

Teamwork - Portfolio Management

STRATEGY

GROUP 3

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1. Description of the Portfolio

This portfolio includes companies focused on producing renewable energy and manufacturing renewable energy equipment. These enterprises are involved in harnessing wind, solar, hydroelectric, and other renewable sources, and they also develop and supply key technologies like solar panels and wind turbines. Their activities are central to advancing sustainable energy solutions globally.

2. Target Clients

Our focus is on Pension Funds and we chose it for two main reasons. i) The interest that many funds have shown in sustainable investments. Among them is one of the largest pension funds on the planet, the “Government Pension Fund Global” by the Norges Bank Investment Management with more than 1,4 trillion USD in assets under management. The fund has a climate advisory board and the managers want to drive the portfolio to include only companies with a net zero 2050 plan.

The second reason is the time span of pension funds. Since it is long-term oriented, it proves to be a perfect target client. Many companies in the sustainable energy sector are still young and thus, small. Since the energy transition is only at the beginning, we believe in high growth rates in the long term, which is why we chose pension funds as targets.

According to the International Energy Agency (IEA), global renewable capacity is projected to increase by 107 gigawatts (GW) in the current year, 2023, with expectations of continued growth in capacity each passing year. In alignment with this trend, recent reports indicate that the council's pension fund is contemplating a further reduction in investments in fossil fuel-based industries and a shift of funds towards green energy projects.

Investing in renewable energy can extend beyond environmental benefits. It yields a substantial return for the fund while concurrently contributing to energy self-sufficiency and security. The latter is of paramount importance, particularly in light of the reprehensible actions taken by Russia in Ukraine. This approach not only aligns financial interests but also addresses an urgent need for diversification and

security in energy resources, concurrently promoting environmentally responsible practices.

These highly regulated funds typically invest in lower-risk assets to safeguard retirement plans and ensure a reliable income. While bonds and stocks dominate, some countries, such as Croatia, Switzerland, and Romania, have eased restrictions to allow direct investments in infrastructure projects. Some data indicates a decline in private investments in infrastructure in low and middle-income countries, with only a small portion of global funds allocated to new renewable energy projects in Africa in 2021. Faced with this challenging scenario, some articles suggest that global pension funds could offer a solution. Hence, we want to offer pension funds a portfolio that provides them with promising companies that meet stringent ESG Criteria.

3. Product we want to buy

The portfolio will be composed just of equity as an asset class.

4. List of enterprises to select

To build this portfolio, we initially selected renewable energy companies through internet research and portfolios with similar strategies, starting from an original list of 96 companies that were not engaged in activities that negatively affect the environment or social welfare; that have violated or are likely to violate established global norms and standards; are involved in producing renewable energy or supplying clean energy technologies and equipment; and were considered as sustainable investments. We then applied the following constraints:

5. Constraints

1. Liquidity Analysis Constraint

- Goal: Ensure good liquidity for risk minimization and flexibility.
- Metrics: Current ratio > 1 , Market Cap. $> \$ \text{USD } 500.000.000$.

2. Financial Health Constraint

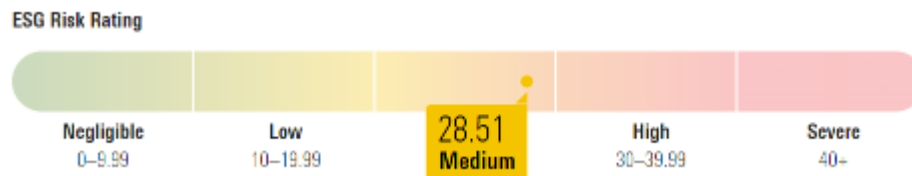
- Goal: Select financially stable companies offering steady returns.
- Metrics: Debt-to-equity ratio < 1.5 , interest coverage ratio, return on equity $> 5\%$.

3. Carbon Footprint Constraint & Regulatory Compliance and Sustainability Reporting Constraint

- Goal: Include companies with lower or reducing emissions, aiming for a definitive reduction path and emissions intensity below industry average.

Ensure 100% compliance with environmental regulations and high-quality sustainability reporting (A+ rating).

- Metrics: Total greenhouse gas emissions, emissions intensity, progress in achieving carbon reduction targets. Compliance record with environmental regulations, quality of sustainability reporting, based on ESG ratings (ESG Risk MorningStar Ranking < 30).

