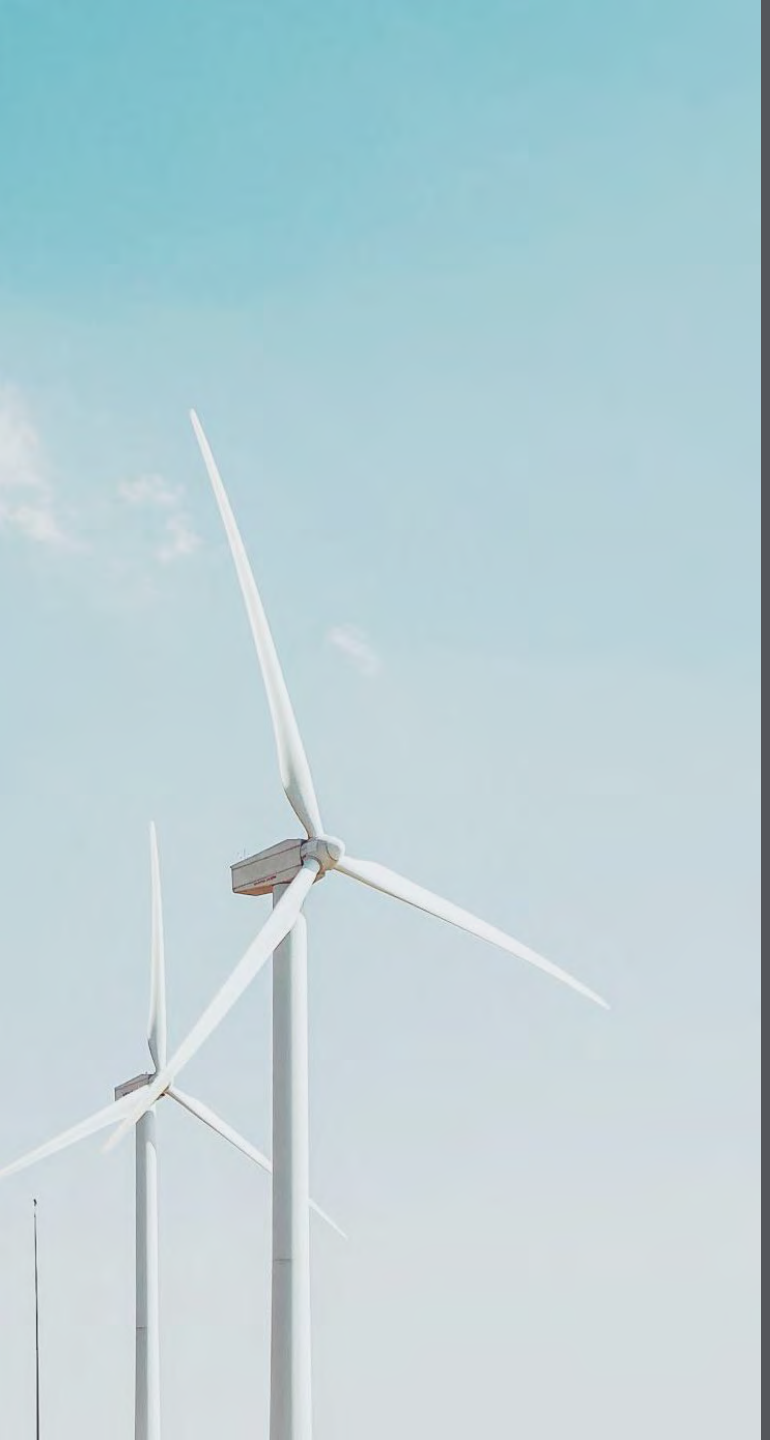

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Energy Industry Summit

Private Sector Investments and Important Industry Transactions

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November 17, 2022

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Setting the Stage

- In the last ten years, the legacy energy industry has grappled with:
  - rapid changes in the supply and price of various forms of energy,
  - the effects of climate change, weather disasters and environmental policy,
  - and the development of renewable energy technology and newly competitive markets.
- These forces have resulted in a spate of bankruptcy filings across the energy spectrum and changed the way energy transactions are structured and the types of transactions that are commercially viable.

