The Journey to 2030
Emissions Reporting for Suppliers
GLOBAL TARGETS

2015
195 countries adopted the Paris Climate Agreement to reduce global warming and build resilience to climate change. Its overall goal: limit warming to no more than 1.5 degrees Celsius.

2015-2017
Parties to the agreement began submitting climate action plans known as nationally determined contributions (NDCs). Initial commitments, even if fully implemented, would only be enough to slow warming to 3 degrees. Urgent calls for active and ambitious action gained momentum as the plans would not stop catastrophic impacts.

2020-2021
In the buildup to the COP26 climate talks, countries have begun revising their NDCs to strengthen climate action. With science affirming a shrinking window of opportunity, the plans must include urgent actions to cut carbon emissions and reach net zero by 2050.

2030
To keep warming to 1.5 degrees, countries must cut emissions by at least 45 per cent compared to 2010 levels.

2050
The transition to net zero emissions must be fully complete.

What are the different Emissions Scopes?

* Source Carbon Trust

<table>
<thead>
<tr>
<th>Scope 1</th>
<th>Scope 2</th>
<th>Scope 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel combustion</td>
<td>Purchased electricity, heat and steam</td>
<td>Purchased goods and services</td>
</tr>
<tr>
<td>Company vehicles</td>
<td></td>
<td>Business travel</td>
</tr>
<tr>
<td>Fugitive emissions</td>
<td></td>
<td>Employee commuting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Waste Disposal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use of sold products</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transportation and distribution (up- and downstream)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Investments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leased assets and franchises</td>
</tr>
</tbody>
</table>
Category 1: Purchased Goods and Services*

- This category includes all upstream (i.e., cradle-to-gate) emissions from the production of products purchased or acquired by the reporting company in the reporting year. Products include both goods (tangible products) and services (intangible products).

- Category 1 includes emissions from all purchased goods and services not otherwise included in the other categories of upstream scope 3 emissions (i.e., category 2 through category 8). Specific categories of upstream emissions are separately reported in category 2 through category 8 to enhance the transparency and consistency of scope 3 reports.

- Emissions from the transportation of purchased products from a tier one (direct) supplier to the reporting company (in vehicles not owned or controlled by the reporting company) are accounted for in category 4 (Upstream transportation and distribution).

- Companies may find it useful to differentiate between purchases of production-related products (e.g., materials, components, and parts) and non-production-related products (e.g., office furniture, office supplies, and IT support). This distinction may be aligned with procurement practices and therefore may be a useful way to more efficiently organize and collect data (see box 5.2 of the Scope 3 Standard).
ORCHESTRATION OF SUPPLY CHAIN MESSAGES

**Operator (Buyer)**

- Sourcing RFI/RFP
- Master Data Management
- Contract Management
- Catalogs
- Request for Quote
- Purchase Requisition
- Purchase Order
- Goods Receipt/Service Entry
- Field Ticket Response
- Invoice Response
- Payment Remittance Advice

**Supplier**

- Bid Response
- Catalog Data
- Quote Provided
- PO Change/Confirmation
- Field Ticket/Delivery
- Invoice
- Payment Received
UNSPSC Code 20 12 14 17

PIDX PIDD HANGER:LINER

PIDX PIDD Detailed Attributes

Workgroup to extend PIDX PIDD for GHG

- Attribute 1: TYPE
- Attribute 2: LINER SIZE
- Attribute 3: CASING SIZE
- Attribute 4: CASING WEIGHT
- Attribute 5: LENGTH
- Attribute 6: MAXIMUM OD
- Attribute 7: MODEL DESIGNATION
- Attribute 8: MATERIAL
- Attribute 9: SETTING PRESSURE
- Attribute 10: TOP CONNECTION
- Attribute 11: BOTTOM CONNECTION
- Attribute 12: SPECIAL FEATURES
- Attribute 13: APPLICATION
- Attribute 14: Product GHG (Cradle to Gate)
- Attribute 15: Operational GHG
- Attribute 16: Service GHG
- Attribute 17: Emission Uncertainty
- Attribute 18: Emission Methodology
- Attribute 19: Emission Verification & Validity
- Attribute 20: Scope and Category
## Emissions Data for Products and Services (Scope 3 Category 1)

