Low-carbon procurements

Corporate instruction

Approved by the Telefónica S.A. Global Management of Corporate Ethics and Sustainability on 04 June 2020.

Telefónica, S.A.

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Contents

Changes and Reviews

Edition	Date	Remarks-Changes
01	May 08, 2018	First version of the document
02	June 04, 2020	Elimination of explicit energy and climate change targets Update of refrigerant gases global warming potentials, according to IPCC report AR5

1.Introduction

Telefónica, in line with its commitment to tackle climate change, has ratified a series of global energy and carbon emission targets aimed at achieving carbon neutrality, improved energy efficiency (MWh/PB) and 100% consumption of electricity from renewable sources. In order to achieve such goals, a series of actions must be developed aimed at reducing energy consumption and direct emissions of gases that contribute to climate change, which include refrigerants.

Similarly, the development of this instruction responds to the commitments set out in the **Corporate Policy and Standard on Sustainability in the Supply Chain**, and the **Global Energy Management Policy**. In this way, Telefónica is promoting the incorporation of energy efficiency principles in the primary purchases of products that require high energy consumption (electricity and fuels) through the gradual incorporation of internalization criteria of the cost of energy and carbon, by means of the Total Cost of Ownership or TCO.

2.Purpose

The purpose of this instruction is to establish the guidelines for the development of low carbon purchases in the main products responsible for the generation, directly or indirectly, of greenhouse gas emissions (GHG), mainly CO_2, CH_4 and N_2O.

On the one hand, it describes the way to calculate the TCO, incorporating the cost of energy consumed by a specific product or service throughout its service life, into the procurement awarding process. In this way, there will be enough information available to choose the best option for the company, both economically and in terms of energy and carbon emissions, because it will take into account both the direct purchase cost as well as the indirect costs associated to their use.

On the other hand, it establishes the criteria to be considered when buying equipment that contains refrigerants or fire extinguishing gases, in order to choose those whose gases have a lower impact on climate change in the event they are accidentally leaked into the atmosphere.

3.Scope

This instruction is applicable to all the companies that make up the Telefónica Group. To that end, the Telefónica Group will be understood to be companies in whose social capital Telefónica S.A. disposes, directly or indirectly, of the majority of shares, interests, or voting rights, or whose governmental or administrative body has been designated or has the faculty to designate the majority of its members, in such a way that it effectively controls the company. Telefónica, S.A., as the parent company of the Group, is in charge of establishing the foundations, instruments and mechanisms required to adequately and efficiently coordinate this Company and all the other companies which make up the Group; all of the above is to be applied without prejudice to and without impairing the autonomous decision-making capacity of each of the said companies, in accordance with their own corporate interests and with the fiduciary duties owed by the members of their management bodies to their shareholders.

In particular, this instruction is applicable to both the global and local procurement processes for equipment with **high energy consumption**, either by the power it demands or its continual operation (24/7), as well as **all air conditioning equipment that contain refrigerants** and automatic fire extinguishing systems.

Some **examples** of product codes for which these guidelines are applicable:

Air conditioning equipment (subgroup code 2410). For air conditioning systems, the calculation will be made especially for precision equipment higher than 40 TR.

Generators (subgroup code 2450).

Rectifiers (subgroup code 1410).

Batteries (subgroup code 1420).

UPS (subgroup code 1430).

Other power equipment (subgroup code 1440).

Fire prevention systems (subgroup code 2093).

It shall also apply to IT equipment, servers, computers, etc. so it becomes a widely-used common practice when it comes to awarding a procurement process of any product that consumes energy (either electricity or fuel).

4.Guidelines for TCO calculation

When awarding a procurement process which involves equipment identified previously, there must be an evaluation of the energy consumption economic cost during the **period of service life of the equipment (preferably)**, or failing that, at least over 3 years.

To do so, the Technical Acquisition Department and the Purchasing Department will work together.

4.1 CALCULATION OF THE ENERGY COST:

The technical acquisition department will calculate the cost of the energy consumed, taking into account the following guidelines:

In the case of **electricity consumption**, it must:

- Know the average power demanded by the equipment during its operation (kW)
- Calculate the number of operating hours planned during the period of time (for example, 8760 hours / year * 3 years = 26280 hours)
- Multiply both factors, obtaining in this way, the energy consumed (kWh)
- Multiply this consumption by the average price of the electricity for the country (€/kWh). This information is available at Telefónica's Climate Change Office (oficinacambioclimatico@telefonica.com), for each of the countries where it operates and on a global basis for the entire group.

In the case of **fuel consumption**, this planned consumption must be estimated in the same way for the planned period (preferably the service life, or failing that, at least 3 years), and multiply this by the cost of fuel in the country.

4.2 CALCULATION OF THE TOTAL COST OR TCO

The technical acquisition department will provide the energy cost data it has calculated to the Purchasing Department, which in turn will add it to the purchase price offered by different manufacturers. So, for each of the received tenders, the TCO will be available. In this way, the best option for Telefónica as a whole (acquisition + operation) can be selected.

