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From pollution to progress:

Effective risk management in the clean energy transition

January 17, 2024

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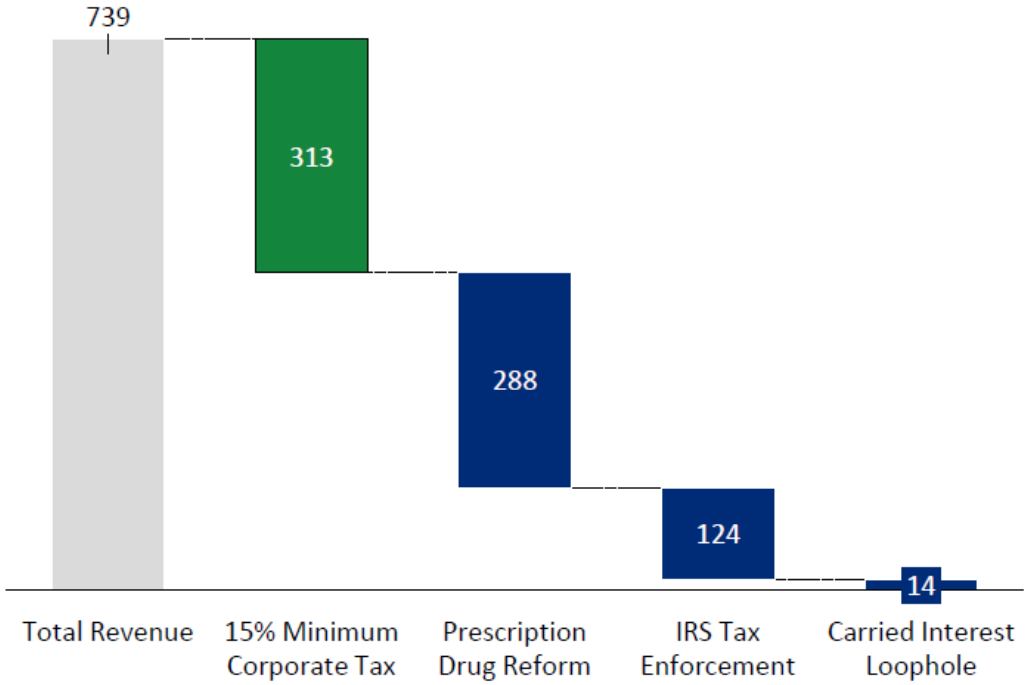
The Inflation Reduction Acts contain ~$381 billion of climate-related funding

Provides incentives to energy & climate initiatives aimed at reducing GHG emissions

