Jefferies

The Voice of Asset Owners

HOW ALLOCATORS AIM TO INVEST IN THE TRANSITION

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Key Takeaways | Asset Owners & The Energy Transition

1. **The Most Important 'Values'? Asset Values**

   The objective of most global asset owners is singular — to maximize asset values in meeting obligations to beneficiaries.

2. **Revolutionary Transition**

   The energy transition was identified as a global secular trend akin to the 1st and 2nd Industrial Revolutions and the Information Revolution. Although the path is nonlinear, and the precise end point unclear, there is universal agreement on the direction of travel.

3. **Climate Risks Have Been Elevated**

   AOs are increasingly aware of the risks which may be brought about from a slow-moving energy transition. Many now manage 'climate risk' as a discrete risk area, alongside market, credit, liquidity and operational risk.

4. **Divestment is Not a Priority for Most Asset Owners**

   Divestment from whole sectors and specific companies is not an objective nor tool for the majority of allocators. Divestment only serves to exclude parts of the market believed to be delivering sub-market risk adjusted returns.

5. **Alternative Opportunities**

   AOs are seeking out 2nd and 3rd order beneficiaries of the transition (e.g. mining, business services, etc.), beyond the most obvious sectors. They see few products from managers which address this.

6. Regulation Drives Innovation

AOs report regulation as the driving force of change. There is consensus that shifts in regulatory regimes, drive technology and innovation.

7. Geopolitical Risks Pose Uncertainty

Geopolitical trends have the ability to derail or accelerate the transition. AOs are acutely aware of current tensions and the risk of a fragmented marketplace.

8. The Pace & Shape of Transition isn't Uniform

With varied starting points, no single pathway to net zero exists — this applies at the regional, country, industry and company level. Asset owners feel particularly challenged in mapping out how the transition will unfold in EM.

9. Too Many Standards Create Unintended Challenges

Allocators identified the challenge of trying to apply a single standard across diverse regions and asset classes. If "Climate 1.0" was focused on a lack of standards, asset owners now grapple with the dozens that exist.

10. Jury Still Out on "Net Zero Asset Allocation"

A consistent theme across our engagement was a focus on what (if any) the optimal asset allocation should be when investing in the transition.

Executive Summary

The Industrial Revolution, the Information Revolution and now the Energy Transition

Despite challenges and skepticism from many corners, it is inarguable that the global energy transition is upon us. Change — some incremental, but more frequently, now exponential — is happening across the globe. While headwinds remain at both the local and international level, the largest pool of asset owners in the world all agree: the direction of travel is clear.

Asset Owners (AOs), the entities that hold and allocate capital on behalf of participants, beneficiaries, or the organization itself (including pension funds, endowments, foundations, insurance companies and sovereign wealth funds) play an important role in understanding the shape and pace of the transition. And yet, because regulators, policymakers and asset managers have been more vocal in discussions concerning this shift, asset owners' views have been less examined.

This group, given their long investment horizons and common approach of universal ownership, is among the most important to understand within the investor community. In our view, a better understanding of how allocators view the transition is crucial in elevating the perspectives of asset managers and the broader investor community.

> To date, [energy] transition risk has been mainly regarded as an asset holding issue…From an investment point of view, what is very important to realize is that the nature of the investable universe will be very different…Asset valuations of equities, debt and sovereign credit will also all be impacted.
>
> **— Willis Towers Watson**

The Jefferies ESG & Strategic Content teams sat down with senior decision makers from the global Asset Owner community in a series of off the record but illuminating interviews. They are collectively responsible for nearly $10 trillion in AUM to the benefit of millions of stakeholders, and these discussions helped better understand five key questions on this ongoing secular trend:

1. How do asset owners view and navigate the energy transition from a portfolio perspective?
2. What are the main pain points asset owners face in allocating capital towards the transition?
3. How can the Asset Manager (AM) community can better align with AOs?
4. Where can Corporates be most impactful across the transition?
5. Which areas within the energy transition do AOs hold the most optimism over the next decade?

A combination of economics, energy security, geopolitics and public opinion were all cited as powerful forces driving momentum around the energy transition, triggering significant capital deployment and investment opportunities across sectors. Broadly, asset owners view investment around energy transition as they do any other investment decision: gain knowledge about the opportunity set and risks and allocate capital accordingly.

Asset Owners are seeking innovative investment opportunities across sectors and are less interested in conversations around divestment. Divestment from sectors and companies remains a tool, typically from a risk reward perspective. A central question for most, is what the ideal (and is there an ideal) net zero asset allocation should look like in support of the transition.

As many noted during our conversations, the energy transition will be far-reaching and transformative. Akin to the first and second Industrial Revolutions and the Information Revolution, existing business models across sectors will be impacted, and joined by new and emerging industries.

Exhibit 1 - JEF ESG Surveyed the global Asset Owner Community for their view on allocating towards the energy transition

NORTH AMERICA

- 7 Pensions ($1 Trn)
- 3 Insurers ($1.5 Trn)
- 3 Private Wealth & Endowments

EUROPE

- 2 SWF ($1.4 Trn)
- 2 Insurers ($0.2 Trn)
- 2 Private Wealth ($8 Trn)
- 1 Foundation ($0.4 Trn)

ASIA

- 1 SWF ($0.3 Trn)
- 1 Pension ($0.1 Trn)

AFRICA

- 1 SWF ($0.25 Trn)

