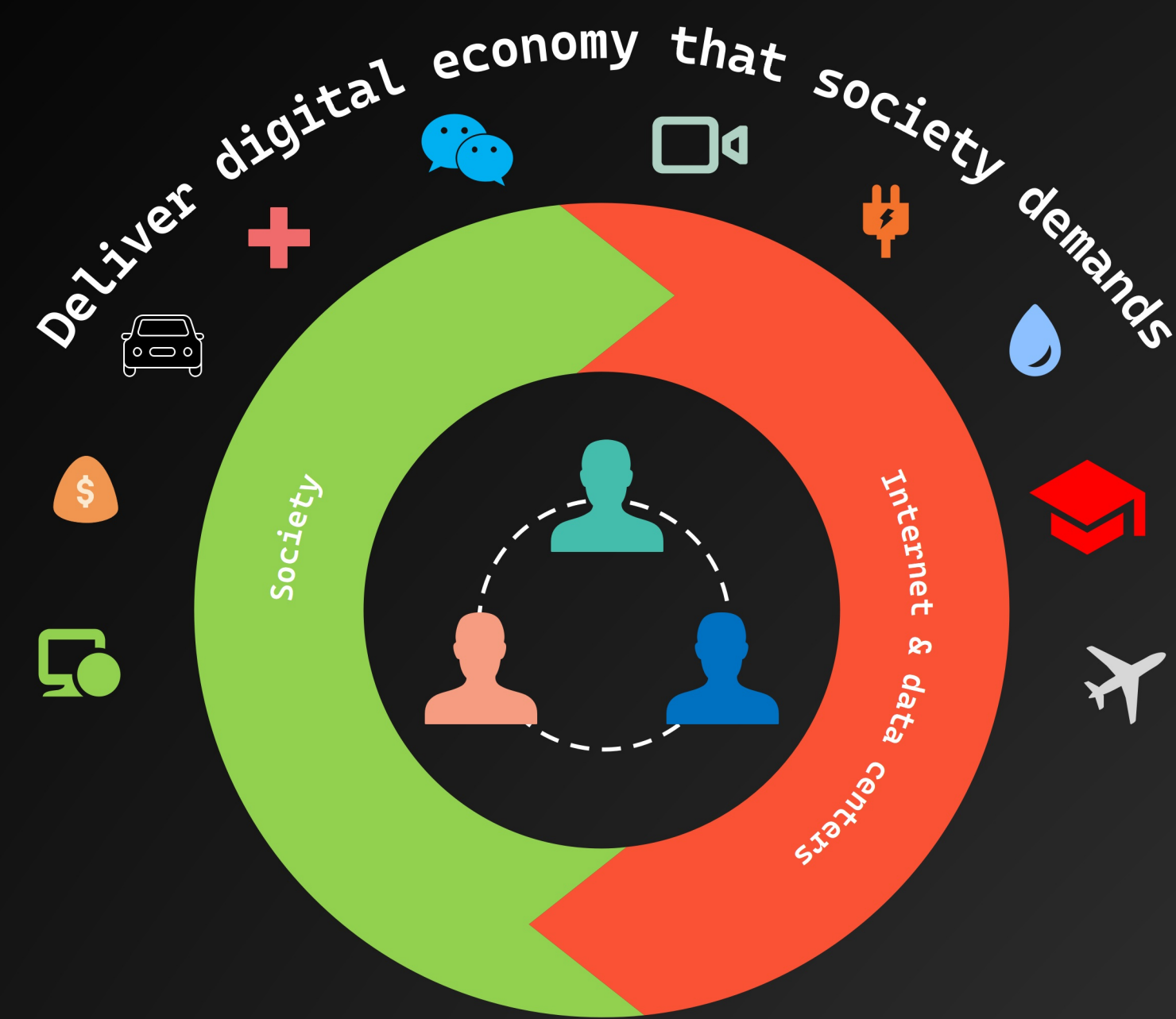


Datacenter Landscape 2025



Recommendation

Know your digital footprint?

