

**XYLEM ENVIRONMENTAL METRICS  
REPORTING REQUIREMENTS**

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## ACCOUNTABILITY

For all Xylem Units (manufacturing sites, sales companies, large office-only facilities) reporting Environmental, Health and Safety (EHS) metrics in the Gensuite system, **Unit Management**

- Is responsible for the reporting of EHS metrics through the appropriate allocation of time and resources required to collect, compile and report data
- Must review and validate their EHS metrics on a regular basis, at least Quarterly

In addition to the regular metrics reviews conducted locally, the EHS Leadership Team will quarterly communicate to relevant Unit Managers and EHS Managers/Coordinators a list of metrics categories for which data is either inconsistent or missing within their respective organizations. Units will be required to provide explanations and/or correct the reporting within 2 weeks.

The EHS Leadership Team is responsible to ensure that

- New Unit EHS Managers/Coordinators receive proper training on EHS metrics reporting
- A copy of this Metrics Reporting Requirement document is communicated to all Xylem Units
- Regular refreshment training (at least yearly) is organized for all EHS Managers/Coordinators

## EHS METRICS REPORTING PROCESS

All Xylem Units must develop, implement and regularly update a documented process for collecting, compiling and reporting the required environmental data.

The process must be formally described and include at a minimum, for all metrics categories

- The source of the data: invoice, meter reading, excel file received from another department, etc.
- If the data is estimated: the basis and calculations used for the estimation.
- How the data is compiled (when relevant) before being entered into Gensuite – please include a description of the methodology.
- The different responsibilities for the Xylem employees providing, compiling and/or entering the data.

The effective implementation of the metrics reporting process will be verified as part of the Xylem EHS&S Audit Program.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## LIST OF ENVIRONMENTAL METRICS

Environmental metrics are available under Incidents & Measurements / Metrics / View, and are arranged in the following order:

- (1) Water usage
- (2) Water recycled and reuse
- (3) Water treated and released
- (4) Hazardous waste recycled
- (5) Hazardous waste to non-landfill
- (6) Hazardous waste to landfill
- (7) Non-hazardous waste recycled
- (8) Non-hazardous waste to landfill
- (9) Non-hazardous waste to non-landfill
- (10) Refrigerant HFC-134A
- (11) Refrigerant HFC-152A
- (12) Refrigerant R407A
- (13) Refrigerant R407C
- (14) Refrigerant 410A
- (15) Renewable electricity generated
- (16) Electricity usage
- (17) Diesel fuel usage
- (18) Fuel oil usage
- (19) Gaseous propane usage
- (20) Gasoline/Petrol consumption
- (21) Liquid propane usage
- (22) LPG (mobile source)
- (23) Natural gas usage
- (24) Purchased heat
- (25) Purchased renewable energy credits
- (26) VOC

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## WATER (1)

### Reference

- GRI standard GRI 303 Water and Effluents (2018)
- GRI Standards Glossary (2018)

### Reporting frequency

- Monthly for Xylem sites equipped with a water meter or receiving monthly invoices
- Quarterly for all other sites

### Unit of reporting

Liters or US gallons

### Definitions

- *WATER USAGE (1)*

Total volume of water **withdrawn** from:

- Surface water
  - Groundwater
  - Seawater
  - Produced water
  - Third-party water
- Surface water
    - water that occurs naturally on the Earth's surface in ice sheets, ice caps, glaciers, icebergs, bogs, ponds, lakes, rivers, and streams
    - surface water includes **collected or harvested rainwater**
  - Groundwater : water that is being held in, and that can be recovered from, an underground formation
  - Seawater : water in a sea or in an ocean
  - Produced water : water that enters an organization's boundary as a result of extraction (e.g., crude oil), processing (e.g., sugar cane crushing), or use of any raw material, and has to consequently be managed by the organization
  - Third-party water : municipal water suppliers and municipal wastewater treatment plants, public or private utilities, and other organizations involved in the provision, transport, treatment, disposal, or use of water and effluent

