GREEN FUTURE NETWORKS

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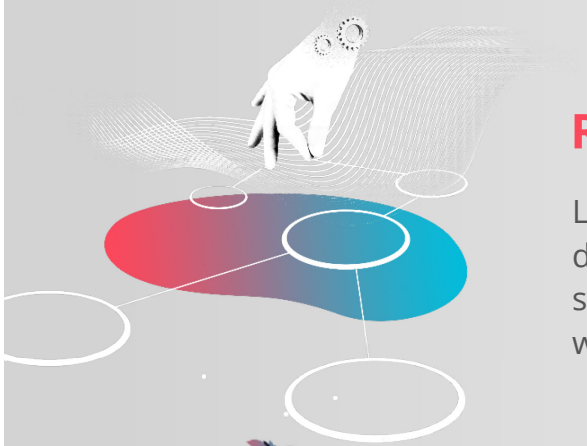
STRATEGY

Alongside with projects supporting 5G's full implementation, the focus of NGMN's Work Programme since 2021 is on three main equally important pillars with different time horizons

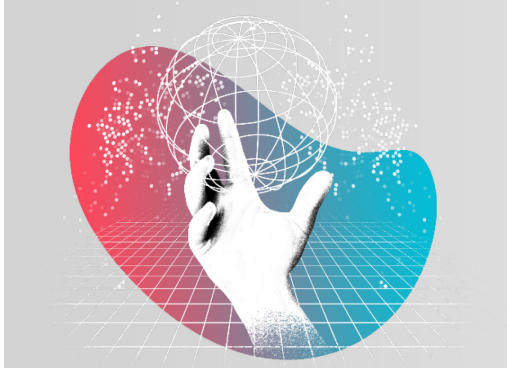


ROUTE TO DISAGGREGATION

Leading in the development of open, disaggregated, virtualised and cloud native solutions
with a **focus on the E2E Operating Model**

GREEN FUTURE NETWORKS

Building sustainable & environmentally conscious **solutions**



6G

Emergence of 6G highlighting **key trends across technology and societal requirements plus use cases, requirements and design considerations** to address

GLOBAL PARTNERSHIP

More than 80 Companies and growing

MEMBERS

CONTRIBUTORS

ADVISORS

GREEN FUTURE NETWORKS

BUILDING A SUSTAINABLE FUTURE FOR MOBILE

- High relevance to MNOs, industry and globe
- A **multi-year project** to guide the industry with **roadmaps** and **actionable recommendations**

GREEN FUTURE NETWORKS – PUBLICATIONS PHASE 1

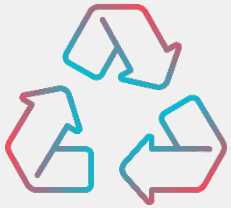
Opportunities & Challenges

Eco-Design

Energy Efficiency

Metering

CORE TOPICS GREEN FUTURE NETWORKS



TELCO SUPPLY CHAIN SUSTAINABILITY / CIRCULAR ECONOMY

REDUCING ENVIRONMENTAL IMPACT

NETWORK ENERGY EFFICIENCY AND METERING

KPIs FOR GREEN NETWORKS

TELCO SUPPLY CHAIN SUSTAINABILITY

KEY RECOMMENDATIONS

Sourcing Criteria	Evaluation
Net Zero Targets	Is the vendor/supplier setting net zero targets matching to the operator?
Renewable Electricity usage	Is the product manufactured using as close to 100% renewable electricity as possible (depending on the availability)?
SBTi commitment	Is the vendor/supplier setting science-based targets?
CDP reporting	Is the vendor/supplier reporting emissions in CDP and is this data verified by a trusted third party?
Independent ESG rating tools	Is the vendor able to provide any independent ESG rating matching to the threshold of your strategy
Waste Management	Is the vendor setting targets and KPIs for moving towards zero E-waste?
Water Footprint reporting	Is the vendor reporting the water consumption (during product manufacturing, cooling, etc)?
Product modularity	Is the product modular?
End of lifecycle/Reusability/ Recyclability	Is the product reusable/recyclable?
Reselling	Is the vendor enabling the reselling of the product?
Repairability	Is the product repairable?
Take back program	Is the vendor offering a take back option?
Packaging	Is the product packed in an eco-friendly manner (as less material as possible, no single use plastic, recycled material usage)?
Product housing and packaging	Is the product housing and packaging eco-friendly?
Alignment with RBA	Is the supplier aligned with the code of conduct from the Responsible Business Alliance?
LCA availability	Is the product's LCA available according to the recognised standards?
PCF availability	Is the Product Carbon Footprint available according to the recognised standards?
Energy consumption	Is the product energy efficient?
Conflict minerals/hazardous substances	Is the product containing hazardous substances?
Social impact	Is the vendor compliant according to sustainable supply chain conditions including child labour, occupational and health safety, human rights, etc.?

