

# ECOFIN WHITE PAPER

*In association with CARBONANALYTICS*

## THE ROLE OF UTILITIES IN DECARBONISING PORTFOLIOS

### Introduction

One of the key recent successes in fighting climate change has been the Portfolio Decarbonization Coalition which is a multi-stakeholder initiative that aims to drive reductions in GHG emissions by mobilizing a critical mass of institutional investors committed to gradually decarbonizing their portfolios.<sup>i</sup>



“Some of the biggest -and potentially transformational- announcements at my Climate Summit investors came from the private sector. A coalition of institutional investors has committed to decarbonize \$100 billion in institutional equity investments”

**Ban Ki-Moon, Secretary General of the United Nations**

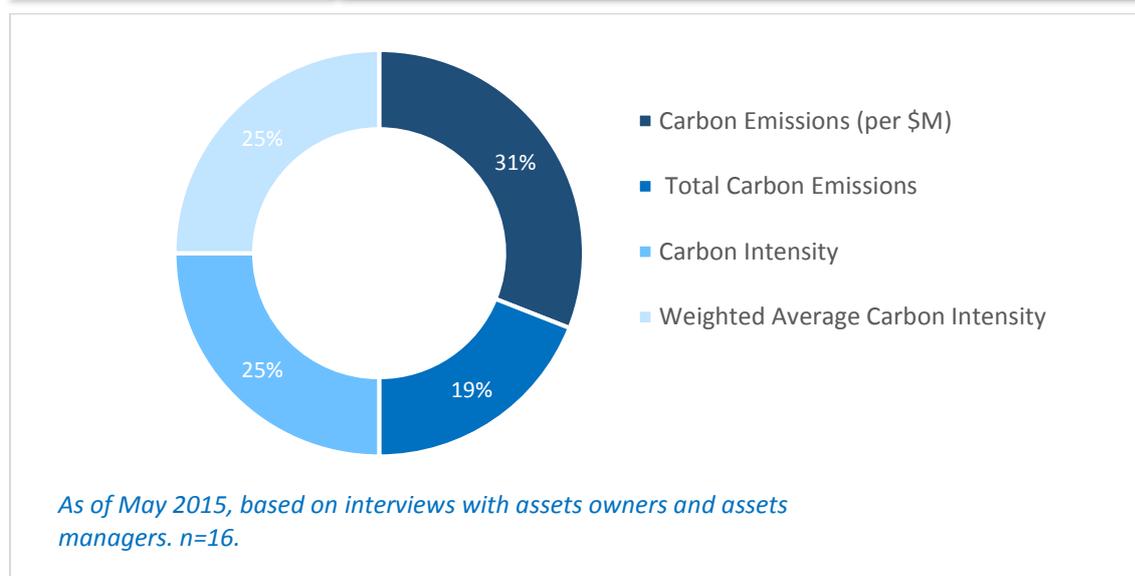
The Coalition believes, and we at Ecofin entirely agree, that portfolio decarbonisation can be achieved by withdrawing capital from especially carbon-intensive companies, projects and technologies in each sector and re-investing that capital into particularly carbon-efficient companies, projects and technologies in the same sector; investors can also achieve portfolio decarbonisation by active and targeted engagement with portfolio companies. We believe that the key words in the above sentence are “in each sector”, and we believe that the power generation sector is unique and should be looked at separately.

The aim of this paper is to show how a focus on carbon data – such as carbon emissions and carbon intensity – at a portfolio level alone intrinsically incorporates enormous sector bias and could lead unwittingly to underinvestment in the extremely carbon intensive power generation sector at a time when increased investment in clean generation and electrification of transportation is most necessary, completely at odds with the underlying decarbonisation philosophy. Our proposal is, instead, that when decarbonising a portfolio, investors should look separately at the power generation sector, noting the implicit double counting inherent in calculating both the emissions of the sector and the emissions from the power bought by their customers. We believe the right approach is to compare the carbon footprint of each company or owner of power generating assets to that of the grid in which they sit, allowing investors to allocate capital to the cleanest companies while encouraging their dirtier peers to invest in clean generation.

