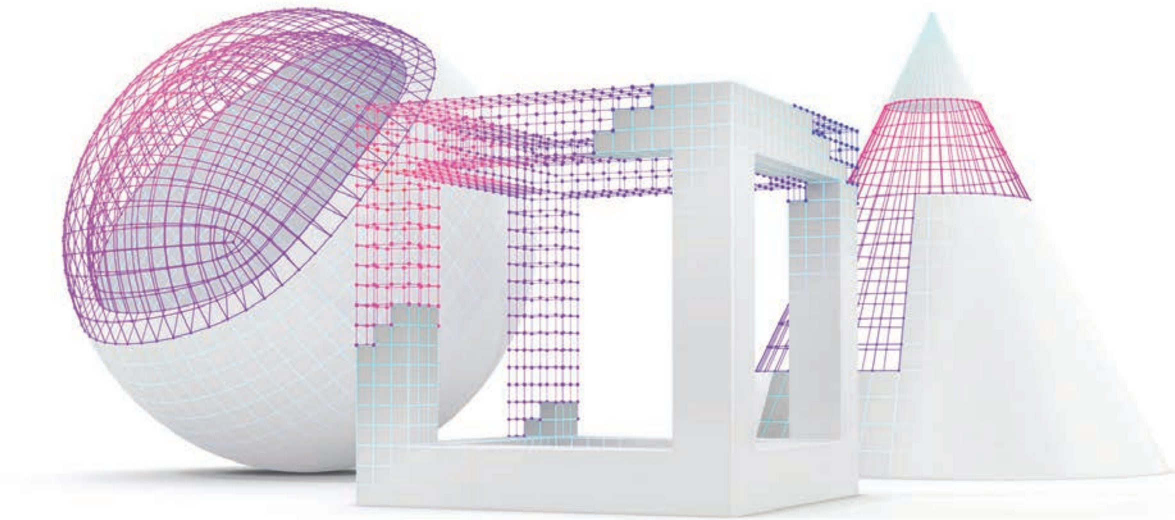
REAL ASSETS

A STABLE FOUNDATION



The top 5 themes that keep re-appearing in our discussions with investors
1 Inflation protection
Mining is the first piece of the entire industrial production chain and any cost increases are passed on, making mining the perfect inflation hedge
2 Shift away from oil & gas
Extractive industry expertise amongst LPs while still wanting real asset and commodity exposure (Appian is absorbing capital from LPs not re-upping with Oil & Gas funds)
3 Energy transition exposure
Thinking through the smartest tactical allocation. Same exposure with mining although mid 20% IRR vs single digits with renewables
4 ESG
LPs are doing work on this thematic but more education is resulting in the view that mining is part of the solution rather than part of the problem
5 Widening geopolitical tensions
Competition for critical minerals is becoming the next battleground with governments striving for greater self-sufficiency and diversification of the supply of battery and other critical metals
LPs interested in gaining exposure to mining should email IR@appiancapitaladvisory.com or visit www.appiancapitaladvisory.com.
www.vale-verde.com
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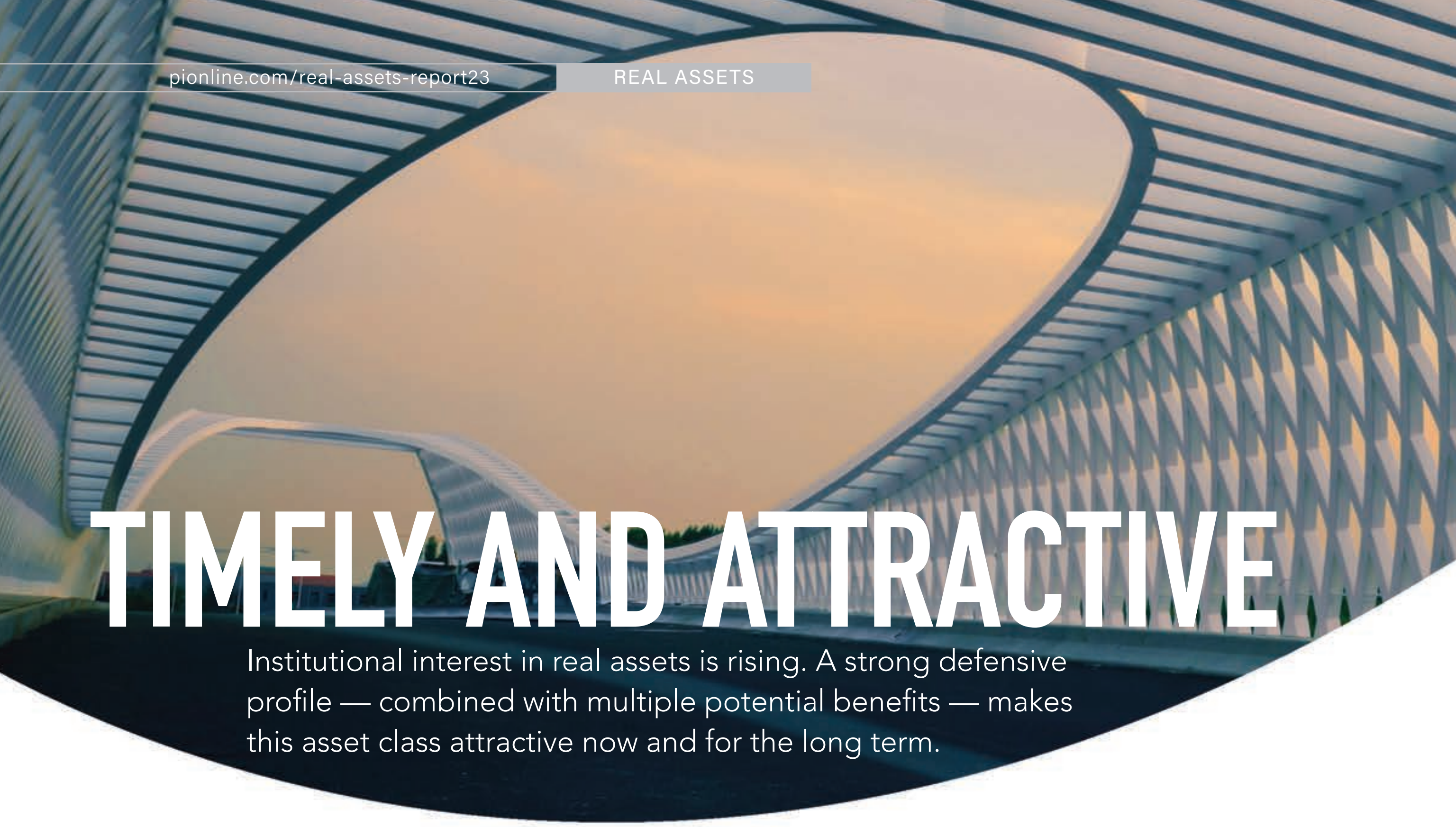


TIMELY AND ATTRACTIVE

Institutional interest in real assets is rising. A strong defensive profile — combined with multiple potential benefits — makes this asset class attractive now and for the long term.

It's a good time to invest in real assets, which are broadly defined as long-lived physical assets that serve essential functions such as transportation and power generation. Real assets are especially desirable when economic conditions are unfavorable or uncertain, as they are now.

Institutional investors are taking notice. They like the defensive profile of real assets, along with the potential for attractive risk-adjusted returns, partial inflation protection, stable income, portfolio diversification and long-term upside. What's more, powerful forces are in place that should boost demand for the asset class well into the future.

The upshot: Institutions should consider not simply investing in real assets but making them a core portfolio holding. Citing infrastructure as an example, Luba Nikulina, chief strategy officer at IFM Investors, declared: "We believe that infrastructure has a role to play as a foundational allocation aimed at earning long-term returns that are diversified, less volatile and have low correlations versus traditional asset classes."