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## WATER RECYCLED AND REUSED (2)

## WATER TREATED AND RELEASED (3)

### Reference

- GRI standard GRI 303 Water and Effluents (2018)
- GRI standard GRI 306 Effluents and Emissions (2016)
- GRI standards Glossary (2016 and 2018)

### Reporting frequency

Monthly

### Unit of reporting

Liters or US gallons

### Definitions

- *WATER RECYCLED AND REUSED (2)*

Total volume of used water and wastewater processed through another cycle before discharge to final treatment and discharge to the environment

Water recycling and reuse can include wastewater recycled back in the same process or higher use of recycled water in the process cycle; wastewater recycled and reused in a different process, but within the same facility; and wastewater reused at another of the organization's facilities.

- *WATER TREATED AND RELEASED (3)*

Total volume of water treated on site and released from the facility, into a sewer system, storm water system or any other water stream.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## HAZARDOUS WASTE (4), (5) & (6)

### Reference

GRI standard GRI 306 Effluents and Waste (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Kilograms or Pounds (US)

### Definitions

- *HAZARDOUS WASTE*

Hazardous waste is identified as defined by **national** legislation at the point of generation.

- *HAZARDOUS WASTE RECYCLED (4)*

Total weight of hazardous waste recycled at the facility or by a waste contractor

- *HAZARDOUS WASTE TO LANDFILL (6)*

Total weight of hazardous waste which is placed directly on a landfill, without any prior treatment (except stabilization, blending or other operations)

- *HAZARDOUS WASTE TO NON-LANDFILL (5)*

Total weight of hazardous waste which is neither recycled nor placed directly on landfill

Example: incinerated waste, regardless of whether the heat generated by the incineration is recovered

### Notes

Hazardous waste reporting should be based on invoices from the waste treatment facilities taking care of the waste, with a clear indication of the weight that was handled.

In the exceptional cases where weight information is not available from the hazardous waste treatment companies, the following ratio can be used to estimate the weight of hazardous waste:

- 350 pounds per cubic yard
- 207 kg per cubic meter

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## NON-HAZARDOUS WASTE (7), (8) & (9)

### Reference

GRI standard GRI 306 Effluents and Waste (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Kilograms or Pounds (US)

### Definitions

- *NON-HAZARDOUS WASTE*

Non-hazardous waste is identified as defined by national legislation at the point of generation.

- *NON-HAZARDOUS WASTE RECYCLED (7)*

Total weight of non-hazardous waste recycled at the facility or by a waste contractor

- *NON-HAZARDOUS WASTE TO LANDFILL (8)*

Total weight of non-hazardous waste which is placed directly on a landfill, without any prior treatment (except stabilization, blending or other operations)

- *NON-HAZARDOUS WASTE TO NON-LANDFILL (9)*

Total weight of non-hazardous waste which is neither recycled nor placed directly on landfill

Example: incinerated waste, regardless of whether the heat generated by the incineration is recovered

### Notes

Manufacturing operations should obtain detailed information from their waste contractor on the exact weight of their waste containers.

For the facilities where the non-hazardous waste containers are not weighed by the waste contractor prior to treatment, the following ratio can be used to estimate the weight of non-hazardous waste based on the waste container volume:

- 350 pounds per cubic yard, or
- 207 kg per cubic meter

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## REFRIGERANTS (10), (11), (12), (13) & (14)

### Reference

GRI standard GRI 302 Energy (2016)

