Microsoft

PIDX
EMISSIONS TRANSPARENCY

Transforming supply chains in transitioning to net-zero

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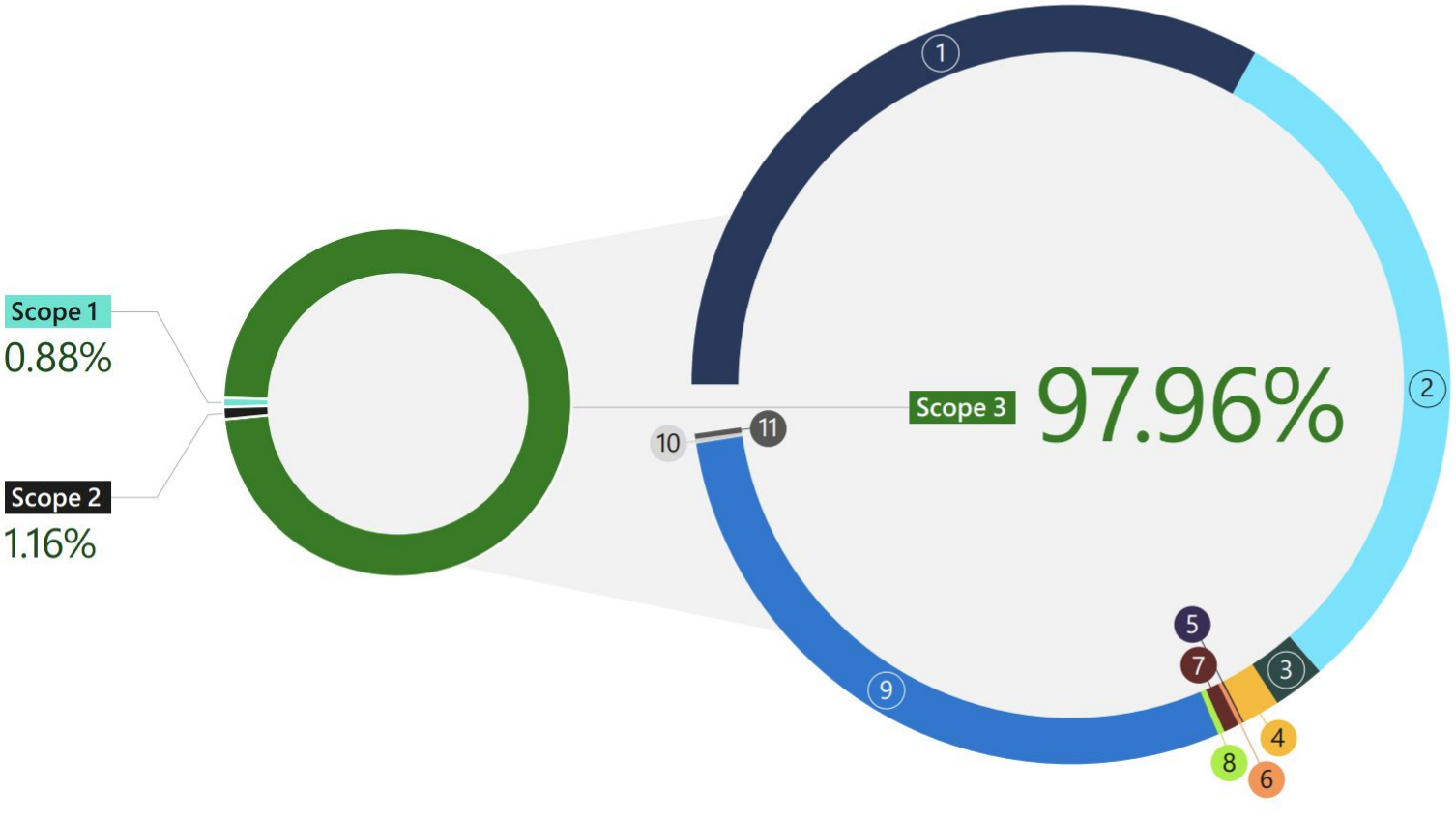
Scope 1 & 2

Thanks for the LinkedIn post Lubomila Jordanova.

#1 Why should I care about Scope 3 Emissions?

Breaking down of our FY21 Scope 3 emissions by source

Scope 3 represents the majority of Microsoft's emissions, and we are committed to reducing these emissions by more than 50 percent by 2030. Tracking and reporting against this category of emissions is critical for net zero progress.



