Impax Asset Management

Beyond Fossil Fuels: The Investment Case for Fossil Fuel Divestment

Seattle Divestment Forum
18 October 2013
Impax Overview

• Award winning Global Equity specialist since 1998

• Successfully investing in companies active in the resource optimization markets

• Recognised thought leaders

• ~$3.6 B AUM* across both public and private equity strategies

• Offices in London, Hong Kong, New York, and Washington DC

Beyond Fossil Fuels: The Investment Case for Fossil Fuel Divestment

• Pressure on investors to assess fossil fuel exposure

• Analysts warn of tighter regulations and softening demand reducing value or “stranding” reserves

• Legitimate questions remain about portfolio divestment risk/returns

• How to assess risk/returns from lower exposure to fossil fuel stocks?
  – Implications for returns? Risk? Tracking error?
  – Possible to divest from fossil fuel stocks while retaining exposure to energy sector dynamics?
1) “The science is too uncertain to act” – Actually no; the math is inescapable.
   • Half the CO2 burnable while remaining under 2 °C has been emitted; <30 years left to 100%

2) “Investors can afford to wait” – Actually no; climate change impacts are here.
   • Coal-fired plants close in Australia, US; Renewable energy growth 2X all others combined

3) “Climate Change will only affect a small part of my portfolio” – Actually no; climate change policy already affecting large market sectors.
   • Energy and utilities (lower carbon model), Industrials (energy and water efficiency systems), Timber, food and agriculture (impacts of warmer temperatures, changing weather patterns)
Dispelling Five Investment Myths about Climate Change Risk (cont.)

4) “Climate change is all about risk not about making returns” – Actually no; policy/regulations changing quickly and change brings opportunity
   - Opportunities in >1000 Resource Optimization companies; growing faster than the market

5) “My managers can handle climate change” - Actually no; not their focus.
   - Policy changes can lead to sudden re-pricing or stranded assets that most managers are not tracking; diversified portfolios need a specific allocation to hedge climate risk.
Analyzing the Impact of Fossil Fuel Divestment

Cost/benefits/risks of fossil fuel divestment can be determined by replacing fossil energy with diversified low-carbon energy or environmental technology stocks

*Studied 4 alternative approaches:*

1. **Fossil Free Portfolio** - MSCI World Index without the fossil fuel energy sector

2. **Fossil Free Plus Alternative Energy (Passive) Portfolio** - Replacing fossil fuel stocks with passive universe of renewable energy and energy efficiency stocks*

3. **Fossil Free Plus Alternative Energy (Active) Portfolio** - Replacing fossil fuel stocks with actively managed portfolio of renewable energy and energy efficiency stocks**

4. **Fossil Free Plus Low Carbon Environmental Opportunities (Active) Portfolio** - Replacing fossil fuel stocks with actively managed portfolio with a wider range of low carbon resource optimization companies***

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* FTSE Environmental Opportunities Renewable Energy and Energy Efficiency universe constituents on a capitalization weighted basis
** FTSE Environmental Opportunities Renewable Energy and Energy Efficiency universe constituents actively weighted per Impax’s Leader’s Strategy
*** FTSE Environmental Opportunities universe constituents actively weighted per Impax’s Leader’s Strategy
Global Equity Return Comparisons

MSCI Global Equity Returns: Fossil Free Outperforms

Source: FactSet, WM Reuters. Data from April 30, 2008 to April 30, 2013 in USD
Global Equity Return Comparisons

MSCI Global Equity Returns: Low Carbon Active Outperforms

Source: FactSet, WM Reuters. Data from April 30, 2008 to April 30, 2013 in USD
## Global Equity Return and Risk Comparison

### Risk and Return Characteristics: April 30, 2008 to April 30, 2013

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Annualized return</th>
<th>Annualized Volatility</th>
<th>Information ratio</th>
<th>Tracking error</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI World</td>
<td>1.8%</td>
<td>20.5%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Fossil Free Portfolio</td>
<td>2.3%</td>
<td>20.5%</td>
<td>0.28</td>
<td>1.6%</td>
</tr>
<tr>
<td>Fossil Free Plus Alternative Energy (Passive) Portfolio</td>
<td>1.9%</td>
<td>21.1%</td>
<td>0.00</td>
<td>1.8%</td>
</tr>
<tr>
<td>Fossil Free Plus Alternative Energy (Active) Portfolio</td>
<td>2.2%</td>
<td>21.3%</td>
<td>0.21</td>
<td>2.0%</td>
</tr>
<tr>
<td>Fossil Free Plus Environmental Opportunities (Active) Portfolio</td>
<td>2.3%</td>
<td>20.8%</td>
<td>0.31</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