Montreal and Kyoto Protocols

US Clean Air Act 58 FR 28660, 14/05/1993

### Reporting frequency

Yearly

### Unit of Reporting

Kilograms

### Definitions

- Report the quantity of refrigerant that has leaked into the atmosphere

### Notes

- Refrigerant data is only requested for air conditioning units and specific refrigeration equipment, such as refrigeration rooms in large canteens. Reporting is NOT required for standard refrigerators, refrigerated water fountains or similar equipment.
- For the time being, the reporting is only required for refrigerants covered by the Kyoto Protocol

|          |        |        |
|----------|--------|--------|
| HFC-134A | R-407A | R-410A |
| HFC-152A | R-407C |        |
- If the refrigerant used in your air conditioning unit is not listed above, please contact Luis Salinas (luis.salinas@xyleminc.com).
- To identify whether there was any leakage in your air conditioning system, the first step is to contact the company in charge of the maintenance with the following questions
  - Was there any recharge of the system during the past year?
  - If yes, was it a complete recharge of the system (not considered as a leakage)?
  - Or was it a recharge due to a leakage in the system (in this case, report the amount of refrigerant introduced in the system)
- If there is any doubt about refrigerant recharges, review the maintenance logbooks that should be updated at the end of each maintenance visit. These should indicate if any recharge took place
- If no information is available on any potential leakage, the amount to be reported in Gensuite should be

$$\text{Leakage (in kg)} = 0.35 \times \text{Total Refrigerant Charge (in kg)}$$

(0.35 corresponds to the maximum allowable leak rate for industrial process and commercial refrigeration)

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## RENEWABLE ELECTRICITY GENERATED (15)

### Reference

GRI standard GRI 302 Energy (2016)

GRI standards Glossary (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

kWh

### Definitions

- Renewable energy source  
Energy source that is capable of being replenished in a short time through ecological cycles or agricultural processes, for example geothermal, wind, solar, hydro, and biomass.
- Renewable Electricity Generated  
Total amount of renewable electricity generated at the facility, regardless of whether the equipment used to generate the electricity is owned or leased
- Do NOT report the amount of renewable electricity generated at your site(s) under 'Electricity usage'

### Notes

You should only use this category if your facility is equipped with electricity generation equipment such as solar panels or wind turbine.

Do NOT use this category to report 100% certified renewable electricity purchased from an energy provider.

# **XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS**

## **ELECTRICITY USAGE (16)**

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

kWh

### Definition

- Total amount of electricity purchased by the facility

Even if your facility purchases 100% certified renewable electricity from an energy provider, you **MUST** report your total electricity consumption under Electricity Usage, since Xylem wants to calculate its total energy consumption.

Do **NOT** report in this category the electricity that is generated by your facility (from solar panels for example).

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## DIESEL FUEL USAGE (17)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Liters or US Gallons

### Definition

- Total volume of diesel fuel consumed by service trucks and company cars

### Notes

- When possible, information on Diesel Fuel Usage for company cars and company trucks should be obtained from the leasing company or from the company contracted to provide diesel fuel (for example under the form of gas cards).
- If information cannot be obtained as mentioned above, please contact Patrick Camusat.
- For company cars, the reporting does not need to differentiate the business use from the private use.
- For the Xylem units with several locations (for example a sales company with multiple service workshops), you do not need to report mobile source consumption separately location by location. You can report the total consumption by fuel type under the Unit Headquarter location in Gensuite.
- If your company assigns company cars as a benefit for some employees, but does not provide a gas card to these employees, you do NOT need to report the mobile source fuel usage associated with these 'benefit' cars.
- You can report in this category the diesel consumption of cars rented to temporarily replace company cars but you should NOT report the diesel consumption of cars rented as part of a business trip.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## FUEL OIL USAGE (18)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Liters or US Gallons

### Definition

- Total volume of fuel oil purchased by the facility

### Notes

Fuel oil used for the following activities should be included in this category

- Heating
- Forklift trucks used at the facility
- Godwin and other diesel-driven pumps (rental pumps are owned by Xylem, therefore this is considered as a Scope 1 energy source)

Do NOT report diesel fuel used for service trucks and company cars under this category.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## GASEOUS PROPANE USAGE (19)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Gaseous Propane : cubic meters or cubit feet

### Definition

- Total volume of propane gas purchased by the facility, under Gaseous form

### Notes

Propane gas used for the following activities and processes should be included in this category