### How is the carbon footprint of a portfolio typically measured?

Assets owners typically look at the following metrics when measuring the carbon footprint of their portfolios<sup>ii</sup>.

|                                   |  |
|-----------------------------------|--|
| Carbon Emissions                  | <i>What is my portfolio's <u>normalized</u> carbon footprint per million dollars invested?</i> |
| Total Carbon Emissions            | <i>What is my portfolio's <u>total</u> carbon footprint?</i>                                   |
| Carbon Intensity                  | <i>How <u>efficient</u> is my portfolio in terms of emissions per unit of output?</i>          |
| Weighted Average Carbon Intensity | <i>What is my portfolio's <u>exposure</u> to carbon-intensive companies?</i>                   |



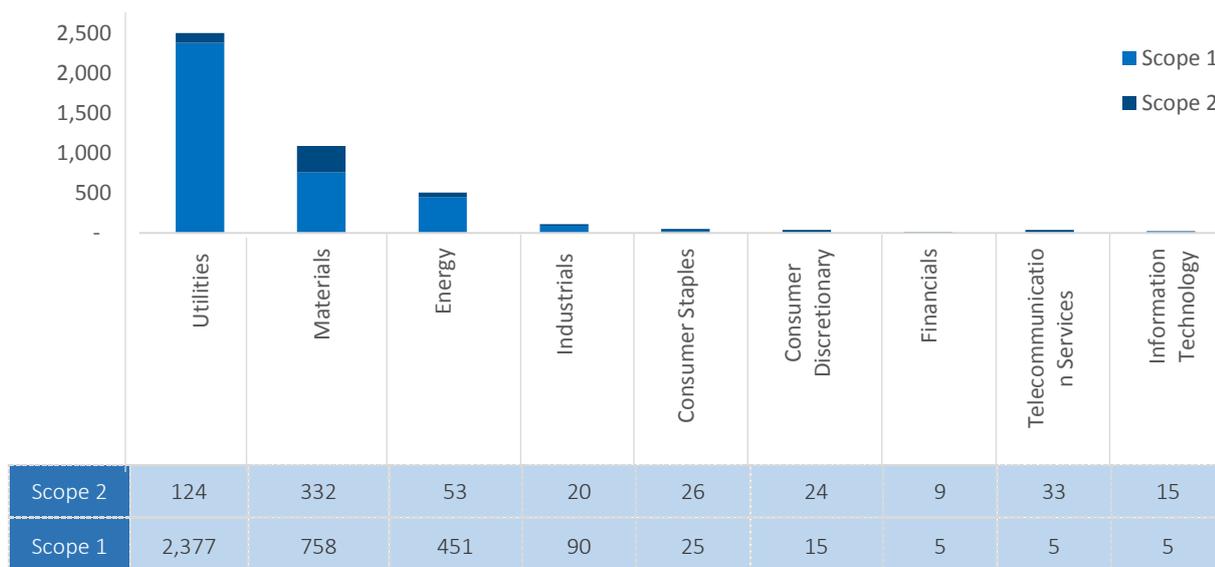
### What does this analysis mean for utilities?

There are few activities on the planet which are more carbon intensive than the production of power from fossil fuels. We believe there is a path to zero carbon power, however it is a long-term path. While new build will rapidly move towards 100% clean generation, the intermittency of renewables means that clean energy and even battery storage needs to be backed up with traditional power generation. Electrification is also the key to decarbonising transportation and this will require very significant investment in clean generation and transmission and distribution by the utility sector. Hence, it is vital for asset owners to engage with utilities around the world to ensure they direct capital towards the lowest carbon forms of generation and lay the groundwork for the electrification of transportation.