1. **Adopt ESG** (Environmental Social Governance) goals as an **integral part of the operator's objectives**
2. To reduce scope 3 emissions, **ensure alignment of major stakeholders** (in particular suppliers) with the ESG goals
3. **Update processes** to include ESG
4. **Encourage suppliers to disclose carbon emissions data**

Sourcing criteria checklist is available!

KPIs FOR GREEN NETWORKS ASSESSMENT

KEY RECOMMENDATIONS

Table 1: Environmental KPIs and their thresholds

	KPI Name	Target value Maximum threshold	Other thresholds
1	Sustainability reporting with audit	Sustainability report with the auditing company mentioned	
2	Net Zero goal is set	2040	2045, 2050
3	Sustainability goals set with a clear path to achieving these goals	Passed if a clear path to achieving Net Zero goals is indicated. The operators are advised to follow the ITU-T industry standards L1470 [25] and L1471 [26]. The best assurance is if climate targets are verified by Science Based Targets Initiative (SBTi) or another competent third party [28].	
4	Target to reduce Scope 1 & 2 to near zero	2025	2030, 2035
5	Target amount of scope 3 emission reduction by 2030 (emission reduction compared to 2019 or	45% 22% if Scope 1 & 2 are near zero	30%

Table 2: Energy and Quality of Experience KPIs and their thresholds

	KPI Name	Target value Maximum threshold	Other thresholds
1	Quality-of-Experience (QoE) assessment	The top possible category or class, e.g., outstanding as in Figure 7. Corresponds to very high percentage of the points/values achievable	Other QoE classes
2	Energy and electricity consumption reported	Passed if both the energy and the electricity consumptions are reported	
3	Historical trend of network energy and/or electricity consumption	Decreasing	Stable
4	Power Usage Effectiveness (PUE) of data centres reported	KPI met if the company wide value is reported	

- **The industry should move towards using a unified methodology for all key sustainability KPIs**
  - Move towards using the Environmental and Energy & QoE KPIs in the report
- **Target Values defined – use them**
- **Consider reporting KPIs on a per-country level** (rather than group level)
- **Obtaining the right data is critical**
  - More granular (e.g. separate energy consumption for each part of the network)
  - Trust (accuracy / integrity)

REDUCING ENVIRONMENTAL IMPACT

NEW PUBLICATIONS OUT SOON

- Development of **common end to end services footprint calculation method**
- **Compendium of new business models** based on LCA
- **Critical** raw **materials** and **Life Cycle Assessment**
- Ecosystem **Water Footprint**

NETWORK ENERGY EFFICIENCY

NEW PUBLICATIONS OUT SOON

- Topics **further addressing energy efficiency of networks**
  - **Better engineering networks** (Radio units and antennas, DC Power Distribution, Cooling, Energy harvesting & renewable energy)
  - **Using network energy saving features** (standardised technology / sleep and power saving modes etc)
  - **Reviewing new technology enablers** (Reconfigurable Intelligent Surfaces, others)
- **Energy consumption of disaggregated networks**

GREEN FUTURE NETWORKS
PHASE 3 / 2023

Phase 1	Phase 2	Phase 3
2021	2022	2023

Circular Economy

- How to enable?

Energy Efficiency

- Short Term Energy Savings
- Industry Roadmap

GREEN FUTURE NETWORKS - JUST PUBLISHED

- **Telco Supply Chain Sustainability** (Published January)
- **KPIs and Target Values** for Green Networks Assessment (NEW)
- Further publications in next few weeks on **Network Energy Efficiency** and **Reducing Environmental Impact**

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