- Heating (for example foundry ovens)
- Forklift trucks
- Heating of parts (bearing mounting, wear ring assembly)
- Stator burning

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## GASOLINE / PETROL CONSUMPTION (20)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Liters or US Gallons

### Definition

- Total volume of gasoline consumed by service trucks and company cars

### Notes

- When possible, information on Gasoline for company cars and company trucks should be obtained from the leasing company or from the company contracted to provide gasoline (for example under the form of gas cards).
- If information cannot be obtained as mentioned above, please contact Patrick Camusat.
- For company cars, the reporting does not need to differentiate the business use from the private use.
- For the Xylem units with several locations (for example a sales company with multiple service workshops), you do not need to report mobile source consumption separately location by location. You can report the total consumption by fuel type under the Unit Headquarter location in Gensuite.
- If your company assigns company cars as a benefit for some employees, but does not provide a gas card to these employees, you do NOT need to report the mobile source fuel usage associated with these 'benefit' cars.
- You can report in this category the gasoline consumption of cars rented to temporarily replace company cars but you should NOT report the gasoline consumption of cars rented as part of a business trip.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## LIQUID PROPANE USAGE (21)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Liquid Propane : liters or US gallons

### Definition

- Total volume of propane gas purchased by the facility, under Liquid form

### Notes

Propane gas used for the following activities and processes should be included in this category

- Heating (for example foundry ovens)
- Forklift trucks
- Heating of parts (bearing mounting, wear ring assembly)
- Stator burning

If you receive information about Liquid Propane Gas consumption in kilograms, divide by 0.54 to obtain the volume in liters. Liquid propane gas bottles can sometimes contain a blend of propane, butane and other gases, however 0.54 is considered as an appropriate conversion factor.

Do NOT report Liquefied Petroleum Gas (LPG) used for company cars and service trucks in this category.

## **XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS**

### **LIQUEFIED PETROLEUM GAS (LPG) MOBILE SOURCE (22)**

#### Reference

GRI standard GRI 302 Energy (2016)

#### Reporting frequency

Quarterly

#### Unit of Reporting

Liters or US Gallons

#### Definition

- Total volume of Liquefied Petroleum Gas (LPG) consumed by service trucks and company cars

#### Notes

- When possible, information on LPG for company cars and company trucks should be obtained from the leasing company or from the company contracted to provide LPG (for example under the form of gas cards).
- If information cannot be obtained as mentioned above, please contact Patrick Camusat.
- For company cars, the reporting does not need to differentiate the business use from the private use.
- For the Xylem units with several locations (for example a sales company with multiple service workshops), you do not need to report mobile source consumption separately location by location. You can report the total consumption by fuel type under the Unit Headquarter location in Gensuite.
- If your company assigns company cars as a benefit for some employees, but does not provide a gas card to these employees, you do NOT need to report the mobile source fuel usage associated with these 'benefit' cars.
- You can report in this category the LPG consumption of cars rented to temporarily replace company cars but you should NOT report the LPG consumption of cars rented as part of a business trip.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## NATURAL GAS USAGE (23)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

Cubic Meters or Cubic Feet

### Definition

- Total volume of Natural Gas purchased by the facility

### Notes

- For sites located in the USA and getting their natural gas consumption in Therms from the energy provider, you can use the conversion :

1 Therm (USA)  $\leftrightarrow$  99.98 ft<sup>3</sup> natural gas

- If you purchase certified “green” natural gas or offset your natural gas consumption through a certified program (for example [www.goldstandard.org](http://www.goldstandard.org)), you can convert your natural gas consumption into kWh, which you report under Purchased Renewable Energy Credits.