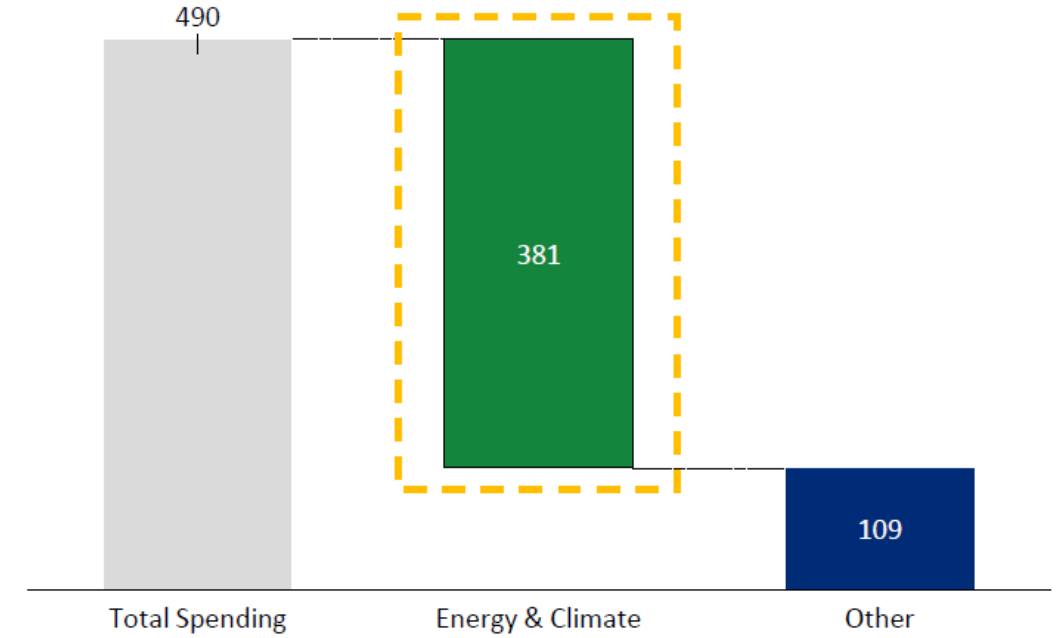
Inflation Reduction Act (IRA) Revenue

USD, BN



Inflation Reduction Act (IRA) Spending

USD, BN

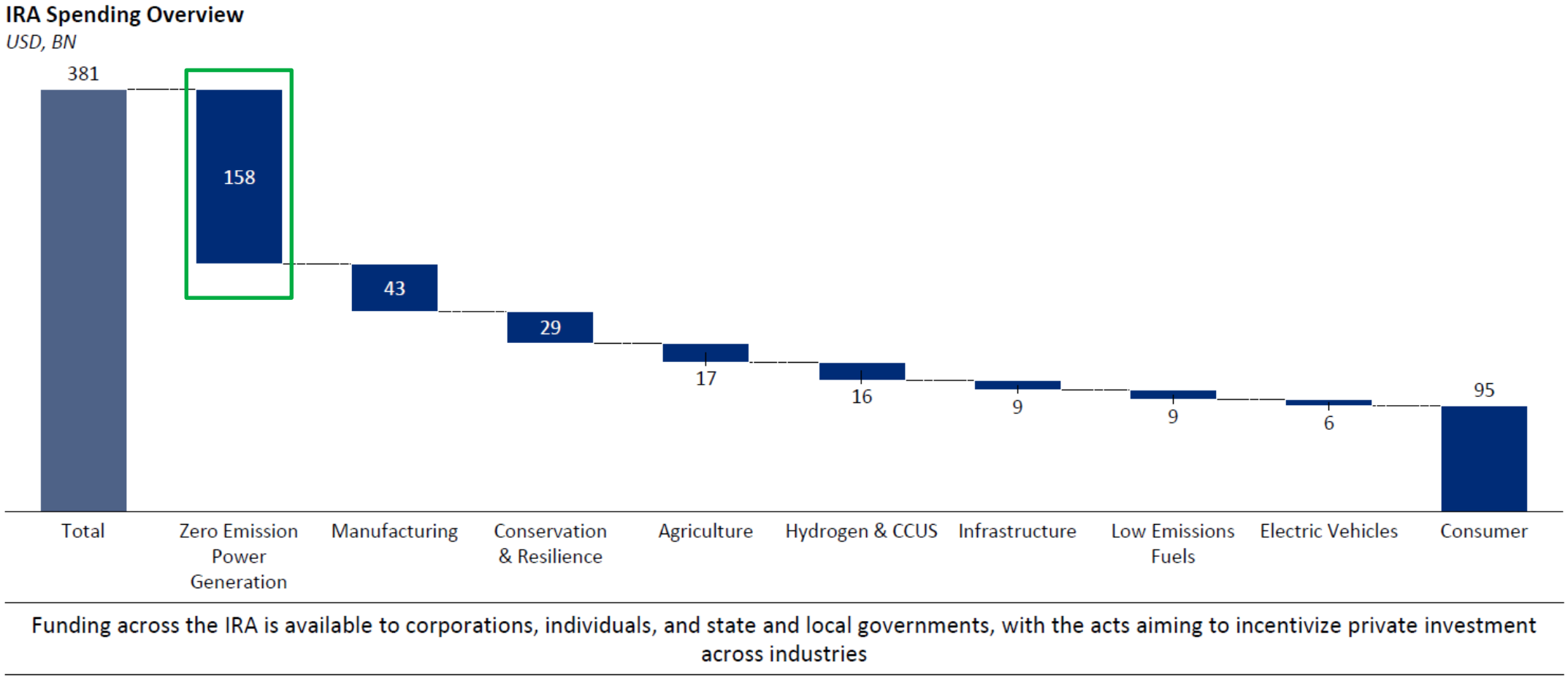


The above values are estimates and can vary between sources based on deployment of incentives and funding uptake, however Oliver Wyman analyses conclude that ~$381BN is allocated to multiple sectors to promote green initiatives and mitigate climate change

Sources: New York Times, Committee for a Responsible Federal Budget, Senate.gov, Democrats Senate.gov One Pager, Oliver Wyman Analysis

IRA spending overview - $~158 billion in incentives for renewables

Significant amount of incentives directed at renewable power generation and related manufacturing



Funding across the IRA is available to corporations, individuals, and state and local governments, with the acts aiming to incentivize private investment across industries

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Sources: New York Times, Senate.gov, Oliver Wyman Analysis

Macroeconomic factors & legislations' impact on renewables

The Inflation Reduction Act, 2022

- The IRA earmarked $370 bn for domestic manufacturing of clean energy, to be disbursed for measures dedicated to improving energy security and accelerating clean energy transitions
- The IRA also includes funding for carbon capture, utilization, and storage (CCUS) projects
- It is estimated to boost installed solar and onshore wind capacity by an additional 155.5 GW by 2030. *(source: Rystad Energy)*
- ~$40 bn domestic clean energy investment by companies was seen post IRA was signed into a law in Aug'22. *(until Dec '22)*
- ~20 new clean energy manufacturing facilities or expansions have been announced since IRA
- Companies have announced ~20 new clean energy manufacturing facilities or expansions incl. 12 new solar facilities; to add 13 GW clean energy capacity

Clean energy policy support and adoption

- 22 states and the District of Columbia are targeting 100% renewable energy or 100% carbon-free electricity through clean and renewable energy mandates and incentives by 2050
