THE OPEN GROUP OPEN FOOTPRINT™ FORUM

THE Open GROUP®

Open Footprint™ Forum

Global Event

June 23-24, 2021

Open Footprint™
Industry Sectors – Project 1 Team 4

Ravindra Balija

GM, Digital Technologies & Architecture

Wipro Technologies

Objectives & Team

- Industry specific needs
  - Start collecting what you know about industry specific needs:
    - Data / Fields
    - Reporting
    - Metadata
    - Factors.
- Team

• Aditya Sen (Wipro) • Charles Bower (Shell) • Ian Sealy (Schlumberger) • Maialen Camblong (Capgemini) • Ravindra Balija (Wipro)	• Karin Witton (Halliburton) • Stuart Kirbell (Equinor) • Franz Helin (Chevron) • Tanya Yatchenia (Shell)

Summary of Standards

Global

- Carbon Disclosure Project (CDP)
- WBCSD/WRI GHG Protocol Corporate Standard
- IPCC GHG Workbook
- ISO 14064
- Global Reporting Initiative (GRI)
- SASB

European

- EU Emissions Trading Scheme (EU ETS)
- DEFRA Guidelines
- French Bilan Carbone
- UK Carbon Reduction Commitment (CRC)
- The Carbon Trust Standard (CTS)

North America

- US Regional Greenhouse Gas Initiative (RGGI)
- US Climate Registry (TCR) General Reporting Protocol
- USEPA GHG Rule
- E-Grid

APAC

- Japanese Voluntary ETS(J-VETS)
- Japanese GHG Reporting Scheme
- Australian Carbon Pollution Reduction Scheme (CPRS)
- Australian National Greenhouse and Energy Reporting (NGER) Scheme

Industry Sector

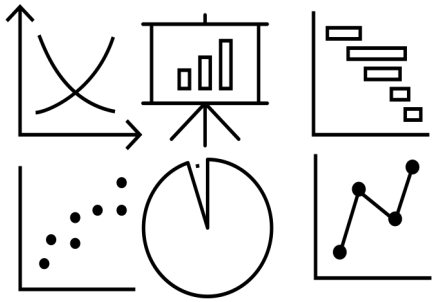
- Petroleum industry guidelines for reporting greenhouse (API)
- International Aluminum Institute
- Airports Council International
- The International Council on Mining and Metals(ICMM)
- International Civil Aviation Organisation
- The International Convention for the Prevention of Pollution from Ships (**MARPOL**)

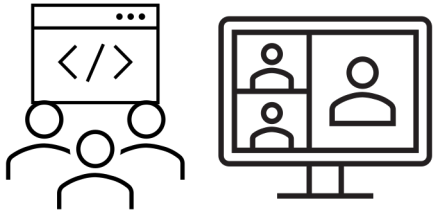
Voluntary/Guidelines/Content | Regulatory and Compliance | Industry Sector