Opinion

We don't need datacenters, we have the cloud ... ☹️



Society



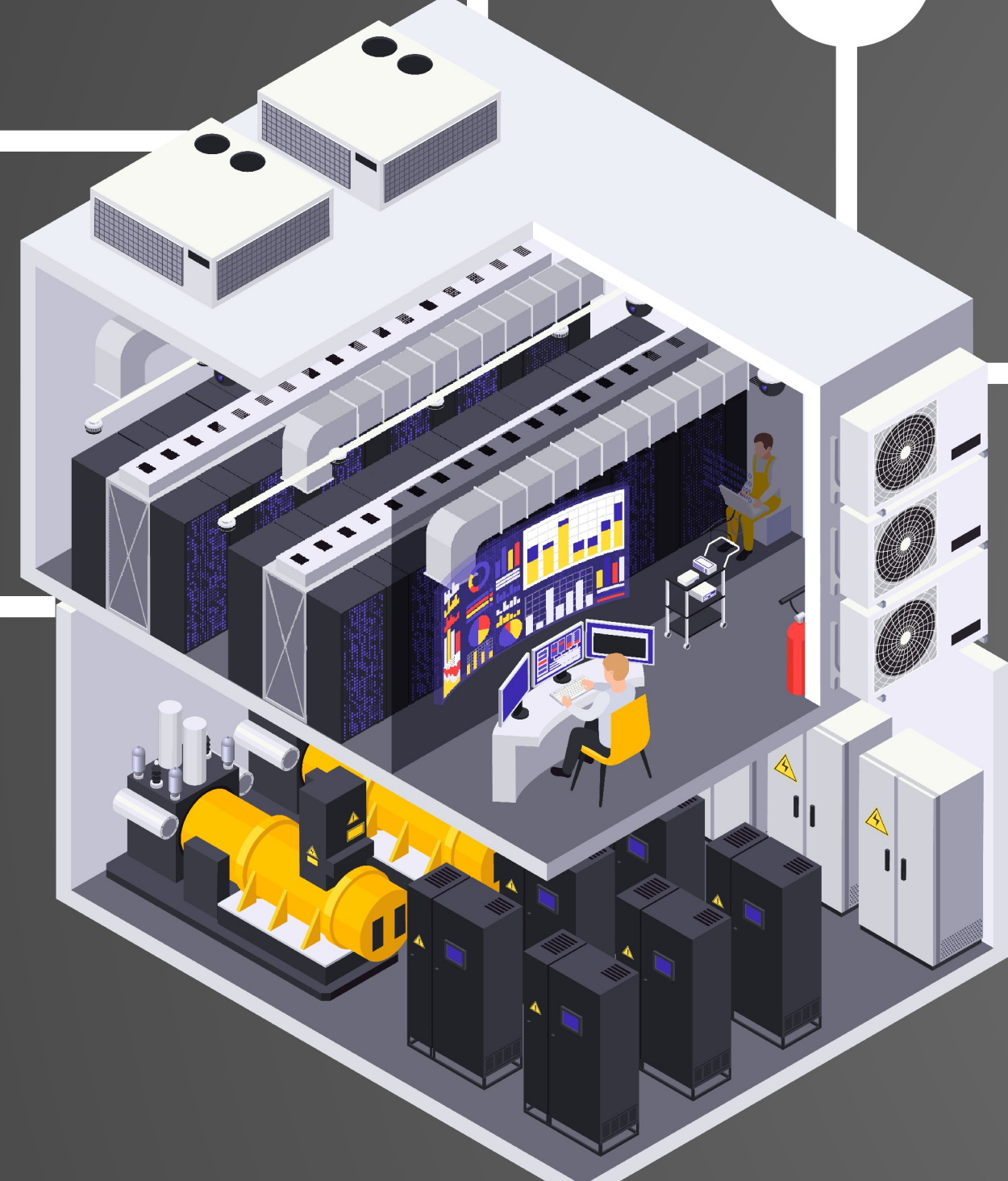
Compliance, legislation & reporting

Recommendations

Keep standards and legislation simple
No duplication
No burden of proof at detailed level
More transparent reporting

Opinions

We need legislation to become more sustainable
Don't make new standards for legislation, improve existing standards
Technical improvements should have a higher priority than ESG reporting
Too much legislation can hinder innovation and becoming more sustainable



