Investing for the Planet with Variety

May 17, 2023

Stephen Modell
mod@umich.edu
My Environmentally Conscious Investing History

- Earliest attempt was investing in ethanol from corn (George W. Bush administration) 2007
  - Invested in The Andersons
  - Share value kept plummeting

- Began to divest of petroleum stocks in 2009

- Since 2016, have attempted to make ~3 eco-friendly investments per year
Definitions

- **Dividend**
  - A sum of money paid regularly (usually quarterly) by a company to its shareholders out of profits

- **Yield**
  - The dividend per share, divided by the price per share

- **ETF**
  - Exchange-traded fund
  - Similar to mutual funds in that they invest in a basket of securities, such as stocks, bonds, or other asset classes. But unlike mutual funds and similar to a stock, ETFs can be traded whenever the markets are open.
Associated Energy Category

- Not energy production, but energy mediation or transport
- This type of investing seen as a profitable solution by large banks when value of petroleum stocks began to decline
- Kinder Morgan, Inc (KMI – NYSE)
  - The largest natural gas pipeline operator in the U.S., moving about 40 percent of natural gas consumed. The company's CO$_2$ division traditionally provides carbon dioxide (CO$_2$) for enhanced oil recovery projects, but is increasingly being used for carbon sequestration efforts.
  - Historically strong; down 9.3% since purchased (2022); performance outlook is up short-term but down after that
- Lesson: Short-term measures are short-term measures; profits eventually peter out
Hybrid Energy Category 1

- NRG Energy (NRG – NYSE)
  - Headquartered in Houston, but serves 24 US states and 8 Canadian provinces. Involved in energy generation and retail electricity, including natural gas, coal, oil, nuclear, wind, and distributed solar energy.
  - Company suffered from strategic missteps, incl. repeated power plant outages and inability to deal with extreme weather.
  - Down 16% since purchased (2020); performance outlook is down

- Lesson 1: Poorly managed hybrid energy companies perform poorly
- Lesson 2: Where future thinking lacking and profit is the overwhelming motive, performance suffers
NextEra Energy (NEE – NYSE)
- The world's largest generator of renewable energy from the wind and sun. Also owns and operates generating plants powered by natural gas, nuclear energy, and oil.

DTE Energy (DTE – NYSE)
- Detroit-based. Uses coal, nuclear fuel, natural gas, hydroelectric pumped storage and renewable energy resources. Fermi 2 nuclear power plant represents 30% of Michigan's total nuclear generation capacity, and has been designated as one of the nation's best-performing nuclear facilities.
- Stock value of these companies is up 62.8% and 27.2% over the last 3 years. Dividends are 3.8% and 1.8%.

Lesson: Well managed hybrid energy companies perform well
Renewable Energy Category

- **Avangrid (AGR – NYSE)**
  - Third-largest renewable energy company in the U.S., with electricity, natural gas, onshore wind, offshore wind and solar energy. Has a footprint in 24 states with $41 billion in assets. Primary businesses are Networks, especially in the Northeast.
  - Down 25.4% since purchased (2021); performance outlook is up through the mid-term (9 mos.)
  - Dividend is 1.8% and yield is 4.4%

- **First Trust Global Wind Energy ETF (FAN – NYSE)**
  - To be included in this fund, a company must be actively engaged in some aspect of the wind energy industry, such as the development or management of a wind farm, the production or distribution of electricity generated by wind power, or involvement in the manufacture or distribution of machinery designed for the wind energy industry.
  - Up 33.9% since purchased (last 2 years)
  - Lesson 1: Pure renewable energy has to work harder to perform. Limitations on networks a factor.
  - Lesson 2: Combination renewable energy funds can succeed
Hybrid Battery Category 1

- **Enphase Energy (ENPH – Nasdaq)**
  - Headquartered in Fremont, California that develops and manufactures solar micro-inverters, battery energy storage, and EV charging stations, primarily for residential customers.
  - Up 22.2% since purchased (2020); performance outlook is positive at least through the short-term (6 mos.)