PLAYING DEFENSE

The investment case for real assets starts with their inherently defensive nature. People everywhere need infrastructure such as bridges, airports, power plants and waterworks, as well as critical metals and — increasingly — renewable energy, to function in their everyday lives.

As Michael Ryder, partner and co-head, North America at Igneo Infrastructure Partners, explained, "Part of the rationale for the asset class is simply that it's necessary. These are services and assets that society needs, and they're not going anywhere. They are always in demand regardless of the economic cycle, and they have very strong long-term relationships with their customers."

In addition, many real assets are de facto monopolies with high barriers to entry. A bridge in a specific location, for instance, has no competitor. The same goes for an energy pipeline or a power plant. They can't easily be replaced, either, meaning their investors benefit from significant market advantages.

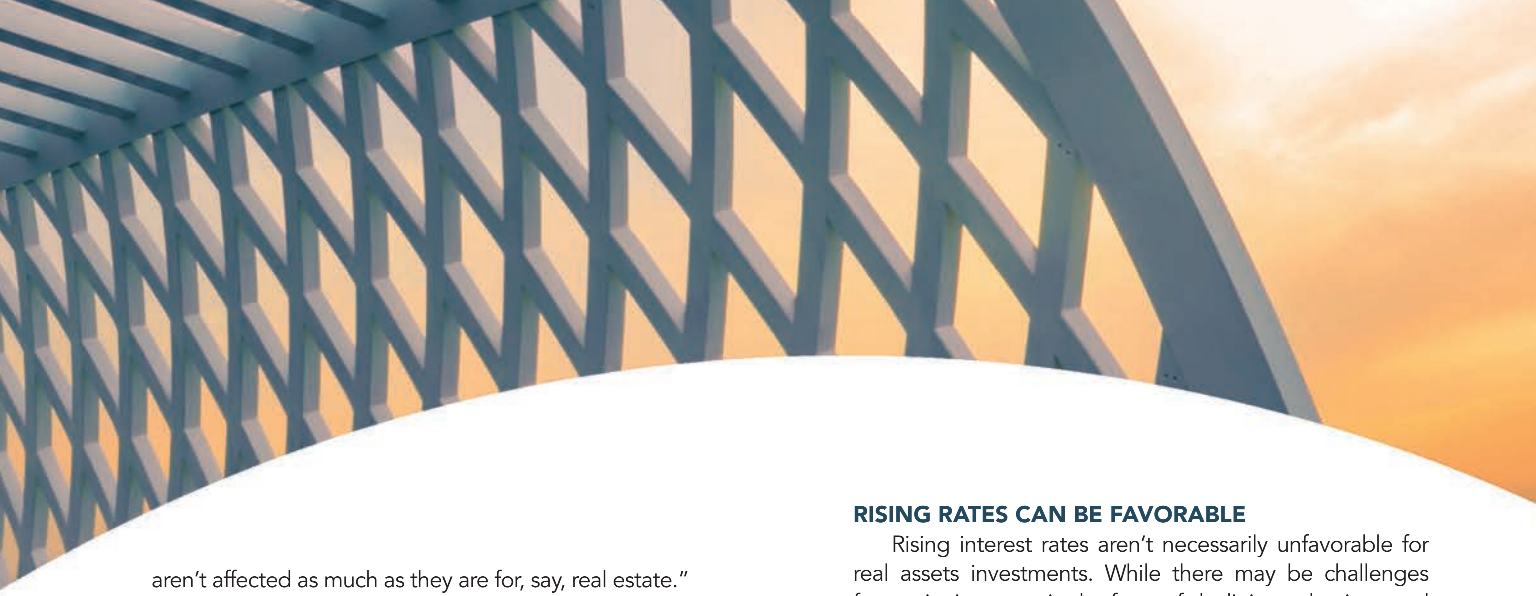
Another key defensive characteristic of real assets is their relatively low exposure to economic volatility. Thomas Emmons, co-head of direct infrastructure at Voya Investment Management, offered the example of a renewable energy project. "When a renewable energy project sells its power, it's selling to a utility through a long-term contract that isn't based on the economic conditions at the time."