The image below shows a simple example of this calculation:

Cooling equipment: The technical team defines the technical characteristics the cooling equipment must meet in order to comply with the established requirements. 3 manufacturers have presented bids with equipment approved by recognised organisations (TüV, Eurovent, etc.)

	Average Power Requested (kW)	Annual operating hours	Number of years of intended use	Average price of energy (€/kWh)	CAPEX (€)	OPEX (€)	TCO (€)
Manufacturer 1	10	4380	3	0,12	6.000,00 €	15.768,00 €	21.768,00 €
Manufacturer 2	12				5.400,00 €	18.921,60 €	24.321,60 €
Manufacturer 3	9				6.600,00 €	14.191,20 €	20.791,20 €

As you can see, the cheapest offer, when considering only the purchase cost (CAPEX), is the one from manufacturer 2.

However, by taking into account the cost of energy consumed by the equipment (TCO), the offer from manufacturer 3 is the most beneficial for the company

OTHER DETAILS TO KEEP IN MIND

Should other expenses associated with the use of the equipment, such as maintenance, consumables or final disposal cost, be set out in the received tenders, these may also be considered when assessing the TCO.

In order to make a uniform comparison of the total TCO associated with an equipment purchase (acquisition price, energy, maintenance, etc.), the current value of these concepts must be used, as otherwise the comparison could be misleading, due to the distribution of the different costs over time.

5.Equipment containing refrigerants or fire extinguishing gases

The establishment of criteria for the acquisition of equipment with refrigerants or fire extinguishing gases is based on the impact of a possible leak on climate change.

The impact of these gases is measured through the "Global Warming Potential" (GWP), a factor that measures the capacity of greenhouse gas emissions (including refrigerant gases)

in retaining heat in the atmosphere. Carbon dioxide (CO_2) is the basis for all calculations and its global warming potential is 1.

Therefore, the higher GWP, the higher impact on climate change and the greater Telefónica's carbon footprint.

Refrigerant gas leaks represent around **16% of the carbon footprint of the Telefónica Group**. This is part of the direct emissions generated by the company, so we have the responsibility and the capacity to cut these emissions down so as to reach the goals of the Group.

In general, they can be divided into **two groups of gases**, depending on their composition:

A. CFC / HCFC (chlorofluorocarbons / hydrochlorofluorocarbons)

These are responsible for the destruction of the **ozone layer and also contribute to climate change**. Regulated internationally by the **Montreal Protocol**, their use and refilling are already **prohibited in some countries** and there is a calendar for their progressive disappearance in the rest of signatory countries of the protocol (http://ozone.unep.org/en/handbook-montreal-protocol-substances-deplete-ozone-layer/25411).

In the development of its guidelines for the sustainability of the supply chain, Telefónica, from the publication of these proceedings onward, will not permit the purchase of equipment that contain this type of gas (for example, R-22), thus marking the date of compliance with the Protocol in terms of the Telefónica Group.

Annex I contains a list of this type of gases and their corresponding GWP. The main type is R-22 (HCFC-22), with a GWP of 1760, so the leakage of 1 kg of R-22 equals 1760 kg of CO_2.

When it comes to replacing equipment that contains this type of gas, another must be chosen that does not deplete the ozone layer, and having a GWP less than R-22, thus decreasing the contribution of refrigerant gases to Telefónica's carbon footprint.

Similarly, all the companies of the Telefónica Group must comply with national regulations that regulate the legal conditions for the elimination of this equipment from the inventory of the company (for example, the conditions for hazardous waste disposal).

B. HFC / PFC (hydrofluorocarbons / perfluorocarbons)

Created to replace the CFC/HCFC. These gases do not deplete the ozone layer, but they do lead to climate change. This effect is measured through its Global Warming Potential (GWP) and their use is progressively being legislated.

In some countries (especially in Europe), legislation has been enacted with the aim of minimising accidental leaks of these gases in the atmosphere:

- Establishing a mandatory frequency of leak checks.
- Levying a direct tax on these gases (applied to each kg of refilled gas).

Both the frequency of the leakage checks and the amount of tax are directly linked to the GWP of the refrigerant gas. The lower the GWP, the less demanding the leakage checks are, and the lower the tax, thus **minimising future costs and risks for the company**.

Gas leaks, as they are greenhouse gas emissions, directly contribute to increase Telefónica's carbon footprint, which has a negative impact on our global Energy and climate change Objectives (defined in the introduction of this document).

For example, 1 kg of R410A equals 1923 kg of CO_2, which gives an idea of the great impact these gases have in their contribution to climate change. Annex II contains the GWP values for the main gases and commercial mixtures.

6.Criteria for the selection and management of refrigerants and fire extinguishing gases

The following guidelines are established:

- Do not purchase equipment with CFC/HCFC (R-22 and similar gases. Annex I). In this way, compliance with the legislation is ensured, minimising the risk of having to change this equipment before the end of its service life, in addition to having to deal with the cost of specific taxes, mandatory leak checks and management of this discarded equipment.