PUE

CUE



Energy Efficiency

Fact

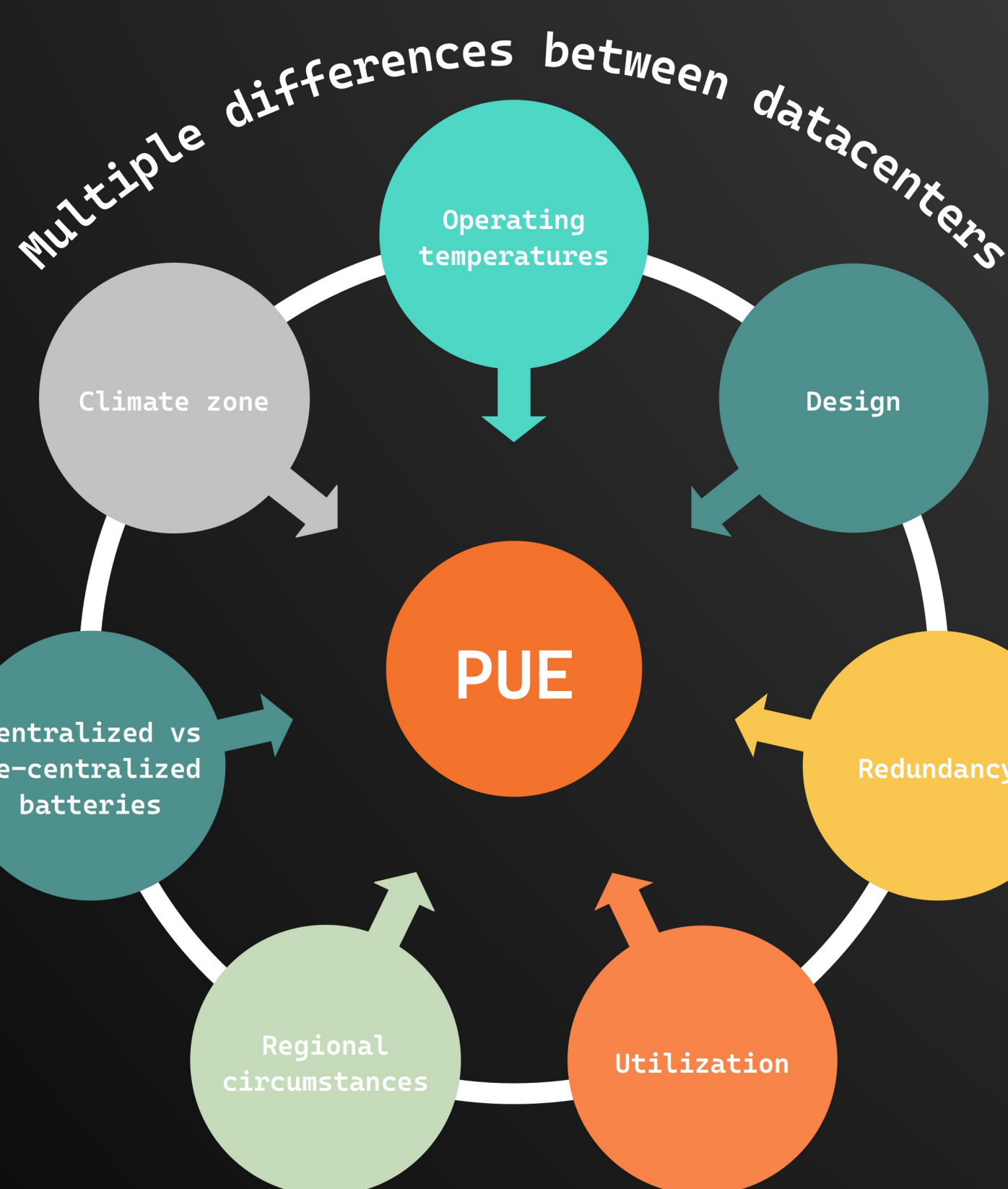
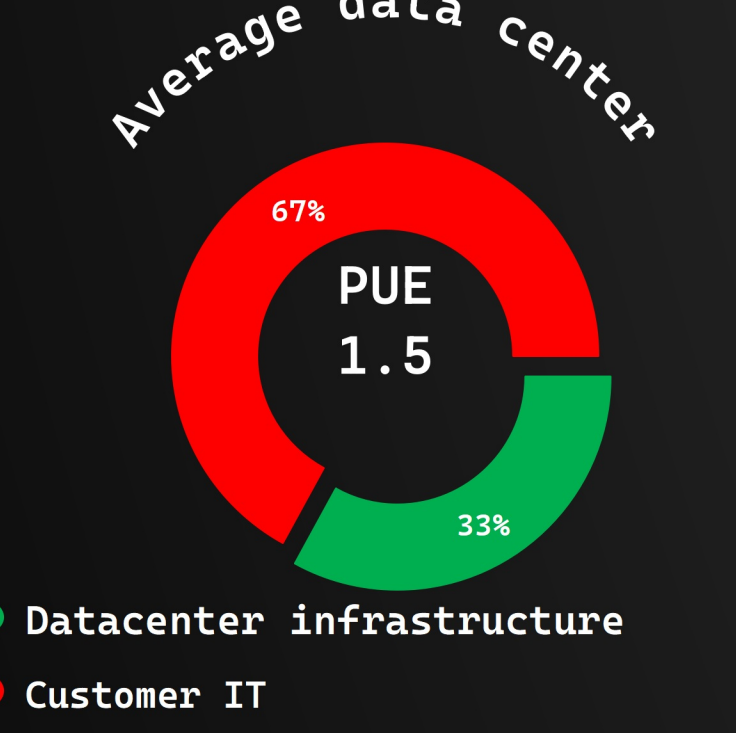
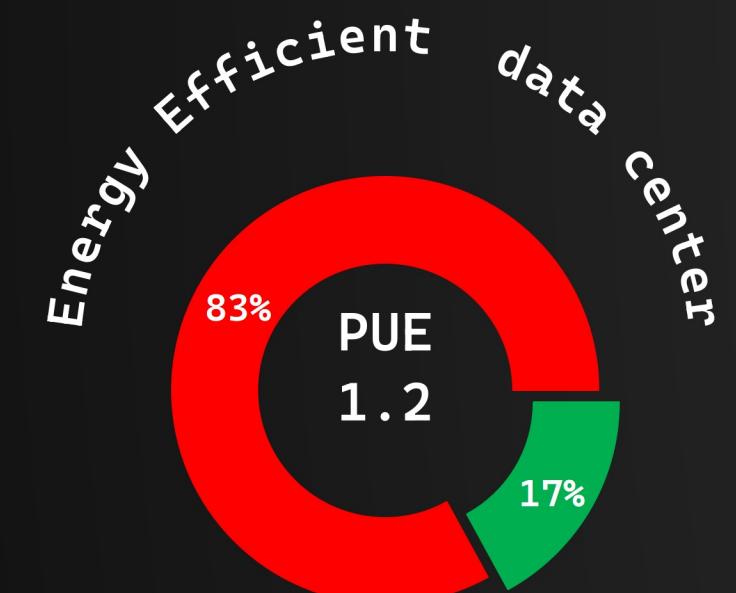
Continuous improvement of PUE using ISO 50001