To convert your natural gas consumption into kWh :

- From cubic feet (ft<sup>3</sup>) to kWh : multiply by 0.300983989
- From cubic meter (m<sup>3</sup>) to kWh : multiply by 10.62916676

You must obtain from your natural gas supplier (or from the company managing the program for offsetting your natural gas consumption) a document certifying that your facility is provided with renewable (or “green”) natural gas.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## PURCHASED HEAT (24)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

kWh

### Definition

- Total amount of heat purchased by the facility

### Notes

Even if you do not pay the utility bills directly (for example, the cost is included in the lease), you should report the amount of remote heating (also called district heating) purchased by your facility.

If a portion of the heat provided to your facility is produced by low-carbon energy (for example biomass), you should only report the percentage of purchased heat which does not correspond to low-carbon energy. For example, if 20% of your purchased heat is from low-carbon energy, report only 80% of your total amount of purchased heat.

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## PURCHASED RENEWABLE ENERGY CREDITS (25)

### Reference

GRI standard GRI 302 Energy (2016)

### Reporting frequency

Quarterly

### Unit of Reporting

kWh

### Definition

Total amount of;

- Renewable electricity (certified “green” electricity) purchased from your electricity provider
- Renewable energy (for example certified “green” natural gas or offset natural gas consumption) converted into kWh

### Notes

#### *Electricity*

You must obtain a document from your electricity provider certifying that the energy is renewable to be able to report any data in this category.

Certified “green” electricity means that there is independent documentation showing that 100% of the electricity used is produced from what is regarded as “zero-carbon” sources, e.g. hydro, solar or wind power.

#### *Natural gas*

If you purchase certified “green” natural gas or offset your natural gas consumption through a certified program (for example [www.goldstandard.org](http://www.goldstandard.org)), you can convert your natural gas consumption into kWh, which you report under Purchased Renewable Energy Credits.

To convert your natural gas consumption into kWh :

- From cubic feet (ft<sup>3</sup>) to kWh : multiply by 0.300983989
- From cubic meter (m<sup>3</sup>) to kWh : multiply by 10.62916676

You must obtain from your natural gas supplier (or from the company managing the program for offsetting your natural gas consumption) a document certifying that your facility is provided with renewable (or “green”) natural gas or that the natural gas consumption is offset through a sustainability project.

# **XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS**

## **VOLATILE ORGANIC COMPOUNDS (VOCs) (26)**

### Reference

EU Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations

### Reporting frequency

Yearly

### Unit of Reporting

US Pounds

### Definitions

- If you are required (for example by your environmental permit) to calculate your total Volatile Organic Compounds emissions, you can directly report this amount in Gensuite
- Otherwise you should use the excel tool developed by Xylem and O'Brien & Gere to calculate the VOCs emissions related to your paint and solvent usage

### Notes

- To establish the amount of VOCs to be reported, calculated the total amount of paint and solvent used during the year in your organization, and follow the guidelines included in the excel tool
- Xylem units with several facilities do not need to report their VOCs site by site; it is acceptable to report the yearly VOCs emissions under the HQ site on Gensuite
- The VOC excel tool is distributed with these guidelines

# XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

## GREENHOUSE GAS (GHG) CALCULATIONS

### Reference

GRI standard GRI 305 Emissions (2016)

GRI standard glossary (2016)

### Unit of Reporting

Metric Tons of CO<sub>2</sub> (mtCO<sub>2</sub>)

### Definitions

- Direct (Scope 1) GHG Emissions : greenhouse gas emissions from sources that are owned or controlled by an organization
- Indirect (Scope 2) GHG Emissions : greenhouse gas emissions that result from the generation of purchased or acquired electricity, heating, cooling, and steam consumed by an organization
- Other Indirect (Scope 3) GHG Emissions : indirect greenhouse gas emissions not included in energy indirect (Scope 2) GHG emissions that occur outside of the organization, including both upstream and downstream emissions