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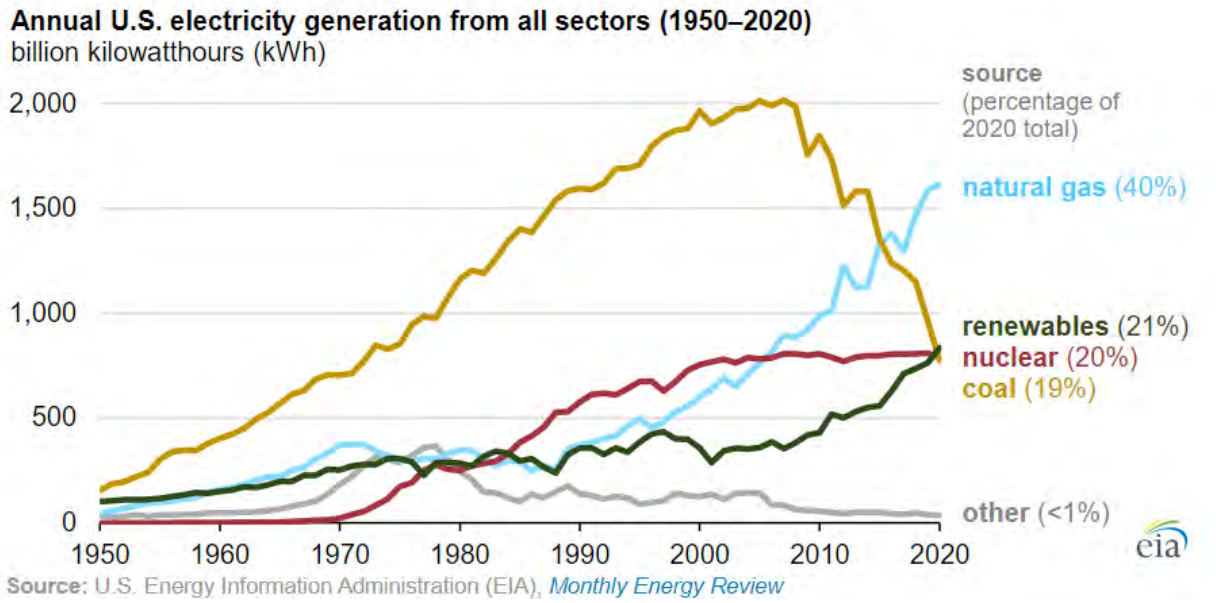
The Coal Bankruptcy Wave 2010-2016



- Since 2010, increased competition from natural gas and renewable sources and the expense associated with environmental safeguards has led to the retirement of hundreds of coal-fired generating units in the U.S., causing the percentage of electricity in the U.S. generated from coal to fall from around 50% to 20%.
- The falling demand for coal has caused over 50 coal producers to file for bankruptcy protection since 2010, and by 2016 the top 3 coal producers in the U.S. had filed for bankruptcy protection.
- Due to the prevalence of ESG commitments and other factors, investment in the coal sector has declined.

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Oil and Gas Bankruptcy Waves of 2014-16 and 2020

- Due to significant investment in shale oil and gas production along with new extraction technology, in the early 2010s the U.S. became one of the largest producers of oil and gas. However, by 2014, increased oil supplies, a decision by OPEC to compete for market share, and a softening in economic demand, resulted in a 70% drop in crude oil prices.
- The dramatic drop in prices for oil and natural gas worldwide resulted in over 100 oil and gas producers filing for bankruptcy protection from 2014-2016. Further bankruptcies in the space occurred in 2020 following another dramatic drop in oil and gas prices resulting from the onset of the pandemic and associated economic shutdowns.
- The companies that emerged have stronger balance sheets, engage in less drilling activity, and focus on hedging prices and conserving cash.

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The Power Bankruptcies of 2018-22

- FirstEnergy
  - FirstEnergy's merchant power unit filed for bankruptcy protection in 2018, citing low electricity prices, environmental regulations and difficult operating conditions for its coal and nuclear power fleet.
- PG&E
  - PG&E filed for bankruptcy protection in 2019 after numerous fires were caused by its aging electrical equipment and unusually dry and windy conditions in California.
- Talen
  - Talen filed for bankruptcy protection in 2022, citing fluctuating electricity prices, difficult operating conditions for its coal power fleet and the lack of liquidity caused by margin requirements for its exchange hedges.