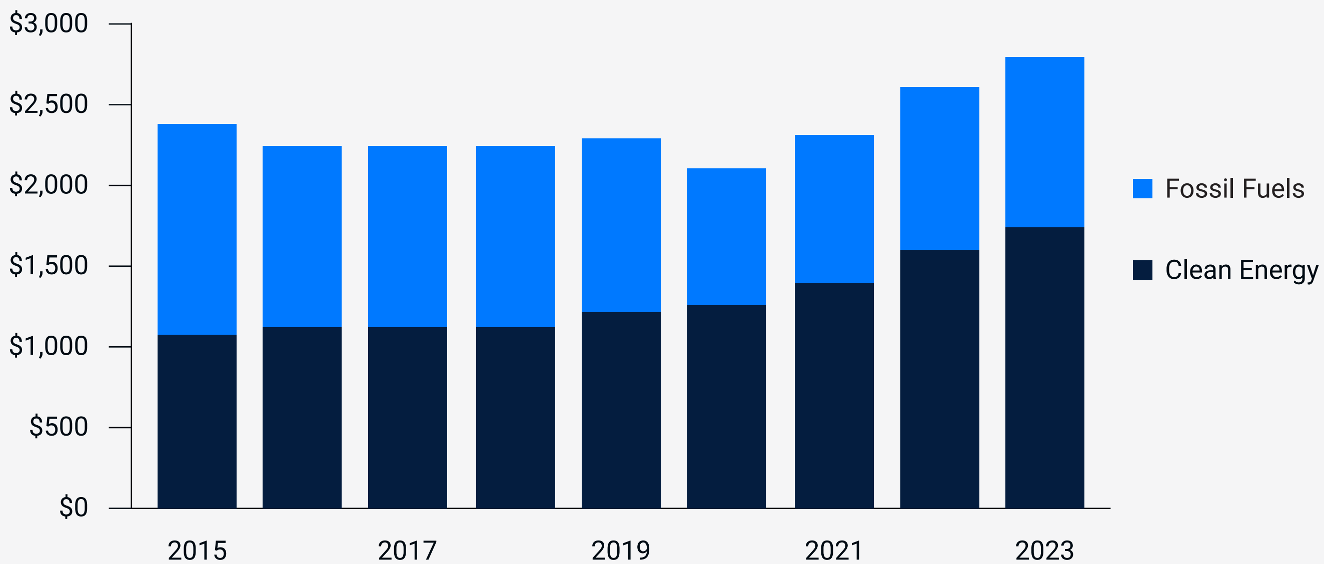
OCEANIA

- 1 SWF ($0.3 Trn)

Source: Jefferies Research

Figure 1 – Clean Energy investment now eclipses that of legacy fossil energy investment

Global Energy Investment (Clean vs Fossil) $bn



Source: IEA, Jefferies Research

Key Recommendations for Asset Owners

Asset owners nearly universally identify the energy transition as a secular trend, still in process, but set to impact asset valuations and business models in the coming years.

1. Knowledge

Given the global and multi-disciplinary nature of the energy transition, Asset Owners would benefit from enhanced knowledge in the below areas;

- **Develop Policy Expertise & Deeper Understanding of How Policy Impacts Asset Value**
  Given the critical role policy has played in shaping some of the exponential shifts involved in energy transition (as acknowledged by asset owners), we believe AOs would benefit from dedicated resources on this topic and deeper ongoing dialogue with policymakers. We believe a gap exists in understanding how policy developments may impact upon learning and scaling curves for key net zero technologies.

- **Increase Scientific & Technical Expertise**
  The AO community today has a high degree of literacy on the fundamentals of net zero and the energy transition. As the global marketplace moves towards implementation and deployment, AOs will need to develop deeper in-house climate expertise (e.g., scientists, modelers, geographers, demographers, etc.) to overlay their existing approaches with additional insights and upgrades.

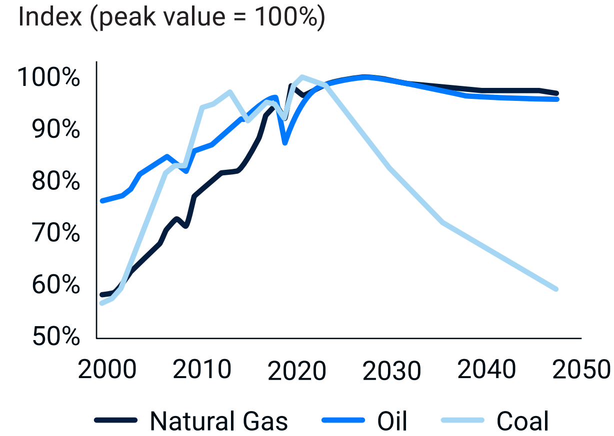
- **Engage Deeply with The Sell-Side**
  There is a particular role for sell side institutions to play as a convener across corporates, asset managers and asset owners as part of the energy transition. The investor community as a whole would benefit from deeper engagement between asset owners and the sell side.

2. Investment and Allocation

As allocators of capital, there are 4 main recommendations we propose to AO, based on our conversations.

- **Increase Allocations to Private Energy Transition Companies**
  Very simply, the public market opportunity set for energy transition companies as of 2023 is limited (only ~200 companies), many of which are in the small or mid-cap space. One can also question the merits of delivering on the energy transition via secondary markets. Private companies present opportunities for both asymmetric return profiles and advancing progress towards clean energy targets. Given their time horizons, AOs could benefit from greater allocations to growth equity & venture opportunities.

Figure 3 - Demand for Natgas, Oil and Coal are expected to peak by 2030



Source: IEA WEO 2023, Jefferies Research

- **Introduce Greater Flexibility in Overall Asset Allocation**
  AOs asset allocation decisions will heavily influence the extent to which they are able to participate in the transition. Deciding the appropriate weight of private vs public assets or debt vs equity, real assets, and growth vs early-stage equity, among others are a crucial input in determining the extent to which AOs are exposed to various themes within the transition. A less rigid asset allocation approach may afford AO flexibility and new opportunities in allocating towards the transition.

