Climate Neutral Data Centre Pact

IMCO Working Group 31 May 2021

What is a data centre?

- Data centres process, manage, store, transmit and receive digital data

- Data centres consolidate IT functions into secure, resilient facilities

- Data centres power the internet

- Data centres are part of our digital infrastructure and underpin all economic activity

- There are different types of data centre; eg enterprise (in house), colocation (third party) and hyperscale (large scale cloud)

Data Centre Power Consumption

- Data centres are electro intensive

- Data centres consume around 1% of global electricity ([IEA 2020](#)) – around 200 TWh a year.

- Studies suggest that data centres consume between 15% and 25% of ICT energy (networks and devices account for the rest)
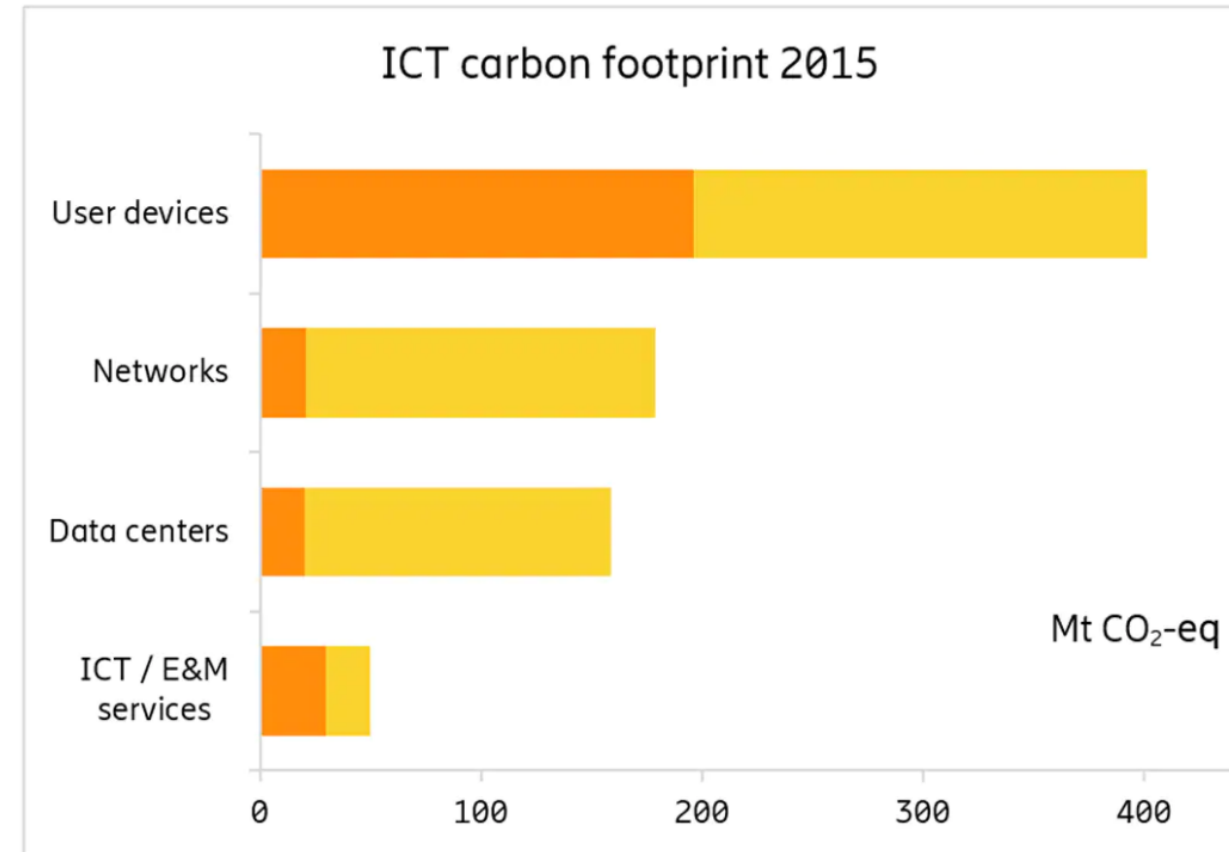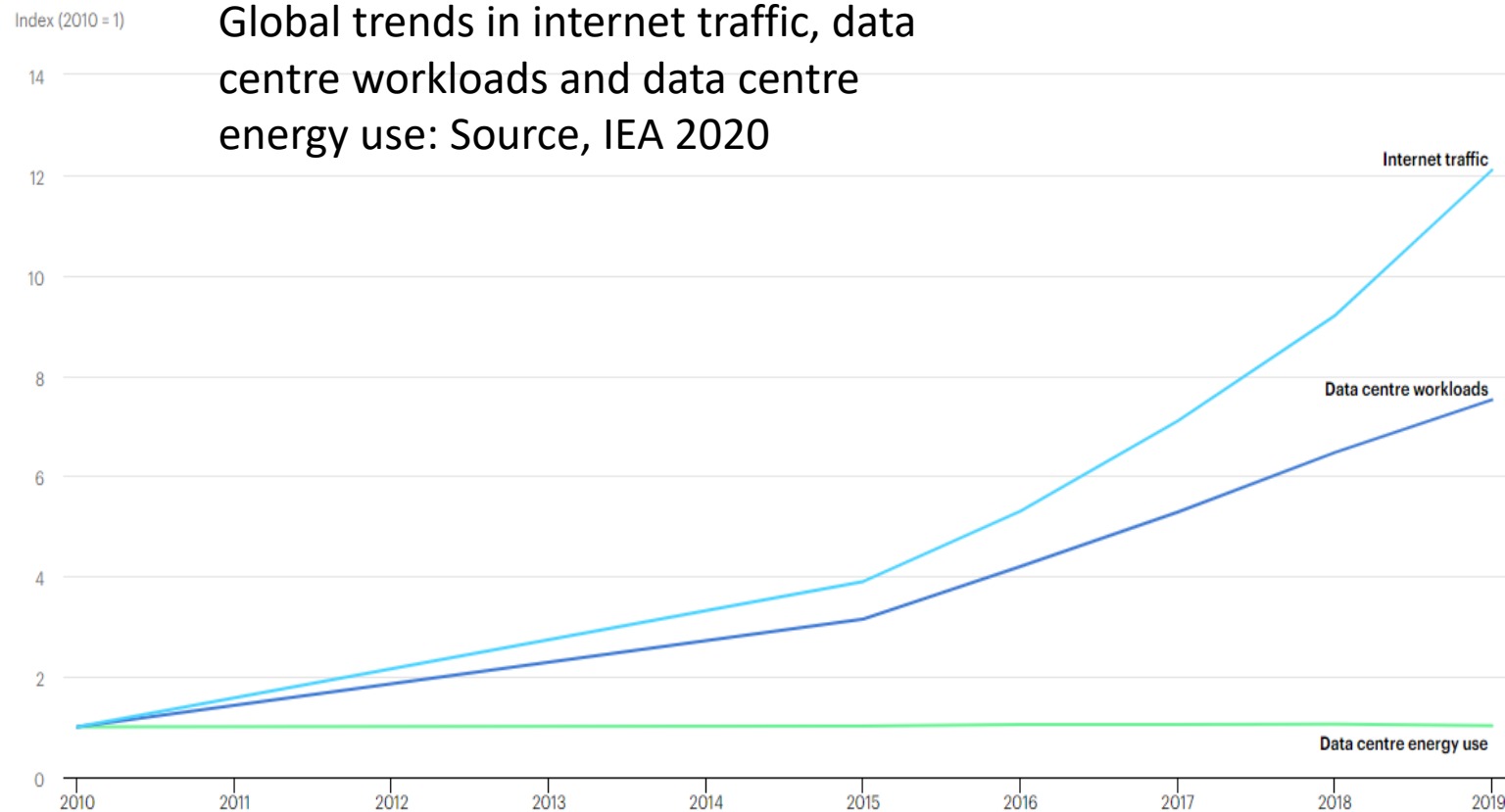