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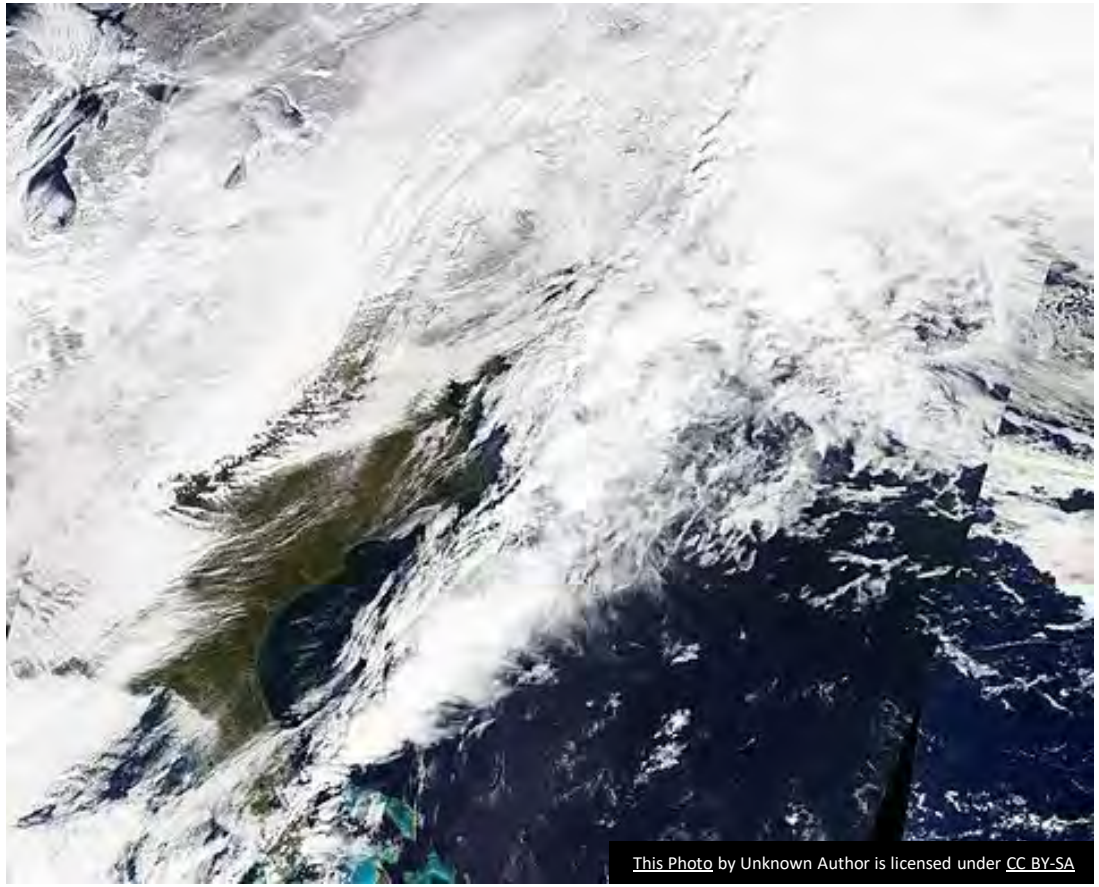
Winter Storm Uri

- In 2021, Winter Storm Uri in Texas caused failures in the Texas electricity grid, which is almost entirely isolated from the rest of the U.S. power grid.
- The price increases for electricity caused by the storm resulted in bankruptcy filings by co-op Brazos Electric and retail energy providers Just Energy and Brilliant Energy, and numerous out-of-court workouts.
- Industry reminded that even the strongest companies and organizations can succumb to dramatic market dislocations.



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Effect on Energy Transactions

- Renewed focus on hedging the risk of price fluctuations.
- Movement away from exchange hedges that are secured by cash to customized over-the-counter hedges that are secured by all asset liens.
- Inclusion of stronger notice provisions and termination rights in energy contracts.
- Additional due diligence on creditworthiness of energy companies and the collateral packages offered as security for energy contracts.
- Continued focus on renewable energy production and projects that qualify for carbon offsets or renewable energy credits or are viewed as ESG compliant.