- **Reconcile Long Term Time Horizons with The Pace of The Transition**
  Although the change brought about by the transition may be exponential in nature, these trends are likely to play out over the medium — long term. Given the time horizons of many allocators, we believe greater patience will be needed on their part — performance will be uneven and at times down. In the long term, the collapse of certain industries and emergence of new one's should outweigh short term losses.

- **Develop Performance Measurement Aligned with A Transition**
  It is clear to Jefferies that product innovation is hampered by an obsession with measuring performance vs traditional benchmarks. Given the seismic shift the energy transition entails, traditional benchmarks do not accurately capture the ongoing transformation. Even those benchmarks focused on transition, are unlikely to contain cutting edge companies and sector approaches to net zero, in an ever-evolving space. Penalizing managers when deviating from said benchmarks, even in the short term, inhibits the creation of innovative products with cross asset exposure.

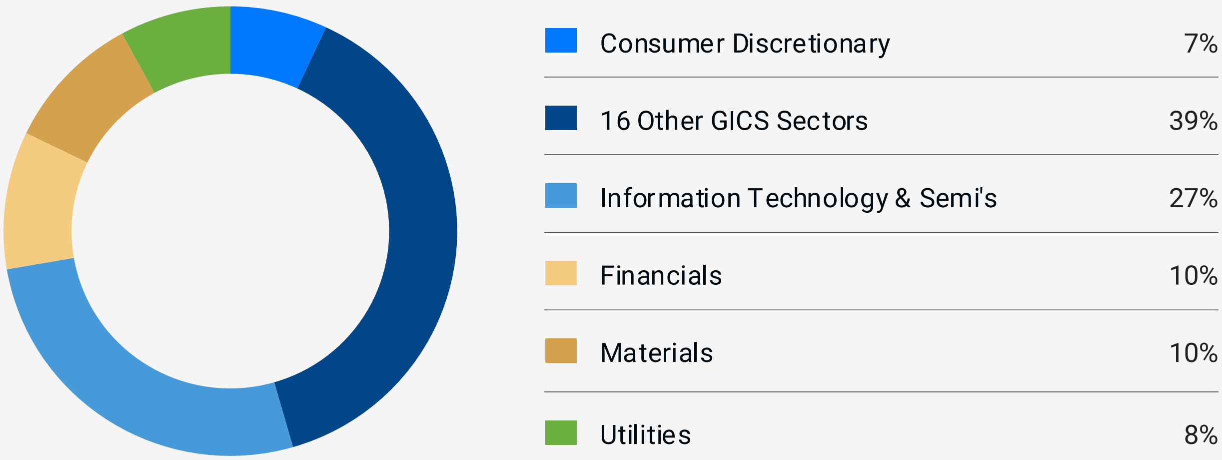
Key Recommendations for Asset Managers

1. Develop Increasingly Tailored Products

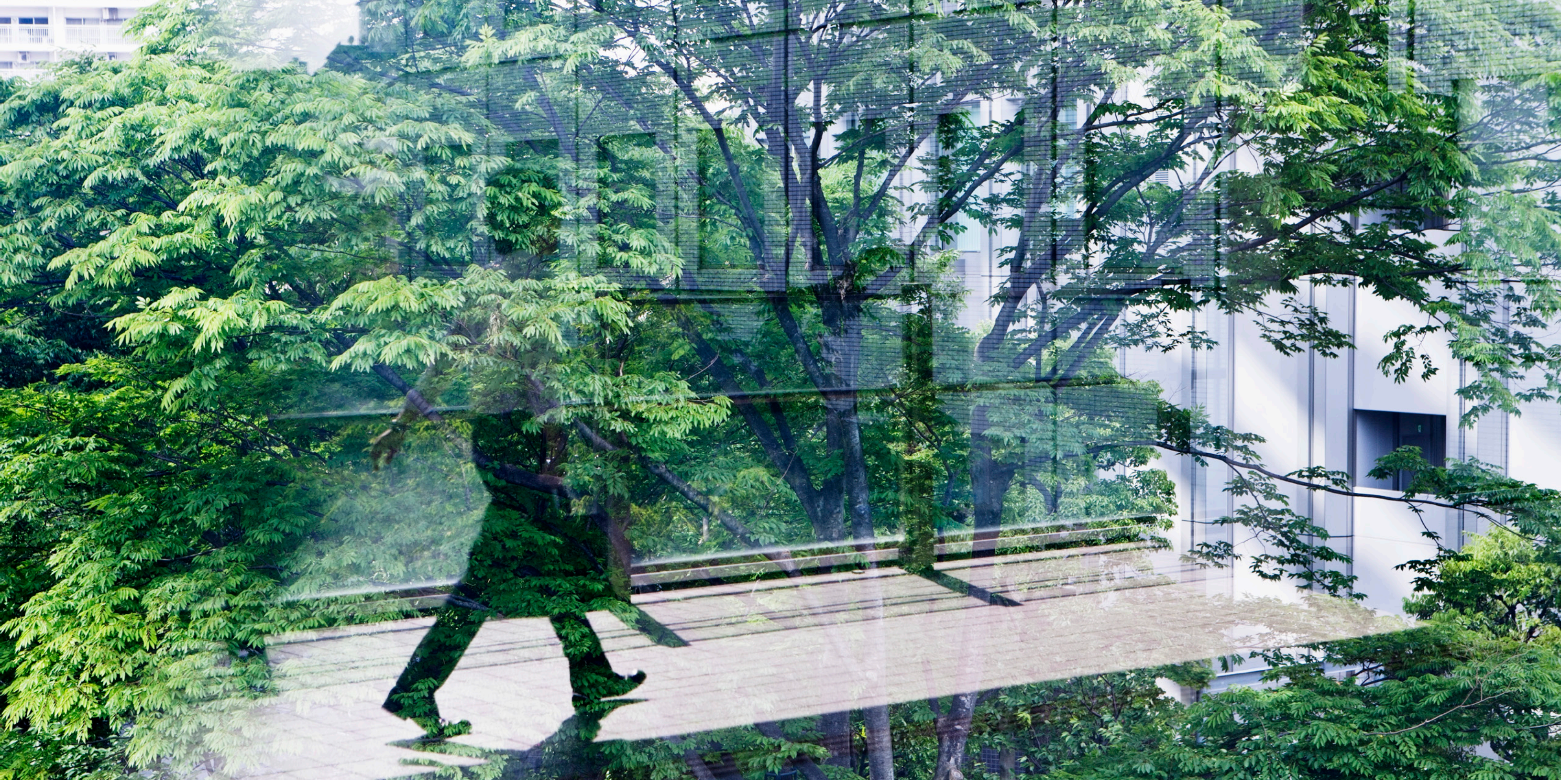
Many Asset Owners bemoaned the lack of appetite for Asset Managers to broadly offer tailored and innovative products. Ultimately managers decide what financial products they sell and do not sell. But with a growing demand for products that address specific pockets of the transition or cut across asset classes, managers should explore offering bespoke solutions as a normal course of business (e.g., products combining alternatives, private and public equity).

