extension also helps providers maintain an expanded pool of insured patients (who otherwise might have become uninsured) or a better-insured patient pool (who may have otherwise purchased more limited health plans with lower premiums and higher deductibles). Both situations could contribute to near-term credit rating stability by reducing exposure to bad debt expense that affects providers' operating margins and cash flow. That said, these expanded subsidies are only approved for three years and long-term benefits for providers could be limited unless future legislation makes them permanent.

Infrastructure investment could cost more despite the act's incentives

Our base case is for a shallow recession and 0.1% GDP contraction. Our first-quarter 2023 economic forecast (see "Economic Outlook U.S. Q1 2023: Tipping Toward Recession" published Nov. 28, 2022) indicates that high prices and the Federal Reserve's aggressive monetary policy and interest rate increases have slowed household spending and led businesses to cut costs (including personnel) in response to slowing demand. These were the desired outcomes to control inflation, but two factors are confounding this outlook.

- **Jobs reports:** The most recent jobs report may complicate policymakers' approach as the unemployment rate fell to the lowest level since May 1969 after 517,000 jobs were added in January 2023 (more than double the expectation).
- **Wages:** In January, wages increased 4.4% over the prior year, which was softer than the prior month but still almost twice the indicator's 2.5% historical average, with price stickiness in the service sector (excluding housing).

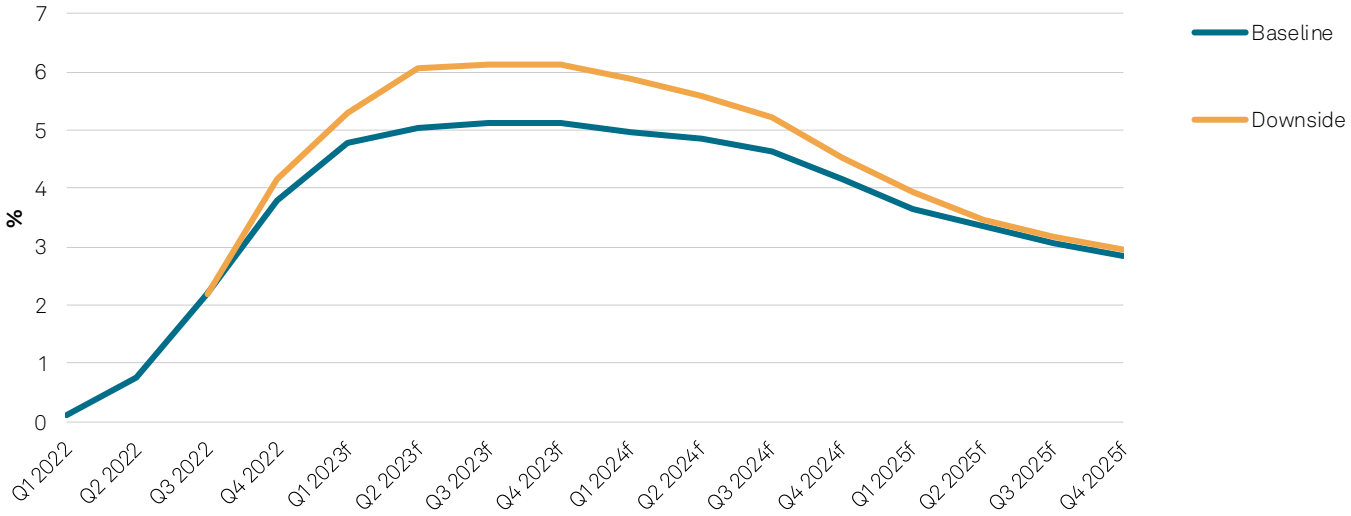
The healthy jobs market and still relatively healthy household balance sheets, on average, support consumer resilience in the face of higher prices and interest rates.

The data may signal reduced fears of recession, but could also translate to additional Federal Reserve rate hikes. We had expected the Fed to raise rates between 5.0% and 5.25% by May 2023, then lower rates later in 2023 (see chart 2). But recent hawkish statements indicate that the Fed plans to maintain higher rates for longer than we previously thought, keeping rates at the peak into next year.

Chart 2

Fed Funds Rate: Higher And Higher

Fed funds rate, baseline versus downside estimates



Source: Federal Reserve Bank, S&P Global Market Intelligence, S&P Global Ratings Economics forecast. f--Forecast.