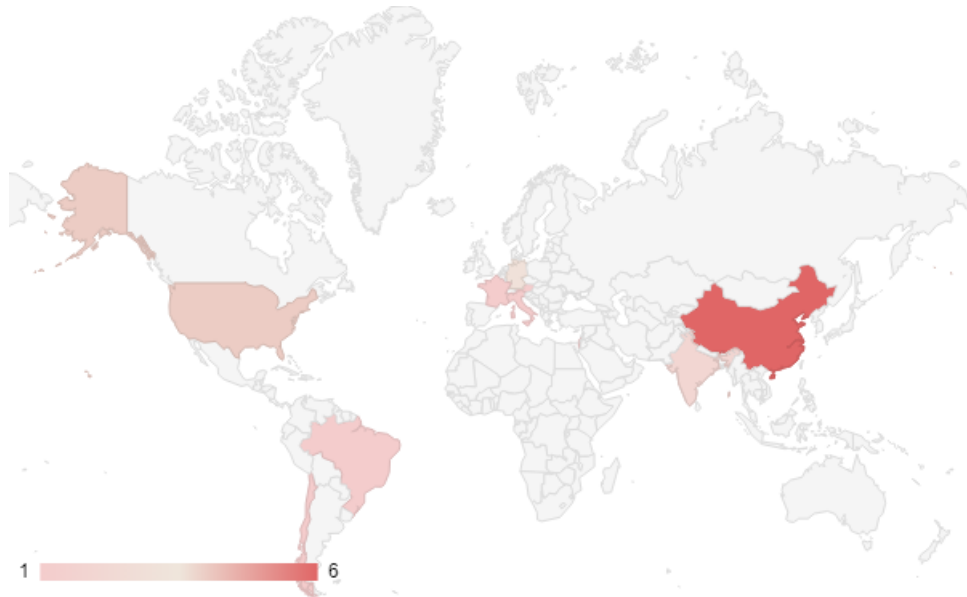


After applying the constraints, we got the following list of enterprises:

Table 1: List of enterprises of the portfolio

Portfolio Composition	
Ticker	Name
FSLR	First Solar, Inc.
ENPH	Enphase Energy, Inc.
SEDG	SolarEdge Technologies, Inc.
SUZLON.NS	Suzlon Energy Limited
SHLS	Shoals Technologies Group, Inc.
CMIG4.SA	Companhia Energética de Minas Gerais - CEMIG
ARRY	Array Technologies, Inc.
ERG.MI	ERG S.p.A.
VER.VI	VERBUND AG
NHPC.NS	NHPC Limited
S92.DE	SMA Solar Technology AG
300274.SZ	Sungrow Power Supply Co., Ltd.
ECV.DE	Encavis AG
6865.HK	Flat Glass Group Co., Ltd.
0586.HK	China Conch Venture Holdings Limited
NEOEN.PA	Neoen S.A.
ENELAM.SN	Enel Américas S.A.
VBK.DE	VERBIO Vereinigte BioEnergie AG
1798.HK	China Datang Corporation Renewable Power Co., Limited
000591.SZ	CECEP Solar Energy Co.,Ltd.
601016.SS	CECEP Wind-power Corporation Co.,Ltd.

Figure 1: Countries that are part of the portfolio



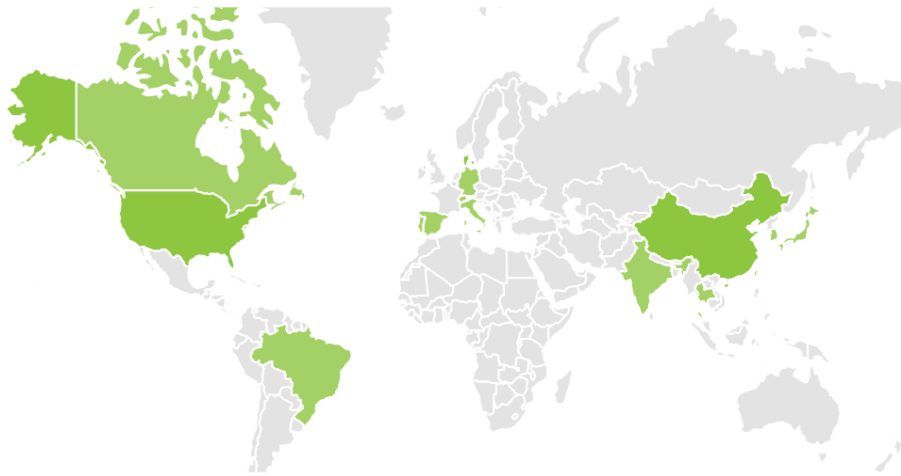
6. Benchmark

Our Benchmark will be the iShares Global Clean Energy ETF (ICLN), which offers the following key characteristics:

1. *Exposure to Renewable Energy Companies:* ICLN provides exposure to companies involved in the production of energy from renewable sources such as solar and wind power.
2. *Global Clean Energy Stocks Access:* This ETF offers targeted access to clean energy stocks from around the world, allowing for a diverse investment in the clean energy sector.
3. *Global Sector View:* It enables investors to express a view on the global clean energy sector, potentially benefiting from the growth and development of renewable energy globally.