The prices or volumes in these contracts don't fluctuate with growth in gross domestic product, and they're fixed over many years, regardless of economic circumstances. "Importantly, the utilities are regulated, so they're very stable; almost every one of them is investment grade. The contract is a very strong, very predictable revenue source, and it absorbs any economic fluctuations in the marketplace. That's a powerful motivator for investors," Emmons said.

INFLATION FIGHTER

Real assets offer considerable value as a partial hedge against inflation. For infrastructure such as traditional and renewable power generation, inflation, or escalator, clauses are built into long-term contracts. This allows the generator to raise prices based on inflation and other factors.

That's the beauty of infrastructure as an asset class, said IFM's Nikulina. "If inflation goes up and pulls your cost of capital up with it, you are generally able to pass through those cost increases to your revenues. As a result, valuations



aren't affected as much as they are for, say, real estate."

Michael Scherb, founder and CEO of Appian Capital Advisory, described how metals and mining investments can provide inflation protection as well. Metals and mining are the first pieces of the industrial production chain, he explained. If mining companies' costs increase — for energy, labor or supply chain challenges, for example — one could reasonably expect that the companies' margins would correspondingly suffer.

Not so, according to Scherb. "As the starting point for the entire economic chain, the mining companies are able to pass down those costs to the consumer because the whole world economy stops if people stop purchasing commodities," he said. "The earlier you are positioned in the production and economic chains, the more pricing power you have."

Historically, Scherb continued, "Every time inflation has run rampant, mining companies have actually raised their profit margins, which is fascinating because their costs went up at the same time. They were able to pass on those increases and more to their customers. That's how metals and mining offers inflation protection. It's the best form of inflation protection that investors are seeking."

Low Correlations Between Metals and Oil[1]

	Nickel (N)	Copper (C)	Silver (S)	Gold (G)	Brent Crude (B)
Nickel (N)	1.00	0.53	0.47	0.35	0.26
Copper (C)		1.00	0.38	0.20	0.41
Silver (S)			1.00	0.72	0.32
Gold (G)				1.00	0.05
Brent Crude (B)					1.00

[1]Correlations evaluated using monthly price performance from July 2013 to July 2023. Source: Appian Capital Advisory.

RISING RATES CAN BE FAVORABLE

Rising interest rates aren't necessarily unfavorable for real assets investments. While there may be challenges for equity investors in the form of declining valuations and higher capital costs, credit providers tend to fare better.

Edward Levin, co-head of direct infrastructure at Voya, noted how rising rates have caused many traditional bank lenders to tighten their lending standards and shut the door to borrowers that often include middle-market infrastructure sponsors. This has created opportunities for nonbank lenders in renewable energy projects.

"To the extent that there's a shortage of liquidity that borrowers can access, we benefit because they come to nonbank lenders to borrow, and they don't go to the banks" he said. "Our price of capital is somewhat higher, but if there are fewer alternatives, certainly that's good for us. Also, we tend to use a floating-rate credit structure, so if rates go up, it's generally positive for us because we can get better overall pricing."

AN EFFECTIVE DIVERSIFIER

Real assets can also serve as an effective diversifier for institutional portfolios. In addition to their defensive profile, built-in inflation protection and positive exposure to rising interest rates, they typically perform well over time and — importantly — when public markets are weak.

IFM's Nikulina compared real assets to equities and fixed income in this context. "You invest in equities to generate returns, and in bonds for income and risk protection," she said. "Real assets, and infrastructure in particular, provide a combination of both. The result is genuine diversification, which stands out during a market downturn because real assets won't perform as well as equities when equities are strong; but they shine when equities experience a significant decline, and they deliver both diversification and performance."