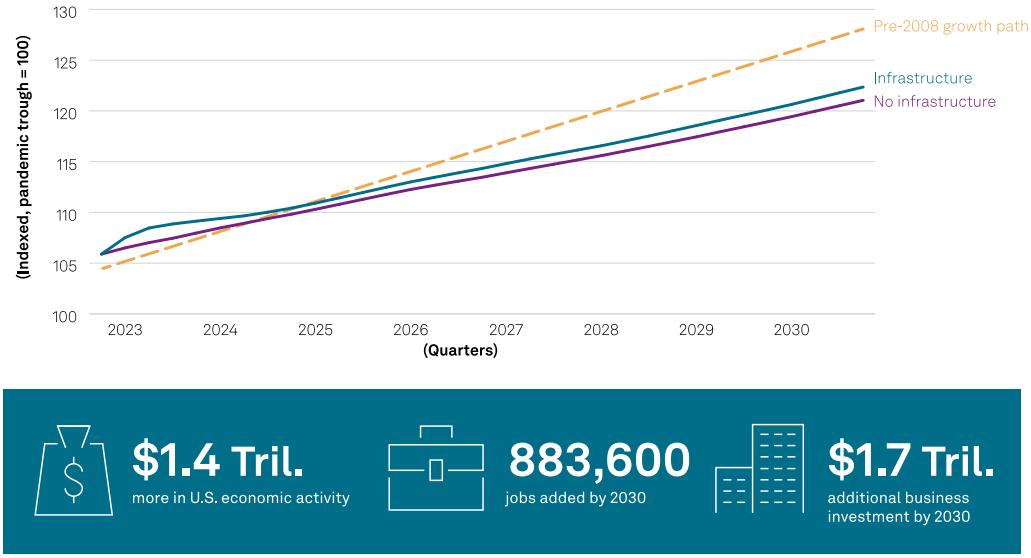
Higher prices and interest rates indicate higher costs for infrastructure projects, with softer economic gains from infrastructure investments. We believe inflation likely peaked in the third quarter of 2022, but in our downside economic forecast U.S. GDP growth could be negative 0.7% should consumer spending decline further in mid-2023 into early 2024. In addition, unlike the expected output and job gains derived from 2021's BIL (see chart 3), the Congressional Budget Office estimates that the act may only add from 0.84% to 0.88% in GDP growth by 2030.

Overall, infrastructure investment, if done wisely, leads to increased productivity and ultimately economic growth. Public infrastructure investment could "crowd in" private investment, with every dollar spent having a multiplier effect. If the project is implemented wisely, the multiplier from the infrastructure investment would be larger than the money spent. Given the early stages of enactment and if higher prices and interest rates last longer than previously thought, it is unclear how successful the act may be in driving short-term economic gains.

Chart 3

How To Steepen The Growth Path

The path of GDP with and without infrastructure investment



Source: Bureau of Economic Analysis, Oxford Economics, S&P Global Economics estimates. Note that forecast begins Q1 2023. The trough of the pandemic recession was second-quarter 2020, according to the National Bureau of Economic Research (NBER). Analysis originally published in "Economic Research: How U.S. Infrastructure Investment Would Boost Jobs, Productivity, And The Economy", Aug. 23, 2021.

Several hurdles could derail financial benefits

The act incorporates several provisions that may deter entities from taking advantage of its provisions. Furthermore, many of the agencies involved in the implementation have yet to finalize rules or guidance for participation in the programs. Together these issues could limit the financial benefits of the act. Below we explain a few of the hurdles.

Buy America. Certain tax credits available to the energy industry will require domestic content, primarily those already in the Federal Transit Authority's "Buy America" regulations. While complying could increase the PTC/ITC credits between 2% and 10%, entities will have to demonstrate that 100% of any steel or iron and 40% of manufactured products that are components of the project or facility were produced in the U.S. The costs of compliance, coupled with supply limitations, could negate the financial benefits of the higher credits.

Prevailing wages. For projects beginning on or after Jan. 29, 2023, entities (taxpayers) requesting certain tax credits for new projects must comply with prevailing wage requirements for workers as determined under the Davis-Bacon Act and maintained by the Department of Labor. Prevailing wages are for workers within a certain geography for a specific type of construction. Bid solicitations for projects where the entities plan to take advantage of the tax credits must include compliance with the prevailing wage covering the period of the project for the specific region of the state where the project is located.

Workforce capabilities. The act introduces funding for a wide array of energy and infrastructure projects--sectors already facing labor shortages to some degree, especially in parts of the country where infrastructure development is particularly pronounced, including the Gulf Coast. This potentially puts the onus on would-be employers and organized labor to aid in the process of reskilling workers to participate in the development of these new technologies. It also creates the

risk that labor will be more expensive, particularly given the short supply across the economy. To reap the environmental benefits in the act without fueling further inflation or cost overruns, a concerted effort will be needed to increase the labor supply in affected regions.

Implementation. Several federal agencies are involved in implementing the law, including Treasury, Energy, Agriculture, Interior, the Internal Revenue Service, and the Environmental Protection Agency (EPA). Some agencies, like the EPA, are familiar with implementing grant programs and can leverage prior experience. But given the compliance requirements and potential forthcoming complexities to administer the law, some entities, particularly those unfamiliar with federal contracting requirements, may forgo participation.

Related Research

- The Inflation Reduction Act: Our Views From The Midstream Energy Perspective, Oct. 11, 2022
- Inflation Reduction Act Update: Between Cheap, Firm, And Clean Power--Pick Any Two, Sept. 8, 2022
- U.S. Inflation Reduction Act Emphasizes Affordability; Credit Implications Across Sectors Are Mixed, Aug. 18, 2022
- Economic Research: How U.S. Infrastructure Investment Would Boost Jobs, Productivity, And The Economy, Aug. 23, 2021

Contact List

Contributors

Beth Ann Bovino
New York
212-438-1652
bethann.bovino@spglobal.com

Gregg Lemos-Stein
New York
212-438-1809
gregg.lemos-stein@spglobal.com

Robin Prunty
New York
212-438-2081
robin.prunty@spglobal.com

Vittoria Ferraris
Milan
+39-02-7211-1207
vittoria.ferraris@spglobal.com

Tulip Lim
New York
212-438-4061
tulip.lim@spglobal.com

Thomas Watters
New York
212-438-7818
thomas.watters@spglobal.com

Michael Grande
New York
212-438-2242
michael.grande@spglobal.com

Nishit Madlani
New York
212-438-4070
nishit.madlani@spglobal.com

Gareth Williams
London
+44-20-7176-7226
gareth.williams@spglobal.com