



# Assurer la transition écologique dans les industries de réseau: Quels défis et opportunités pour les régulateurs économiques?

Club des régulateurs / NER  
19 novembre 2024





# Let's look up ! Go green to preserve future generations connectivity

Anne Yvrande-Billon

November 19, 2024

# Digital environmental footprint : a new chapter of regulation for Arcep

-  **the French Electronic Communications Regulatory Authority**
  - Economic regulation of networks infrastructures since 1997
  - Digitalization as a way to decarbonize other industries (IT for Green)
- **2019-2020: Let's look up ! Go green to preserve future generations connectivity**
  - Digitalization ⇒ Growth in data volumes, increased network and data centers capacities, rapid renewal of devices, low recycling rates
  - Increased awareness in society (e.g. 5G frequencies) and questions from decision makers
  - But few reliable data and transparent methodology
- **Arcep started to address the environmental footprint of digital technologies**
  - Environmental data collection and Annual surveys *"Achieving digital sustainability"*
  - Assessment of the digital environmental footprint in France in 2020, 2030 and 2050 (government

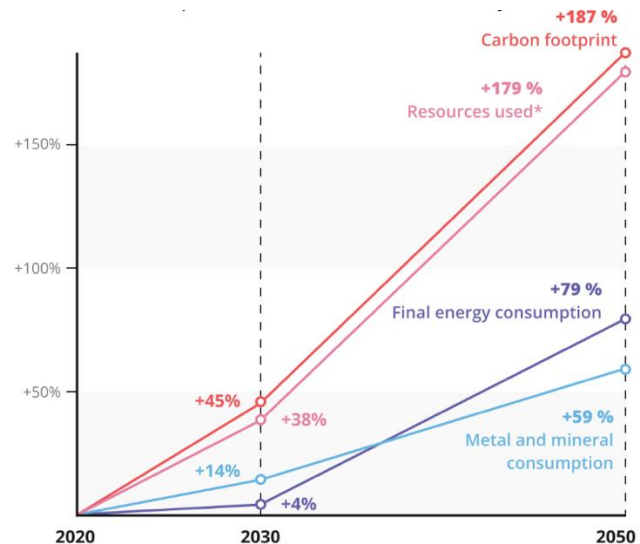
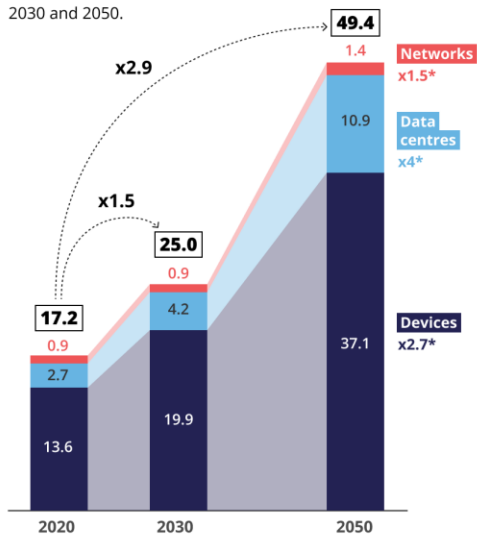
# Measuring the environmental footprint of the ICT sector

## Environmental impacts of digital services in France in 2020

- Electricity consumption : 48.7 TWh (10% of annual electricity consumption in France)
- 2.5 % of the French carbon footprint (i.e. 17 Mt CO2 eq)

**If no steps are taken, digital's GHG emissions could almost triple by 2050**

Progression of the business-as-usual scenario of GHG emissions in 2020, 2030 and 2050.

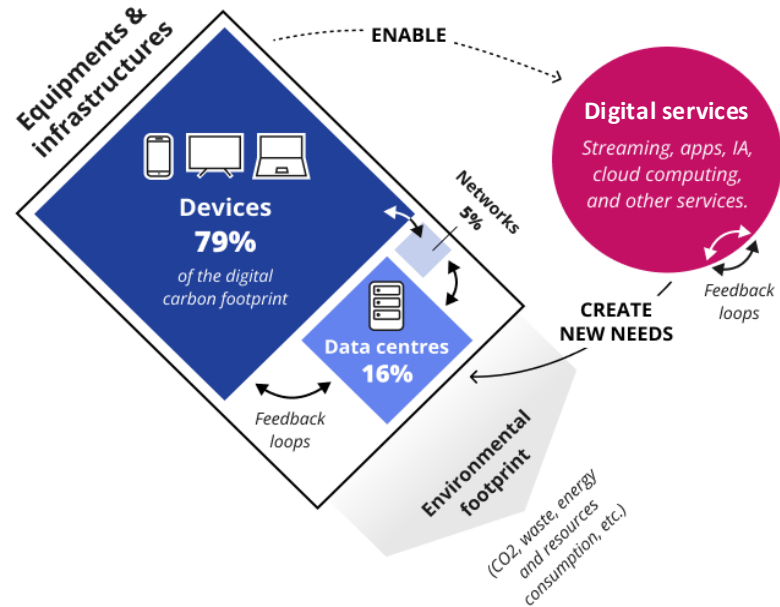


# Measuring the environmental footprint of the ICT sector

- **Devices represent the majority of the digital environmental footprint.**
- However, the use of a service is based on the use of a devices and the operation of material infrastructures, which have an environmental footprint.
- Everybody has to take its part for a digital sustainability → necessary commitment of all stakeholders for a sustainable digital economy

## Interdependence and materiality of the environmental footprint of digital services

Breakdown of the digital carbon footprint in 2020 by ICT component (%), and interrelations between them