We chose iShares Global Clean Energy ETF (ICLN) as a benchmark because it provides investors with exposure to companies in the renewable energy space, offers a global perspective by including stocks from around the world, and allows investors to take a position on the overall growth and development of the global clean energy sector (as we can see in Figure 2). The use of this ETF as a benchmark can enables comparison and evaluation of the performance of a portfolio against the trends and movements in the clean energy market

Figure 2: Countries in the benchmark



Source: iShares Global Clean Energy

7. Backtest Analysis

In the following table you will find the performance of the Portfolio and ICLN:

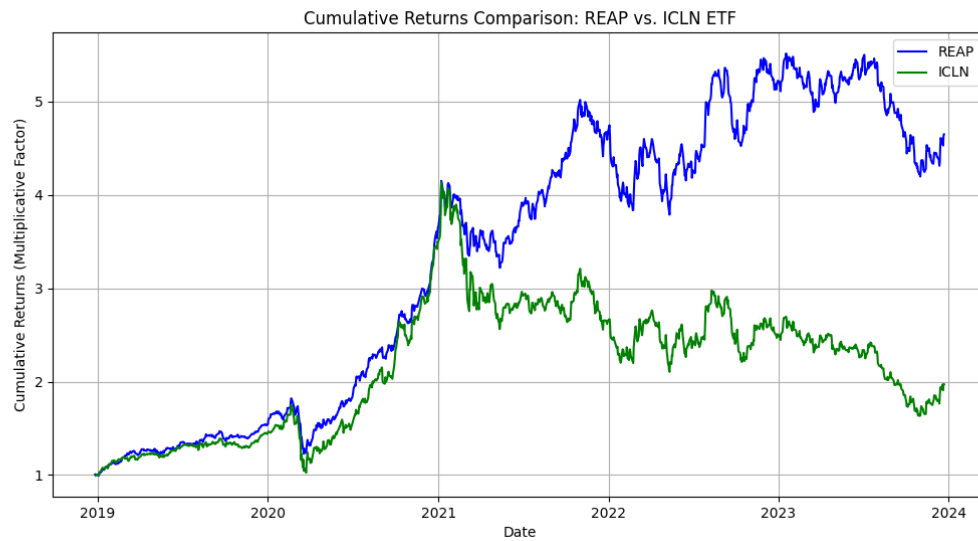
Table 2: Performance of the portfolio and ICLN

	Portfolio	ICLN
Cumulative return	365%	97,18%
Annualized return	36,62% per year (avg)	22,56% per year (avg)
Volatility	22%	37%
Sharpe Ratio	1,52	0,61
Maximum dropdown	-32,65%	-60,47%

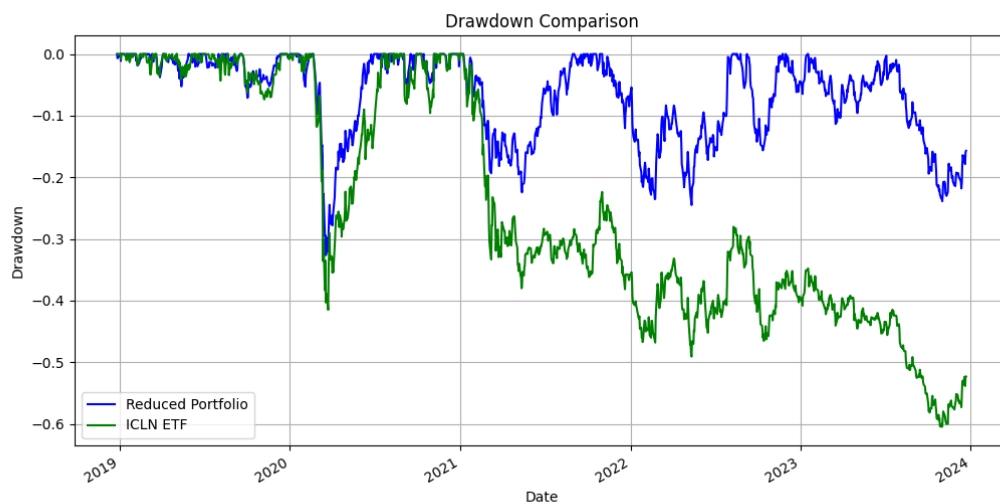
Table 3: Annualized return details of the portfolio and ICLN

	Portfolio	ICLN
2018	19,33%	0,12%
2019	53,84%	44,36%
2020	136,92%	141,82%
2021	28,11%	-24,18%
2022	11,64%	-5,43%
2023	-10,98%	-21,32%

Graph 1 : Returns of the portfolio compared to ICLN



Graph 2 : Maximum drawdown of the portfolio compared to ICLN



8. References

<https://www.netzeroinvestor.net/news-and-views/pension-funds-eye-future-opportunities-in-the-renewables-space>

<https://www.wandsworth.gov.uk/news/2022-news/news-october-2022/pension-fund-plans-80m-investment-in-renewable-energy-projects/>

<https://www.reuters.com/business/finance/australia-pension-fund-plans-up-13-blIn-clean-energy-investment-2023-10-18/>

<https://www.energymonitor.ai/finance/investment-management/how-to-get-pension-funds-to-invest-in-renewables-in-africa/?cf-view>

<https://www.ishares.com/us/products/239738/ishares-global-clean-energy-etf>