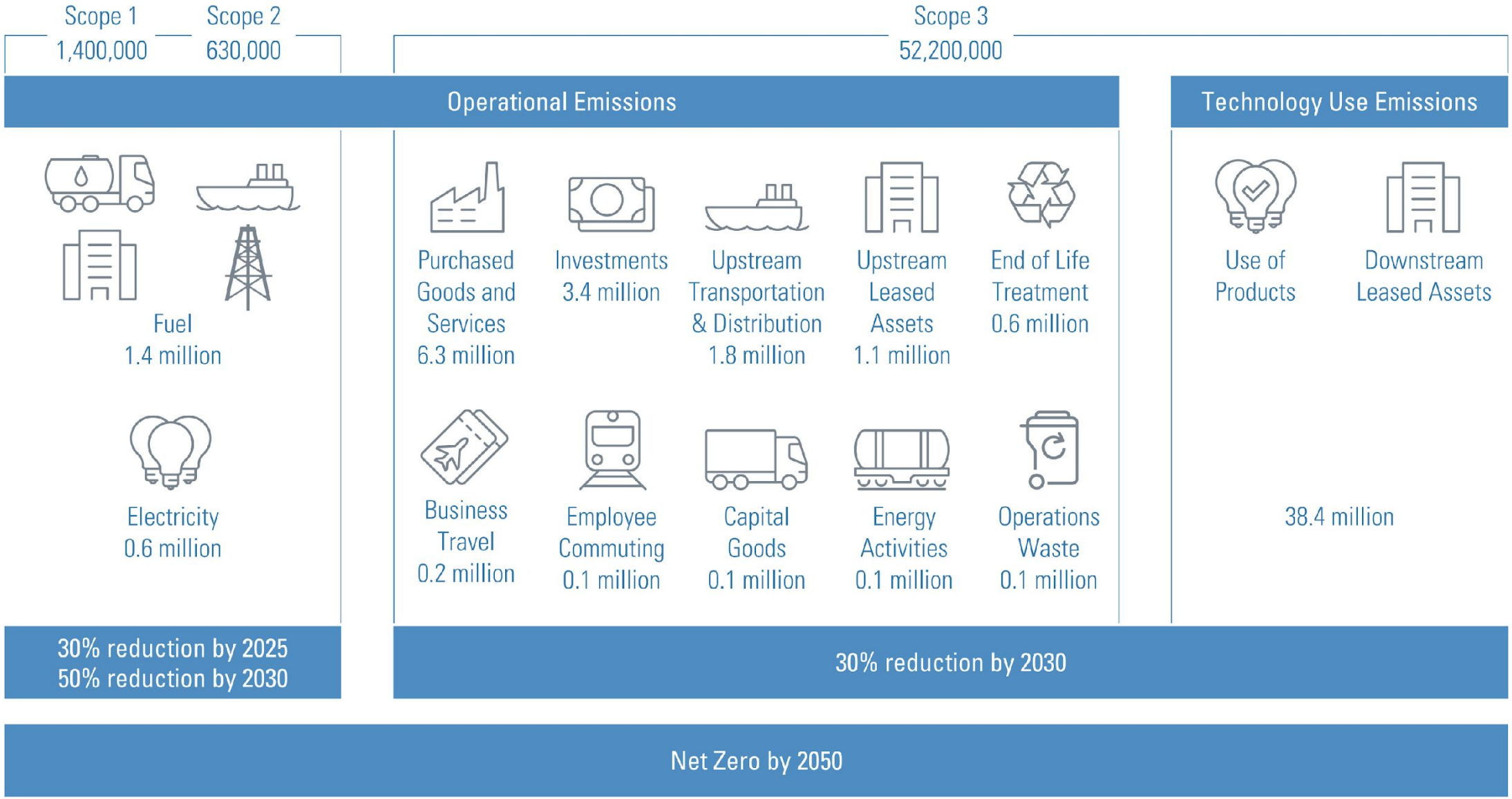
Scope 3 Categories

1	Purchased Goods & Services	35.03%
2	Capital Goods	29.70%
3	Fuel- and Energy-Related Activities (Market-Based)	2.20%
4	Upstream Transportation	1.60%
5	Waste	0.04%
6	Business Travel	0.16%
7	Employee Commuting	0.57%
8	Downstream Transportation	0.32%
9	Use of Sold Products	28.07%
10	End of Life of Sold Products	0.14%
11	Downstream Leased Assets	0.13%

See appendix for more data on our carbon emissions

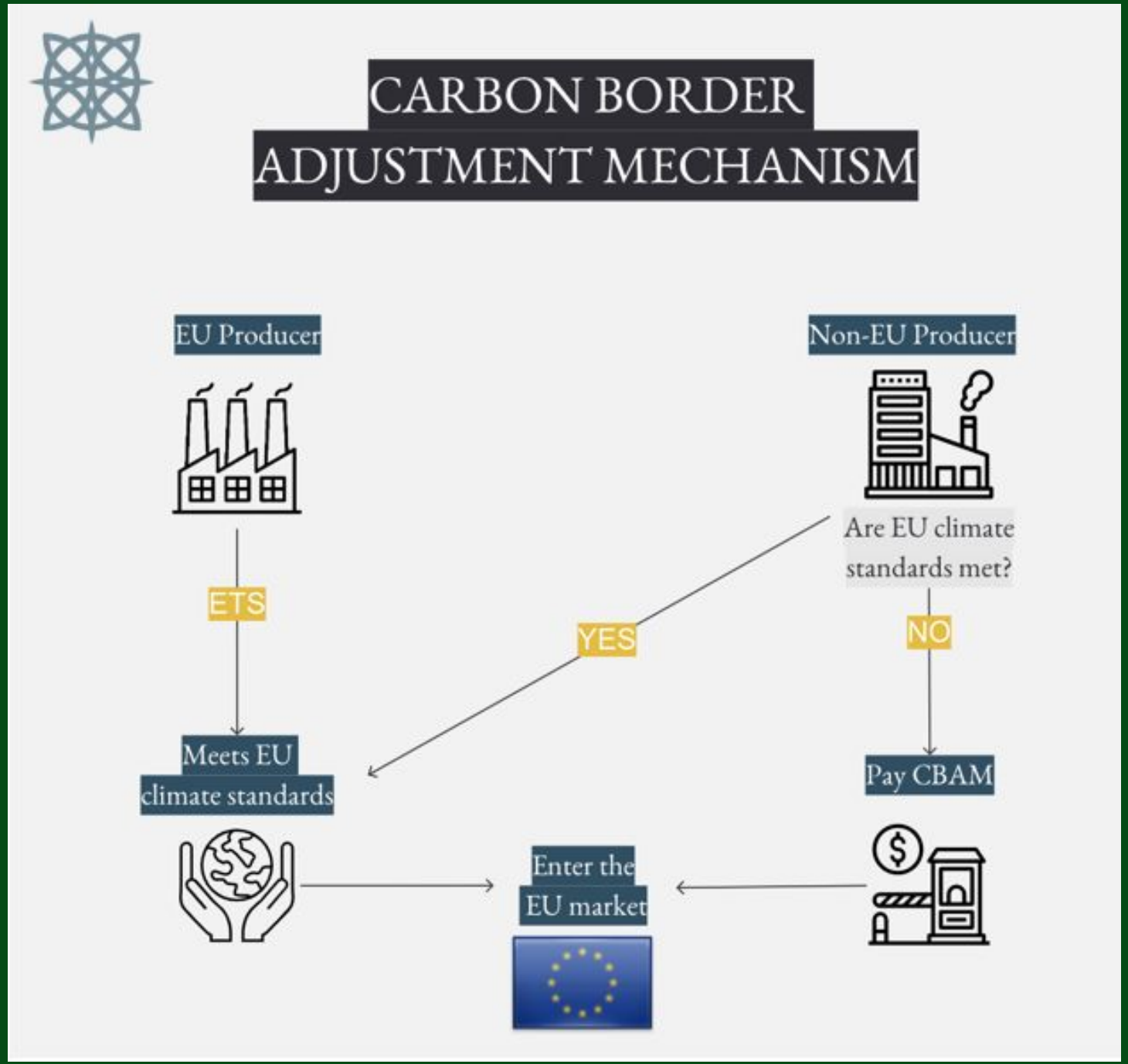
https://www.microsoft.com/en-us/corporate-responsibility/sustainability/report

96.25%



https://www.slb.com/sustainability/pdf/SLB_2020_Sustainability_Report.pdf

#2 Border Carbon Adjustment Regulations will enforce Scope 3 exchange thru the supply chain



#3 Challenges with calculation and reporting of Scope 3 GHG emissions

Lack of standards

Or abundance

Slow, manual processes

Value Chain

Scope 3 emissions

"Today, carbon accounting suffers from data quality issues, measurement and reporting inconsistencies, siloed platforms, and infrastructure challenges. This makes it difficult to compare, combine and share reliable data, particularly for companies."

The Carbon Call – Feb 10, 2022

Demo – Automated Calculation of Scope 3, Microsoft Cloud for Sustainability

Kadri Umay

Scope 3 emissions

Sustainability dashboard

Reporting period: January 1, 2021 - December 31, 2021

Filters

Reporting period

- (●) Current reporting period
- ( ) 2020
- ( ) 2019
- ( ) 2018

Scope 3 emissions ($mtCO_2e$)

918

Previous period: 744 (+23.4028%)

Category	
1 Purchased goods and services	290
2 Capital goods	346
3 Fuel and energy related activities	
4 Upstream transportation and distribution	55
5 Waste generated in operations	
6 Business travel	
7 Employee commuting	
8 Upstream leased assets	
9 Downstream transportation and distribution	226
10 Processing of sold products	
11 Use of sold products	
12 End-of-life treatment of sold products	
13 Downstream leased assets	
14 Franchises	
15 Investments	

Scope 3 emissions | Scope 3 emissions by category | Scope 3 emissions by category (line chart)

Show comparison by year

Off

By category | Category 1 by supplier | Category 2 by supplier | Category 6 by business travel

Category	Emissions
Capital goods	**346.48**
Other real estate	181.43
Construction	87.26
Electrical equipment, appliances, and	31.32
Motor vehicle and parts dealers	22.12
Machinery	20.89
Computer and electronic products	3.40
Motor vehicles, bodies and trailers, and parts	0.05
Purchased goods and services	**289.76**
Food and beverage and tobacco products	107.46
Total	**917.75**