From discussions, it is clear that existing products are not adequately serving Asset Owners (Fig 4). In fact, many asset owners discussed co-investments as the most “targeted” way to implement their portfolio views, but that this is not scalable.

Figure 4 - Despite a surge in energy transition public markets products, sector exposure remains narrow, with 5 GICS Sector dominating



Source: Morningstar Direct, Jefferies research



2. Build Capabilities in Private & Infrastructure Markets

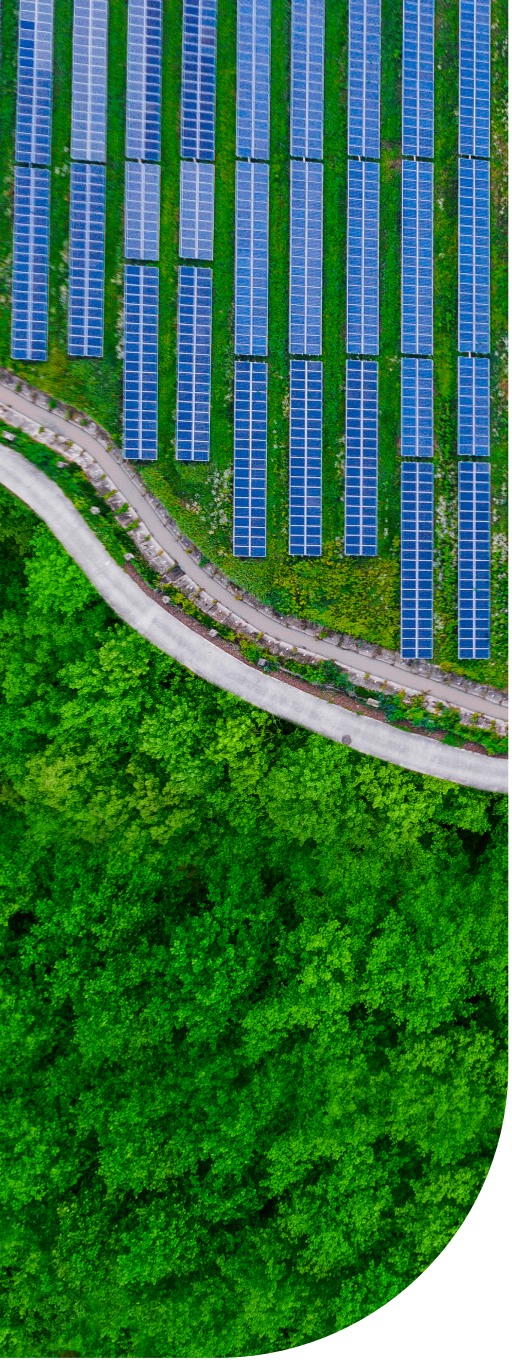
We believe delivering asymmetric returns and positive outcomes for the energy transition can best be achieved via innovative business models and solutions in the private and/ or infrastructure sectors. Providing primary and growth capital to scale new business or build new projects can yield both positive financial returns as well as real world impacts.

3. Seek Out Opportunities Across Sectors

There are a broader set of opportunities than those currently dominating headlines in the traditional energy space. Asset owners are thinking about the second and third order beneficiaries of the transition. Beyond energy and (or) industrial sectors such as cement and steel, AOs are desperate for investments in areas that may see tangential benefits (e.g., operational improvements in sectors due to new modes of doing business brought on by the transition).

4. Embrace The Non-linearities of The Transition

From a risk perspective, given the exponential nature of change likely to occur, many risks will not be correctly appreciated and priced by the market (e.g. do physical risks go beyond asset specific losses, potentially undermining entire business models?). Managers should factor in these non-linear changes in as much as is possible.



Key Recommendations Across the Ecosystem

1. The Role Investment Consultants

AOs reported on the fundamental role that investment consultants play in their allocation decisions. We believe there is an under appreciation of the pivotal role this group currently play in orienting capital flows behind the transition.

Their outlook on asset managers and the trajectory of net zero is a crucial input for asset owners when allocating. The investor community as a whole would benefit from increased dialogue with this group of players.