- Renewable generation expected to rise by 20% between 2022 and 2024
- The projected solar capacity expansion by the end of 2024 is 63 GW and wind power capacity is 12 GW
- Power generators are planning to add 32 GW of utility-scale solar capacity in 2023 and 2024
- The IRA and the infrastructure law (IIJA), along with the potential EPA pollution regulations, estimated to lead to 80% clean energy by 2030
- Renewable-electricity and storage equipment production capacity expansion to support $300 billion of capital investment per year by 2025

Utility decarbonization

- ~10 GW of coal-fired capacity in 2023 and another 4 GW in 2024 to be decommissioned
- As of Oct '22, 43/45 largest US investor-owned utilities committed to reducing their carbon emissions by boosting renewables source of generation
- 9 states collectively aim to deploy about 45 GW of capacity by 2040 while more are expected to join – which is expected to aid deployment of the targeted 30 GW of offshore wind capacity by 2030 and 15 GW of floating offshore wind capacity by 2035

Private investments

- Private investment in renewables hit a record high of $10 billion in the past year
- Investors continue to be attracted by transparent returns on mature technologies backed by regulatory support and tax credit policies
- Makers of renewable-electricity and storage equipment would expand production capacity to meet this demand, supporting $300 billion of capital investment per year by 2025

Tax benefits under IRA

- The IRA extends wind and solar tax credits for projects that begin construction before 2025 and technology-neutral credits through at least 2032
- This is estimates to spur 525-550 GW of new US utility-scale clean power by 2030

Cost competitiveness

- Owing to supply chain challenges, renewable energy cost could rise during 2023 for a short term; however, wind and solar will likely remain the cheapest energy sources in most areas, as fuel costs for conventional generation have been rising faster