By country / region | By organizational unit | By facility

Country	Scope 3 emissions
USA	448.72
KEN	237.03
GBR	99.90
AUS	60.13
SGP	56.42
JPN	14.47
CRI	0.87
BRA	0.20
Total	**917.75**

Activity data

Get to know the details of your company's greenhouse gas emissions by exploring your activity data. Learn more about activity data

Scope 1: Direct emissions

Source	Data	Connections	Number of connections
Fugitive emissions	View	Manage	0
Industrial process	View	Manage	0
Mobile combustion	View	Manage	0
Stationary combustion	View	Manage	0

Scope 2: Indirect emissions

Source	Data	Connections	Number of connections
Purchased cooling	View	Manage	0
Purchased electricity	View	Manage	0
Purchased heat	View	Manage	0
Purchased steam	View	Manage	0

Scope 3: Value chain | upstream

Source	Data	Connections	Number of connections
1. Purchased goods and services	View	Manage	0
2. Capital goods	View	Manage	0
4. Upstream transportation and distribution	View	Manage	0
6. Business travel	View	Manage	0

Scope 3: Value chain | downstream

Source	Data	Connections	Number of connections
9. Downstream transportation and distribution	View	Manage	0

Select data type
Choose connector
Create connection
Schedule data import
Review and finish

New data connection

Select data type

Choose the type of data you'll import using this connection.

- (•) Activity data
- ( ) Pre-calculated emissions
- ( ) Reference data

Activity data

Scope 1: Direct emissions
Fugitive emissions
Industrial process
Mobile combustion
Stationary combustion
Scope 2: Indirect emissions
Purchased cooling
Purchased electricity
Purchased heat
Purchased steam
Scope 3: Value chain | upstream
1. Purchased goods and services
2. Capital goods
4. Upstream transportation and distribution
6. Business travel
Scope 3: Value chain | downstream
9. Downstream transportation and distribution

Back Next

Power Query

Choose data source

Select a connector or directly drag a file from your computer.

All categories | File | Database | Power Platform | Azure | Online services | Other

Search

Excel workbook File	Text/CSV File	XML File	JSON File	Folder File	PDF File	Parquet File	SharePoint folder File
SQL Server database Database	Access Database	SQL Server Analysis Services Database	Oracle database Database	IBM Db2 database Database	MySQL database Database	PostgreSQL database Database	Teradata database Database
SAP HANA database Database	SAP BW Application Server Database	SAP BW Message Server Database	Snowflake Database	Google BigQuery Database	Amazon Redshift Database	Impala Database	Dataflows Power Platform
Dataverse Power Platform	Azure SQL database Azure	Azure Synapse Analytics (SQL D... Azure	Azure Analysis Services Azure	Azure Blobs Azure	Azure Tables Azure	Azure Data Explorer (Kusto) Azure	Azure Data Lake Storage Gen2 Azure
Azure HDInsight Spark Azure	SharePoint Online list Online services	Microsoft Exchange Online Online services	Salesforce objects Online services	Salesforce reports Online services	Google Analytics Online services	Adobe Analytics Online services	Web API Other
Web page Other	SharePoint list Other	OData Other	Spark Other	Odbc Other	FHIR Other	Blank table Other	Blank query Other

Show Chart | New | Refresh | Email a Link | Flow | Run Report | Excel Templates | Export to Excel | Import from Excel | Create view

Downstream transportation and distribution

Edit columns | Edit filters | Search this view

Name	Description	Cost	Cost unit	Fuel quan...	Fuel quan...	Goods qu...	Goods qu...	Distance	Distance ...	Data qual...	Facility	Organizat...	Transport...	Transport...	Evidence	Consump...	Consump...	Connection	Origin co...
Commercial Transport	Demo da...					114.9267...	metricton	1,113.347...	mile	Actual	Contoso ...	Contoso ...	Downs...	Aircraft		4/1/2020	4/30/2020		
Commercial Transport	Demo da...					44.64152...	metricton	1,370.060...	mile	Actual	Contoso ...	Contoso ...	Downs...	Aircraft		9/1/2021	9/30/2021		
Commercial Transport	Demo da...					119.4558...	metricton	1,326.090...	mile	Actual	Contoso ...	Contoso ...	Downs...	Aircraft		1/1/2019	1/31/2019		
Commercial Transport	Demo da...					59.59283...	metricton	1,216.530...	mile	Actual	Contoso ...	Contoso ...	Downs...	Aircraft		5/1/2020	5/31/2020		
Commercial Transport	Demo da...					68.62222...	metricton	1,317.001...	mile	Actual	Contoso ...	Contoso ...	Downs...	Aircraft		10/1/2021	10/31/20...		
Direct Product Delivery	Demo da...					1,361.422...	lb	2,033.866...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Light-Dut...		9/1/2021	9/30/2021		
Direct Product Delivery	Demo da...					1,310.586...	lb	2,589.103...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Passenge...		12/1/2021	12/31/20...		
Direct Product Delivery	Demo da...					1,153.515...	lb	2,718.920...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Passenge...		2/1/2021	2/28/2021		
Direct Product Delivery	Demo da...					1,399.110...	lb	2,748.428...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Light-Dut...		6/1/2021	6/30/2021		
Direct Product Delivery	Demo da...					1,265.380...	lb	2,923.482...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Medium-...		4/1/2021	4/30/2021		
Direct Product Delivery	Demo da...					1,167.295...	lb	2,580.723...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Light-Dut...		12/1/2020	12/31/20...		
Direct Product Delivery	Demo da...					1,305.781...	lb	2,503.286...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Light-Dut...		6/1/2020	6/30/2020		
Direct Product Delivery	Demo da...					1,284.107...	lb	2,131.744...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Medium-...		10/1/2021	10/31/20...		
Direct Product Delivery	Demo da...					1,340.888...	lb	2,640.170...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Passenge...		11/1/2020	11/30/20...		
Direct Product Delivery	Demo da...					1,157.095...	lb	2,254.114...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Light-Dut...		3/1/2020	3/31/2020		
Direct Product Delivery	Demo da...					1,186.750...	lb	2,037.680...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Light-Dut...		9/1/2020	9/30/2020		
Direct Product Delivery	Demo da...					1,107.420...	lb	2,919.893...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Medium-...		7/1/2021	7/31/2021		
Direct Product Delivery	Demo da...					1,238.987...	lb	2,752.590...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Medium-...		1/1/2020	1/31/2020		
Direct Product Delivery	Demo da...					1,335.721...	lb	2,968.487...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Medium-...		4/1/2020	4/30/2020		
Direct Product Delivery	Demo da...					1,117.393...	lb	2,914.111...	mile	Actual	Atlantic Y...	Contoso ...	Downs...	Medium-...		7/1/2020	7/31/2020		
Downstream shipping	Demo da...					56.40438...	ton	625.1279...	mile	Actual	Contoso ...	Contoso ...	Downs...	Waterbor...		1/1/2020	1/31/2020		
Downstream shipping	Demo da...					89.38067...	ton	695.4498...	mile	Actual	Contoso ...	Contoso ...	Downs...	Rail		6/1/2021	6/30/2021		

Factor libraries

Factors are used in calculation models to convert one type of data into another type. For example, one emission factor can convert electricity usage into metric tons of carbon dioxide. Learn more about factors