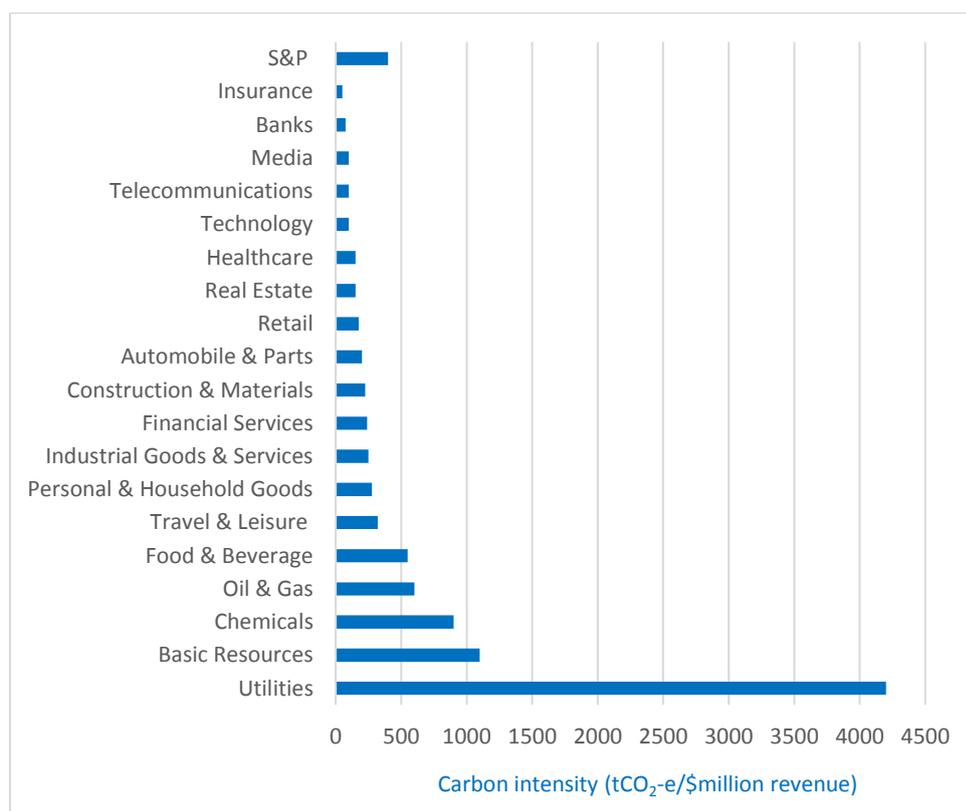
It is a concern that the application of the metrics outlined above to a portfolio would imply significant divestment from utilities. Utilities are 10 times more carbon intensive than the S&P500 average and they account for more of the Scope 1 emissions in the MSCI World Index than all of the other sectors tallied together (see the appendix for the definition of Scope 1 and Scope 2 emissions).

It is also worth noting that the analysis implies some element of double counting, in that the utility sector's Scope 1 emissions are, of course, other sector's Scope 2 emissions, which also suggests that the utility sector should be looked at differently when decarbonising portfolios.

### Scope 1 vs. Scope 2 Emissions by Sector (tCO<sub>2</sub>-e)<sup>iv</sup>



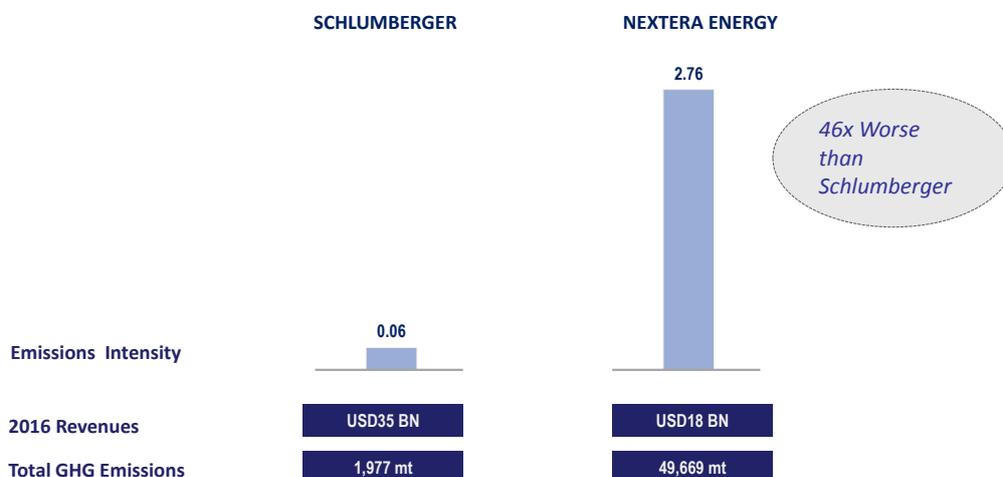
### Carbon Intensity by Sector<sup>v</sup>