- Select equipment with low GWP gases (ensuring they meet the necessary technical requirements, for both cooling and fire extinguishing). In our experience in Europe, the costs associated with equipment with these gases (taxes, leak checks) will be lower for those with a lower GWP (gases whose GWP is less than 150 are exempt). Similarly, this will positively influence Telefónica's carbon footprint, to which the leak of these gases contributes significantly. In this sense, when replacing R-22 equipment, others complying with the technical requirements must be selected which use a gas whose GWP is less than the R-22 (1760). See Annex II

  Examples of these low-GWP gases are: R-32 (HFC-32), or HFO (Hydrofluoro-olefins), although given the progressive development shown in this industry, it will be necessary to consult the manufacturers for the best options available at any given time.

- Include preventive maintenance clauses to prevent leaks. The maintenance tasks on equipment containing these gases must cover an inspection of the gas circuits, to prevent gas leakages into the atmosphere. In Europe, there is a tax on these gases (which exceeds the cost of the gas itself) and leakage increases the company's carbon emissions.

- Comply with the equipment's waste regulations at the end of their service life: the disposal of equipment containing these gases must comply with the applicable regulations (for waste management) and PREVENT the gases contained from leaking into the atmosphere under any circumstances. Documentary evidence

certifying the treatment and its correct destruction must be kept for at least 5 years.

7. Derogations and effectiveness

This document does not repeal any prior document and comes into effect the first day of the month following the date of its approval.

8. Annex I. CFC/HCFC Gases (deplete the ozone layer and contribute toward climate change)

Industrial name	Chemical formula	GWP[1]
HCFC-22 R-22	**CHCLF2**	**1760**
CFC-11	CCl3F	4660
CFC-12	CCl2F2	10200
CFC-13	CClF3	13900
CFC-113	CCl2FCClF2	5820
CFC-114	CClF2CClF2	8590
CFC-115	CClF2CF3	7670
Halon-1301	CBrF3	6290
Halon-1211	CBrClF2	1750
Halon-2402	CBrF2CBrF2	1470
HCFC-21	CHCl2F	148
HCFC-123	CHCl2CF3	79
HCFC-124	CHClFCF3	527
HCFC-141b	CH3CCl2F	782
HCFC-142b	CH3CClF2	1980
HCFC-225ca	CHCl2CF2CF3	127
HCFC-225cb	CHClFCF2CClF2	525

[1] Global Warming Potential. Taken from the GHG Protocol. IPCC Fifth assessment report (AR5) http://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

Should a gas not appear on this list, contact Telefónica's Climate Change Office (oficinacambioclimatico@telefonica.com) for information.

9. Annex II Global Warming Potential of Refrigerant Gases (HFCs) and preparations (commercial mixtures).

Industrial name	Chemical formula	GWP[2]
HFC-23	CH2F3	12400
HFC-32	CH2F2	677
HFC-41	CH3F	116
HFC-43-10mee	C5H2F10	1640
HFC-125	C2HF5	3170
HFC-134	C2H2F4	1120
HFC-134a	CH2FCF3	1300
HFC-143	C2H3F3-	328
HFC-143a	C2H3F3	4800
HFC-152	CH2FCH2F	16
HFC-152a	C2H4F2	138
HFC-161	C2H2F	4
HFC-227ea	C3HF7	3350
HFC-236cb	CH2FCF2CF3	1210
HFC-236ea	CHF2CHFCF3	1330
HFC-236fa	C3H2F6	8060
HFC-245ca	C3H3F5	716

[2] Global Warming Potential indicated in the Fourth Assessment Report of the IPCC (European regulation 517/2014).

Industrial name	Chemical formula	GWP[3]
R-404A	R-125/143a/134a (44/52/4)	3942,8
R-407A	R-32/125/134a (20/40/40)	1923,4
R-407C	R-32/125/134a (23/25/52)	1.624,21
R-407F	R-32/125/134a (30/30/40)	1674,1
R-410A	R-32/125 (50/50)	1.923,50
R-417A	R-125/134a/600 (46,6/50/3,4)	2127,22
R-422A	R-125/134a/600a (85,1/11,5/3,4)	2847,17
R-422D	R-125/134a/600a (65,1/31,5/3,4)	2473,17
R-424A (RS44)	R-125/134a/600a/600/601a (50,5/47/0,9/1/0)	2211,85
R-427A	R-32/125/143a/134a (15/25/10/50)	2024,05
R-434A	R-125/143a/134a/600a (63,2/18/16/2,8)	3075,44
R-438A	R-32/125/134a/600/601a (8,5/45/44,2/1,7/0,6)	2058,645
R-442A	R-32/125/134a/152a/227ea (31/31/30/3/5)	1756,97
R-401B		1.236,34
R-453A (RS70)		1636,3
R-452A		1944,77

Should a gas not appear on this list, contact Telefónica's Climate Change Office (oficinacambioclimatico@telefonica.com) for information.

[3] Global Warming Potentials calculated from the values in the IPCC Fifth Assessment Report (AR5).