Climate Change & Responsible Investing: The Opportunities

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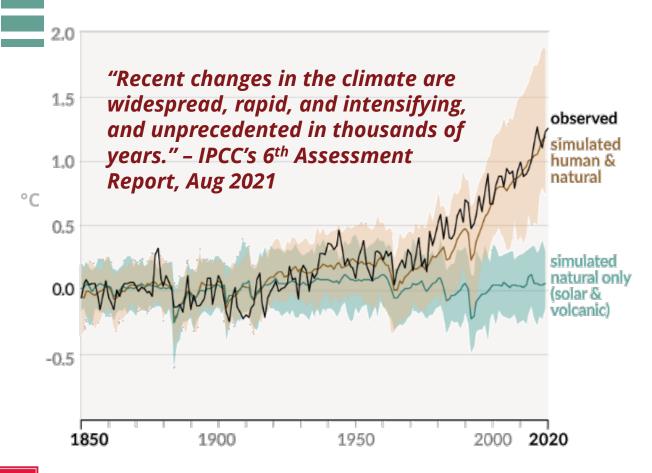
with the assistance of Susan Murphy & Profs. N. Kulatilaka and C. Cleveland Boston University's Board of Trustees Advisory Committee on Social Responsible Investing Sept. 15, 2021



Boston University Impact Measurement & Allocation Program

There is now global acceptance of the need to decarbonize the economy

b) Change in global surface temperature (annual average) as **observed** and simulated using **human & natural** and **only natural** factors (both 1850-2020)



- At least one fifth (21%) of the world's 2,000 largest public companies (those on the Forbes Global 2000 list) have already committed to meet net-zero targets.
- Over 590 investors with over US\$110 trillion in assets requested companies disclose through CDP on climate change, water security and forests. Over 9,600 companies are already reporting via CDP.
- 883 companies have set formal carbon-emissions limiting targets via the Science Based Targets initiative (SBTi).
- In the US, more than 3,900 CEOs, mayors, governors, college presidents, and others signed the **"We are Still In" pledge** with respect to the Paris Climate Agreement
- Even 12 CEOs of the world's largest oil and gas companies formed the OGCI to "achieve net zero emissions as early as possible."

"Green" Electricity is getting cheaper, globally

Implied using LCOE (\$/MWh, 2019 real) historic battery pack prices 600 500 **Batterv** storage PV, fixed axis PV. tracking Offshore wind 200 150 100 111 **Onshore wind** '092010 '11 '12 '13 '14 2015 '16 '17 '18 '19 '20

Global Levelized Cost of Electricity (LCOE)

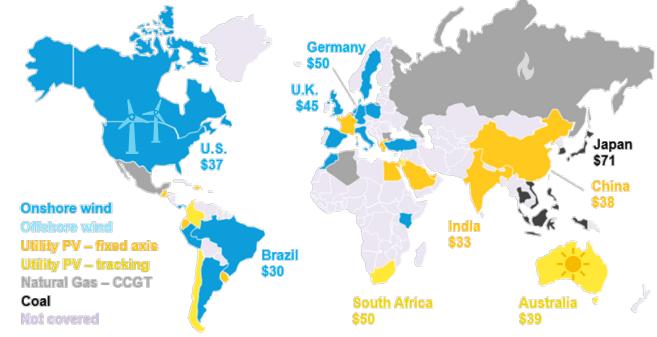


Figure 1: Cheapest source of new bulk electricity generation by country, 1H 2020

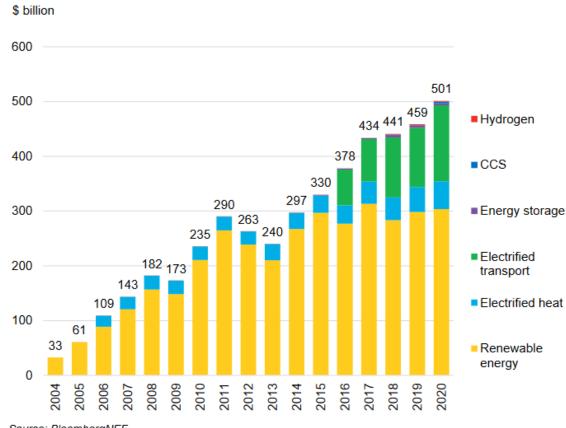
Source: BloombergNEF. Note: LCOE calculations exclude subsidies or tax-credits. Graph shows benchmark LCOE for each country in \$ per megawatt-hour. CCGT: Combined-cycle gas turbine.