This contrast was especially apparent when public markets plummeted during 2022, Nikulina said. "Infrastructure's returns are much smoother than equities', and it performed really well in 2022," she said. "In my career, I haven't seen many periods where there was so much uncertainty. Infrastructure did well despite this, even as stocks and bonds suffered. It performed as it should have, and we expect it to keep doing so."

The metals and mining subsector offers a different form of diversification. While metals prices are subject to the same macro forces that affect equities and fixed income, they tend to move more idiosyncratically — even relative to one another.

Appian's Scherb elaborated on this point, explaining that individual metals move in their own patterns due to their differing downstream exposures. "Metals provide exposure to all manner of ultimate real assets. These include agriculture, infrastructure, energy transition, and urbanization and white goods, along with every other major market. Their supply-demand fundamentals aren't uniform," he said.

Scherb also noted that metals have acted as an important hedge against fluctuations in global energy prices, due to their low correlations with oil. He said that many of Appian's limited partners are investing in metals rather than adding to their oil and gas holdings. (See visual on Page 5.)

INSTITUTIONAL DEMAND IS RISING

Given the multifaceted investment appeal of real assets, it's not surprising that institutions are eager to initiate or add to their allocations. IFM's Nikulina pointed to the huge need to upgrade existing infrastructure and generate new projects. (See visual below.)

"Historically, investment in infrastructure hasn't been as high as it should've been, a fact that is not lost on institutional investors," she said. "I don't think I have ever seen this kind of tailwind for an asset class. It's particularly important now because the market's recent volatility is making investors nervous. Considering the massive losses in equities and bonds in 2022, investors want an asset class for all seasons. Infrastructure gives them that."

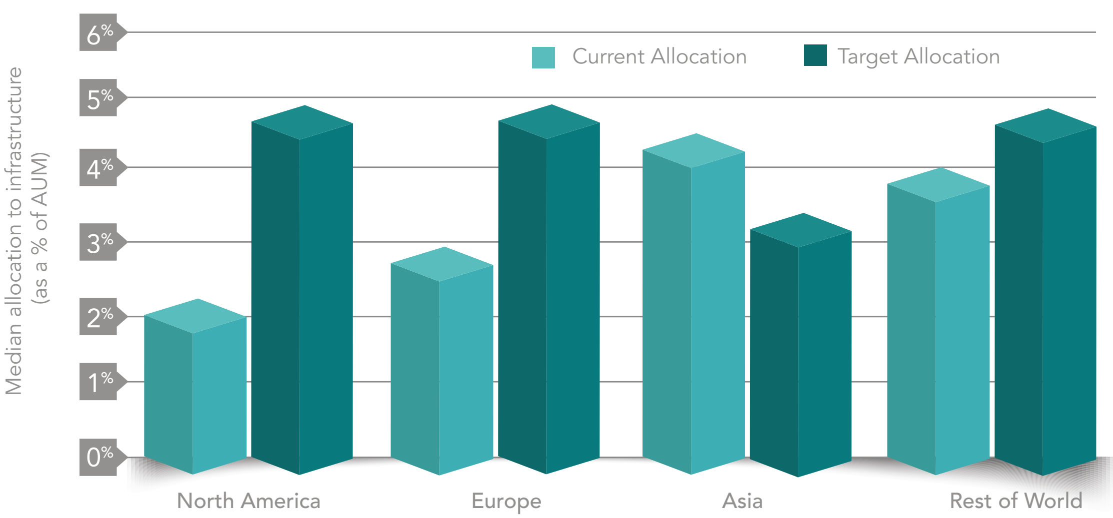
According to Voya's Levin, interest in renewable energy assets remains strong in the U.S. and is getting even stronger in Europe and Asia. "We're seeing robust inbound investor appetite for renewables from Europe and Asia, particularly Europe," he said. "People are a lot more aware of climate change in Europe than in the U.S., and they're much more sustainability-oriented. The topic has a particular focus from governments, the electorates, investors and the entire community there. In addition, foreign investors appreciate the strength of the U.S. market and are looking for opportunities to capture relatively higher returns compared to other developed markets."