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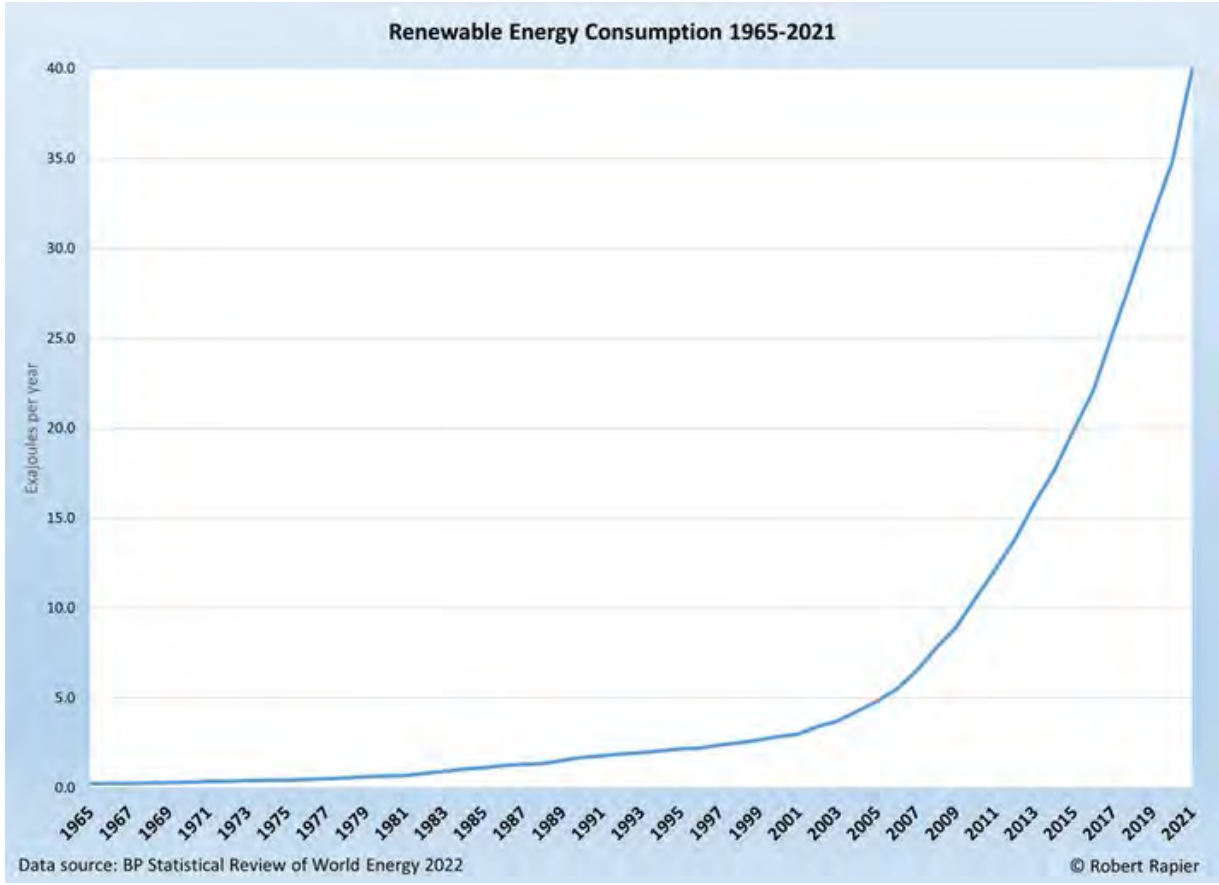
Renewable Energy Transition

- The transition toward renewable energy has been underway for more than a decade
- With few notable exceptions, the transition is now worldwide



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Renewable Energy

- The primary focus has been on:
  - Wind
  - Solar
  - Energy Storage
  - Green Hydrogen and eMethanol

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Wind

- Wind energy is being developed in two ways:
- Onshore wind (predominantly in areas considered wind zones)
- Offshore wind (still in its early stages in the US, but gaining strong momentum)
- The biggest obstacles have been environmental, locational and cost
- The “new technology” curve for wind has been fairly flat

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Solar

- Solar energy is being developed in many ways”
  - Rooftop solar (small residential)
  - Rooftop solar (large commercial and residential)
  - Community solar
  - Utility scale (5-250+ MW)
- The latest “trend” is utility-scale solar at airports

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Energy Storage

- Energy storage is now seen as critical to long-term viability/enhancement of wind and solar
- Primary focus is on batteries
  - Improving Lithium Ion batteries (especially very large battery arrays)
  - Developing alternatives to Li-Ion (e.g., sodium ion)
- Secondary focus in on Gravitational Energy Storage Systems (GESS)
- Hydrogen is seen by some as an energy storage option