- **Lithium Americas Corp (LAC – NYSE)**
  - A mining company which mined lithium-bearing ores in North Carolina and South Dakota. Spun off from FMC’s food and chemical divisions in 2019 to specialize in lithium operations.
  - Up 0.6% since purchased (2021); performance outlook is up in the short and mid-term
Plug Power, Inc (PLUG – Nasdaq)

- Engaged in the development of hydrogen fuel cell systems that replace conventional batteries in equipment and vehicles powered by electricity. Allows the system to "recharge" in a matter of minutes as opposed to several hours for lead-acid batteries.
- Down 39.1% since purchased (2022); performance outlook is down

Lesson 1: Battery technology and lithium are the wave of the future

Lesson 2: Exotic technologies such as ethanol and hydrogen power may be good technically, but need field testing on the market to assess enduring performance
- **Tesla, Inc (TSLA – Nasdaq)**
  - Multinational automotive and clean energy company headquartered in Austin, TX. Tesla designs and manufactures electric vehicles (electric cars and trucks), battery energy storage from home to grid-scale, and solar panels and solar roof tiles.
  - Up 340.1% since purchased (2020); performance outlook is down
  - Stock value significantly fluctuates; portfolio performance depends on when purchased

- **Ford Motor Company (F – NYSE)**
  - Ford has tapped Michigan for a new LFP (lithium iron phosphate) battery plant. Started BlueOvalSK, a joint venture with SK Innovation, to create next-gen battery cells – 1 plant in central Kentucky and 2 in Tennessee. Has started production at a battery plant in Ohio jointly owned with LG Energy Solution. As of 2014, Ford has been the world's second-largest manufacturer of hybrids after Toyota. Ford produces multiple all-electric vehicles.
  - Up 90.8% since purchased (2009); performance outlook is down
  - Dividend is 1.3% and yield is 5.1%
EVgo, Inc (EVGO – Nasdaq)

EVgo is a U.S. electric vehicle DC fast charging station network, with more than 850 charging locations. These stations are located in 34 states and are compatible with all major auto manufacturers.

- Down 30.7% since purchased (2022); performance outlook is down short-term and flat mid-term
- [Note: EQT Infrastructure V Private Equity just beginning to pick up this year]

Lesson 1: Car companies producing hybrid and all-electric vehicles and that also produce batteries can do quite well

Lesson 2: Climate friendly car manufacturers can beat the performance outlook assigned to them

Lesson 3: Charging station investments and infrastructure funds need time testing; not yet fully come together
Water Category 1

- **Essential Utilities (WTRG – NYSE)**
  - Provides drinking water and wastewater treatment infrastructure and services to 8 states.
  - Up 173.3% since purchased (2009)

- **American Water Works Co. (AWK – NYSE)**
  - Provides water and wastewater to 14 states. Owns countless water treatment plants, wastewater treatment plants, pipes, wells, water storage facilities, and even dams.
  - Up 144% since purchased (2016). Outlook is down in the short and mid-term, but up in the long-term.
Water Category 2

- Xylem, Incorporated (XYL – NYSE)
  - Xylem offers industrial pumps and application solutions that use less energy and reduce life-cycle costs, and promote sustainability.
  - Up 51.3% since purchased (2017)

- Ecolab, Inc (ECL – NYSE)
  - With headquarters in Saint Paul, MN, Ecolab helps private and public organizations treat their water for drinking use and for use in food, health care, hospitality-related safety and industry. It is the world’s 10th biggest desalination company. Bill Gates has a 25+% stake in the company.
  - Outlook is up in the short, mid, and long-term

Lesson 1: Water and wastewater purification companies in general are profitable
Lesson 2: Desalination for corporate usage is profitable, but must be distinguished from city-wide water desalination
Overall Lessons

- Lesson 1: Eco-friendly investing can show positive performance
- Lesson 2: Companies that tread middle ground between classical (e.g., natural gas, cars, batteries) and forward-looking (e.g., solar energy, water purification) investment are likely to succeed
- Lesson 3: Purely climate-oriented companies can succeed when pooling investments (e.g., ETFs)
- Lesson 4: Exotic technologies (e.g., ethanol, hydrogen) are risky and need actual market testing and time to assess performance
- Lesson 5: Transitional technologies (e.g., charging stations) depend financially on preliminary build-up of infrastructure
Contact

- Stephen Modell
  University of Michigan School of Public Health
  mod@umich.edu