Source: BloombergNEF. Note: The global benchmark is a country weighted-average using the latest annual capacity additions. The storage LCOE is reflective of utility-scale projects with four-hour duration, it includes charging costs.

Source: Bloomberg NEF https://about.bnef.com/blog/scale-up-ofsolar-and-wind-puts-existing-coal-gas-at-risk/

Investments in an energy transition are growing rapidly

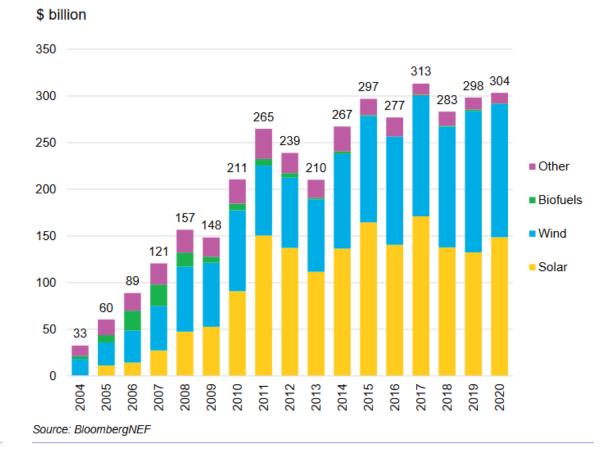
Global investment in energy transition by sector



Source: BloombergNEF

5 Energy Transition Investment Trends, 2021

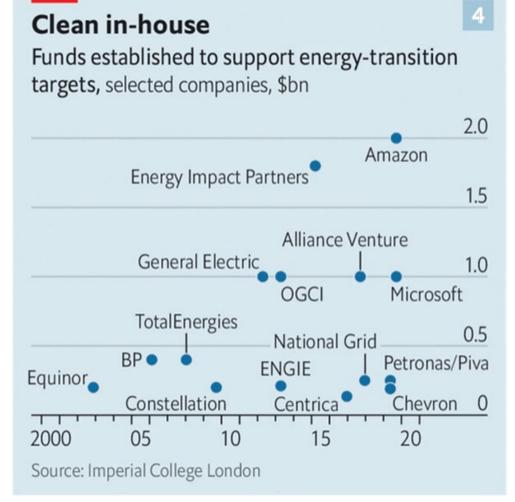
Global new investment in renewable energy by sector



7 Energy Transition Investment Trends, 2021

Green Funds are growing quickly

- Nordea 1 Global Climate and Environment Fund
 - Launched in 2008 and had just €883m in 2018
 - Reached €6bn in February 2021, and then <u>€8bn in June</u>!
- Members of the Net-Zero Asset Managers Initiative and Net-Zero Asset Owners Alliance control AuM of \$43tn and \$6.6tn of AuM respectively. ^(UN PRI)
- The <u>BlackRock 2020 Global Sustainability Survey</u> of September 2020 found **425 institutional investors** planned to double their sustainable assets under management in the next five years to 37%.