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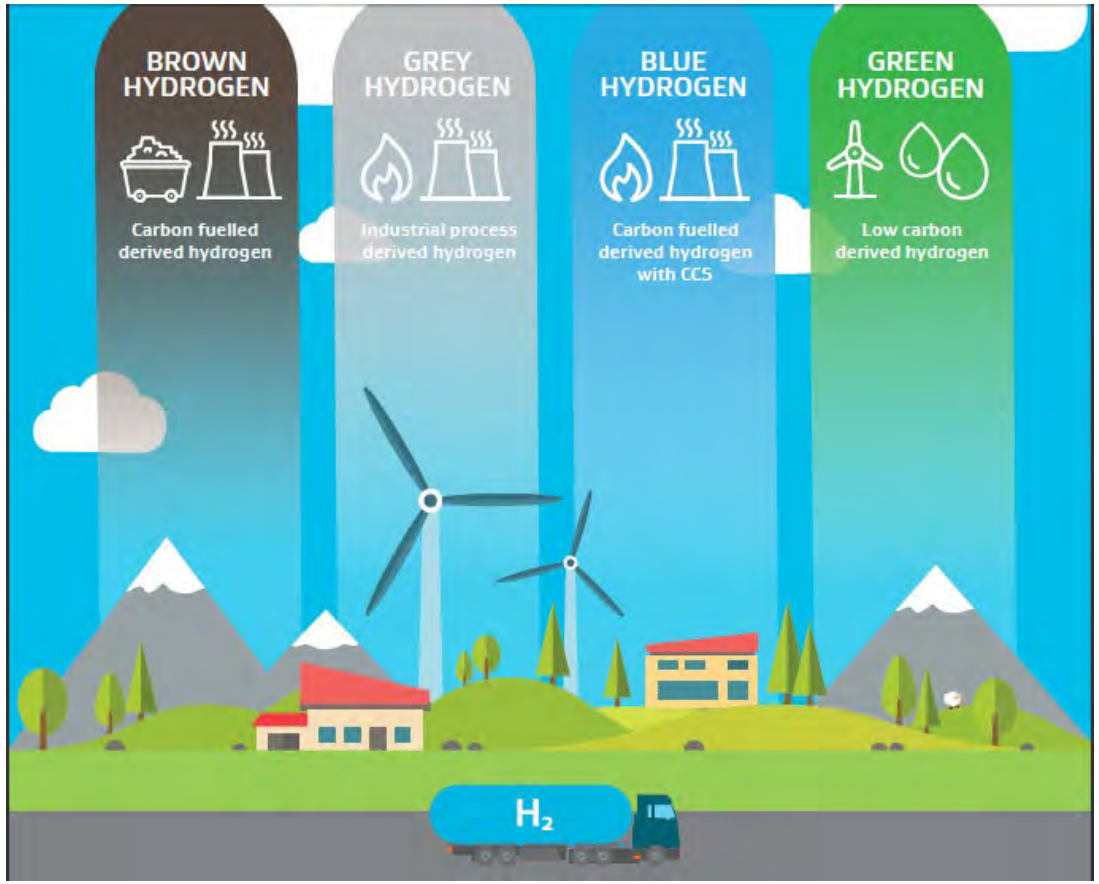
Hydrogen

- Green Hydrogen is gaining in prominence world-wide
- The primary focus is on large vehicle propulsion systems (e.g., H_2 powered fuel cells)
- A secondary focus is on energy storage (e.g., H_2 powered generation at solar/wind sites)
- The challenges relate to technology and cost
- eMethanol (using carbon capture and green hydrogen) is coming into focus as a maritime fuel



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Looking Ahead

- Renewables provide unlimited opportunities for investment at every risk level
- The key to long term viability will be technology gains

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Investing in Energy Transition

Global Decarbonization

- Evolving energy transition

  NET ZERO 2050

- Post COVID-19 rebound
- Accelerated renewables growth
  - Renewed stakeholder commitments
- New energy security paradigm
- Substantial investment required

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Rapidly Shifting Energy Mix

Solar PV

Onshore and Offshore Wind

Hydro and Geothermal

Biofuels

- Fossil fuels projected decline from 80% to 60% by **2050**

Data from IEA's World Energy Outlook 2022 and the United Nations website

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Investing in Energy Transition

Energy Transition Investment

- Global energy investment
  - **2021 = $920B**
  - **2035 = $1.5T**
  - **NET ZERO 2050 = $100-160T**
- Growth: renewable power and decarbonization technologies
- Sustained: fossil fuels