<table>
<thead>
<tr>
<th>#</th>
<th>Attribute</th>
<th>Unit</th>
<th>Notes / References</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Product GHG Emission (cradle-to-gate)</td>
<td>kg CO₂e</td>
<td>Upon purchase of the product, this attribute is expected to become part of the purchasing company’s upstream scope 3 emissions.</td>
</tr>
<tr>
<td>15</td>
<td>Operational GHG Emission</td>
<td>kg CO₂e / [time]</td>
<td>This attribute is a guide to the expected emissions in the use of the product. This could be a URL, provided for reference – detail of ranges, real case studies, etc.</td>
</tr>
<tr>
<td>16</td>
<td>Service GHG Emission</td>
<td>e.g., kg CO₂e / hour</td>
<td>This attribute expected for services. What are emissions for this service? Per day, per hour, per whatever unit the service is provided.</td>
</tr>
<tr>
<td>17</td>
<td>Emission Uncertainty</td>
<td>%</td>
<td>An estimate of how certain the company is of the value in Attribute #14 / #16</td>
</tr>
<tr>
<td>18</td>
<td>Emission Methodology</td>
<td>(unitless)</td>
<td>A description of/reference to the methodologies used to quantify emissions in Attribute #14 / #16, and a description of the data sources used (including emission factors and GWP values), e.g., AR5¹.</td>
</tr>
<tr>
<td>19</td>
<td>Emission Verification &amp; Validity</td>
<td>(unitless)</td>
<td>Entity that has verified and/or validated emissions, based on ISO 14064-3:2019</td>
</tr>
<tr>
<td>20</td>
<td>Scope &amp; Category</td>
<td></td>
<td>To give a suggestion to the buyer as to which scope and scope category of the emission, e.g., Scope 3, Category 1 – Goods and Services.</td>
</tr>
<tr>
<td>Operator</td>
<td>Driller</td>
<td>Shipper</td>
<td>Supplier</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>START</strong></td>
<td><strong>Request for Manufactured Emissions Data</strong></td>
<td><strong>PIDX OrderCreate</strong></td>
<td><strong>Receive Order, Manufacture Drill Bits [Record Total Manufactured Emissions per Serialized Drill Bit]</strong></td>
</tr>
<tr>
<td>Require 3 Drill Bits for Well B-28, Send Order to Supplier</td>
<td><strong>PIDX OrderCreate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Request for Manufactured Emissions Data</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Receive Invoice, Check Delivery, Pay Invoice [Store Emissions Data]</strong></td>
<td><strong>PIDX Invoice</strong></td>
<td></td>
<td><strong>Send Manufacturing Emissions Data per Drill Bit</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Invoice Operator</strong></td>
</tr>
</tbody>
</table>

**1. Define the way the Operator can request Emissions Data on the OrderCreate document, what data and at what granularity?**

**2. Define the way the Supplier can transmit Emissions Data on the Invoice document, what data and what reference scheme?**
SAMPLE PIDX INVOICE DATA