Scherb noted that the metals and mining sector is attracting interest from investors who previously avoided it. "Appian is getting a lot of inquiries from people who formerly told us that they wouldn't invest in metals and mining, but now they're allocating capital to it," he said. "There's a big push from client mandates that want to get exposure. The challenge is that there aren't many mining sponsors around. There are hundreds in oil and gas but only around five in metals and mining, which is amazing because it's a heavily capital-intensive business."

U.S. institutions tend to be underweight real assets relative to global allocators. John Ma, partner and co-head, North America at Igneo, expects that to change. "We anticipate that this gap will close over the coming decade, as U.S. institutional investors see infrastructure's benefits and overall attractiveness. Potentially, they'll allocate moderately higher portions of their portfolios to the asset class given its strong characteristics and good fit relative to their long-term liabilities," he said.

U.S. Investors Are Underweight Real Assets

Investors' median current and target allocations to infrastructure by location



Source: "Uncertainty, Transition and Social Factors: Infrastructure Outlook," IFM Investors, April 2023.

OPPORTUNITIES AND RISKS

The future is bright for real assets, as long-term demand drivers are solidly in place. Investors can find plenty of attractive opportunities.

The need for real assets should be huge over the next 20 to 30 years. A confluence of powerful forces is poised to drive demand — and, potentially, returns — upward.

The most fundamental of these drivers is a dramatic supply-demand imbalance. Igneo's Ryder put it this way: "The U.S. has systematically underinvested in infrastructure for decades. This has created a significant opportunity that will be good not only for society and the domestic economy, but also for managers to generate strong performance and create substantial value for investors."

Data from the American Society of Civil Engineers starkly quantifies the gap between supply and demand for U.S. infrastructure. ASCE projects that approximately $3.5 trillion will be available for infrastructure funding between 2020 and 2029 — just 57% of the $6.1 trillion needed. The projection for 2030 to 2039 is equally weak, with $7.3 trillion in capital available, which is 57% of the $13 trillion needed.

THE ENERGY TRANSITION

Without question, the biggest long-term driver of demand for real assets is the transition away from fossil fuels. While this bodes well for a variety of sectors such as automotive, it's especially favorable for real assets. Infrastructure, renewable energy and metals all could experience extraordinary growth over the next two to three decades as this transition propels them forward.

IFM's Nikulina sees infrastructure as a natural beneficiary of the energy transition. Asset allocators or investors that want to position their portfolios for the transition and net-zero emissions must keep in mind that "it's impossible to imagine our way of life without infrastructure like ports, airports, water utilities and power networks. Getting exposure to these assets that are preparing for a low-carbon future is a great move for investors who believe in the strength and length of the transition," she said.

Voya's Emmons is highly optimistic about the energy transition and its potential impact on renewable energy. "This is not an evolution, but really a revolution to move away from combustion, which mankind has depended on for centuries," he said. "It's a massive, multi-decade transition not just to the technologies that make renewable energy possible but, more importantly, to the infrastructure that sustains it, because the infrastructure supporting renewable energy is not 100% the same as the infrastructure that supports fossil fuels."

Metals offer a different angle on the energy transition. They're an investment in the materials needed to make products, such as electric vehicles, rather than in the products themselves. "It's easy to forget that EVs can't be made without metals — not just for the car's body, but for the battery and the advanced electronics," said Appian's Scherb. "About 20% of the cost of the car is actually the cost of the commodities that go into the battery. That's why you see a lot of the manufacturers vertically integrating and moving upstream, either by acquiring mines or mining companies or by otherwise securing access to the mines' output."