Bright orange = embedded energy.
Source: [Ericsson 2018](#)

Data Centres and Energy: The Challenge

Global trends in internet traffic, data centre workloads and data centre energy use: Source, IEA 2020

Data centres need to meet the exploding demand for digital data without a parallel increase in energy demand ....by data centres!

Currently we are doing well, due to improvements in processor efficiency and advances like virtualisation.

Sector Electricity Demand: Trends

Energy consumption of data centres by type
Source IEA
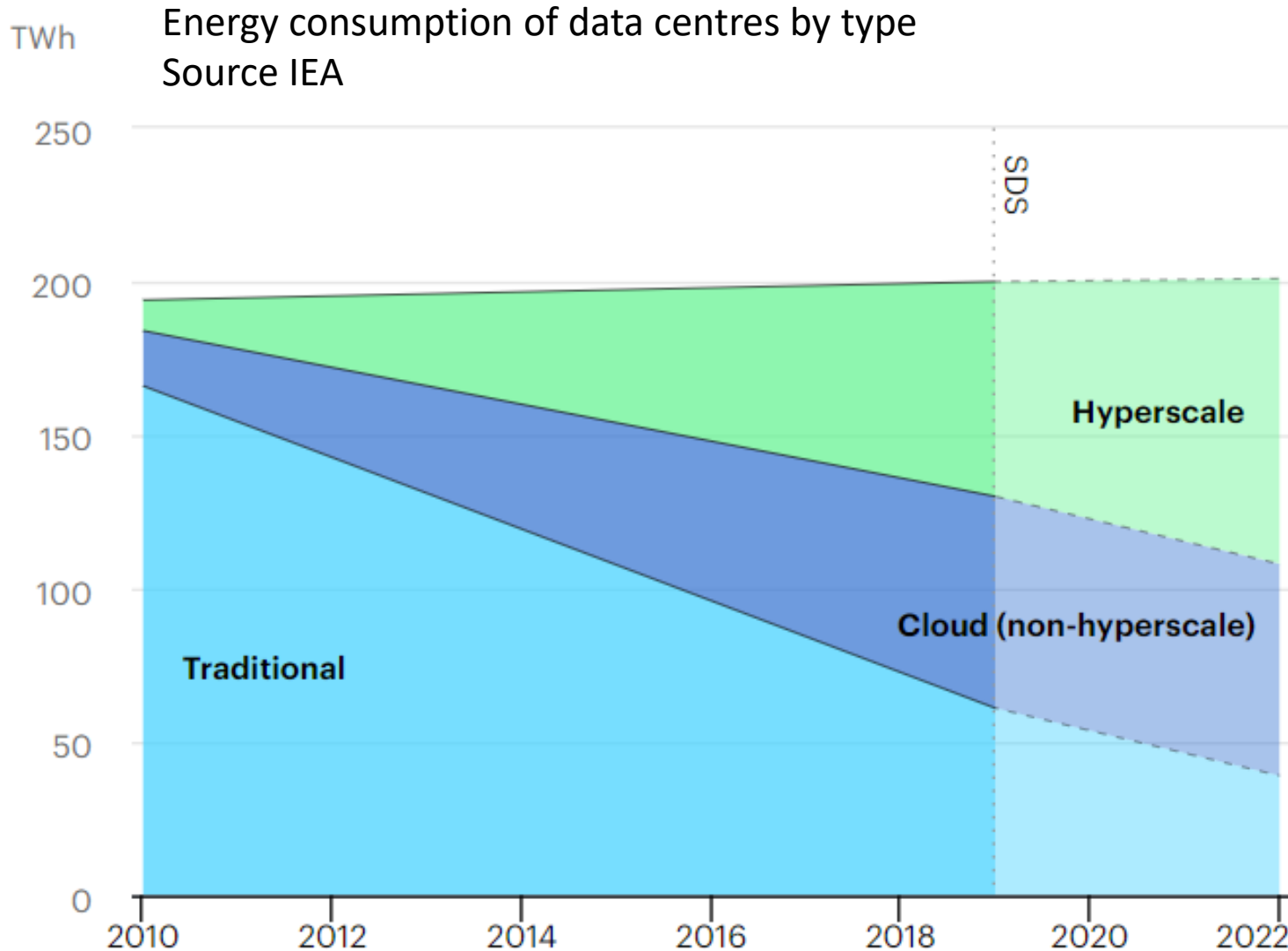
Energy demand of data centres remains surprisingly flat due to efficiency improvements and a shift to cloud and hyperscale data centres.
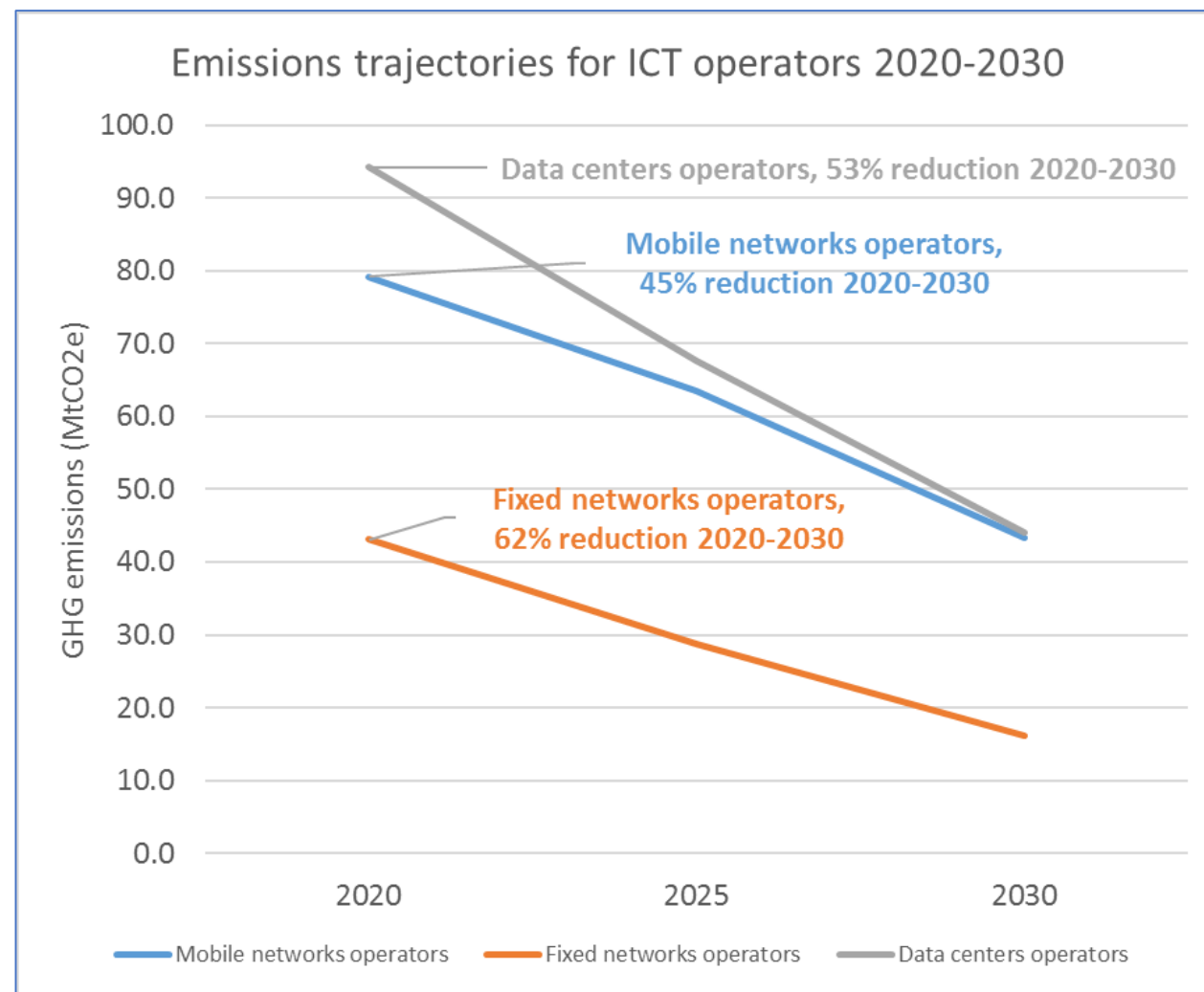
ICT Sector GHG Emissions Trajectory