<xml version="1.0" encoding="UTF-8"＞
    <pidx:InvoiceProperties> [176 lines]  
    <pidx:InvoiceDetails> [184 lines]  
      <pidx:LineItemNumber>1</pidx:LineItemNumber>  
      <pidx:InvoiceQuantity> [3 lines]  
      <pidx:LineItemInformation> [190 lines]  
        <pidx:LineItemCountIndicator>1</pidx:LineItemCountIndicator>  
        <pidx:LineItemIdentifier> [196 lines]  
          <pidx:LineItemIdentification> [196 lines]  
            <pidx:LineItemNumber>1</pidx:LineItemNumber>  
            <pidx:LineItemName> [202 lines]  
              <pidx:LineItemDescription> [208 lines]  
                <pidx:LineItemMeasurement> [214 lines]  
                  <pidx:LineItemMaterial> [220 lines]  
                    <pidx:LineItemSpecification> [226 lines]  
                      <pidx:LineItemQuality> [232 lines]  
                        <pidx:LineItemQuantity> [238 lines]  
                          <pidx:LineItemPrice> [244 lines]  
                            <pidx:LineItemTax> [250 lines]  
                              <pidx:LineItemTotal> [256 lines]  
                                <pidx:ServiceDateTime> [262 lines]  
                                  <pidx:ServicePeriodStart> [268 lines]  
                                    <pidx:ServicePeriodEnd> [274 lines]  
                                      <pidx:ReferenceInformation> [280 lines]  
                                        <pidx:Comment> [286 lines]  
                                          <pidx:EmissionsData> [292 lines]  
                                            <pidx:EmissionProductGHQuantity> [298 lines]  
                                              <pidx:UnitOfMeasureCode> [304 lines]  
                                                <pidx:EmissionsScope> [310 lines]  
                                                  <pidx:EmissionCategory> [316 lines]  
                                                    <pidx:EmissionUncertainty> [322 lines]  
                                                      <pidx:EmissionVerificationValidity> [328 lines]  
                                                        <pidx:EmissionsData> [334 lines]  
                                                          <pidx:InvoiceLineItem> [340 lines]  
                                                            <pidx:InvoiceLineItem> [346 lines]  
                                                              <pidx:InvoiceLineItem> [352 lines]  
                                                                <pidx:InvoiceLineItem> [358 lines]  
                                                                  <pidx:InvoiceLineItem> [364 lines]  
                                                                    <pidx:InvoiceLineItem> [370 lines]  
                                                                      <pidx:InvoiceLineItem> [376 lines]  
                                                                        <pidx:InvoiceLineItem> [382 lines]  
                              </Invoice>
ART OF THE POSSIBLE

**Operator**

- **START**
- Request for Manufactured Emissions Data
- Require 3 Drill Bits for Well B-28, Send Order to Supplier
- Well B-28 Drilled
- Receive Invoice, Check Delivery, Pay Invoice [Store Emissions Data]
- **END**

**Driller**

- PIDX OrderCreate
- Drilling Related Emissions to be Captured and Sent to Operator [C11]
- Drill Well B-28
- 3 Drill Bits
- Invoice Supplier

**Shipper**

- 3 Drill Bits
- Invoice Supplier
- Send Manufacturing Emissions Data per Drill Bit [C1]

**Supplier**

- PIDX OrderCreate
- Receive Order, Manufacture Drill Bits [Record Total Manufactured Emissions per Serialized Drill Bit]
- Ship Drill Bits to Driller
- Invoice Operator

- **Request for Manufactured Emissions Data**
- **Drilling Related Emissions to be Captured and Sent to Operator [C11]**
- **Receive Invoice, Check Delivery, Pay Invoice [Store Emissions Data]**
- **Send Manufacturing Emissions Data per Drill Bit [C1]**
WHAT IS AVAILABLE TODAY

Companies Produce Sustainability Reports at a Macro Level using Industry Averages

---

Scope 3 GHG emissions [A] [B]