Create new library

Emission factors

Name	Type	Version	Year	Description	Origi...
Demo energy emission factor library	Demo			Demo data or other example...	
Demo energy market based	Demo			Demo data or other example...	
EPA 2020 - Supply chain GHG emission factors - v1.0	Standard		2020	EEIO factors based on spend ...	
EPA 2021 - Business travel GHG emission factors	Standard		2021	Factors based on business tra...	
EPA 2021 - eGRID	Standard		2021	eGrid, steam, and heat factors	
EPA 2021 - Mobile Combustion Fuels	Standard		2021	CO2 factors for fuels based o...	
EPA 2021 - Mobile Combustion Vehicles	Standard		2021	CH4 and N2O factors based ...	
EPA 2021 - Stationary Combustion Fuels	Standard		2021	Factors based on mass and v...	
EPA 2021 - Transportation and distribution	Standard		2021	Factors for upstream and do...	
EPA 2022 - Business travel GHG emission factors	Standard		2022	Factors based on business tra...	
EPA 2022 - eGRID	Standard		2022	eGrid, steam, and heat factors	
EPA 2022 - Mobile Combustion Fuels	Standard		2022	CO2 factors for fuels based o...	
EPA 2022 - Mobile Combustion Vehicles	Standard		2022	CH4 and N2O factors based ...	
EPA 2022 - Stationary Combustion Fuels	Standard		2022	Factors based on mass and v...	
EPA 2022 - Stationary Combustion Fuels in MMBTU	Standard		2022	Factors for fuels in energy units	
EPA 2022 - Supply chain GHG emission factors - v1.1	Standard		2022	EEIO factors based on spend ...	
EPA 2022 - Transportation and distribution	Standard		2022	Factors for upstream and do...	
IPCC 1.A.1 Energy Industries	Standard		2006	Factors for energy activities fr...	

Show Chart | New | Create view

Active emission calculations

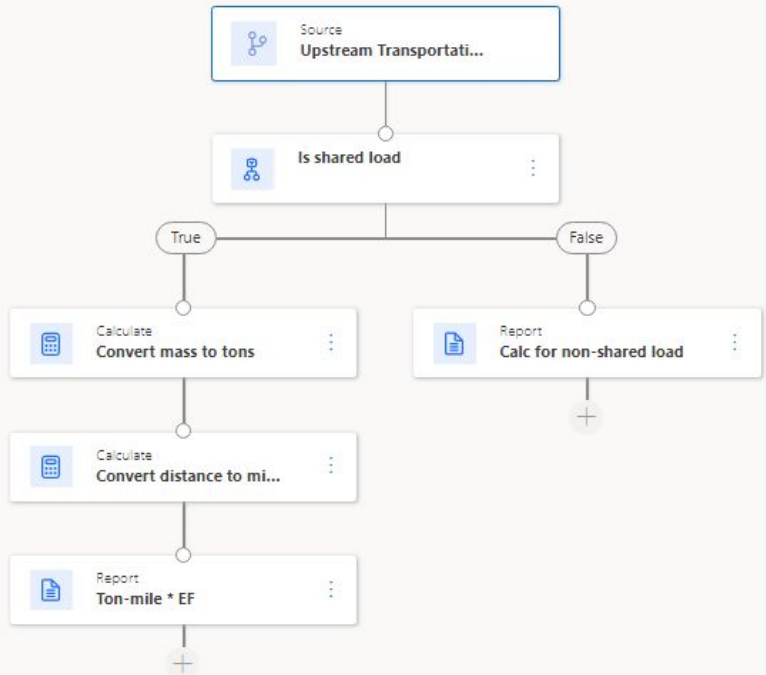
Edit columns | Edit filters

Name	Type	Emissions source	Description	Calculation method	Documentation reference
Business Travel	Standard	Business travel		EPA Business Travel factors and ...	https://ghgprotocol.org/standa...
Capital Goods	Standard	Capital goods		Spend type * commodity code	https://ghgprotocol.org/standa...
Downstream Transportation and Distribution	Standard	Downstream transportation an...		Ton/mile * distance quantity	https://www.epa.gov/climatele...
Fugitive Emissions	Standard	Fugitive emissions		EPA: Screening Method	https://www.epa.gov/sites/defa...
Mobile Combustion	Standard	Mobile combustion		EPA Equation 1,4,5	https://www.epa.gov/sites/defa...
Purchased Cooling	Standard	Purchased cooling		Emissions = Electricity x EF	https://www.epa.gov/sites/defa...
Purchased Electricity: Location-Based	Standard	Purchased electricity		EPA Equation 1: Electricity (MW...	https://www.epa.gov/sites/defa...
Purchased Electricity: Market Based	Standard	Purchased electricity		EPA Equation 1: Electricity (MW...	https://www.epa.gov/sites/defa...
Purchased Electricity: Renewable	Standard	Purchased electricity		EPA. Table 6, Equation 1: Electri...	https://www.epa.gov/sites/defa...
Purchased Goods and Services	Standard	Purchased goods and services		Spend type * commodity code	https://ghgprotocol.org/standa...
Purchased Heat	Standard	Purchased heat		Emissions = Electricity x EF	https://www.epa.gov/sites/defa...
Stationary Combustion	Standard	Stationary combustion		Fuel Analysis Method 1: Fuel * EF	https://www.epa.gov/sites/defa...
Stationary Combustion HHV Fuels	Standard	Stationary combustion		Fuel Conversion	https://www.epa.gov/sites/defa...
Upstream Transportation and Distribution	Standard	Upstream transportation and di...		Ton/mile * distance quantity	https://www.epa.gov/climatele...

Upstream Transportation and Distribution

Cannot edit default calculation models. To make changes, please create a copy of the model and edit the copy.