THE OPEN GROUP OPEN FOOTPRINT™ FORUM

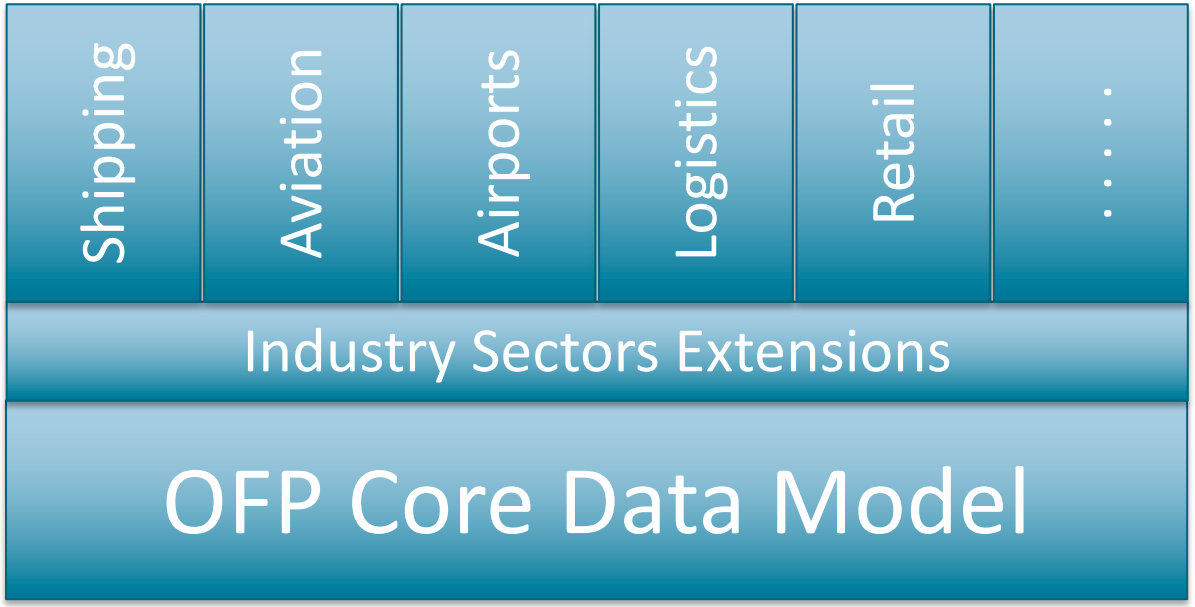
Applicability in OFP

Various Reporting Standards





Secondary Research
Professional Experience



Airports Environments Reporting

- Voluntary standard (Airport Carbon Accreditation – ACA) established by Airports Council International (ACI)
- ACA provides levels of accreditation with standards based upon GHG protocol and ISO06976
- Highest accredited level of 3+ requires reporting of scope 1, 2 and 3 + carbon offsetting
  - Boundaries for scope 3 are defined and include
    - Aircraft on ground and up to 3000ft
    - Ground traffic inc staff, passengers, air craft crew travelling onto site
- Factors and calculations set by local requirements eg Defra in the UK
- EU ETS reporting is required
- Req. to report CO2 but airports also report on other emissions eg NOX, ultra fine particles, air quality, noise pollution

Airline Industry Standards & Reporting

- International Civil Aviation Organization (ICAO) provides global market-based measure to address CO2 emissions from international aviation
- Carbon Offsetting and Reduction Scheme for International Aviation (CORISA), aims to stabilize CO2 emissions at 2020 levels
- Boundary
  - All operators (with annual emissions greater than 10,000 tonnes of CO2), will have to monitor, report and verify CO2 emissions from all their international flights to their national authority ("administrating authority") on an annual basis.
  - Baseline of CORSIA will be set using the average annual emissions between 2019 and 2020
- Calculations
  - Simplified Monitoring can calculate their emissions using the ICAO CORSIA CO2 Estimation and Reporting Tool (CERT). The CO2 Estimation Models based on great circle distance or block time for a given aircraft type
    - Use during baselining period (2019-2020)
    - Operators whose total annual CO2 emissions is below 50,000 tonnes or Operators not subject to Offsetting requirements
  - Fuel Use Monitoring (for operators emitting greater than 50,000 tonnes of CO2)
    - 5 Methods described in CORISA Handbook
- Verification
  - Independent verification by an Authority accredited by NAB (National Accreditation Body) to ISO 10465:2013 and additional CORISA specific requirements
- Offsets

Shipping

- Companies in general report as per the GHG protocol (In the context of transportation).
- IMO DCS (International Maritime Organization Data Collection System), all vessels larger than 5000 tonnes gross tonnage need to report their fuel/bunker consumption.
- Emissions calculations is defined by IMO. Emissions are based on fuel type and Engine type used in the vessel.
- Marpol in IMO defines compliance standards for reducing emissions –
  - Energy Efficiency Design Index (EEDI), which requires new ships to comply with minimum mandatory energy efficiency performance levels.
  - Ship Energy Efficiency Plan (SEEMP), establishes a mechanism for shipowners to improve the energy efficiency of both new and existing ships using operational measures such as weather routing, trim and draught optimization, speed optimization, just-in-time arrival in ports, etc.

Manufacturing

	Boeing	Foxconn	GE	Volkswagen	Ingersoll Rand	Siemens	Nestle	Toyota
Scopes Reported								
Scope 1	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)
Scope 2	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)	Yes (Absolute #)
Scope 3	Yes (Bus' Travel Only)	No	Yes ("Limited")	Yes (Absolute #)	No	Yes (Absolute #)	No	Yes (Absolute #)
# Scope 3 Categories Cover	Business Travel Only	Not Provided	Not Provided	Very Detailed	Not Provided	Very Detailed	Not Provided	Very Detailed
For Each Scope:								
Metric used	S1: Metric Tons + Tons S2: Metric Tons + Tons S3: Metric Tons + Tons	S1: Metric Tons S2: Metric Tons S3: NA	S1: Metric Tons S2: Metric Tons S3: Metric Tons	S1: Metric Tons S2: Metric Tons S3: Metric Tons	S1: Metric Tons S2: Metric Tons S3: NA	S1: Metric Tons S2: Metric Tons S3: Metric Tons	S1: Metric Tons S2: Metric Tons S3: NA	S1: Metric Tons S2: Metric Tons S3: Metric Tons
Denominator (s) if normalized	S1: None S2: None S3: None	S1: Revenue S2: Revenue S3: None	S1: None S2: None S3: None	S1: Kg/Unit Production S2: Kg/Unit Production S3: NA	S1: None S2: None S3: None	S1: None S2: None S3: None	S1: Unit Product S2: Unit Product S3: None	S1: Kg/Unit Production S2: Kg/Unit Production S3: NA
Broken down into sub-components of the scope	S1: No S2: No S3: No	S1: No S2: No S3: No	S1: No S2: No S3: No	15 Scope 3 categories	S1: No S2: No S3: No	6 Scope 3 categories	S1: No S2: No S3: No	15 Scope 3 categories
How they present Conversion Factors / which they use	S1: NA S2: NA S3: NA	S1: IPCC #4 S2: IPCC #4 S3: NA	S1: US EPA+IPCC+WRI S2: US EPA+IPCC+WRI S3: NA	NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA	"Emission factors have been calculated according to the calculation methods of each affiliate in each region"
% of business covered	S1: NA S2: Listed Sites Only S3: NA	S1: NA S2: NA S3: NA	S1: List of Exceptions S2: "Large Sites" Only S3:	S1: NA S2: NA S3: NA	S1: % Revenue Covered S2: NA S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA
Business units covered (how – product line/ geography/ sub company)	S1: NA S2: NA S3: NA	S1: Geo' Region S2: Geo' Region S3: NA	S1: List of Exceptions S2: "Large Sites" Only S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA	General statements on boundaries of reported data	S1: NA S2: NA S3: NA	S1: Geo' Region S2: Geo' Region S3: NA
Location Based and/ or Market Based	S1: NA S2: Both S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: Location Based S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: Both S3: NA	S1: NA S2: NA S3: NA	S1: NA S2: NA S3: NA