<table>
<thead>
<tr>
<th>Category/Activity</th>
<th>2021</th>
<th>2020</th>
<th>2019</th>
<th>2018</th>
<th>2017</th>
<th>IPECA</th>
<th>SASB</th>
<th>GRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third-party services (Category 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel and energy-related activities (not included in Scope 1 or Scope 2) (Category 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downstream Transportation and Distribution (Category 9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of sold products (Category 11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- [A] The values in this table reflect estimated Scope 3 emissions included in our net carbon intensity. This excludes certain contracts held for trading purposes and reported net rather than gross. Business-specific methodologies to net volumes have been applied in oil products and petrochemicals. Paper trades that do not result in physical product delivery are excluded. Retail sales volumes from markets where Shell operates under trademark licensing agreements are also excluded from the scope of Shell’s net carbon intensity metric.
- [B] Estimated emissions from other Scope 3 categories are published on www.shell.com/csr. 2021 data will be available in June 2022.
- [C] This category includes estimated well-to-tank emissions from purchased third-party refined oil products, natural gas, LNG, crude oil and.feature.
- [D] This category includes estimated well-to-wrang emissions from generation of purchased power included in our net carbon intensity.
- [E] Estimated emissions from transportation and distribution of sold own-products, LNG, GTL, natural gas, and biogas.
- [F] This category includes estimated emissions from sales volumes of other products, natural gas, LNG, GTL, and biogas.
- [G] This category includes estimated emissions from our refinery production, natural gas, LNG and GTL products.
- [H] Estimated as the difference between own production and total sold products.


---

2020 GHG Emissions Reported by Category (metric tonnes of CO2e)

<table>
<thead>
<tr>
<th>Scope</th>
<th>Emissions</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1 (Direct Emissions)</td>
<td>1,973,000</td>
<td>Manufacturing process, onsite fuel combustion, refrigerants, onsite fixed air travel.</td>
</tr>
<tr>
<td>Scope 2 (Indirect, Electricity)</td>
<td>509,000</td>
<td>Market-based method includes renewable energy purchases.</td>
</tr>
<tr>
<td>Scope 1 and 2 Total</td>
<td>2,482,000</td>
<td></td>
</tr>
<tr>
<td>Scope 3 Total</td>
<td>29,824,000</td>
<td>Indirect source:</td>
</tr>
<tr>
<td>Leased Vehicles and Commercial</td>
<td>299,000</td>
<td></td>
</tr>
<tr>
<td>Logistics and Distribution</td>
<td>199,000</td>
<td></td>
</tr>
<tr>
<td>Employee Business Travel</td>
<td>24,000</td>
<td></td>
</tr>
<tr>
<td>Supply Chain</td>
<td>4,964,000</td>
<td>Represents the 2020 estimate based on key suppliers’ 2020 CP2 Climate Change Questionnaire responses.</td>
</tr>
<tr>
<td>Capital Goods</td>
<td>93,000</td>
<td>Extraction, production, and transport of capital goods purchased.</td>
</tr>
<tr>
<td>Fuel and Energy Related Activities</td>
<td>93,000</td>
<td>Impacts related to extraction, production, and transportation of fuels and energy purchased, not already included in Scope 1 or 2. Market-based method.</td>
</tr>
<tr>
<td>Waste Generated in Operations</td>
<td>7,000</td>
<td>Disposal and treatment of waste generated in our operations.</td>
</tr>
<tr>
<td>Product Energy Usage</td>
<td>24,407,000</td>
<td>Represents the GHG emissions of the product lifetime (15,566,000 metric tonnes of CO2e a year).</td>
</tr>
<tr>
<td>Processing of Sold Products</td>
<td>271,000</td>
<td>Processing of intermediate products sold to downstream manufacturers.</td>
</tr>
</tbody>
</table>

*Location-based method Scope 2 emissions does not account for any renewable energy purchased. + 3,705,000 metric tonnes of CO2e/year. |
* Market-based method includes renewable purchases. Location-based method emissions does not account for any renewable energy purchased + 253,000 metric tonnes of CO2e/year.
DATA RAMP UP AND CONVERSION

Amount of Data

- Summary Reporting
- Detailed Line Item

Increasing Move from Calculation to Measurement
Increasing Level of Reporting from Facilities to Product and Service Line Items
Challenges with calculation and reporting of emissions

- Stakeholder and reporting pressures
- 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
THERE IS A CLEAR PATH - STANDARDS

Define Standard Reporting Data – OpenFootprint
Develop Standard Data Exchange – PIDX
How To Get More Involved
CONTACT

OFS PORTAL
TRUSTED ENERGY SUPPLY CHAIN NETWORK

Chris Welsh
cwelsh@ofs-portal.com