Copy | Save



Source Details

Last updated: 7/31/2022 11:53 AM

Category name *

Upstream Transportation and Distribution

Activity data *

4. Upstream transportation and distribut...

Calculation method

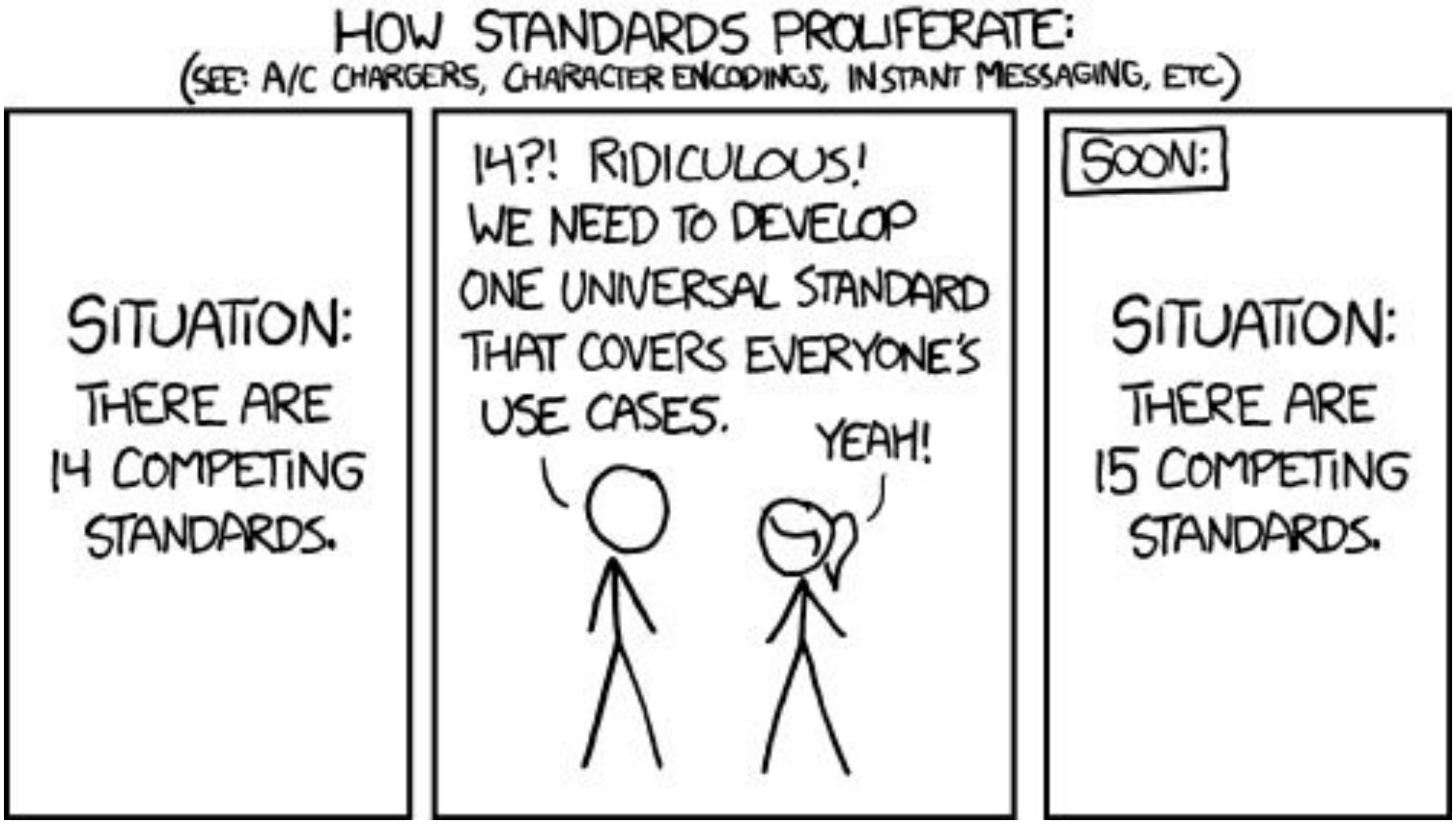
Ton/mile * distance quantity

Documentation reference

https://www.epa.gov/climateleadership/sco...

PIDX ETDX Group has been founded to set standards for flowing Scope 3 emissions across supply chains

What PIDX ETDX is not doing



https://xkcd.com/927/

EMISSIONS TRANSPARENCY DATA EXCHANGE (ETDX)(SPT02b)

PIDX EMISSIONS TRANSPARENCY

April - May 2021

June - September 2021

October - November 2021

00	10	20	30	40	50	60	70	Standard
Preliminary	Proposal	Executive Vote on PTP	Business Processes	Construction & WG Vote On Draft	S&G Vote on Draft	Executive Vote on Draft	Member Vote On Draft	published

PARTICIPANTS

- Baker Hughes
- Schlumberger
- BP
- Chevron
- ConocoPhillips
- Global Carbon ESG
- Global Value Web
- Halliburton
- Independent Data Services
- Microsoft
- OFS Portal
- Shell
- Sphera
- Sullexis
- Engage Mobilize

BENEFITS

Clarity on energy standards by region, regulation, etc.
Transparency of reporting
Alignment between operators, suppliers and network on data needed to meet requirements.
Technical integrations (APIs, etc) for reuse and sustainability
Potential savings of 1-2FTE in resource savings by participant working collaboratively in the PIDX framework

GOALS/ DELIVERABLES

Develop the energy transition standards for data exchange regarding carbon emissions and other energy transition-type needs that are designed to be harmonized/normalized across industry participants.

- Perform Collaborative Discovery (gather requirements from participating members and including industry best practices and other bodies [UN, CDP])
- Develop scope, metrics and standards for data exchange normalized across industry participants.
- Provide a proposal on standards for data exchange as well as how data would be collected - via data models and data definitions for carbon footprint as well as a recommendation for pilots, POCs. Need to have an agile mindset and, via iterations, solve for specific needs to show progress on a “minimum viable product” in two phases: 1) harmonization of a specific energy transition-type need (data) across industry participants and 2) develop a prototype of collecting, normalizing the data.

ETDX MISSION

PIDX ETDX is developing use cases for data exchange along the value chain, exploring how the existing PIDX schemas could be extended to support the transfer of emissions data from supplier to operator, and vice versa.

The PIDX ETDX team is also looking at leveraging the reference data that PIDX manages, including Downstream Master Codes for Products, Companies, and Terminals—as well as references in the Petroleum Industry Data Dictionary (PIDD)—an open, royalty-free dictionary that classifies products and services with more than 4,100 templates mapped to UNSPSC.

PIDX™
EMISSIONS TRANSPARENCY

PIDX INTERNATIONAL + OPEN GROUP

PIDX ETDX is collaborating with The Open Group Open Footprint™ Forum. The Open Group Open Footprint™ Forum's mission is to create a definitive platform for emissions data (e.g., water, land, energy) and base calculations to standardize and compile data.

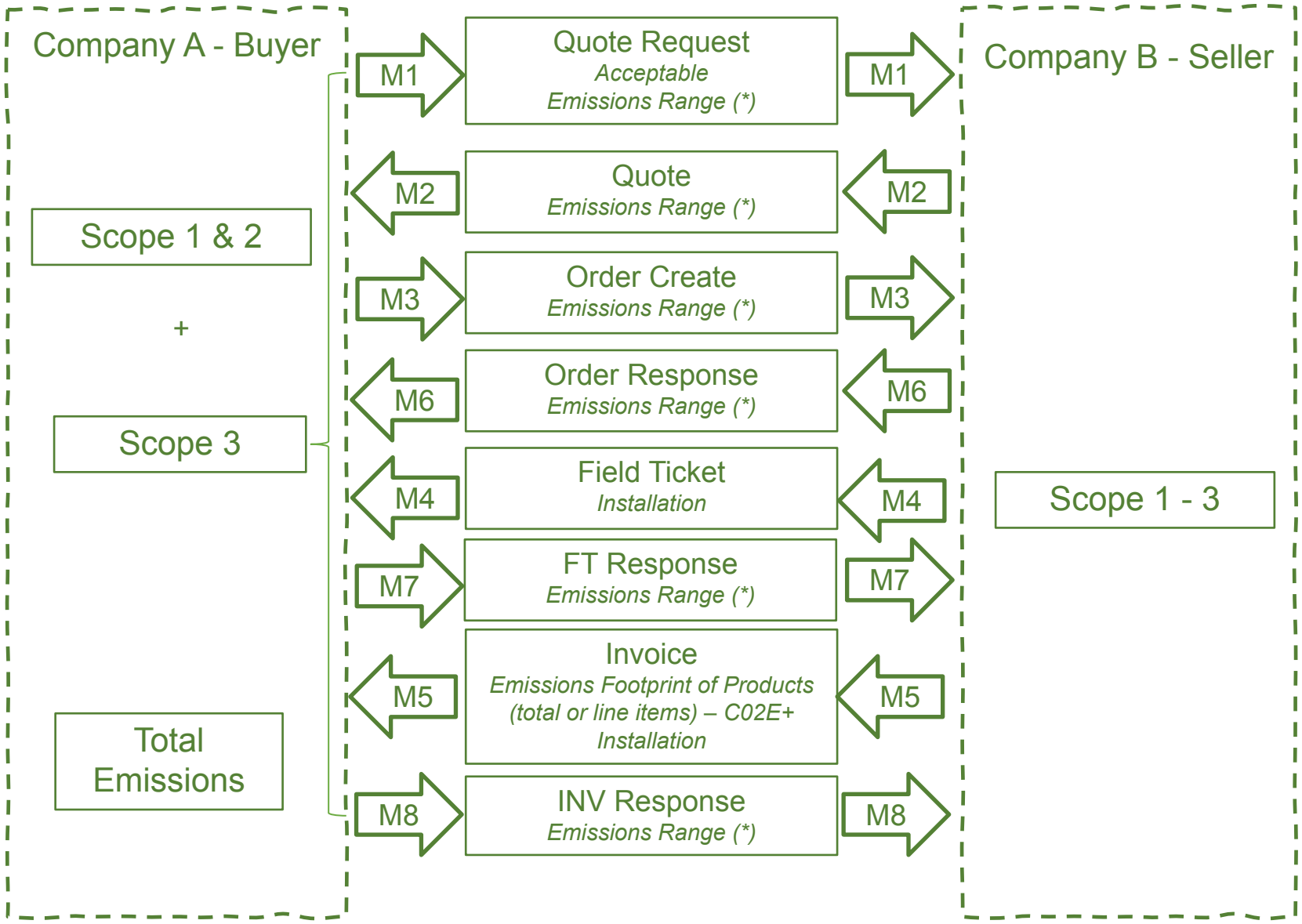
The Open Group Open Footprint Forum is an industry consortium that enables businesses to solve problems together in order to help drive objectives that benefit the industry as a whole.