FAVORABLE LEGISLATION

The legislative environment for U.S. real assets is highly favorable. In the last two years, Congress has passed several key laws that provide funding and incentives for infrastructure and renewable energy.

The most recent of these is the Inflation Reduction Act of 2022, which allocated nearly $800 billion in spending to clean energy and climate change. Additional legislation includes the 2022 CHIPS and Science Act, which focused on boosting the domestic semiconductor industry, and the $1.2 trillion Infrastructure Investment and Jobs Act passed in 2021.

"The IRA has been transformative for renewable power generation and energy transition in the U.S.," said Igneo's Ma. "We're also seeing ripple effects internationally, as other countries evaluate and implement similarly attractive incentive regimes. All three of the acts have incentivized domestic investment in the U.S. by trying to re-shore and near-shore businesses in some specific industry sectors and boost manufacturing activity. The impact on infrastructure subsectors will be positive as well."

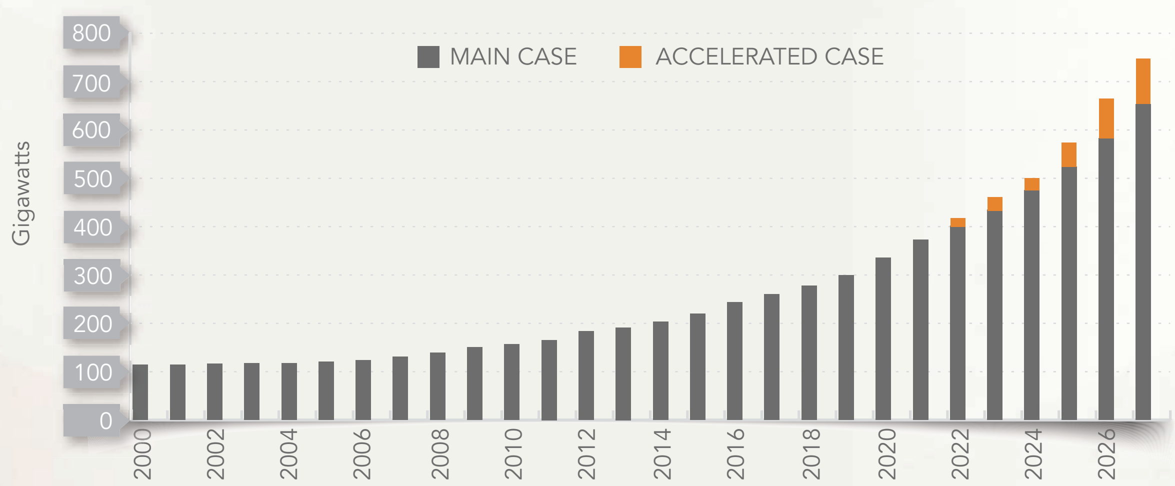
Ma noted that while public attention tends to focus on federal legislation and regulation, there also is plenty for infrastructure investors to consider at the state and local levels. "It's a mistake to think of the U.S. as one big market. It's quite fragmented," he said. "There's a lot going on in the states and localities. We find many opportunities by delving into the specifics of a particular state or region to find businesses well positioned within their specific local market, given local regulatory considerations."

SIGNIFICANT CHALLENGES, TOO

The outlook for real assets is not uniformly positive: the asset class faces significant challenges as well.

Technology — or its absence — is central to those

U.S. Total Renewable Capacity



Source: "Renewables 2022," International Energy Agency, January 2023; Voya Investment Management.

challenges, noted Voya's Levin. "Incentives have been put in place to promote carbon capture, for example. They're put there for the right reasons, because you want to incentivize people to consider these investments and take risks," he said. "The investments require high returns because some of the underlying technologies aren't proven yet. They're not fully vetted and don't have a long operating history. Investors must be careful that even though there are strong financial incentives, the viability of some technologies isn't certain."