It is instructive, and slightly ironic, that the companies dedicated to the extraction of natural resources and, in particular, the services companies which facilitate that extraction are significantly less carbon intensive than the utilities that combust those resources. From an emissions intensity perspective, for example, owning shares in NextEra Energy, one of the world's largest owners of and investor in clean generation but also an integrated utility which

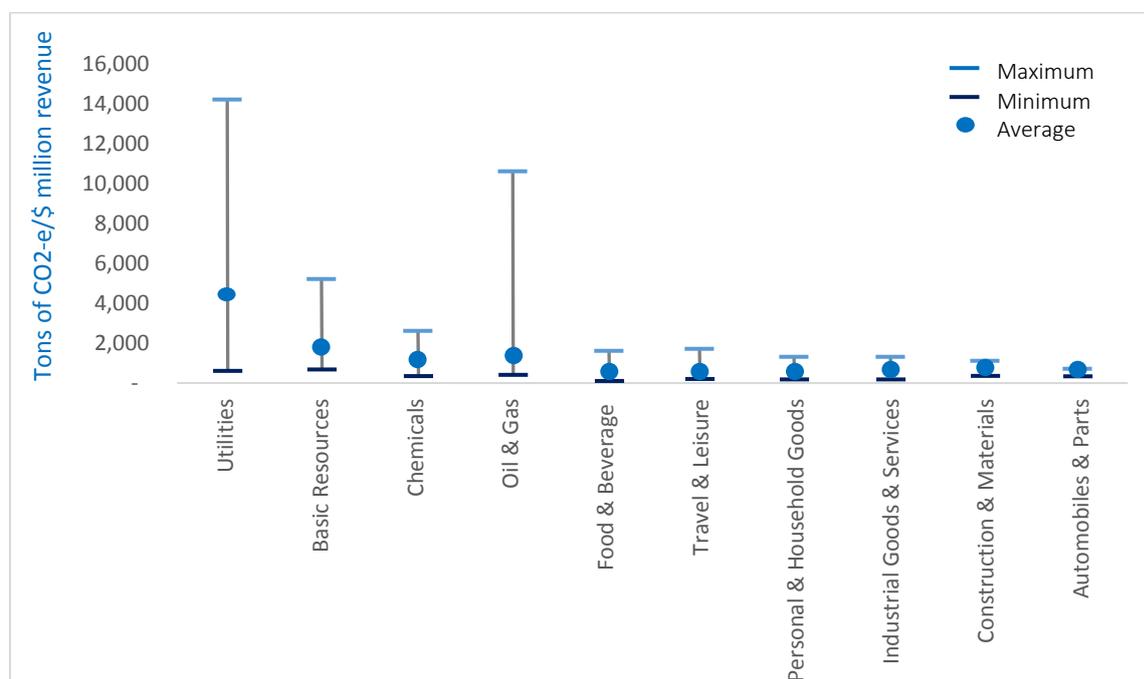
owns fossil fuel generation, is almost 50 times worse than owning Schlumberger, one of the world's largest oil services companies.

Optimising for impact, we believe that asset owners should be overweight in 'clean' utilities tasked with investing in zero carbon generation, not underweight.



The carbon intensity within the utility sector also varies dramatically by company depending on how much fossil fuel generation each utility owns – see chart below.

### Range in Carbon Intensity in 10 Carbon-intensive Sectors<sup>vi</sup>



Within the utility sector, transmission and distribution, as well as water and gas utilities, are not carbon intensive activities, whereas power generation of any kind is extremely carbon intensive, but of course without power generation there is no transmission and distribution. Hence, it is superficial to invest simply in the least carbon-intensive utilities; asset owners

need to look specifically at power generation and favour those companies which are contributing the most to ‘greening’ the grid, even if those companies own some fossil fuel generation, and encourage companies which are underperforming to invest more in clean generation.