PIDX™
EMISSIONS TRANSPARENCY

USE CASE 1
BUSINESS PROCESS
OVERVIEW

By extending the existing procurement processes and data schemas, one can make emissions data a first-class citizen in supply chain transactions

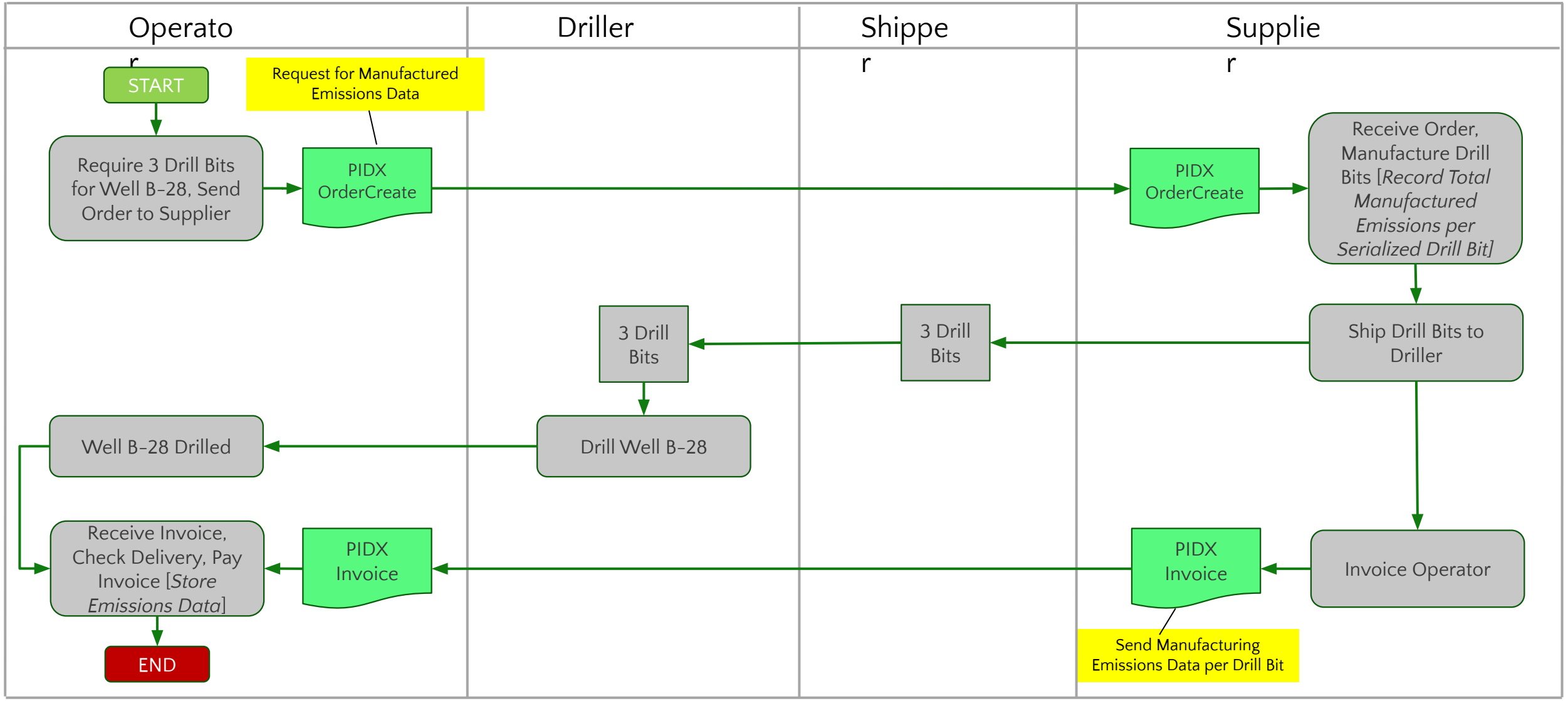
Use Case 1



* Today the emissions data is provided in free text field by some buyers and providers.