2. Frameworks & Standards

Many felt a consolidation of frameworks, initiatives and reporting regimes would be helpful — but also recognized the challenge these present across economies and jurisdictions. Clean communications (from corporates and service providers) around why certain frameworks have been selected (beyond regulatory reason) would be beneficial to the AO community.

3. Understanding & Assessing Transition Risk

Although many companies are now actively engaged with TCFD and other climate risk reporting tools, AOs are still in search of a deeper and more detailed understanding of how companies are considering transition risks.

Specifically, evidence of how transition risk have been considered across supply chains and potential cost implications in addressing these — transition analysis was cited as too siloed to a company or singular sector.

Additional Observations | Asset Owners & Energy Transition

Exponential is The New Linear

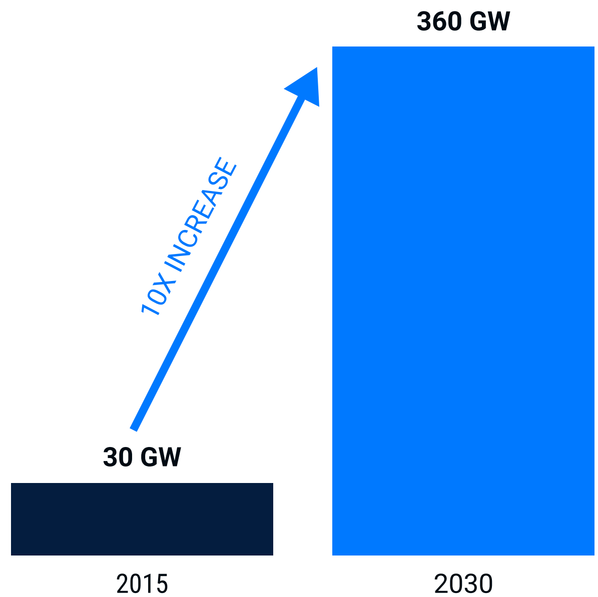
Like many sectors during previous revolutions (e.g. water power vs steam power in industrial revolutions of the 18th century), demand for fossil fuels is currently being squeezed between two forces.

1. The continued pace of cost declines and technology improvements in alternatives such as wind, solar and battery storage (table 2)
2. Significant improvement in efficiencies brought about via electrification (e.g. low temperature industrial heat applications, heat pumps, road transport, etc.).

The majority of asset owners are now in agreement that significant demand destruction of fossil fuels will occur this decade.

Figure 5 - Solar PV additions have increased 10x since 2015 globally

Solar PV Capacity Additions (GW)



Source: IEA, Jefferies Research

Table 2 - Recent years have seen record cost declines across various clean energy solutions

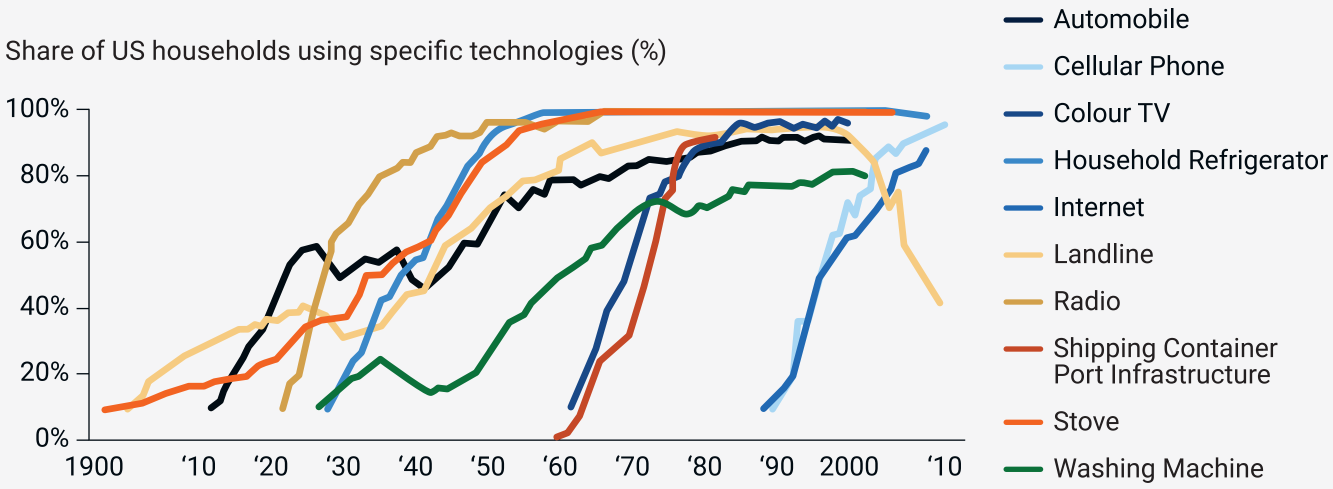
TIME FRAME	TECHNOLOGY	AVERAGE ANNUAL DEPLOYMENT GROWTH %	AVERAGE ANNUAL COST REDUCTION %
2010 - 2020	EV BatteriesW	69	-19
2010 - 2020	Solar PV Modules	24	-18
2010 - 2020	Wind, Onshore	13	-4
2010 - 2020	Wind, Onshore	19	-4
1910 - 2020	Ford Model T	34	-9
1970-1980	Gas Trubines	18	-2

Source: IEA, Jefferies Research

Peaking however doesn't not translate into a rapid decline of a product – previous shifts have seen prolonged plateaus, before significant declines.