*Source: FactSet, WM Reuters. Data as of April 30, 2013 in USD*
## Top 10 Holdings in MSCI Energy Sector

<table>
<thead>
<tr>
<th>Company</th>
<th>Weight in Sector</th>
<th>Sub Industry</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exxon Mobil Corp.</td>
<td>14.7%</td>
<td>Integrated Oil &amp; Gas</td>
<td>North America</td>
</tr>
<tr>
<td>Chevron Corp.</td>
<td>8.7%</td>
<td>Integrated Oil &amp; Gas</td>
<td>North America</td>
</tr>
<tr>
<td>BP PLC</td>
<td>5.0%</td>
<td>Integrated Oil &amp; Gas</td>
<td>Europe</td>
</tr>
<tr>
<td>Royal Dutch Shell PLC (CL A)</td>
<td>4.6%</td>
<td>Integrated Oil &amp; Gas</td>
<td>Europe</td>
</tr>
<tr>
<td>Total S.A.</td>
<td>3.9%</td>
<td>Integrated Oil &amp; Gas</td>
<td>Europe</td>
</tr>
<tr>
<td>Schlumberger Ltd.</td>
<td>3.6%</td>
<td>Oil &amp; Gas Equipment &amp; Services</td>
<td>North America</td>
</tr>
<tr>
<td>Royal Dutch Shell PLC (CL B)</td>
<td>3.3%</td>
<td>Integrated Oil &amp; Gas</td>
<td>Europe</td>
</tr>
<tr>
<td>Occidental Petroleum Corp.</td>
<td>2.6%</td>
<td>Integrated Oil &amp; Gas</td>
<td>North America</td>
</tr>
<tr>
<td>ConocoPhillips</td>
<td>2.5%</td>
<td>Oil &amp; Gas Exploration &amp; Production</td>
<td>North America</td>
</tr>
<tr>
<td>ENI S.p.A.</td>
<td>2.2%</td>
<td>Integrated Oil &amp; Gas</td>
<td>Europe</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51.1%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: FactSet, WM Reuters. Data as of April 30, 2013 in USD
## Top 10 Holdings of the FTSE EO Energy Universe

<table>
<thead>
<tr>
<th>Company</th>
<th>Weight in Sector</th>
<th>Sub Sector</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siemens AG</td>
<td>8.9%</td>
<td>Diversified Energy Efficiency</td>
<td>Europe</td>
</tr>
<tr>
<td>Honeywell International Inc.</td>
<td>5.9%</td>
<td>Diversified Energy Efficiency</td>
<td>North America</td>
</tr>
<tr>
<td>ABB Ltd.</td>
<td>5.4%</td>
<td>Power Network Efficiency</td>
<td>Europe</td>
</tr>
<tr>
<td>Emerson Electric Co.</td>
<td>4.2%</td>
<td>Power Network Efficiency</td>
<td>North America</td>
</tr>
<tr>
<td>Schneider Electric S.A.</td>
<td>4.1%</td>
<td>Power Network Efficiency</td>
<td>Europe</td>
</tr>
<tr>
<td>Fanuc Corp.</td>
<td>3.0%</td>
<td>Industrial Energy Efficiency</td>
<td>Asia Pacific</td>
</tr>
<tr>
<td>Eaton Corporation PLC</td>
<td>2.9%</td>
<td>Power Network Efficiency</td>
<td>North America</td>
</tr>
<tr>
<td>Royal Philips NV</td>
<td>2.7%</td>
<td>Buildings Energy Efficiency</td>
<td>Europe</td>
</tr>
<tr>
<td>Enel S.p.A.</td>
<td>2.6%</td>
<td>Renewable Energy Developers &amp; IPPs</td>
<td>Europe</td>
</tr>
<tr>
<td>Johnson Controls Inc.</td>
<td>2.4%</td>
<td>Buildings Energy Efficiency</td>
<td>North America</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42.1%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: FactSet, WM Reuters. Data as of April 30, 2013 in USD*
A Wealth of New Opportunity in Low Carbon Energy

Investors can benefit from low carbon energy and environmental technology:

• Outperformed fossil fuels in tough climate for large-scale renewables/wider environmental investment

• New factors accelerating demand for low carbon energy/products/services:
  – Constraints on greenhouse gas emissions
  – Growing pressure on natural resources
  – Continuing scientific and engineering advances that reduce costs of technologies
  – More favorable macro-economic environment

• International Energy Agency projects:
  – >50% of new investment required to meet climate challenge is for energy efficiency
  – 28% for low carbon transport
  – 21% for low carbon energy
Graph shows three scenarios that have been created to show a range of possible outcomes for the clean energy market. New Normal, Barrier Busting and Traditional Territory. These scenarios represent three different views of how the world’s energy system will evolve based on a range of assumptions around technology costs, economic prosperity, policy ambition and investment in grid infrastructure.