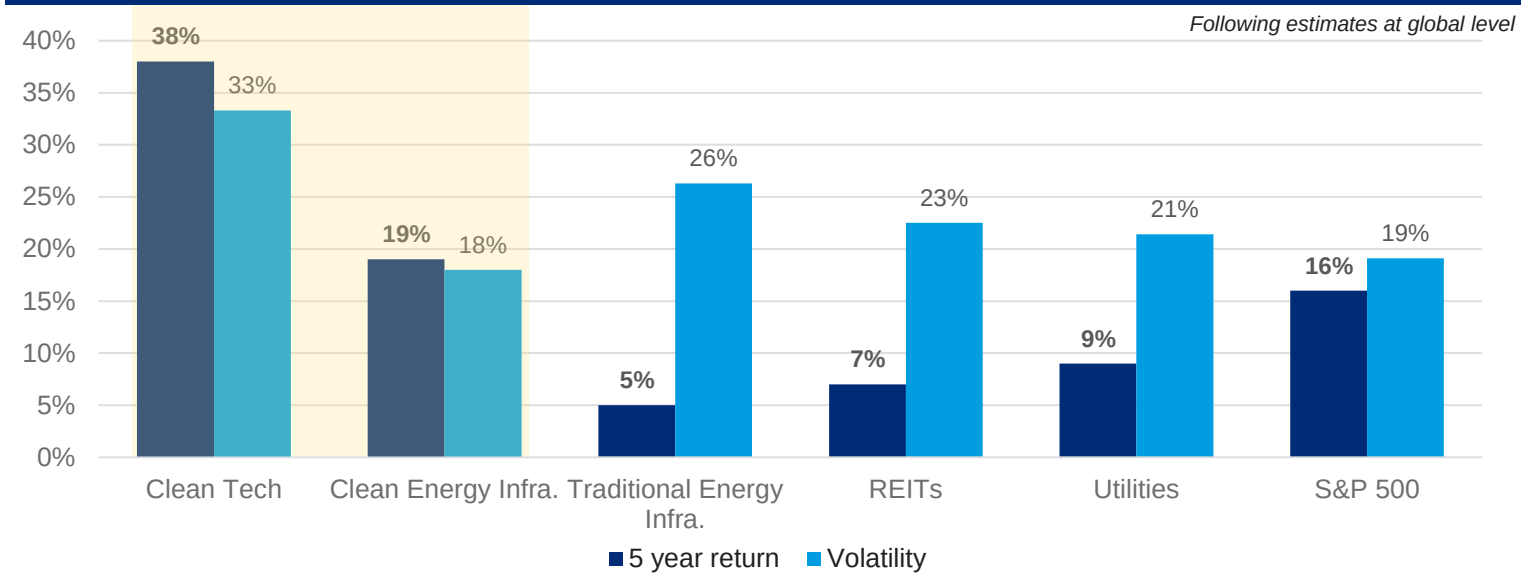
Demand-pull factor

- Residential solar demand has been 35% higher (YoY) in H1 '22
- Corporate renewable procurement spurred a record 11 GW of US clean energy installations in 2021
- Over 380 global businesses have committed to 100% clean electricity by joining the RE100 renewable electricity initiative
- Numerous US-based companies have set net-zero targets which also apply to the emissions from their suppliers and the use of their products
- The White House issued an executive order in Dec 2021, calling for the federal government to buy zero-emissions goods and services in categories incl. electricity to vehicles to building materials
- SEC's proposed rules that mandate companies disclose their plans to deal with climate-related issues along with emissions and material risks

Note: Above information not in any particular order; color coding does not represent any category grouping/ linkages