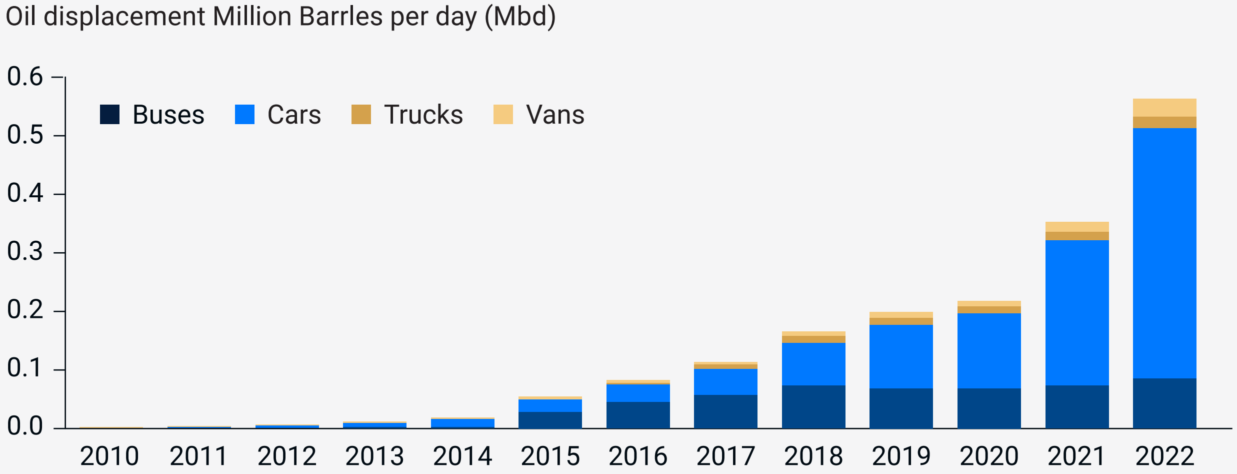
This plateau is usually characterized by incumbents either evolving or prolonging the status quo. The exponential growth of alternatives is particularly important during this phase (Fig 6), as incumbents experience faster demand destruction the moment price parity is achieved (Fig 7). At this point, the rate of decline is typically faster than that of growth for new players.

Figure 6 - Previous technological adoptions have followed S-curve trajectories - the current path of many clean energy solutions



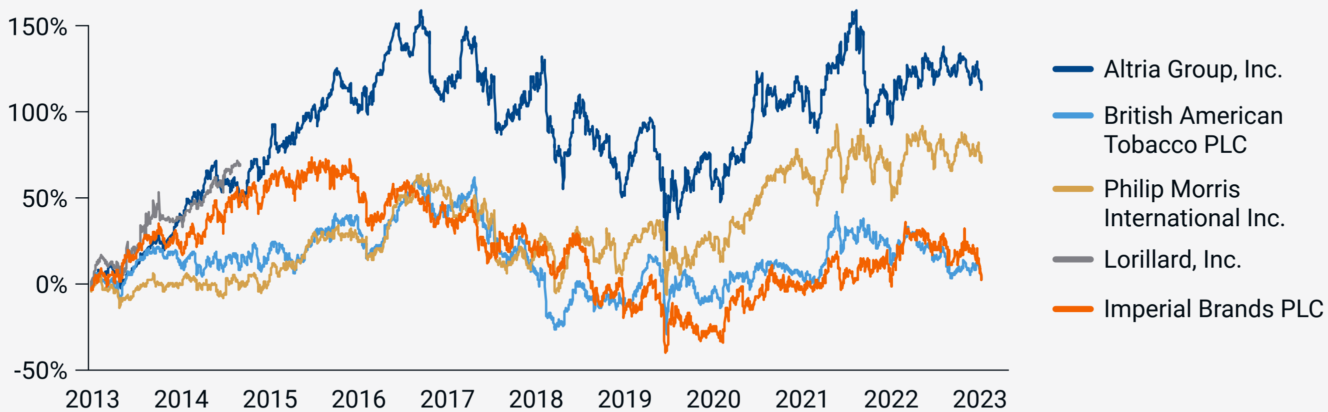
Source: RMI, Ourworld in Data, Jefferies Research

Figure 7 - EV penetration is rapidly displacing fossil use in the transportation sector and is only set to continue



Source: IEA, Jefferies Research

Figure 8 - Previous mistimed rotations on ethical grounds were cited as costly by AOs



Source: Factset, Jefferies Research

Many cited the negative costs to beneficiaries from previously mistimed rotations (Fig 8).

Despite this backdrop of exponential growth for new technologies, akin to previous transitions, change will be nonlinear, challenging and painful for numerous sectors (both new and old) at varying points.

Political and Geopolitical Risks Are Real

Overall, there is an acknowledgment that many EM and FM countries' path to net zero will not mimic that of developed markets (Fig 9).

This uncertainty presents AO's with a significant challenge in committing capital towards the transition in many EM countries. Although most recognize the importance of developing countries to net zero goals and potential attractive return profiles — devising a strategy to allocate to these regions remains problematic.