- ICT sector released a science based pathway for ICT emissions in line with the Paris Agreement

- Trajectory compatible with 1.5⁰C scenario

- Data Centre SBT Trajectory requires a 53% reduction in emissions

Emissions trajectories for ICT operators 2020-2030

Data centers operators, 53% reduction 2020-2030

Mobile networks operators, 45% reduction 2020-2030

Fixed networks operators, 62% reduction 2020-2030

GHG emissions (MtCO2e)

— Mobile networks operators   — Fixed networks operators   — Data centers operators

Data Centres, Energy and Carbon: Useful Sources

Analysis of the scope for digital technologies to help reduce emissions Digitalisation and Energy: IEA:
https://www.iea.org/reports/digitalisation-and-energy

Analysis of data centre sector energy use:
Data Centres and Data Transmission Networks: Energy use, IEA 2020:
https://www.iea.org/reports/data-centres-and-data-transmission-networks

Detailed explanation of why studies and projections of data centre energy use produce such different results and the pros and cons of different approaches.
Eric Masanet at UC Santa Barbara presentation: https://www.youtube.com/watch?v=-o8j5zIM0iA

Common misconceptions about data centres
Ten Myths about Data Centres

Make Data Centres and Cloud infrastructure Climate Neutral by 2030

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# The CNDCP in a nutshell

- **Launched Jan. 21st 2021**

- **Developed by the industry with the support of the European Commission (EVP Timmermans, DG Connect…)**