Low Carbon Investment Sectors Benefit From Climate Change

Energy Efficiency and Alternative Energy:
• Technology/products/service solutions reduce energy use, costs, carbon footprint; greater alternative energy generation (capacity being added 2X faster than fossil power)

Water Infrastructure and Treatment:
• Climate change + population growth creating more “water stressed” regions; investing billions in new infrastructure, treatment

Waste/Resource Recovery:
• Recycling and resource reclamation - less carbon intensive, less expensive than new materials

Food & Agriculture:
• Farming/agriculture improvements boost yields, reduce carbon intensity; improved irrigation systems reduce water use in increasingly arid regions
Resource Optimization: Diverse Public Equity Opportunities

**Energy Efficiency**
- Power Network
- Industrial
- Buildings
- Transport
- Consumer

**Alternative Energy**
- Developers & IPPs
- Solar
- Wind
- Biofuels
- Other

**Energy**

**Water Efficiency**
- Infrastructure
- Treatment
- Utilities

**Water Infrastructure & Technologies**
- Water Infrastructure
- Pollutant Control
- Testing & Gas Sensing

**Pollution Control**
- Pollution Control Solutions

**Food, Agriculture & Forestry**

**Food**
- Packaging & Food Safety
- Packaged Food & Ingredients
- Distribution & Commercial Services

**Agriculture**
- Agricultural Inputs
- Machinery & Equipment
- Logistics & Infrastructure

**Forestry**
- Growers & Processors

**Waste/Resource Recovery**

**Waste Management & Technologies**
- Tech Equipment
- Recycling & Processing
- Hazardous
- General

**Environmental Support Services**
- Consultancies
- Carbon & Asset Trading

*Some sub-sectors have an additional ‘diversified’ category not shown above for the sake of clarity.*

*Food, Agriculture & Forestry includes companies pending full entry to the Impax investment universe.*

*Data as at September 30, 2013.*
**Resource Optimization: Diverse Public Equity Opportunities**

<table>
<thead>
<tr>
<th>Energy Efficiency</th>
<th>Renewable Energy</th>
<th>Water Infrastructure &amp; Technologies</th>
<th>Pollution Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Power Network</td>
<td>• Developers &amp; IPPs</td>
<td>• Infrastructure</td>
<td>• Pollution Control</td>
</tr>
<tr>
<td>• Industrials</td>
<td>• Solar</td>
<td>• Treatment</td>
<td>• Solutions</td>
</tr>
<tr>
<td>• Buildings</td>
<td>• Wind</td>
<td>• Utilities</td>
<td>• Testing &amp; Gas Sensing</td>
</tr>
<tr>
<td>• Transport</td>
<td>• Biofuels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Consumer</td>
<td>• Other</td>
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<th>Environmental Support Services</th>
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</tr>
<tr>
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<td>&amp; Technologies</td>
<td>• Tech Equipment</td>
<td>• Carbon &amp; Asset Trading</td>
</tr>
<tr>
<td>• Industrials</td>
<td>• Infrastructure</td>
<td>• Recycling &amp; Processing</td>
<td></td>
</tr>
<tr>
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<td>• Treatment</td>
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Conclusions Regarding Fossil Fuel Divestment

Investors should consider divesting fossil fuel stocks from their global equity portfolios:

- Benefits from replacing with passive or active allocation to Fossil Free Alternative Energy strategies
- Higher returns from an actively managed Fossil Free Low Carbon Environmental Opportunities strategy
- Tighter carbon regulations likely with profound economic implications
- Considerable uncertainty about timing/scope of regulations. Few will be able to anticipate or “time” re-pricing, and stranding of fossil fuel assets could result
- Softening demand for fossil fuels in some markets from substitution by competing low-carbon energy another possible factor

In our view, investors should carefully assess whether the risks of owning fossil fuel stocks outweigh alternative strategies
Thank You

Ken Locklin, Managing Director
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Ken is a Managing Director for Impax Asset Management (US) LLC. He is the US Policy Advisor, responsible for supporting the investment team and helping build Impax's business in North America. Ken has 30 years of finance experience and a 20 year commitment to clean energy enterprise investment, development, management and finance. Before joining Impax, Ken worked as the Director of Finance and Investment with the Clean Energy Group (CEG) and worked with NGO Ceres to advise the Investor Network on Climate Risk. Prior to this he acted as a founding member of the Massachusetts Green Energy Fund management team and was a Partner at EIF Group. Ken is a founding Co-Chair of the Finance Committee of the American Council on Renewable Energy (ACORE), the leading US renewable energy umbrella organization. He is a graduate of Yale University.

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