Figure 9 - Net zero ambitions vary greatly both across and within regions

- Net-Zero Target Set in Law or Policy
- Political Pledge to Reach Net-Zero

Already Achieved	2030	2035	2040	2045	2050	2053	2060	2070	2nd Half of 21st Century
Bhutan	Barbados	Finland	Austria	Germany		Turkey	Bahrain	India	Malaysia
	Maldives		Iceland	Sweden			China	Mauritius	Namibia
	Mauritania			Nepal			Kazakhstan		Singapore
							Nigeria		Thailand
							Russia		
							Saudi Arabia		
							Sri Lanka		
							Ukraine		

2050

Andorra	Columbia	France	Laos	Marshall Islands	Rwanda	Switzerland
Argentina	Costa Rica	Hungary	Latvia	Monaco	Seychelles	UAE
Australia	Cyprus	Ireland	Liberia	Montenegro	Soloman Islands	United Kingdom
Brazil	Denmark	Israel	Lithuania	Nauru	Slovakia	United States
Bulgaria	Dominican Republic	Italy	Luxembourg	New Zealand	Slovenia	Uruguay
Canada	European Union	Jamaica	Malawi	Panama	South Korea	Vatican
Cape Verde	Fiji	Japan	Malta	Portugal	Spain	Vietnam
Chile						

Source: UNFCCC NDC Data, WRI, Jefferies Research

Standardization — Both Friend & Foe

There has been an almighty effort made to standardize reporting frameworks and metrics when it comes to net zero.

The investor community is however now faced with a new challenge brought about by the drive for standardization — how to apply universal standards across varied sectors, geographies, and time horizons.

Table 3 - Various Transition plan frameworks exist for use at the intersection between finance and climate

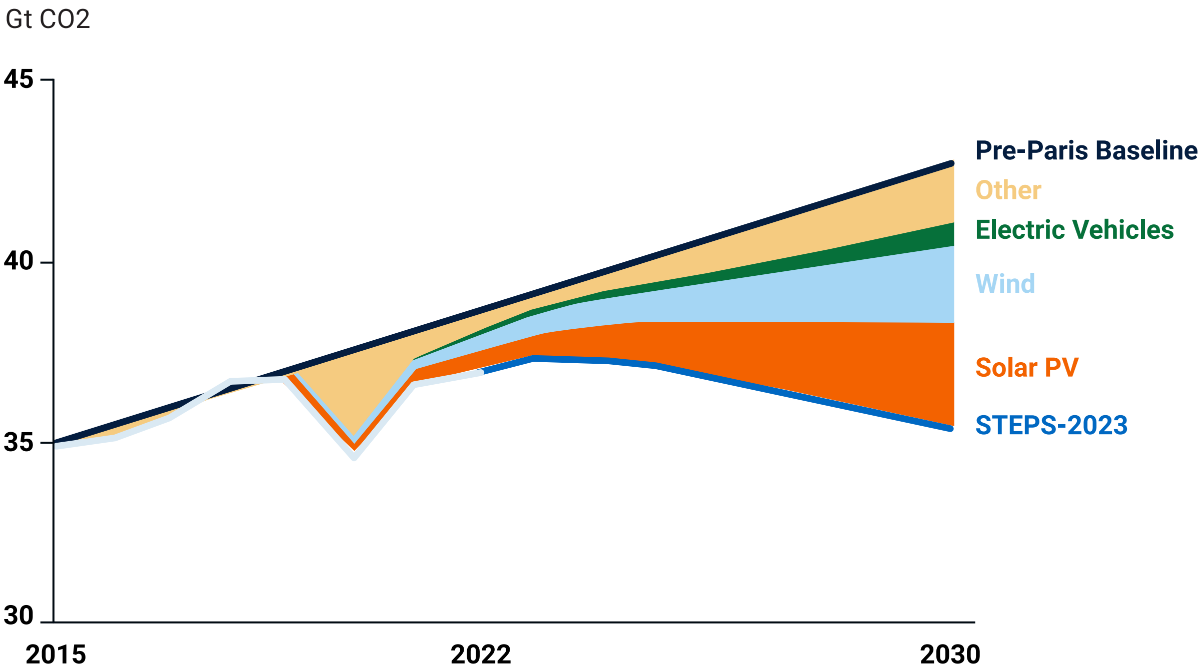
INITIATIVE	YEAR	PREPARER	FOCUS	ASSESSMENT
ACT	2021	Corporates	Strategy	Ambition, Credibility, Feasibility
CSLN	2021	Financial Institutions	Strategy	Ambition, Credibility, Disclosure
TCFD	2021	Corporates	Risk	Disclosure
UNEP-FI	2021	Financial Institutions	Strategy	Ambition, Credibility
WBA	2021	Corporates	Strategy	Feasibility
CPI	2022	Corporates	Strategy	Credibility
ESRS	2022	Corporates	Risk	Disclosure
GFANZ NZTP	2022	Financial Institutions	Strategy	Ambition, Credibility, Disclosure
GFANZ RETP	2022	Real Economy Corporates	Strategy	Disclosure
IFRS ISSB	2022	Corporates	Risk	Disclosure
NewClimate et al	2022	Corporates	Strategy	Credibility, Disclosure
R2Z	2022	Corporates	Strategy	Ambition
SBTi FINZ	2022	Financial Institutions	Strategy	Feasibility
TPI	2022	Corporates	Strategy	Ambition
TPT	2022	Corporates	Strategy	Disclosure
UN HLEG	2022	Corporates	Strategy	Ambition
WWF	2022	Corporates	Strategy	Credibility
CA100+	2023	High Emiting Corporates	Strategy	Disclosure, Ambition
CBI CBS4	2023	Real Economy Corporates	Strategy	Ambition, Credibility, Disclosure
CDP	2023	Corporates	Strategy	Ambition, Credibility, Disclosure
IIGCC	2023	Corporates	Strategy, Risk	Credibility
NGFS	2023	Corporates, Fin. Institutions	Strategy	Credibility
NZAOA	2023	Financial Institutions	Strategy	Feasibility
OxSFG	2023	Real Economy Corporates	Strategy	Credibility
PwC et al	2023	Corporates	Strategy	Feasibility
RI	2023	Financial Institutions	Strategy	Feasibility
SBTi Net Zero	2023	Corporates	Strategy	Ambition
WWF PtP	2023	Real Economy Corporates	Strategy	Feasibility, Ambition

Source: University of Oxford (Sustainable Finance Group), WWF, Jefferies Research

Implications | Asset Owners & Energy Transition

Since January 2022, expanding markets, falling costs and policy changes have altered the outlook for global emissions — the IEA now projects GHGs will be 7.5 Gt lower in 2030 vs a 2015 baseline scenario (Fig 10).