PIDX Sample Invoice Line Item

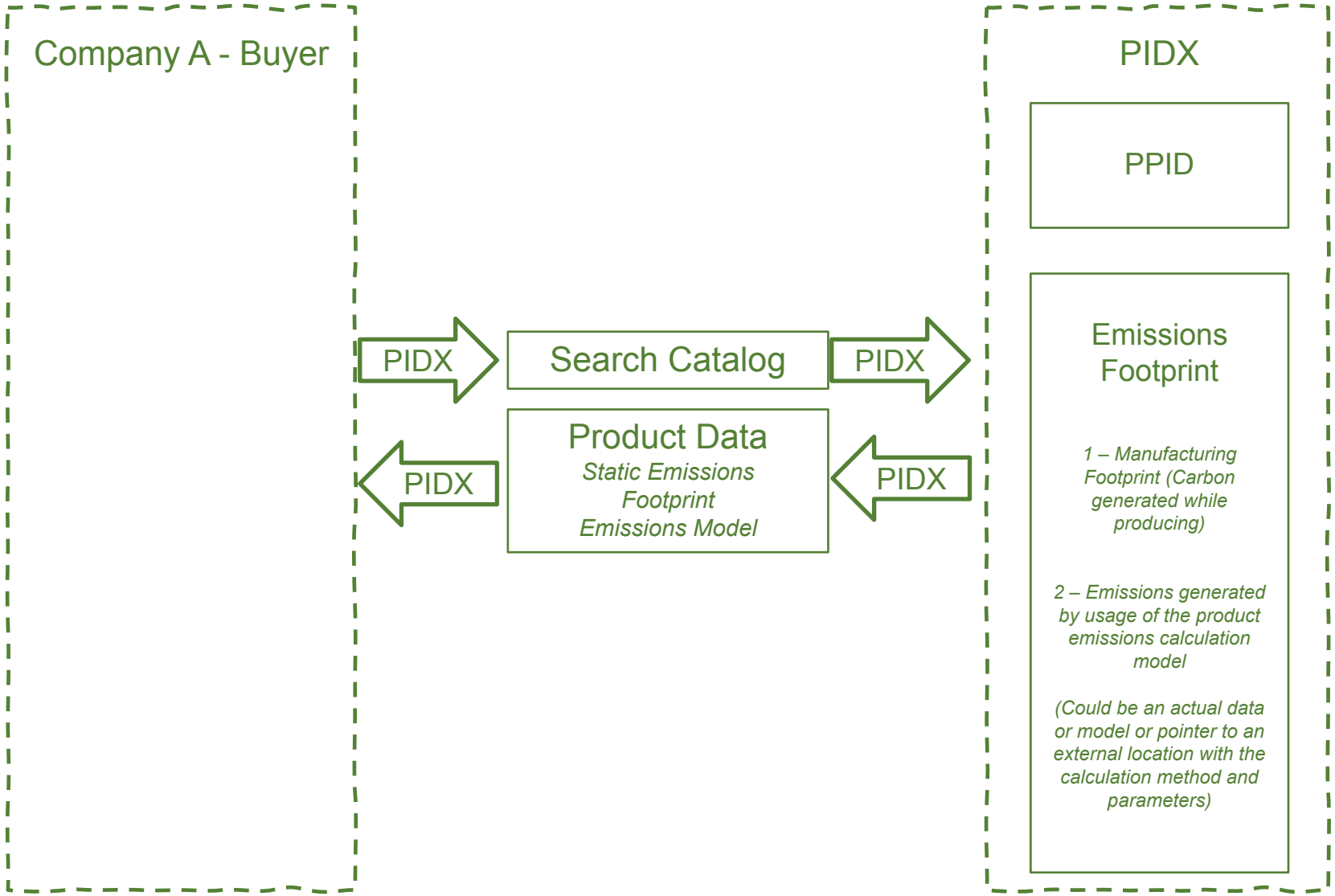
Business Process Dataflow Diagram



USE CASE 2
BUSINESS PROCESS
OVERVIEW

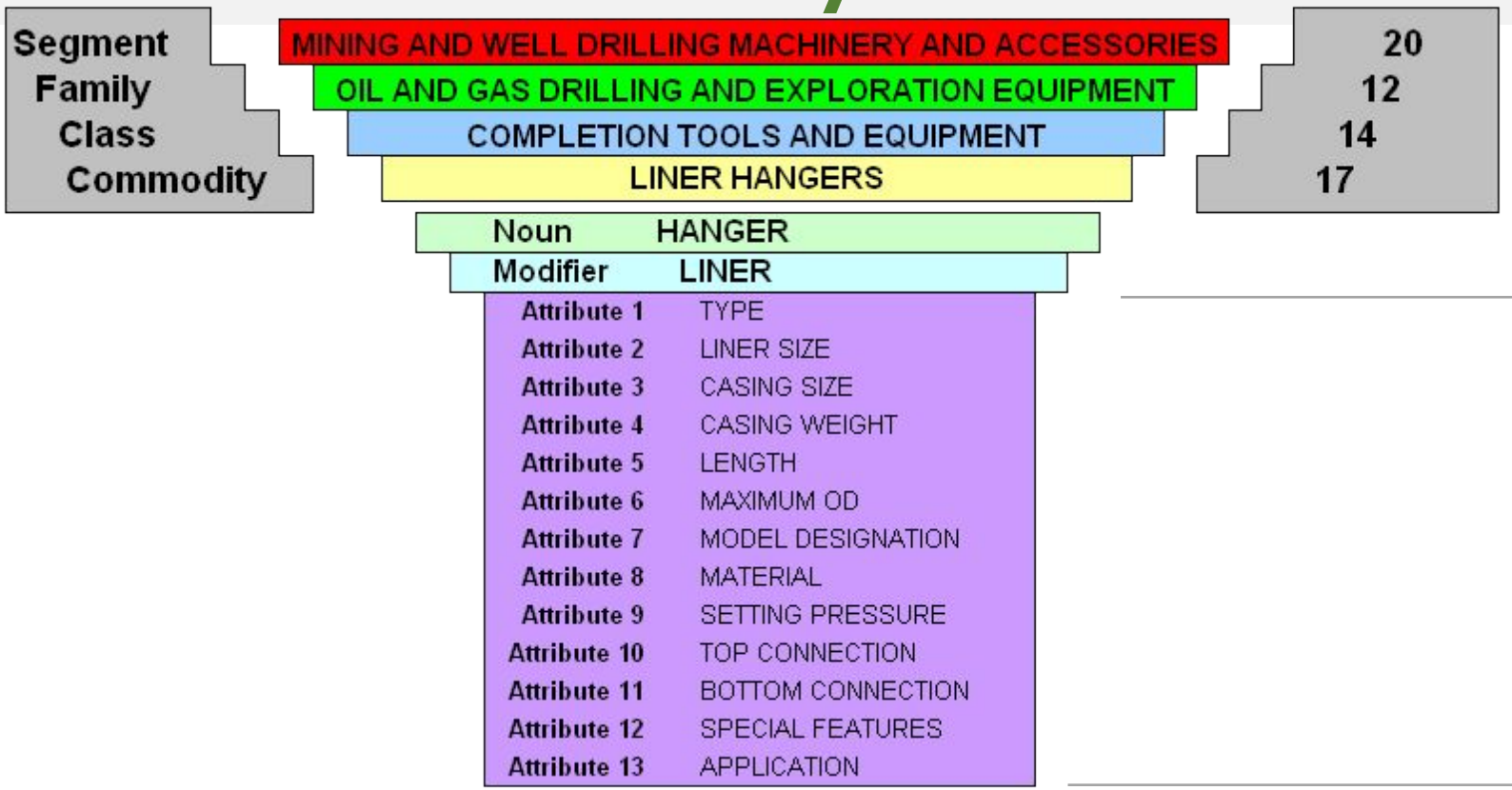
Using the industry data dictionaries in your supply chain services, one can query and select products based on emissions footprint

Use Case 2


Company A - Buyer
PIDX
Search Catalog
PIDX
PIDX
Product Data
Static Emissions Footprint
Emissions Model
PIDX
PIDX
PPID
Emissions Footprint
1 – Manufacturing Footprint (Carbon generated while producing)
2 – Emissions generated by usage of the product emissions calculation model
(Could be an actual data or model or pointer to an external location with the calculation method and parameters)