### Xylem Direct and Indirect GHG Emissions

- Direct (Scope 1)
  - Renewable Energy Generated
  - Natural Gas
  - Gaseous and Liquid Propane
  - Fuel Oil
  - Diesel Fuel
  - Gasoline/Petrol
  - Liquefied Petroleum Gas (LPG)
  - Refrigerants Leakage
  - Cryogenic CO<sub>2</sub>
- Indirect (Scope 2)
  - Purchased Electricity
  - Purchased Heat
- Other indirect (Scope 3)
  - Business Travel (airplane, hotels and rental cars)
  - Transportation of Goods (limited to Emmaboda)
  - Energy consumption of products during usage phase (estimation done for Flygt products)

## XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

### XYLEM ENERGY AND GREENHOUSE GAS CALCULATIONS

Xylem Goals related to Greenhouse Gas Emissions only consider Scope 1 and Scope 2 emissions.

In general, our energy reporting includes :

- **Total Energy Consumption =**

|   |                            |                  |
|---|----------------------------|------------------|
|   | Renewable energy generated | in kWh           |
| + | Natural Gas                | converted in kWh |
| + | Gaseous Propane            | converted in kWh |
| + | Liquid Propane             | converted in kWh |
| + | Fuel Oil                   | converted in kWh |
| + | Diesel Oil                 | converted in kWh |
| + | Gasoline                   | converted in kWh |
| + | LPG                        | converted in kWh |
| + | Purchased Electricity      | in kWh           |
| + | Purchased Heat             | in kWh           |

- **Total Greenhouse Gas Emissions =**

|   |                       |                        |
|---|-----------------------|------------------------|
|   | Natural Gas           | converted in mtons CO2 |
| + | Gaseous Propane       | converted in mtons CO2 |
| + | Liquid Propane        | converted in mtons CO2 |
| + | Fuel Oil              | converted in mtons CO2 |
| + | Diesel Oil            | converted in mtons CO2 |
| + | Gasoline              | converted in mtons CO2 |
| + | LPG                   | converted in mtons CO2 |
| + | Refrigerant leakage   | converted in mtons CO2 |
| + | Cryogenic CO2*        | in mtons CO2           |
| + | Purchased Electricity | converted in mtons CO2 |
| + | Purchased Heat        | converted in mtons CO2 |

- **Net Greenhouse Gas Emissions =**

|   |                                    |                        |
|---|------------------------------------|------------------------|
|   | Total Greenhouse Gas Emissions     |                        |
| - | Purchased renewable energy credits | converted in mtons CO2 |
| - | Renewable energy generated         | converted in mtons CO2 |

*(\*) Since Cryogenic CO2 is used only by one Xylem facility, the reporting is done annually by email and is not included in the Gensuite system.*

## XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

### CONVERSION FACTORS GREENHOUSE GAS EMISSIONS

| GHG calculations for sites using metrics system | Value              | Unit         |
|---|--------------------|--------------|
| Natural gas                                     | 0,0019266994       | mtons/m3     |
| Cryogenic CO2                                   | 0,000001           | mtons/gram   |
| Mobile source diesel                            | 0,002697205        | mtons/liters |
| Mobile source gasoline                          | 0,0023194378       | mtons/liters |
| Mobile source LPG                               | 0,0015295609       | mtons/liters |
| Stationary source liquid propane                | 0,0014834677       | mtons/liters |
| Stationary source gaseous propane               | 0,0054636431       | mtons/m3     |
| Stationary source fuel oil                      | 0,0027053526       | mtons/liters |
| Electricity                                     | see separate sheet |              |
| Purchased heat                                  | See below          |              |

| GHG calculations for sites using US system | Value              | Unit             |
|--|--------------------|------------------|
| Natural gas                                | 0,000054558        | mtons/cubic feet |
| Cryogenic CO2                              | 0,000001           | mtons/grams      |
| Mobile source diesel                       | 0,01021            | mtons/gallons    |
| Mobile source gasoline                     | 0,00878            | mtons/gallons    |
| Mobile source LPG                          | 0,00579            | mtons/gallons    |
| Stationary source liquid propane           | 0,005615519        | mtons/gallons    |
| Stationary source gaseous propane          | 0,0001547125       | mtons/cubic feet |
| Stationary source fuel oil                 | 0,010240842        | mtons/gallons    |
| Electricity                                | see separate sheet |                  |
| Purchased heat                             | See below          |                  |

|                |            |           |
|----------------|------------|-----------|
| Purchased heat |            |           |
| China          | 0,000766   | mtons/kWh |
| Denmark        | 0,00036    | mtons/kWh |
| Germany        | 0,000461   | mtons/kWh |
| Sweden         | 0,00001801 | mtons/kWh |