Clean energy assets offered best yields with stable cashflows

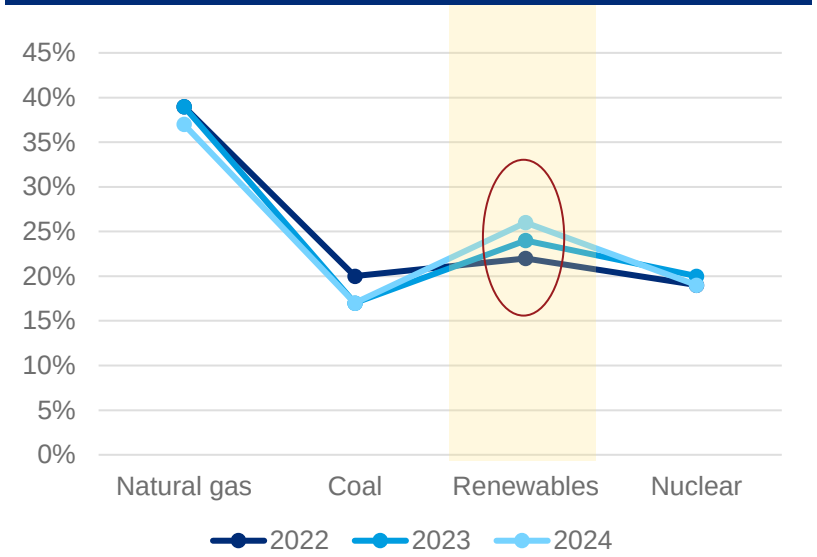
Five-year *(ended 2022)* risk-return metrics across income-oriented asset classes & equity markets



Investment outlook:

- The global transition away from oil and gas, among other factors, opens an opportunity for private equity to supply investment capital and help businesses accelerate growth
- The pressure on private equity firms to decarbonize their portfolios started increasing in 2022
- Regulators, consumers, B2B customers, and investors all stepped up calls for change, making risks and opportunities critical focus areas
- The race to develop new alternative energy sources and other low-carbon solutions will need new capital as the world strives to ward off climate change
- Growth of renewable energy infrastructure is primarily driven by declining costs, conducive government policies tackling climate risk, economies of scale, energy transition clarity, growing capacity, and technological advancements
- Clean energy, as an investment segment, offers the best risk-return ratio as compared to traditional investment options

Composition of power by source in US



As per projections, renewables' share of electricity is increasing through 2023 and 2024.

Transition to a 100% clean electricity US power system will need key actions in the coming decade:**

- Acceleration of electrification and increased efficiency in demand
- New energy infrastructure installed rapidly throughout the country
- Expanded clean technology manufacturing and the supply chain
- Continued research, development, demonstration, and deployment to bring emerging technologies to the market