- Engages Pact Operators (data centres and cloud infrastructure providers) towards **Climate Neutrality by 2030** with clear metrics to achieve in 2025 and 2030 on:
    - Energy efficiency,
    - Clean energy,
    - Water conservation,
    - Circular economy
    - Circular energy systems

- Engagements will be **monitored by independent third-party audits** (for SMEs a self-assessment procedure will enable less costly onboarding)

- Supported by **biggest players of the industry** operating in Europe (European and non-European companies) **as well as SMEs**

THE GREEN DEAL NEEDS GREEN INFRASTRUCTURE
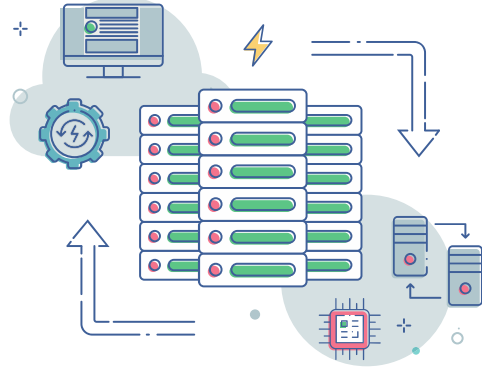
WE REUSE AND REPAIR SERVERS

WE PROVE ENERGY EFFICIENCY WITH MEASURABLE TARGETS

2020
Signing of the **Climate Neutral Datacenter Pact.**

2025
First milestones of the pact.

2030
Climate Neutral datacenters.

WE PURCHASE 100% CARBON-FREE ENERGY

WE PRIORITISE WATER CONSERVATION

Cloud computing is the **technological force for change** behind the European Green Deal & Digital Strategy. **Cloud infrastructure providers** & **data center operators** created a self-regulatory initiative for data centers to be **climate neutral by 2030.**

CNDCP Commitments

Energy efficiency

Data centres and server rooms in Europe shall meet a high standard for energy efficiency, which will be demonstrated through aggressive power use effectiveness (PUE) targets.

- By January 1, 2025 new data centres operating at full capacity in cool climates will meet an annual PUE target of 1.3, and 1.4 for new data centres operating at full capacity in warm climates.

- Existing data centres will achieve these same targets by January 1, 2030.

- These targets apply to all data centres larger than 50KW of maximum IT power demand.

- In recognition of the European Commission's interest in creating a new efficiency metric, trade associations will work with the appropriate agencies or organizations toward the creation of a new data centre efficiency metric. Once defined, trade associations will consider setting a 2030 goal based on this metric.

Clean energy
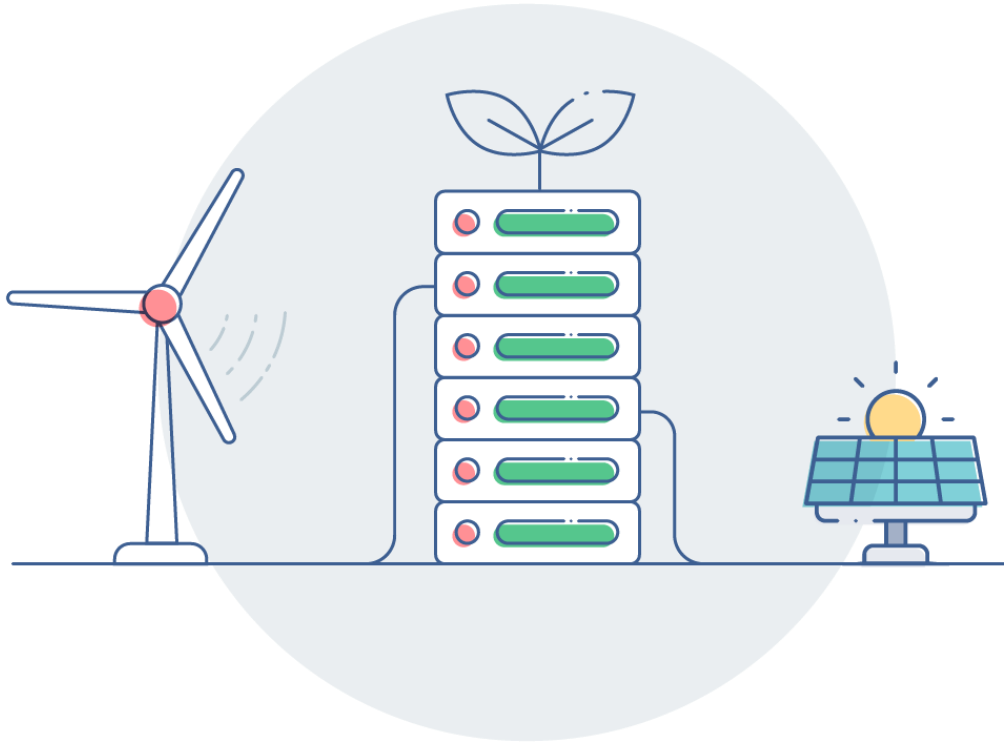
Data centres will match their electricity supply through the purchase of clean energy.