Source : [www.ghgprotocol.org](http://www.ghgprotocol.org)

## XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

### CONVERSION FACTORS GREENHOUSE GAS EMISSIONS – ELECTRICITY

**TO BE USED FROM JANUARY 2019**

| Country or US eGrid | Emission factor<br>mtons CO <sub>2</sub> e/kWh |
|---------------------|--|
| Algeria             | 0.0005100                                      |
| Argentina           | 0.0003769                                      |
| Australia           | 0.0007619                                      |
| Austria             | 0.0001518                                      |
| Belgium             | 0.0001731                                      |
| Brazil              | 0.0001203                                      |
| Canada              | 0.0001504                                      |
| Chile               | 0.0004447                                      |
| China               | 0.0006300                                      |
| Colombia            | 0.0002213                                      |
| Czech Republic      | 0.0005325                                      |
| Denmark             | 0.0002077                                      |
| Finland             | 0.0001174                                      |
| France              | 0.0000526                                      |
| Germany             | 0.0004490                                      |
| Hong Kong           | 0.0007378                                      |
| Hungary             | 0.0002743                                      |
| India               | 0.0007306                                      |
| Ireland             | 0.0004150                                      |
| Italy               | 0.0003320                                      |
| Japan               | 0.0005459                                      |
| Luxembourg          | 0.0002088                                      |
| Malaysia            | 0.0006575                                      |
| Mexico              | 0.0004658                                      |
| Morocco             | 0.0006838                                      |
| Netherlands         | 0.0004662                                      |
| New Zealand         | 0.0001048                                      |
| Norway              | 0.0000080                                      |
| Peru                | 0.0002646                                      |
| Philippines         | 0.0006096                                      |
| Poland              | 0.0007232                                      |
| Portugal            | 0.0002885                                      |
| Russia              | 0.0003588                                      |
| Singapore           | 0.0003952                                      |
| Slovakia            | 0.0001585                                      |
| South Africa        | 0.0009500                                      |
| Spain               | 0.0002471                                      |
| Sweden              | 0.0000123                                      |
| Switzerland         | 0.0000284                                      |
| UAE                 | 0.0006615                                      |
| UK                  | 0.0002801                                      |
| Uruguay             | 0.0000270                                      |

| Country or US eGrid | Emission factor<br>mtons CO <sub>2</sub> e/kWh |
|---------------------|--|
| AZNM                | 0.000475818                                    |
| CAMX                | 0.000240359                                    |
| ERCT                | 0.000459988                                    |
| FRCC                | 0.000461031                                    |
| NEWE                | 0.000255690                                    |
| NWPP                | 0.000297284                                    |
| NYCW                | 0.000288984                                    |
| NYUP                | 0.000134218                                    |
| RFCE                | 0.000345683                                    |
| RFCM                | 0.000580099                                    |
| RFCW                | 0.000567671                                    |
| RMPA                | 0.000624506                                    |
| SPNO                | 0.000645099                                    |
| SPSO                | 0.000569213                                    |
| SRMV                | 0.000382015                                    |
| SRMW                | 0.000735954                                    |
| SRSO                | 0.000496729                                    |
| SRTV                | 0.000540954                                    |
| SRVC                | 0.000367455                                    |