Inflation and rising interest rates create additional risk for projects not yet fully developed. In the case of renewable energy, the ability to pass higher costs on to customers through long-term contracts isn't always enough to recoup all such costs if these contracts have already been negotiated, Levin said.

WHERE THE OPPORTUNITIES ARE

Institutions are asking real assets managers to recommend specific areas for investment — regardless of whether they have existing allocations or are looking to take an initial position.

For the latter group, IFM's Nikulina recommends a diversified allocation. "I would start with a wide exposure across different segments, including transport, toll roads, ports and airports, as well as electric utilities, water utilities, power lines and gas networks. If you want to make it more interesting in terms of structures, know that going higher on the risk-return spectrum means you start picking up assets that are in development or economically sensitive."

Nikulina also noted a co-investment trend among larger institutions. Infrastructure is much more suited to co-investing than some other asset classes, she said, because there are large-ticket assets that institutions can access alongside an asset manager, hold for a long time and receive the income.

Renewable energy generation is a focus for Igneo. "Renewable generation has been a very attractive sector and has drawn a lot of capital over the course of the last three to five years, even as interest rates have increased," Ryder said. "It has remained incredibly robust, and valuations have remained strong despite economic headwinds, partly driven by the legislative and fiscal support from the IRA and other initiatives. We're excited to continue to deploy capital into renewable generation."

Digital infrastructure is another subsector that Igneo especially likes. Ryder explained that "It's always been essential but is even more so these days, with exponential growth in the volume of computing demand and digital data, and with so much of businesses' and people's activities taking place online. Digital infrastructure assets, whether fiber, data centers or wireless communications, are essential to society. Underlying demand is rising and should keep going that way."

Voya's Emmons singled out energy storage and transmission as high-potential subsectors. Storage presents a major opportunity because so much of it will be needed to stabilize the energy grid to accommodate rising supplies of clean energy, he said. Demand for transmission is strong, as an increasing number of new energy-generation assets go live and must be interconnected.

In metals and mining, Appian's Scherb is most optimistic about copper, nickel and lithium, which offer targeted growth linked to the energy transition. "Copper wiring is going to be of increasing importance. There's no substitute for copper in terms of energy transmission, and substituting just isn't cost-effective," he said. "Nickel is a primary ingredient in electric-vehicle batteries. Lithium is the primary ingredient in batteries and a key component in electric vehicle transmission."

BLACK BEFORE GREEN

Real assets are a natural destination for institutions seeking allocations to environmentally friendly investments. Yet even for mandates that emphasize sustainability, institutions and managers list the need for strong returns as their top priority.

"We are an infrastructure investor with a long-term investment horizon, and we take into account many considerations, including sustainability, when we're evaluating investments," said Igneo's Ma. "We prioritize delivering good returns to our investors. For long-lived, essential assets like infrastructure, actively managing sustainability issues goes hand-in-hand with managing risk and achieving strong returns."

IFM's Nikulina echoed this view. Earning decent returns for stakeholders and plan participants is institutions' primary purpose in selecting investment allocations, she said, rather than investing in the green economy. "We are very clear that financial risk and financial performance come first, but that does not prevent us from investing in the many opportunities that are part of the energy transition. In fact, there are many investments in this sector that can, and do, deliver for our clients and their beneficiaries."

"Geologists have a saying: rocks remember." At Igneo Infrastructure Partners, so do we.

Perhaps this more obscure Neil Armstrong quote was referring to the dominant igneous rocks on the moon's surface. But for the team at Igneo Infrastructure Partners, it neatly summaries our business – a focus on long-term commitments, transparent partnerships and a sustainable future.

Igneo Infrastructure Partners is a new name for a long-standing business. As part of the First Sentier Investors Group, we have been managing infrastructure assets for almost 30 years, with a focus on partnership and sustainability. And – as Igneo Infrastructure Partners – nothing will change.

We will continue to seek high quality assets that create value for our clients now, and in the future. And that's a commitment we will never forget.

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