



INVESTING IN LMI CLIMATE SOLUTION COMPANIES

Accessing Public Markets in the Global South



Access to Climate Solution Companies in Low- and Middle-Income Countries: Constraints for U.S. Retail Investors

This research examines the extent to which U.S. retail investors can access public climate solution companies headquartered in low- and middle-income (LMI) countries through U.S.-listed exchange-traded funds (ETFs) and mutual funds. As global climate mitigation increasingly depends on innovation and deployment in the Global South, understanding capital access constraints is critical.

Carbon Collective compiled a comprehensive dataset of publicly listed companies across countries in the Global South that derive more than 50% of their revenue from climate solution activities, including renewable energy, clean transportation, energy efficiency, and climate-enabling infrastructure. This process yielded 999 qualifying companies across most Global South countries with public equity markets. Carbon Collective then cross-referenced this universe against more than 30,000 U.S.-listed ETFs and mutual funds to evaluate investability for U.S. retail investors.

The analysis found that only 189 of the 999 identified companies had any exposure within U.S.-traded ETFs or mutual funds, with a combined assets under management (AUM) of approximately \$23 billion. Importantly, more than 99% of this AUM exposure is concentrated in companies headquartered in developed and emerging markets, with frontier and standalone markets almost entirely excluded.

Five key observations emerge from the findings:

1. First, it is not currently possible for U.S. retail investors to obtain broad and targeted exposure to LMI climate solution companies. Funds that reach higher exposure levels (20–30%) typically hold only a small number of companies and are either narrowly thematic (e.g., clean energy) or country-specific (e.g., Vietnam).
2. Second, most identified climate solution companies are headquartered in frontier markets, which remain largely inaccessible to U.S. investors outside of a limited number of single-country funds.
3. Third, 810 companies—representing the majority of the dataset—are entirely excluded from U.S. ETFs and mutual funds, with 16 countries showing zero exposure to LMI climate solution companies.
4. Fourth, China, Brazil, and India account for approximately 98% of total AUM exposure, underscoring a high degree of geographic concentration.
5. Fifth, while generic emerging market funds may include a relatively large number of LMI climate solution companies, such exposure typically represents only around 1% of total fund assets.

These outcomes reflect structural barriers faced by U.S.-listed funds when allocating to frontier markets, including limited liquidity, market accessibility restrictions, custody and settlement complexity, regulatory and disclosure inconsistencies, benchmark exclusion, and higher perceived political and currency risk. Together, these constraints significantly limit the ability of U.S. retail investors to channel capital toward climate solutions in the regions where mitigation and adaptation needs are greatest.

LMI Climate Solution Equity Exposure to US Retail Funds by Country:

Country	MSCI Classification	World Bank Classification	AUM in US ETFs + Mutual Funds (USD)	Average Market Cap Exposure to US Retail Funds
Singapore	Developed Market	High income	\$263,200,401	3.65%
India	Emerging Market	Lower-middle income	\$6,589,541,042	2.00%
Indonesia	Emerging Market	Upper-middle income	\$91,124,763	0.37%
Brazil	Emerging Market	Upper-middle income	\$5,735,625,767	3.90%
Malaysia	Emerging Market	Upper-middle income	\$4,854,663	0.32%
Thailand	Emerging Market	Upper-middle income	\$16,497,616	0.40%
Chile	Emerging Market	High income	\$258,023,491	4.61%
Philippines	Emerging Market	Lower-middle income	\$8,709,328	0.39%
Colombia	Emerging Market	Upper-middle income	\$653,211,501	15.70%
Egypt	Emerging Market	Lower-middle income	\$1,804,602	0.05%
Mexico	Emerging Market	Upper-middle income	\$202,366,421	5.64%
Peru	Emerging Market	Upper-middle income	\$214,169	2.92%
South Africa	Emerging Market	Upper-middle income	\$2,888,061	1.11%
China	Emerging Market	Upper-middle income	\$9,373,831,738	0.60%
Jamaica	Frontier Market	Upper-middle income	\$0	-
Barbados	Frontier Market	High income	\$0	-
Kenya	Frontier Market	Lower-middle income	\$0	-
Zambia	Frontier Market	Lower-middle income	\$0	-
Uganda	Frontier Market	Low income	\$0	-
Morocco	Frontier Market	Lower-middle income	\$0	-
Mauritius	Frontier Market	Upper-middle income	\$0	-
Nigeria	Frontier Market	Lower-middle income	\$0	-
Ivory Coast	Frontier Market	Lower-middle income	\$0	-
Namibia	Frontier Market	Upper-middle income	\$0	-
Sri Lanka	Frontier Market	Lower-middle income	\$0	-
Bangladesh	Frontier Market	Lower-middle income	\$0	-
Pakistan	Frontier Market	Lower-middle income	\$0	-
Vietnam	Frontier Market	Lower-middle income	\$22,665,233	0.44%
Zimbabwe	Standalone Market	Lower-middle income	\$0	-
Nepal	Standalone Market	Lower-middle income	\$0	-
Argentina	Standalone Market	Upper-middle income	\$0	-
Total			\$23,224,558,797	2.81%

Top 10 ETFs with LMI Climate Solution by % Weight:

ETF Name	ETF Ticker	Fund Style	Fund Focus	Exposure to LMI Climate Solutions	Number of LMI Climate Solution Stocks
VanEck ETF Trust - VanEck ChiNext ETF	CNXT	Broad Equity	Size and Style	32.29%	11
Global X Funds - Global X Lithium & Battery Tech ETF	LIT	Sector	Materials	24.60%	9
KraneShares Trust - KraneShares MSCI China Clean Technology Index ETF	KGRN	Strategy	Theme	24.12%	14
Sprott Funds Trust - Sprott Nickel Miners ETF	NIKL	Strategy	Theme	23.88%	3
iShares Trust - iShares Lithium Miners and Producers ETF	ILIT	Sector	Materials	23.30%	10
Themes ETF Trust - Themes Lithium & Battery Metal Miners ETF	LIMI	Sector	Materials	21.12%	8
KraneShares Trust - KraneShares Electric Vehicles and Future Mobility Index ETF	KARS	Size and Style	Large Cap	21.00%	14
iShares Trust - iShares Global Clean Energy ETF	ICLN	Strategy	Theme	18.08%	33
Global X Funds - Global X Renewable Energy Producers ETF	RNRG	Strategy	Theme	13.34%	3
Amplify ETF Trust - Amplify Lithium & Battery Technology ETF	BATT	Sector	Materials	12.21%	5

Top 10 ETFs with LMI Climate Solution by # of Tickers:

ETF Name	ETF Ticker	Fund Style	Fund Focus	Exposure to LMI Climate Solutions	Number of LMI Climate Solution Stocks
Vanguard International Equity Index Funds - Vanguard FTSE Emerging Markets ETF	VWO	Broad Equity	Strategy	0.99%	148
Dimensional ETF Trust - Dimensional Emerging Markets Core Equity 2 ETF	DFEM	Broad Equity	Size and Style	1.02%	117
Dimensional ETF Trust - Dimensional Emerging Core Equity Market ETF	DFAE	Broad Equity	Strategy	1.03%	116
Dimensional ETF Trust - Dimensional World ex U.S. Core Equity 2 ETF	DFAX	Broad Equity	Strategy	0.33%	108
Vanguard STAR Funds - Vanguard Total International Stock ETF	VXUS	Broad Equity	Strategy	0.32%	108
Vanguard International Equity Index Funds - Vanguard Total World Stock ETF	VT	Broad Equity	Strategy	0.12%	106
SPDR Index Shares Funds - SPDR Portfolio Emerging Markets ETF	SPEM	Broad Equity	Strategy	1.32%	83
Vanguard World Fund - Vanguard ESG International Stock ETF	VSGX	Broad Equity	Strategy	0.35%	83
Dimensional ETF Trust - Dimensional Emerging Markets Sustainability Core 1 ETF	DFSE	Strategy	Theme	1.42%	82
Vanguard International Equity Index Funds - Vanguard FTSE All-World ex-US ETF	VEU	Broad Equity	Strategy	0.33%	72

Top 10 Mutual Funds with LMI Climate Solution by % Weight:

Fund Name	Fund Ticker	Fund Category	Fund Objective	Exposure to LMI Climate Solutions	Number of LMI Climate Solution Stocks
abrdn China A Share Equity A	GOPAX	Greater China Equity	US Fund China Region	12.06%	3
abrdn China A Share Equity Fund;IS	GOPSX	Greater China Equity	US Fund China Region	10.50%	2
Baillie Gifford China A Shares Growth Fund	BCANX	Greater China Equity	US Fund China Region	9.90%	1
Templeton China World Fund;A	TCWAX	Greater China Equity	US Fund China Region	9.52%	3
Commonwealth Real Estate Securities	CNREX	Real Estate Sector Equity	US Fund Real Estate	9.17%	1
Vanguard Global Environmental Opp StkAc	VEOAX	Global Equity Large Cap	US Fund Global Large-Stock Growth	9.04%	2
Ninety One Global Environment Fund;I	ZGEIX	Global Equity Large Cap	US Fund Miscellaneous Sector	8.34%	2
AMG Veritas China I	MIMFX	Greater China Equity	US Fund China Region	7.50%	2
Allspring Managed Account Crb Em Cor Er	ACBEX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	7.25%	4
abrdn EM SMA Completion	ASEMX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	7.14%	2

Top 10 Mutual Funds with LMI Climate Solution by # of Tickers:

Fund Name	Fund Ticker	Fund Category	Fund Objective	Exposure to LMI Climate Solutions	Number of LMI Climate Solution Stocks
DFA Emerging Markets Core Equity 2 I	DFCEX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	0.76%	78
DFA Emerging Markets Social Core Port	DFESX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	0.79%	71
DFA World ex US Core Equity Instl	DFWIX	Global Equity Large Cap	US Fund Foreign Large Blend	0.22%	68
Vanguard Total World Stock Index Admiral	VTWAX	Global Equity Large Cap	US Fund Global Large-Stock Blend	0.10%	68
Vanguard Total Intl Stock Idx Instl Sel	VTISX	Global Equity Large Cap	US Fund Foreign Large Blend	0.26%	67
Vanguard Emerging Mkts Stock Idx Adm	VEMAX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	0.84%	66
DFA Em Mkts Sustnby Cor 1 Instl	DESIX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	1.03%	57
Vanguard FTSE All-Wld ex-US Idx Admiral	VFWAX	Global Equity Large Cap	US Fund Foreign Large Blend	0.28%	46
State Street Glb All Cap Eq ex-US Idx	SSGVX	Global Equity Large Cap	US Fund Foreign Large Blend	0.23%	41
DFA Emerging Mkts ex China Cr Eq Instl	DAADX	Global Emerging Markets Equity	US Fund Diversified Emerging Mkts	0.66%	40