Source : International Energy Agency 2016 and eGrid 2016

## XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

### HEATING VALUES

| Heating Values             |        |                         |
|----------------------------|--------|-------------------------|
| Natural Gas                | 1027   | BTU/cf                  |
| Stationary Gaseous Propane | 2488   | BTU/cf                  |
| Stationary Liquid Propane  | 91,502 | BTU/vaporized<br>gallon |
| Stationary Fuel oil        | 138700 | BTU/gallon              |
| Mobile Gasoline            | 114000 | BTU/gallon              |
| Mobile Source Diesel       | 129500 | BTU/gallon              |
| Mobile LPG                 | 773    | BTU/liquid gallon       |

Source : [www.ghgprotocol.org](http://www.ghgprotocol.org)

### REFRIGERANTS

| Global Warming Potentials |      |                        |
|---------------------------|------|------------------------|
| HFC-134a                  | 1300 | mtCO <sub>2</sub> e/MT |
| HFC-152a                  | 138  | mtCO <sub>2</sub> e/MT |
| R-402A                    | 2788 | mtCO <sub>2</sub> e/MT |
| R-404A                    | 3922 | mtCO <sub>2</sub> e/MT |
| R-407A                    | 2107 | mtCO <sub>2</sub> e/MT |
| R-407C                    | 1774 | mtCO <sub>2</sub> e/MT |
| R-410A                    | 2088 | mtCO <sub>2</sub> e/MT |

Source : IPCC (Intergovernmental Panel on Climate Change), 4<sup>th</sup> and 5<sup>th</sup> Assessment

### GENERAL CONVERSION FACTORS

| General                   | Value      | Units               |
|---------------------------|------------|---------------------|
| <b>Energy</b>             |            |                     |
| kWh to BTU                | 3412.14163 | BTU/kWh             |
| BTU to kJ                 | 1.05505585 | kJ/BTU              |
| MWh to GJ                 | 3.59999    | GJ/MWh              |
| <b>Volume</b>             |            |                     |
| m <sup>3</sup> to gallons | 264.73     | gals/m <sup>3</sup> |
| gallons to liters         | 3.78541    | liters/gallons      |
| <b>Mass</b>               |            |                     |
| MT to lbs                 | 2204.62262 | lbs/MT              |

## XYLEM ENVIRONMENTAL METRICS REPORTING REQUIREMENTS

### Document Control

| Date       | Version | Change  |
|------------|---------|---|
| 2015       | 1       | Original guidelines in powerpoint format  |
| 29/05/2017 | 2       | Original guidelines in word format  |
| 28/05/2018 | 3       | <ul style="list-style-type: none"> <li>• Title changed to Xylem Environmental Metrics Reporting Requirements (page 1)</li> <li>• Added Accountability and Reporting Process (page 2)</li> <li>• Changed 'liquid propane' to 'liquefied petroleum' in LPG definition (page 15)</li> <li>• Water can also be reported monthly based on invoices (page 4)</li> <li>• Information on mobile source consumption can be also obtained from companies contracted to provide gas (pages 10, 13 &amp; 15)</li> <li>• Refrigerated water fountains are also excluded from Refrigerant reporting (page 7)</li> </ul>   |
| 21/05/2019 | 4       | <ul style="list-style-type: none"> <li>• Frequency for verification of metrics by corporate (page 2)</li> <li>• Reference for water reporting and definitions (page 4)</li> <li>• Frequency for water reporting for sites equipped with water meters (page 4)</li> <li>• Additional explanations for reporting of renewable electricity generated (page 9)</li> <li>• Additional explanations for reporting of electricity usage (page 10)</li> <li>• Additional note for rental cars for mobile source reporting (pages, 11, 14 and 16)</li> <li>• Conversion factor for US sites receiving natural gas consumption in Therms from energy provider (page 17)</li> <li>• Electricity-related emission factors to be used from January 2019 (page 24)</li> </ul> |
| 04/06/2019 | 5       | <ul style="list-style-type: none"> <li>• Updated emission factor for SRVC (page 24) to 0.000367455</li> </ul>   |