The Role of Investors in Energy Transition

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Ivan Diaz-Rainey, Director
Climate & Energy Finance Group (CEFGroup)
Introduction

• ET shaped by energy industry/markets and policy (national, transnational)

• Investor interest in climate finance > Energy Transition
  – Investment opportunity
  – Risks

• Alphabet soup of initiatives & groups
ET = Unprecedented investment

Renewables and improved energy efficiency can dramatically reduce energy-related CO₂ emissions.

Current Trajectory: 35 Gt/yr in 2050

- Renewable energy: 41%
- Electrification w/RE: 13%
- Energy efficiency: 40%
- Others: 6%

Decarbonisation Pathway: 9.7 Gt/yr in 2050
Investment Need

• CERES 2014 “The Clean Trillion”
• IPCC 2018 “limiting global warming to 1.5°C are projected to involve the annual average investment needs in the energy system of around 2.4 trillion USD 2010 between 2016 and 2035”
• So this creates a financing opportunity (primary markets)
• But in terms of secondary markets there will be winners and losers
  – Creates uncertainty (speed and nature of ET)
  – Risks for investors (passive investors & knowledge gaps)
Investment in RES (excludes energy efficiency)

- c. US$280 bln last few years
- Flat investment but increasing deployment due to falling costs
- vs $2.4 trl every year through 2035 (IPCC 2018)
- Need 4x to 6x increase in decarburization investment
Capital Available c.100 Trillion

- Investors are the only game in town (global defence spending c.1.8 tr)
- 3% yield on 100 tr. should be enough to meet investment needs
UNPRI: What they are?

- Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.
- Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.
- Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.
- Principle 4: We will promote acceptance and implementation of the Principles within the investment industry.
- Principle 5: We will work together to enhance our effectiveness in implementing the Principles.
- Principle 6: We will each report on our activities and progress towards implementing the Principles.
What is ESG

• ESG integration looks at **risks and opportunities** revealed by the analysis of environmental (E), social (S), and/or governance (G) issues that are material for a company or market.

• Drivers of ESG integration has been client demand

• Associated with better investment performance

• But many issues with ESG…
  – No agreed definition of ESG or best practice
  – Accusations that ESG is green washing (marketing)
  – Bias in ESG indices (size; disclosure; sector)
  – Data issues (mainly based on surveys)
Mark Carney Risk Taxonomy

**Physical Risks**
- Flooding
- Drought
- Sea level rise
- Heat stress
- Wind

**Transition Risks**
- Policy
- Technology
- Consumer Preferences

**Liability Risks**
- Insurance claims
- Legal actions

Physical assets, agriculture, workers

- Lower asset valuation
- Lower productivity

Firms in sector affected by the transition

- Impact on demand
- Impact on profit

Financial Institutions
- Banks, insurers, institutional investors

Transition Risk

Transition Risk = Winners & Losers

Figure 8.29: Plans to phase out coal in the European Union

By 2030, 28% of the existing coal-fired fleet will be retired in line with recent policy announcements.
• Extent of winners/losers depends speed of transition
• Investor rely on market forecasts of speed of transition
• But increased uncertainty related to the future (contrasting forecast)

**Electricity generation from coal by long-term outlook**

Switch to renewables means lower utilization of coal & gas generating plant = *stranded assets*

Source: Bloomberg NEF, IEA, EIA, BP, ExxonMobil, Shell, Newell et al. 2017

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**The Wall Street Journal**

Coal Company Blackjewel on Brink of Liquidation After Chapter 11 Loan Disappears

Blackjewel lawyer said the company could be liquidated after planned loan from CEO falls through

*By Jonathan Randles*

Updated July 1, 2019 6:29 pm ET
# EV Adoption Estimates

<table>
<thead>
<tr>
<th>Source</th>
<th>2016 Forecast</th>
<th>2018 Forecast</th>
<th>2021 Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEA to 2030</td>
<td>23</td>
<td>127</td>
<td>5.52</td>
</tr>
<tr>
<td>BP to 2035</td>
<td>72</td>
<td>210</td>
<td>2.92</td>
</tr>
<tr>
<td>OPEC to 2040</td>
<td>46</td>
<td>253</td>
<td>5.50</td>
</tr>
<tr>
<td>BNEF to 2040</td>
<td>406</td>
<td>560*</td>
<td></td>
</tr>
</tbody>
</table>

*one third of car fleet and half of all cards sold according to BNEF*
Litigation Risk

- Citizen suing governments e.g. Netherlands
- Scientists suing lobby groups
- Those affected by CC suing **companies** that have been emitting the most
- NGO’s suing **companies to stop projects**
- Regulators and investors suing **companies** for failure to disclose risk or misleading investors/public

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**New York sues Exxon for misleading investors on climate change risks**

Oil company accused of being deceptive about the emissions threat to its business