The Economist

Fund managers are increasingly considering global environmental goals in their actions

- In March 2021, nearly 90 private equity firms representing \$700 billion AUM signed up to a global climate initiative ahead of COP26 ⁽¹⁾
- \$39 trillion of public companies by market
 capitalisation representing 72% of the MSCI World
 Index have publicly expressed support for the
 climate transition and/or are taking related action,
 while investors with at least \$34trn of Assets under
 Management similarly support such action. ⁽²⁾

AuM of global funds with ESG Integration ⁽³⁾

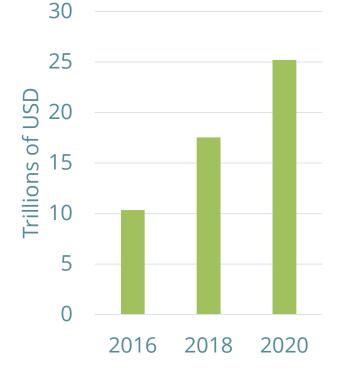


FIGURE 2 Snapshot of global assets under management 2016-2018-2020 (USD billions)

| REGIONS | 2016 | 2018 | 2020 |
|--|--------|--------|--------|
| Total AUM of regions | 81,948 | 91,828 | 98,416 |
| Total sustainable investments only AUM | 22,872 | 30,683 | 35,301 |
| % Sustainable investments | 27.9% | 33.4% | 35.9% |
| Increase of % sustainable investments (compared to prior period) | | 5.5% | 2.5% |

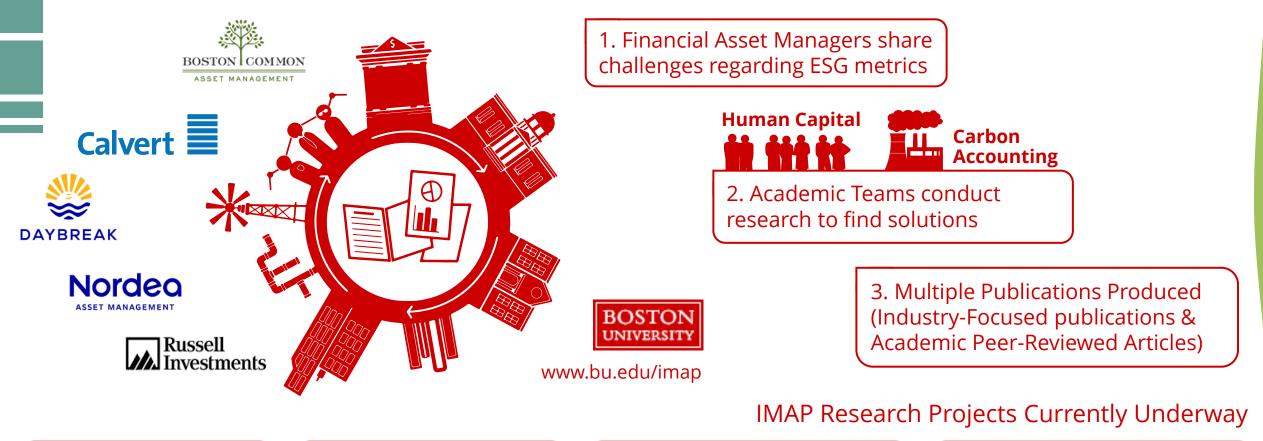


https://www.unpri.org/news-and-press/nearly-90-private-equity-firms-representing-700-billion-aum-have-signed-up-to-a-global-climate-initiative-ahead-of-cop26/7383.article
 https://www.unpri.org/inevitable-policy-response/business-and-investor-public-support-for-climate-transition-policy-creating-a-mandate-for-action/4786.article

BU Impact Measurement & Allocation Program

3. <u>http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf</u> (for both charts shown above)

The Impact Measurement and Allocation Program (IMAP) at BU Solves Industry Challenges Through Academic Research



Which companies are on track to meet Carbon Reduction Targets? (Questrom / ISE) Are today's ESG disclosures consistent with SASB recommendations? (BU Accounting)

How do ESG ratings influence the judgments and decisions of multiple stakeholders? (BU Marketing)

Is more regulation required to appropriately price climate risk? Market Myopia's Climate Bubble (BU Law)

The IMAP was established in 2020 as a joint initiative between the existing Institute for Sustainable Energy and the Susilo Institute for Ethics in the Global Economy at BU. The IMAP is not a subset of any single department.