Data from IEA's World Energy Outlook 2022, McKinsey & Co, BloombergNEF

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Investing in Energy Transition

Investor Groups

- **Private Capital**
  - PE/VC
  - Oil & Gas Companies
  - Institutional Investors
- **Public Markets**
- **Development Banks**
- **Governments**
  - United States: IRA
  - Europe: REPowerEU

Financing Sources

- **Preferred Stock**
- **Convertible Notes / SAFEs**
- **IPOs**
- **SPAC Deals**
- **Sustainable Debt**
- **Federal and State Subsidies**
- **Tax Credits**

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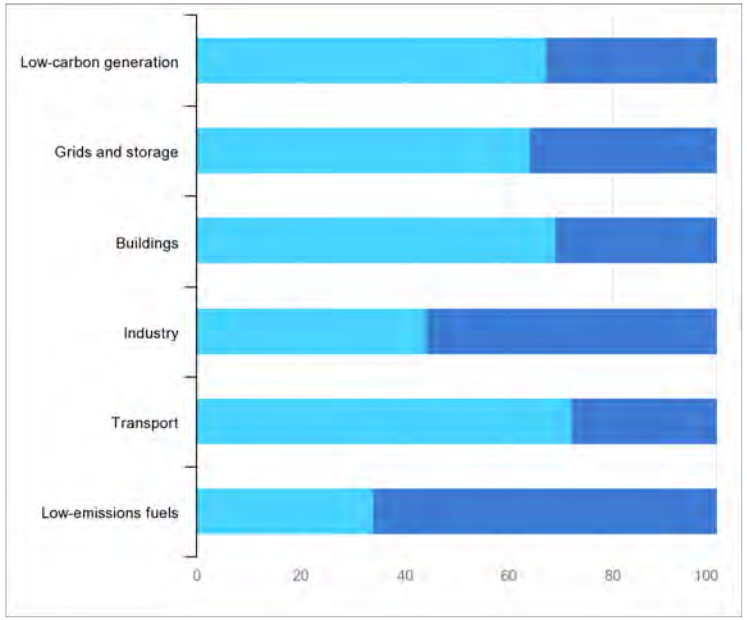
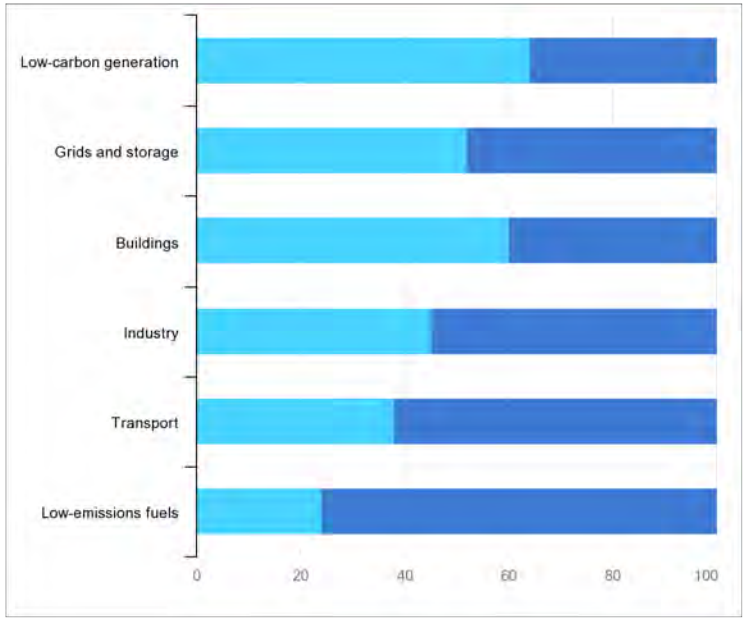
Investing in Energy Transition

Capital Structure of Clean Energy Investments

Advanced economies



Emerging and developing economies



Data from IEA The Cost of Capital in Clean Energy Transitions December 17, 2021

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Investing in Energy Transition

Clean Energy Technologies

- Hydrogen electrolysers
- Floating wind
- Batteries and storage
- Meshed HVDC grids
- Low carbon pipelines
- EVs and charging
- CCUS
- Minerals recycling

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Momentum in Clean Energy Investment

Dominion Energy

Largest Offshore Wind Project in U.S 2022

$7.8 Billion

Rivian

Electric Truck IPO 2021

$11.9 Billion

Chevron

Acquires Renewable Energy Group Alternative Fuels 2022

$3.15 Billion

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