**Peabody Energy misled on climate change, says NY regulator**

US coal producer forced to revise statements after regulatory probe
Green & Climate Bond

- “green bonds finance projects aimed at energy efficiency, pollution prevention, sustainable agriculture, fishery and forestry, the protection of aquatic and terrestrial ecosystems, clean transportation, sustainable water management and the cultivation of environmentally friendly technologies” source

- Disclosure of what funds are for
  - Accreditation 1: Green Bond Principles (GBP) of the International Climate Markets Association (ICMA)
  - Accreditation 2: Climate Bonds Standard & Certification Scheme of the Climate Bonds Initiative (CBI)

- Potentially attracting lower yields due to demand (UNPI > ESG)
- But this needs to be traded off with higher disclosure costs
Climate & Energy Finance Group (CEFGroup)

- Oldest university in NZ
- One of the largest groupings in CF in the world - 12 Faculty & 10 PhD & Research Masters
- Principally from finance, economics and accounting disciplinary background.
- Inter-disciplinary & policy/practitioner relevant
- ‘Innovative’ methods (looking forward)
- Few CF research groupings in Asia & Australasia (one of only 3 GRASFI members in region)
US Banks Syndicated Loans

- Loan level (DealScan) - differentiate by bank
- Stress testing (IPCC – price and demand(energy))
- US banks largely exited coal

(a) New Loan Origination By Loan Origination Year Of The Aggregated U.S. Portfolio

[Graph showing loan origination by year and industry (Coal, Oil & Gas, Electricity)]
IPOs in Europe: Green vs Brown

- Brow IPOs declining & more likely to be withdrawn
- Post-IPO performance of green worse (first month effect)
- Green:
  - more smart money (VC & PE)
  - more equity retained by insiders
Liability Risk: Climate Activist Investors

- US CC resolutions 2009-2018
- Coded as disclosure vs risk (strategy) resolutions
- Growing number of risk related resolutions over time period
  - 2008 68% disclosure vs 57% in 2018
- Risk resolutions more likely to go to vote (72%)
- Disclosure more likely withdrawn (61%) [agreement with company]

<table>
<thead>
<tr>
<th>B. Status</th>
<th>Number of climate-related proposals</th>
<th>Disclosure</th>
<th>% Disclosure</th>
<th>Risk-related</th>
<th>% Risk-related</th>
<th>Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omitted</td>
<td>69</td>
<td>44</td>
<td>10.4%</td>
<td>25</td>
<td>8.5%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Vote</td>
<td>332</td>
<td>121</td>
<td>28.5%</td>
<td>211</td>
<td>72.0%</td>
<td>-43.5%</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>316</td>
<td>259</td>
<td>61.1%</td>
<td>57</td>
<td>19.5%</td>
<td>41.6%</td>
</tr>
<tr>
<td>Total</td>
<td>717</td>
<td>424</td>
<td>100%</td>
<td>293</td>
<td>100%</td>
<td></td>
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Carbon Pricing and Climate Risks in the ASEAN Energy Sector

- Only Singapore has carbon price – since 2019 @ US$4/tCO2e
- By being a laggard – accelerated transition = stranded assets exposures

<table>
<thead>
<tr>
<th>Country</th>
<th>Carbon Pricing</th>
<th>Generating Units and Climate risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>no</td>
<td>Current 55</td>
</tr>
<tr>
<td>Cambodia</td>
<td>no</td>
<td>155</td>
</tr>
<tr>
<td>Indonesia</td>
<td>no</td>
<td>2478</td>
</tr>
<tr>
<td>Laos</td>
<td>no</td>
<td>61</td>
</tr>
<tr>
<td>Malaysia</td>
<td>no</td>
<td>803</td>
</tr>
<tr>
<td>Myanmar</td>
<td>no</td>
<td>100</td>
</tr>
<tr>
<td>Philippines</td>
<td>no</td>
<td>1303</td>
</tr>
<tr>
<td>Singapore</td>
<td>yes</td>
<td>149</td>
</tr>
<tr>
<td>Thailand</td>
<td>considering</td>
<td>541</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>considering</td>
<td>198</td>
</tr>
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Compiled from World Bank (2019); Caldecott et al. (2018); IEA 2018 dataset
Conclusions

• Investors are going to play an increasing role in ET
  – Primary markets: Green Bonds & securitisation (innovation)
  – Secondary markets: disclosure; resolutions; divestment; litigation

• Limits to investor influence
  – Passive/index trackers
  – Fiduciary duty: Some clients want the widest investable universe; risk profile and (il)liquidity of investments (projects)

• Related climate/energy finance research in Asian context
  – Asia rising energy demand & most at risk from CC
  – Slow on transition (ex PRC) & limited research capabilities
  – But can move fast (e.g. solar in Vietnam)
  – Limited data – esp. spatial and asset level