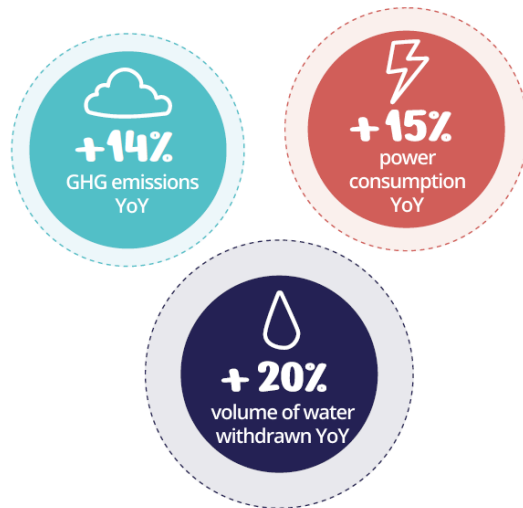
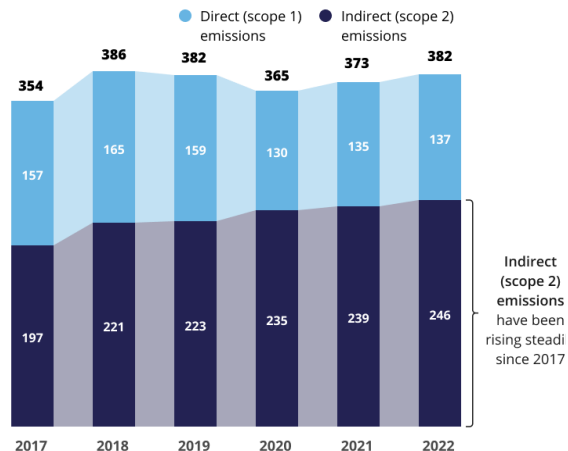
## Arcep's data collection and annual survey « Achieving digital sustainability »

- Before being given a new legal mandate: environmental data collection from main telco operators (2020) --> **Annual survey “Achieving digital sustainability”**
- Objectives: build and monitor over time environmental indicators from data directly collected by Arcep from digital players, using robust and transparent methodologies to:
  - **Improve measurement** to better assess environmental issues, **inform decision makers** and allow the implementation of appropriate measures
  - **Provide incentives** for economic actors to behave virtuously
  - **Empower users** and make tools available to the general public
- End of 2021: legal mandate to collect environmental data from an extended scope of digital players
  - Annual survey Editions 1 and 2 on telecom operators published in 2022 and 2023
  - Edition 3: scope extended to terminal manufacturers and data centers operators (March 2024)
  - Next steps: mobile equipment manufacturers (Ed.4); fiber manufacturers (Ed.5)

# Key indicators from 2024 annual survey “Achieving digital sustainability”

## Telcos' GHG emissions rose in 2022

Progression of telecoms operators' direct (scope 1) and indirect (scope 2) GHG emissions (in thousand tonnes of CO<sub>2</sub> equivalent)



*Data centre operators greenhouse gas emissions and energy and water consumption increased by more than 10% in 2022*

## Telco operators

- **Networks energy consumption: 4.1 TWh in 2022 (+7%)**
  - Growth driven by mobile networks
  - Decreasing consumption of fixed local loop driven by transition from copper to more energy efficient optical fiber
- **Electricity consumption of TV boxes and set-top boxes: 3.3 TWh in 2022**
  - Electricity consumption of all boxes = 3 times higher than fixed network consumption
- **Greenhouse Gas (GHG) emissions: 382,000 tons CO<sub>2</sub>eq in 2022 (+2 % over one year)**

## Data centers operators

- **Total electricity consumption: 2.1 TWh in 2022 (+15%)**
  - As compared to +0% in the tertiary sector
- **Greenhouse Gas (GHG) emissions: 95,000 tons CO<sub>2</sub>eq in 2022 (+14%)**

## Let's look up ! Go green to preserve future generations connectivity

- If no action is taken to contain ICT's growing impact on the environment, **electricity consumption of the digital ecosystem could double** between 2020 and 2050 **and digital carbon footprint could triple.**
- Necessary commitment of all stakeholders for a sustainable digital economy: everybody has to take its part for a digital sustainability
- **National level:**
  - **Government roadmap on “Digital sector and environment”** with objectives set based on Arcep's indicators
  - Arcep's **General Policy Framework for the Ecodesign of Digital Services** (May 2024).
- **European/International levels:** The environmental challenges posed by ICTs require a collective effort and involve the responsibility of everyone (private and public players), at all levels (national and international).
  - Berec Sustainability WG
  - ITU, World Bank, OECD



Thank you for  
your attention



To go further on the digital environmental footprint:

Annual survey « Achieving  
digital sustainability »



ADEME-Arcep press kit



## Sustainability indicators collected within this extended decision

### ❑ Terminal device manufacturers

- greenhouse gas emissions (scope 1, 2 and 3)
- quantity of equipment sold
- quantity of devices in circulation
- duration of utilization
- volumes of rare earths and precious metals used in its manufacture

### ❑ Telecom operators

- Greenhouse gas emissions (scope 1,2 and 3)
- Energy consumption from networks (mobile and, fixes local loop, collect and core networks), other energy consumption (from data centers, internet and set up boxes, etc.)
- Mobile phones : sales, collection, recycling, refurbishing
- Volume of internet and set up boxes refurbishing and recycling
- Protocol for measuring the electricity consumption of internet and set-top boxes

### ❑ Data center operators

- Nominal characteristics by DC (name, initial operation date, city in which the DC is located, name of the owner and the operator)
- Greenhouse gas emissions (scope 1,2 and 3)
- Total floor area and floor area used to host IT equipments
- Max power capacity that can be withdrawn by IT equipment
- Their energy and electricity consumption and IT equipment electricity consumption
- Type of cooling system
- The volumes and sources of water used