

Call for tenders: Forward-looking carbon footprint

February 4th, 2016

Context

2° Investing Initiative lead the EU-funded Sustainable Energy Investing Metrics consortium that aims at developing indicators allowing investors to assess the alignment of their portfolio with climate scenarios. The description of the project and the overview of the methodological approach applied to equity portfolios are available on our website. The results of the assessment a sample portfolio are available upon request. The project involves the creation of a database of forward-looking indicators related to the deployment of energy technologies and the production of fuels in selected sectors, as shown in the table and in further detail in Annex 1.

Industries	Technologies & fuels	Indicators	Number of companies and physical assets covered
Power	Coal, Gas, oil, Nuclear, Hydro, wind, solar, geothermal, etc.	Power capacity (MW) by technology (existing and planned)	~500 companies and 75,000 generating assets in OECD
Automotive	Petrol/diesel ICE, CNG, hybrid, electric, biofuels	Auto production by technology (existing and planned)	~50 companies and 95 million produced cars
Coal mining	Coal mine capacity	Coal production (tons; existing and projected) by type and breakeven price	~50 companies and 1400 assets
Oil & gas production	Field/area production	Oil and gas production (BBL, BCM; existing and projected) by type and breakeven price	~200 public companies, 25,000 fields/assets
Aviation	Jet/Plane ownership	Class, fuel efficiency (current and order book)	~50 companies, 40,000 jets and planes
Shipping	Ship ownership by class	Size, weight, fuel efficiency (current and order book)	<50 companies, 90,000 vessels
Heavy Industry (Cement, steel)	Plant ownership	Plant capacity, fuels used	Varies; ~1600 cement plants, >1000 steel plants

Objective

The overall objective of the mission is to develop GHG emission factors, in order to estimate the 'locked-in emissions' associated with each type of physical asset and each company.

Mission

Step 1. Defining the concept of locked-in emissions.

The consultant will review existing literature regarding the definition of 'locked-in emissions' and similar concepts, notably the IEA World Energy Outlook. On this basis, the consultant will propose a methodological framework to estimate the annual and locked-in emissions associated with the physical assets listed the table above. Considerations should include:

- How to estimate annual and lifetime production from production capacity where production data are unavailable (power, aviation, shipping, heavy industry)
- Accounting for average useful asset lifetime, existing age and depreciation of assets, potential for upgrade/rehabilitation, etc.
- Emissions factor sources and uncertainty
- Regional variability in all relevant factors

Step 2. Estimation methodology

For each type of physical asset listed in the database, the consultant will develop 'locked-in' emission factors, consistent with the overall framework. The methodology will allow estimating the locked-in emissions associated with each type of asset and the companies owning these assets. For each emission factor, the consultant will provide an estimation of the uncertainty (i.e. standard deviation) and variability. The emission factors should be developed in a way that allows comparability with the carbon budget associated with each type of asset in the IEA scenarios.

Step 3. Estimation

The consultant will apply the emission factors developed in step 2 to the components of databases listed in the table in order to come up with estimates per asset and company. The consultant will have access to the related databases from 2° Investing Initiative offices in Paris, London or New York.

Deliverables

- A discussion of the concept and options available to develop a methodological framework (step 1, part 1)
- An overall methodological framework (step 1, part 2)
- Emission factors specific to each type of asset, associated with uncertainty and variability estimates (step 2)
- The calculation of annual and locked-in emissions for each asset of the database (Step 3).

I.P. rights

All the IP rights associated with the deliverables will be transferred to the 2° Investing Initiative. 2° Investing Initiative will however allow the consultant to use and commercialize the output of the work, assuming no breach of the IP rights related to underlying databases.

Format and timeline

The consultant will submit a proposal of not more than 10 pages before March 1st 2016. The proposal should describe:

- 1) A proposed methodology for estimating annual and locked in emissions at asset level
- 2) Proposed data sources to complete the work
- 3) Team member expertise and qualifications for completing the work in a timely fashion
- 4) A detailed time budget, and associated budget and timeline.

Any suggested addition to the basic requirements, in terms of deliverables or tasks, that support the general objective is welcomed but should be clearly presented as an option and budgeted separately.

Any questions should be directed to Chris Weber: chris@2degrees-investing.org.

The consultant will be selected on March 15th. The deadlines for delivering the mission is April 15th 2015 for step 1, May 15th for step 2, and July 1st for step 3.

Industry Database	Fuel Taxonomy	Technology Taxonomy	Build year/age available?	Capacity/Production figure
Power: Globaldata	Coal Dual-Fuel Gas Hydro Ocean Thermal Technology Offshore Oil Onshore Onshore Repowered Solar CPV Solar PV Solar Thermal Tidal Technology Wave Technology	Steam Turbine Steam Turbine with Cogen Integrated Gasification Combined Cycle (IGCC) Thermal IGCC with Cogen Internal combustion with Cogen Gas Turbine Internal Combustion Combined Cycle Gas Turbine (CCGT) CCGT with Cogen Combined Cycle Internal Combustion Plant (CCICP) Gas Turbine with Cogen CCICP with Cogen Small Hydro Large Hydro Pumped Storage	Year plant brought online, historical and projected	Nameplate Capacity (MW) active and pipeline by technology and fuel
Automotive (light duty): WardsAuto	Petrol Diesel CNG/LNG biofuels	Make and model by >30 major light duty automotive producers	Production by year (actual and projected)	Light duty auto production by make and model , drivetrain, and fuel (existing and planned)
Coal mining	N/A	Coal production at company level	None currently	Coal production (tons; existing and projected) by type and breakeven price
Oil & gas production— Globaldata	N/A	Annual Oil production by geology Annual Gas production by geology Remaining recoverable resources Remaining NPV	Year of initial production	Annual Oil production by geology Annual Gas production by geology Remaining recoverable resources Remaining NPV
Aviation: CAPA database	N/A—all use jet fuel	Detailed aircraft models (e.g. Boeing 767-300, Airbus A319-100)	Year of production/purchase	Number of aircraft owned (current and order book)
Shipping: Shippingefficiency.org	Not available	Major class of ship (e.g. oil tankers) Size/weight of ship Fuel efficiency	Year of production/purchase	Number of ships owned (current and order book)



Cement: Cemnet	Gas Coal Coke Used/Waste oil	Major type of cement (blended, masonry, etc.) Kiln type	Not available	Clinker capacity (Mta) Cement capacity (Mta)
Steel: Plantfacts	Gas Coal Coke Used/Waste oil	Blast furnaces Electric Arc furnaces Direct Reduction plants Cold rolling mills Hot strip mills Continuous slab casting Etc.	Year of construction/ modernization	Iron capacity (Mta) Steel capacity (Mta) Steel production (t/day) for some types of plants Full data here