## A POTENTIAL SOLUTION

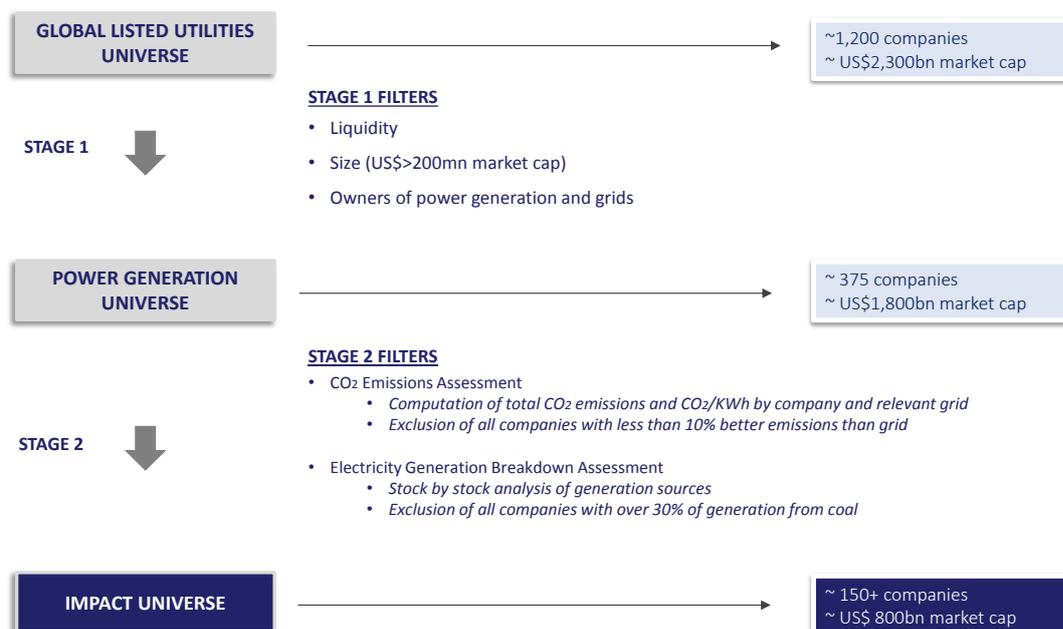
In association with CARBONANALYTICS we have conducted a proprietary study of all listed utilities globally which own power generation assets. This has allowed us to populate a database with the generation mix for each company by country and by generation type. We have applied standard factors to each generation type and calculated a carbon footprint for each generation mix. We use the same standard factors and World Bank data for generation mix to calculate the carbon footprint of the generation mix for each country. We are now able to compare the carbon footprint of each utility to that of the grid in which it sits, and to highlight utilities whose assets are effectively “greening their grid” and those whose assets are dirtier than average. We can also calculate the annual tonnes of carbon avoided for each utility and, ultimately, for the ownership stake of each investor.

We believe it is important to compare the generation mix and carbon footprint of each utility to that of the grid in which it sits, rather than to a global average, because the impact of various types of generation is quite different depending on the type of power it displaces: For example, a new gas-fired power station in predominantly renewables fuelled New Zealand would have quite a negative impact on the carbon footprint of the grid, whereas the same asset in predominantly coal fuelled China could have a positive impact.

It is worth noting that this is the same methodology as used by the EU Emissions Trading System in calculating the value of carbon offset credits, and that ‘carbon avoided’ is the most common impact measure for private equity owners of clean infrastructure assets.

We then apply the below filtering process. We eliminate all of the companies in the global universe whose emissions are less than 10% better than the grid in which they sit and also those companies whose generation mix includes more than 30% coal.