Petroleum Industry Data Dictionary

PIDX EMISSIONS TRANSPARENCY



UNSPSC Code 20 12 14 17

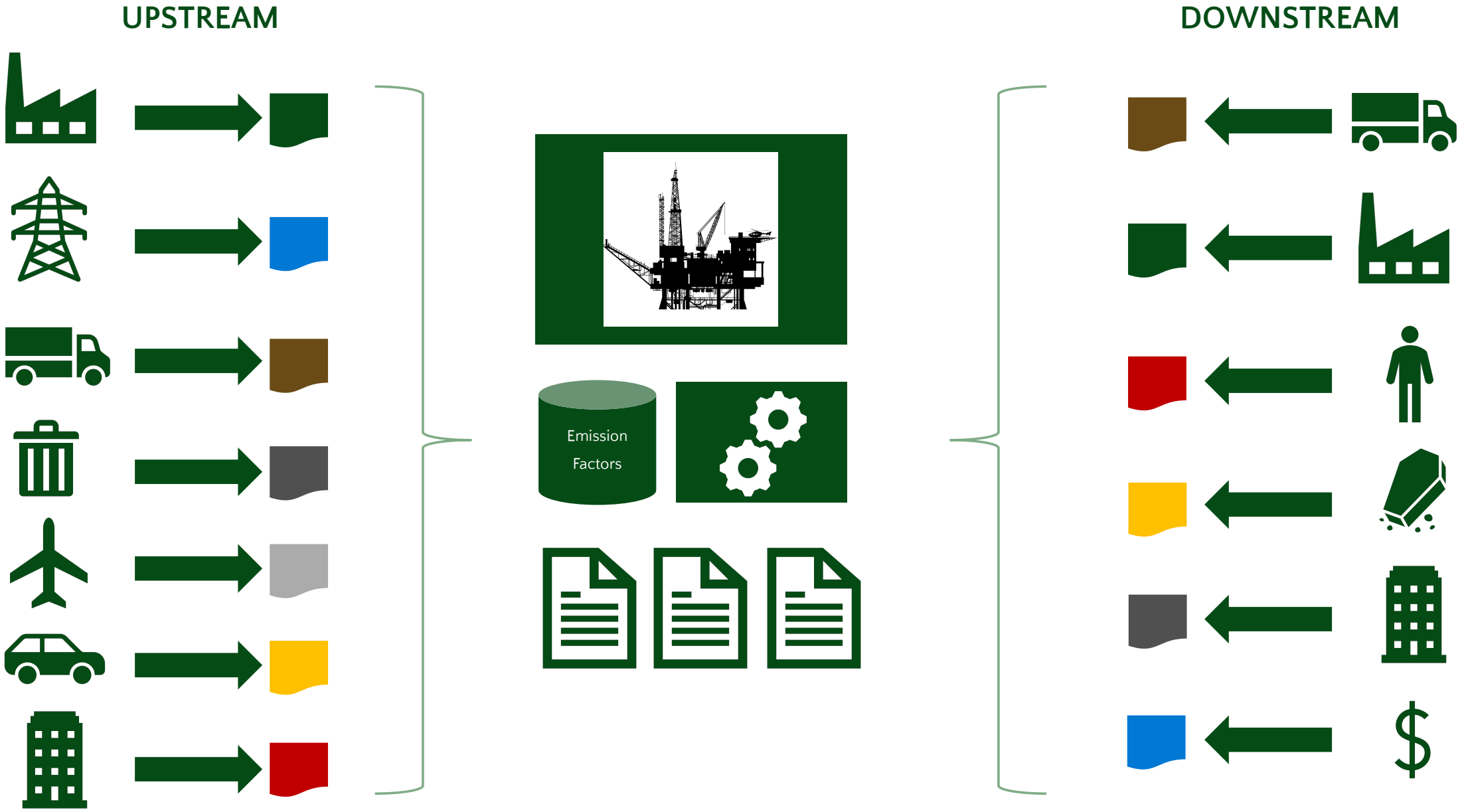
PIDX PIDD HANGER:LINER

PIDX PIDD Detailed Attributes

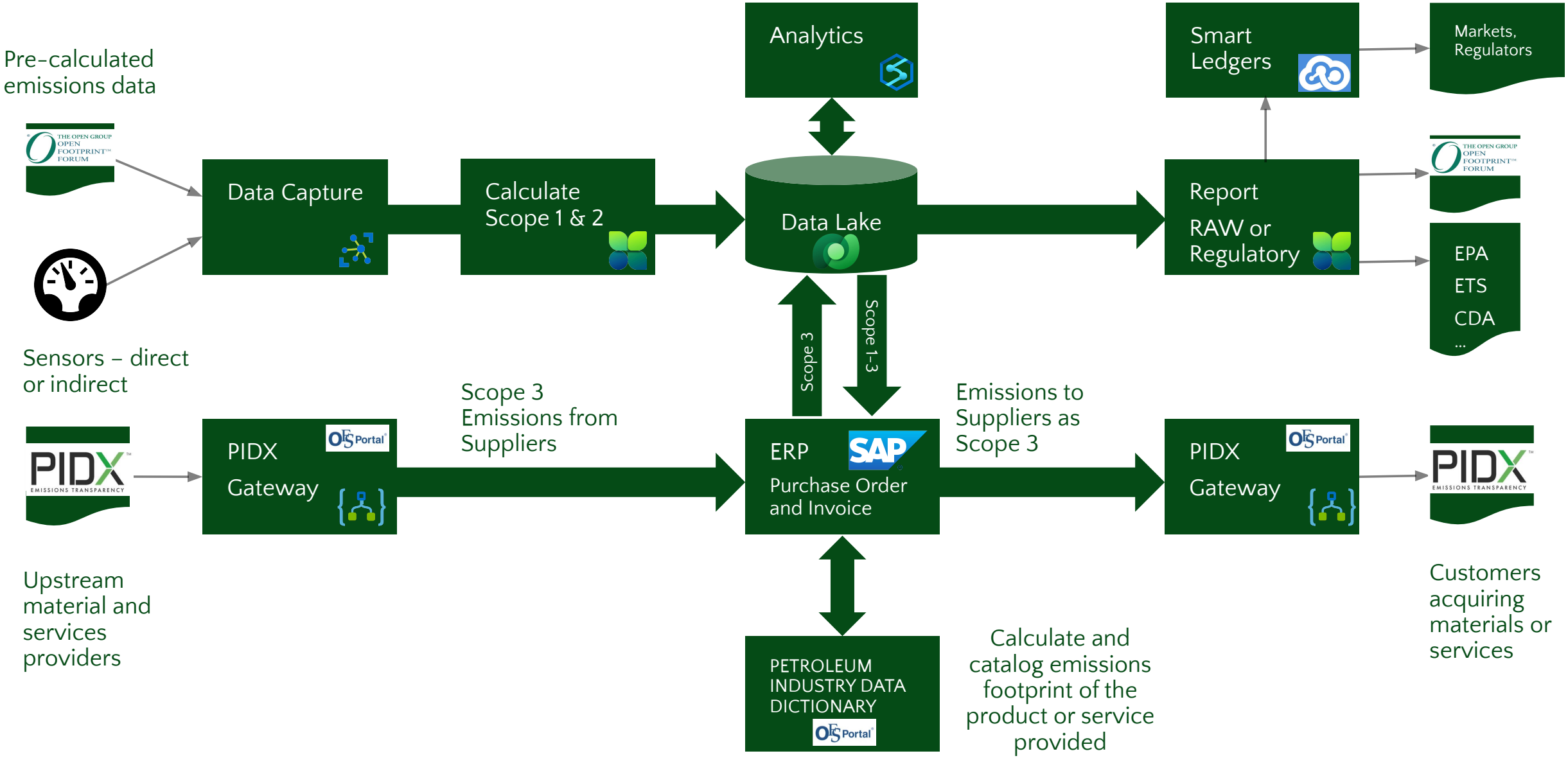
Workgroup to extend PIDX PIDD for GHG

A technology view for enabling PIDX ETDX

Scope 3 Emissions Data Flows



Technology Components for Emissions Management in Supply Chains



Join PIDX ETDX and let's make it happen together

Daniela Freeman, Standards & Compliance Manager
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Michelle Lanh, Marketing & Events Coordinator
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Or visit:
https://pidx.org/teams/work-groups-and-project-teams/

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