Data centre electricity demand will be matched by 75% renewable energy or hourly carbon-free energy by December 31, 2025 and 100% by December 31, 2030.

Water conversation

Data centres will conserve water and set ambitious water conservation targets.

- By 2022, data centre operators will set an annual target for water usage effectiveness (WUE), or another water conservation metric, which will be met by new data centres by 2025, and by existing data centres by 2030.

- The water metric target may vary depending on the data centre design specification.

Circular economy
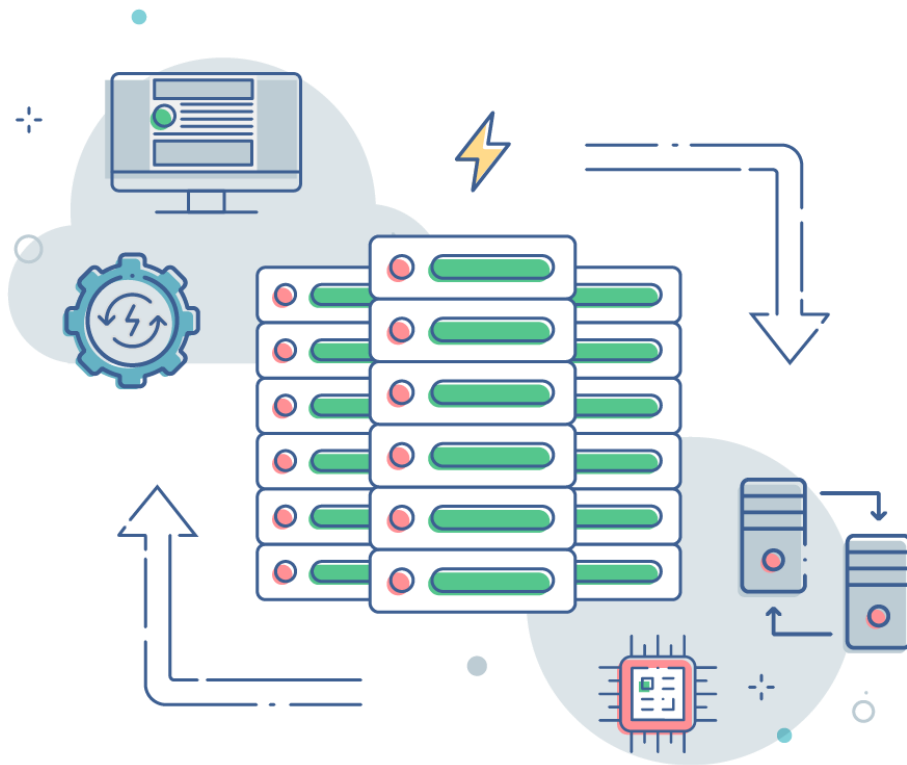
The reuse, repair and recycling of servers, electrical equipment and other related electrical components is a priority for data centre operators.

- Data centres will set a high bar for circular economy practices and will assess for reuse, repair, or recycling 100% of their used server equipment.

- Data centre operators will increase the quantity of server materials repaired or reused and will create a target percentage for repair and reuse by 2025.

Circular energy system

The reuse of data centre heat presents an opportunity for energy conservation that can fit specific circumstances. Data centre operators will explore possibilities to interconnect with district heating systems and other users of heat to determine if opportunities to feed captured heat from new data centres into nearby systems are practical, environmentally sound and cost effective.

CNDCP Organisation & members

Actual Membership

- **43 Pact Operators** signatories including the biggest providers on the market:

- **22 Pact Associations** for all over Europe

CNDCP Members of the Board

Alban Schmutz

VP Strategic Dev & Public Affairs, OVHcloud

representing CISPE

Michael Winterson

Managing Director, Equinix Services

representing EUDCA

Stijn Grove

Dutch Data Center Association

Emma Fryer

TechUK

Lex Coors

Chief Data Centre Officer, Interxion

Fabrizio Garrone

Enterprise Solution Director, Aruba

More information

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