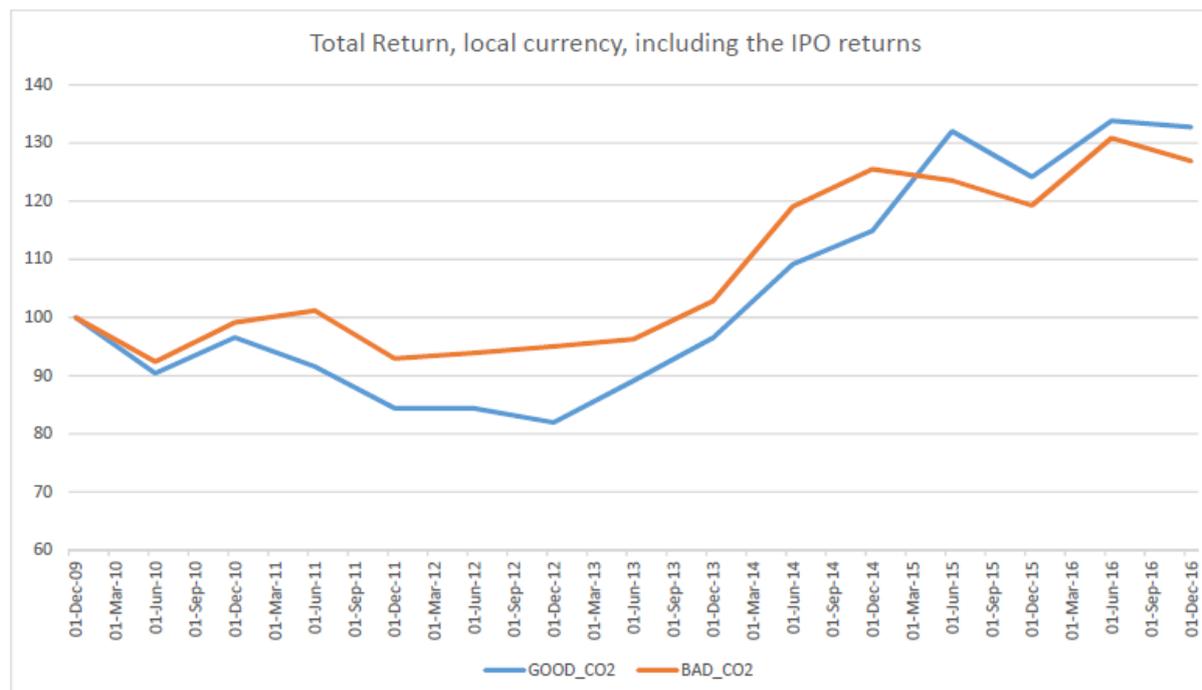
### Applying the filtering process



## How has the impact universe performed?

The resulting ‘impact’ universe of companies has performed very slightly better than the dirtier companies (which were excluded) since 2009. Looking ahead and over the longer-term, we would expect the impact universe to perform better than the peer average given the stranded asset risk inherent for owners of higher carbon-intensive generation.

### Share Price Performance of the Impact Universe since 2009



## The power of engagement

This methodology has maximum impact when applied as a tool for engagement. Rather than divesting from or simply underweighting the more carbon intensive utilities, asset owners can instead actively engage with these companies to encourage investment in cleaner generation, providing a ‘live’ measure of the carbon intensity of the local grid as the target to beat. As their peers become cleaner generators, companies will have to move more quickly to meet the required standards, resulting in a long-term virtuous circle which should encourage investment in ‘greening the grid’ for the future and enabling much needed electrification.

**APPENDIX: THE DEFINITION OF SCOPE 1, SCOPE 2 AND SCOPE 3 CARBON EMISSIONS<sup>vii</sup>**

- **Scope 1:** All direct GHG emissions from sources owned or controlled by the company. Some examples include emissions from fossil fuels burned on site, and emissions from entity-owned or leased vehicles.
- **Scope 2:** Indirect GHG emissions from consumption of purchased electricity, heat, or steam, and the transmission and distribution (T&D) losses associated with some purchased utilities.
- **Scope 3:** Other indirect emissions that occur from sources not owned or controlled by the company. Some examples of Scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.

Since Scope 3 emissions occur from sources not owned or controlled by the company, and the boundaries to measure Scope 3 emissions are not well-defined, it is not consistently calculated or disclosed by companies.

The inconsistency of Scope 3 emissions data makes it difficult to perform any meaningful comparative analysis across companies or industries. Further, due to lack of control of the emission sources and boundaries, it is difficult to estimate such emissions comprehensively.

**Notes and Sources:**

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<sup>i</sup> Source: Portfolio Decarbonization Coalition. <http://unepfi.org/pdc/>

<sup>ii</sup> Source: MSCI – Carbon Footprinting 101, September 2015

<sup>iii</sup> Source: MSCI – Carbon Footprinting 101, September 2015

<sup>iv</sup> Source: MSCI – Carbon Footprinting 101, September 2015

<sup>v</sup> Source: IRRIC Institute – Carbon Risks And Opportunities In The S&P 500

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<sup>vii</sup> Source of definitions: GHG Protocol