Figure 10 - Project global energy sector CO2 emissions have reduced drastically since the 2015 Paris agreement



Source: IEA, Jefferies Research

How Jefferies Can Help

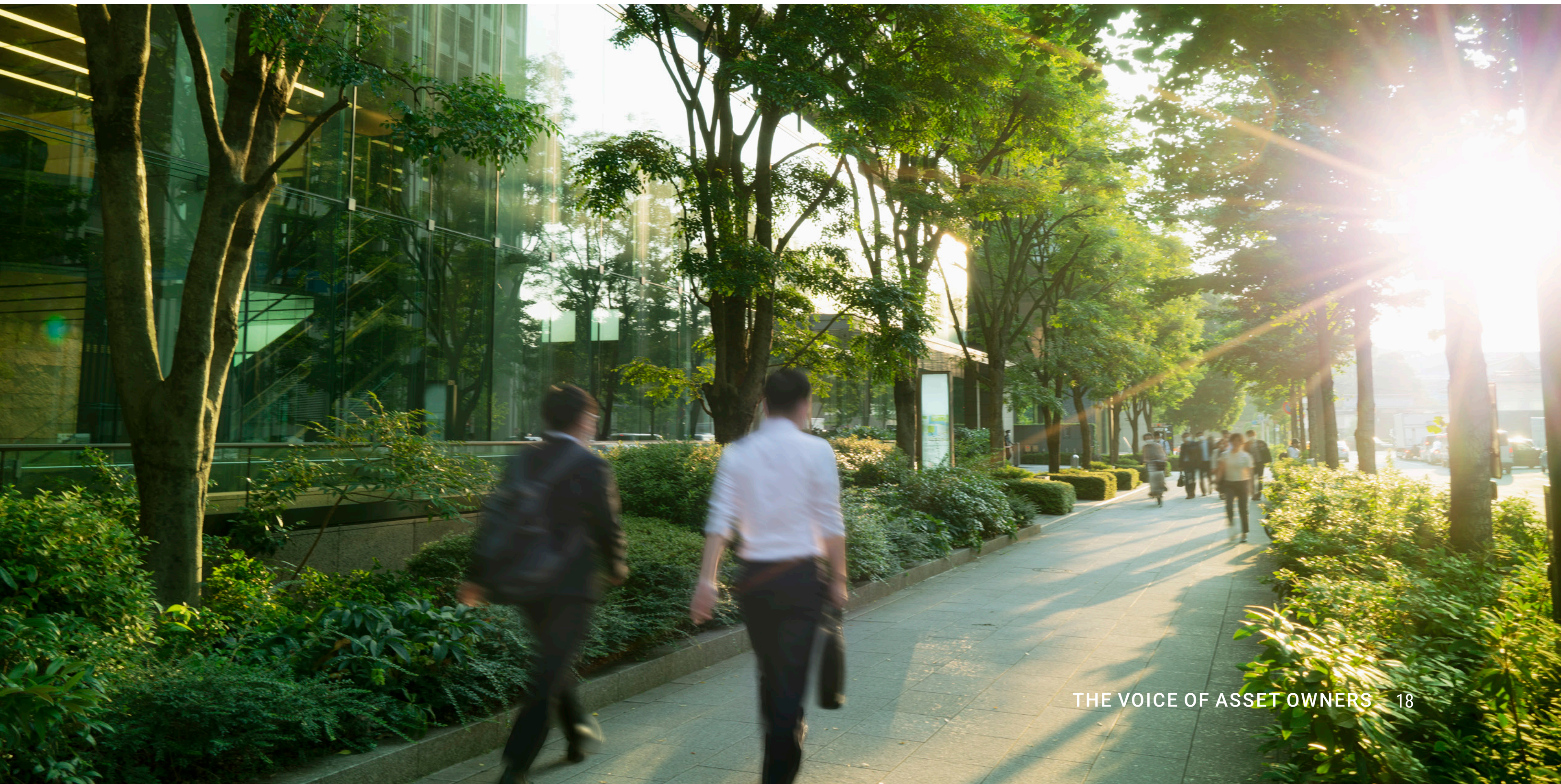
As the global transition towards net-zero gains momentum, Asset Owners are grappling with how best to optimally allocate time and capital to emerging and existing clean technologies. The investor community as a whole is also trying to better understand how to assess and manage climate transition risks.

At Jefferies, we provide a strategic framework to navigate this complex landscape, and serve as a convening partner to bring together the voices of asset owners and the asset managers who can deliver solutions. Our approach goes beyond merely identifying winners and losers, focusing on how to select a technology for analysis and how this selection process may evolve over time.

Jefferies ESG and Strategic Content teams are constantly engaged with asset managers, asset owners, companies and sector analysts. This affords the team a unique vantage point in understanding those issues top of mind for each group of stakeholders.

With a diverse skill set across the team, and experience in many facets of the energy transition, Jefferies are also uniquely positioned to provide viewpoints on the direction of travel, across sectors, on the nature of the transition.

Our investment banking team is keenly focused on understanding these cutting-edge issues and delivering expertise to corporates that help them prepare for the coming decade.



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The Voice of Asset Owners

HOW ALLOCATORS AIM TO INVEST
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