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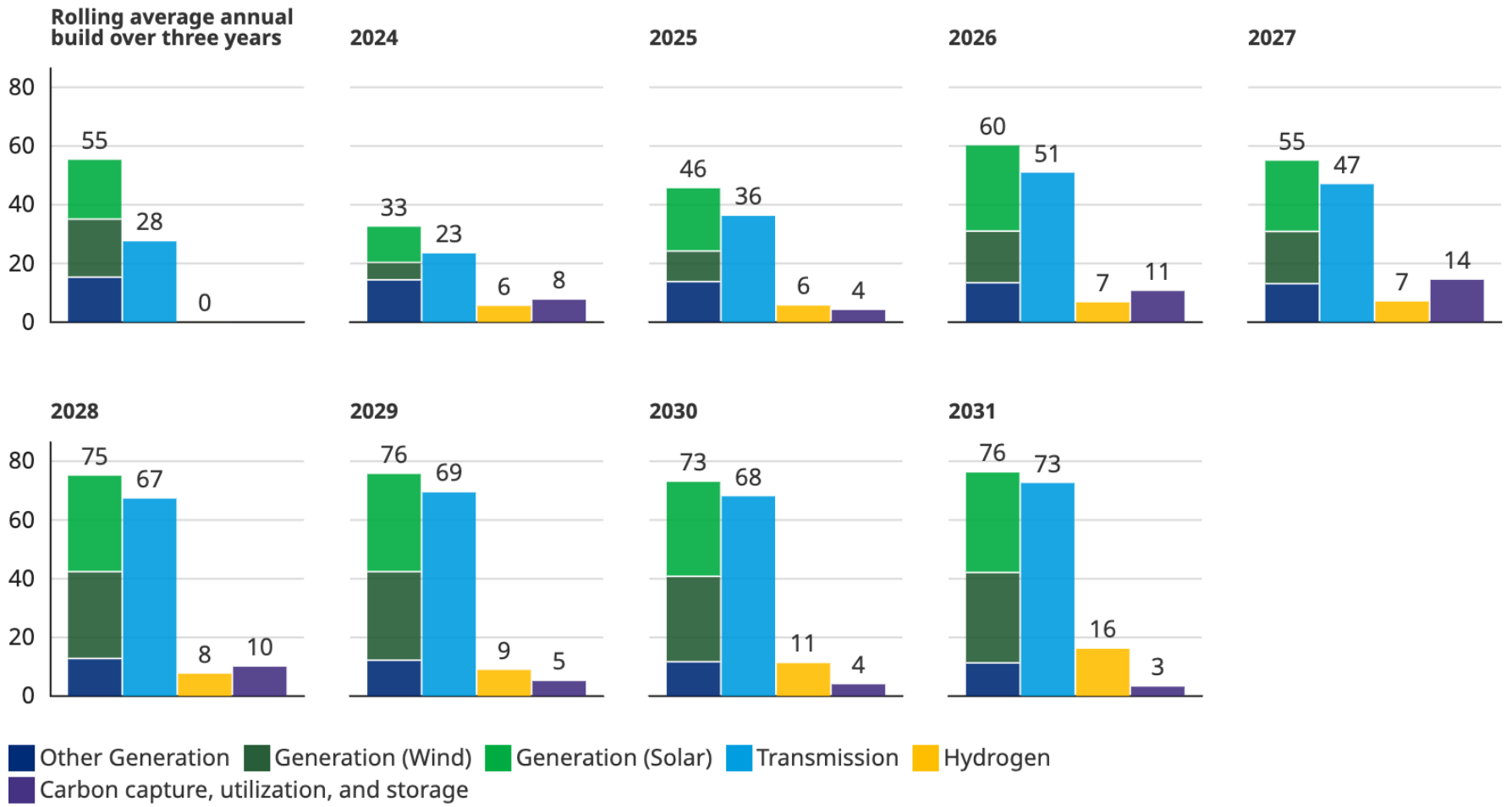
Sources: IEEFA, NREL, EIA, Bain & Co.

***US President's plan to eliminate carbon emissions from the electric sector by 2035*

Annual investment forecast for power generation, transmission, hydrogen, and carbon capture, utilization, and storage development in the United States

In US $ billions



Sources: Form 1, Congressional Budget Office (Est. budget impacts for H.R. 5376), U.S. Energy Information Administration (Jan 2022, May 2023), U.S. Energy Information Administration (EIA-860), U.S. Department of Energy, An Industrial Perspective on Ultrapure Water Production for Electrolysis (Arvid Jonsson, Hampus Massgard; 2021), IEA (2023) Electrolysers 2023 IEA Paris, License: CC BY 4.0, Clean Air Task Force, S&P Capital IQ Pro, Oliver Wyman analysis

Capitalizing on opportunities with effective risk management

Brownfield properties

Retired/retiring coal facilities

Greenfield properties

Brownfield redevelopment

A brownfield is a property, *the expansion, redevelopment, or reuse of which*, may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant

The opportunity

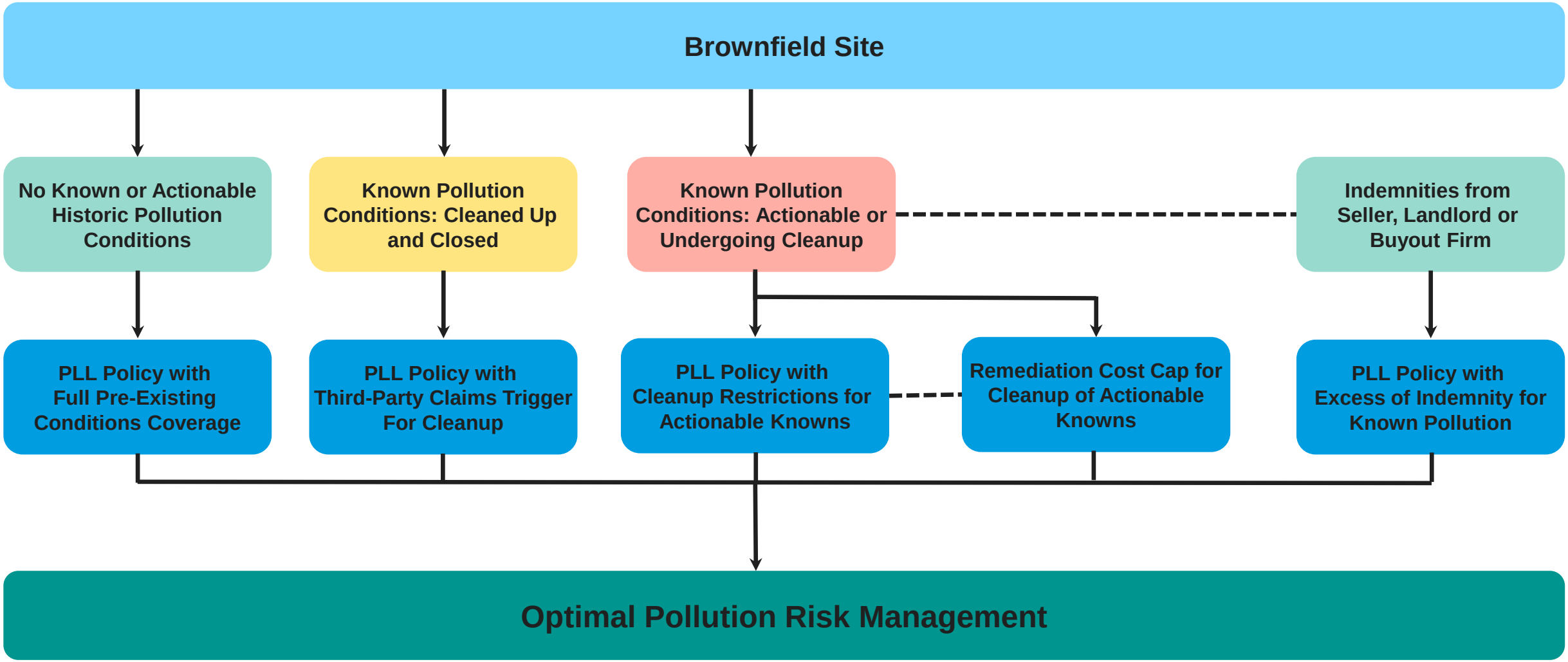
- Over 450,000 brownfield sites in the US
  - Site mapping tools
- Financial and tax incentives
  - Inflation Reduction Act
  - Energy Community Tax Credit Bonus

Managing risk

- Unidentified historical contamination
- 3rd-party liabilities
- Failure to perform/indemnify by responsible party
- Costly legal expenses
- Exacerbation of historical conditions
- Overrun of known contamination

Brownfields

Strategies for site pollution risk transfer



Repositioning retired/retiring coal facilities

The opportunity

- Existing connections to the power grid
- Financial and tax incentives
- Maximizing salvage values
- Highly trained workforce

Managing risk

- Evolving CCR regulations
- Closure of ash ponds and landfills
- Risk of regulatory reopener or change in remedy
- Unidentified historical contamination
- 3rd-party liabilities
- Failure to perform/indemnify by responsible party
- Costly legal expenses
- Exacerbation of historical conditions
- Overrun of known contamination

Greenfield development

The opportunity

- Transitioning wooded or farmland property to support energy demands
- Financial and tax incentives
  - Inflation Reduction Act
  - Energy Community Tax Credit Bonus

Managing risk

- Catastrophic weather impacts, including storm-water runoff and sedimentation
- Impacts to sensitive environments, wetlands, waterways
- Unidentified historical contamination
- 3rd-party liabilities
- Costly legal expenses

Risk and reward for renewable operations

Questions

To submit a question, please use the Q&A panel.

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