Logistics

- ChemMultimodal CO2 Calculator Guidance provides two methods:
  - Activity-based method, uses CO2 factor per tonne-km, transport volume and distance
    - Recommended for companies where most of their transport operations are outsourced (e.g. chemical companies)
    - No access to fuel data
    - More accurate CO2eq can be determined using:
      - Load factor
      - Share of Empty Running
      - Energy efficiency of transport mode (vehicle, train, or vessel)
      - Carbon intensity of energy source (source of electricity, biofuels)
    - Global Logistics Emissions Council (GLEC) Framework also recommends use of tonne-km for calculations
  - Energy-based method, based on fuel consumption data
    - More accurate method
    - Requires fuel consumption data
- Guidance on Measuring and Reporting Greenhouse Gas (GHG) Emissions from Freight Transport Operations provides a variety of intensity measurements used including metrics based on:
    - Volume (CO2eq per tonne lifted, litre-for liquids only, pallet, etc)
    - Distance and volume (CO2eq per tonne-km, litre-km, pallet-km, etc)
    - Financial ratios (CO2eq per EBITDA- Earnings before interest, taxes, depreciation and amortisation)

Power Generation & Distribution

- Generation
  - Scope 1
    - Consumption of input fuel (usually coal, gas, oil, biomass, diesel) at generation facilities
    - Non generation site emissions (transportation etc) where these emissions are owned or controlled (ISO 14064-1:2018) by the generator (eg leased vehicles can be scope 3)
  - Scope 2 – relatively minor source for most generators
    - Distribution losses
    - Power usage during outages when importing from the grid
    - Power usage at nuclear and renewable generation units
    - Power usage in buildings
  - Scope 3
    - Power purchased and resold to customers
- Transmission & Distribution
  - Scope 2 if T&D company has no generation
    - Lost Power is power exported to transmission minus power consumed

Retail Company Emissions Reporting

For consumer goods companies and retail stores:

Sourcing of Raw Materials	Manufacturing	Transportation	Customer use of product	End of life disposal
• Scope 1 and 3	• Scope 1 dominantly • Scope 3 if they outsource the manufacturing • Scope 2 emissions from electricity & heating facilities	• Scope 1 for owned and operated fleet • Else Scope 3	• Scope 3. Important from an eco-friendliness perspective and how polluting the products are	• Scope 3. Important from an eco-friendliness perspective and how polluting the products are

For marketplace aggregators:

Warehousing and backend operations	Manufacturing	Transportation	Packaging
• Scope 1 and 2	• Scope 1 dominantly • Scope 3 if they outsource the manufacturing • Scope 2 emissions from electricity & heating facilities • E.g. Kindle/Fire stick sold by Amazon	• Scope 1 for owned and operated fleet • Else Scope 3	• Important from an eco-friendliness perspective and how polluting the products are

Key Take-aways

- No common standards for storing and managing Emissions data
- Think Layering
  - Global Standards -> Industry Sector Specific Standards -> Regional Specific Standards
- Differences in granularity of reporting within an Industry Sector
- How to enable exchange of data across the supply chain
  - Standard, consistent and transparent manner
- Other Industries planned for Assessment
  - Pharma
  - Forestry
  - Cement

References

- Sustainability and Emissions Reports from different Companies
- Aviation
  - Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (icao.int)
  - https://www.icao.int/environmental-protection/CORSIA/Pages/CERT.aspx
- Airports
  - Airport Carbon Accreditation - Home
- Freight & Logistics
  - https://www.interreg-central.eu/Content.Node/ChemMultimodal/D.T1.2.9-CO2-Calculator.pdf
  - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/218574/ghg-freight-guide.pdf
- Calculation Tools | Greenhouse Gas Protocol (ghgprotocol.org) – Provides cross sector, country specific and sector specific tools
- Shipping
  - https://mrv.emsa.europa.eu/#public/emission-report
  - Greenhouse Gas Emissions (imo.org)

Thank You!