Recommendation

Increase air- and water temperatures and maximize the difference between supply & return temperatures

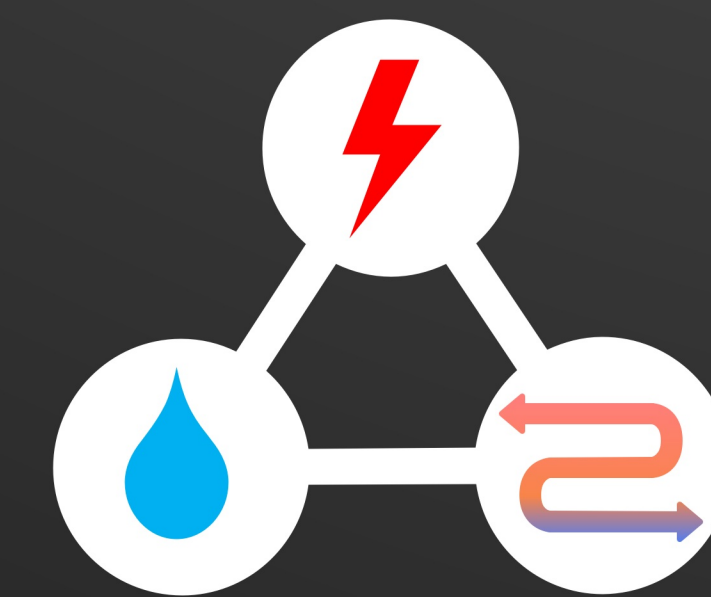
Opinion

Already "pretty" energy efficient



Opinion

Colocation datacenters can't be compared with hyperscale datacenters



Balance

Facts

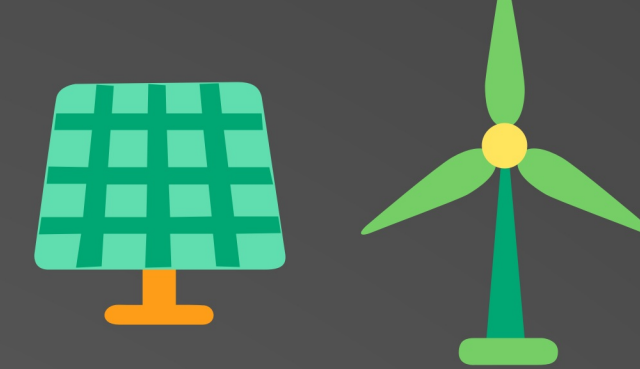
Evaporation of water for cooling is very energy efficient
Find the right balance between energy & water
Lowest PUE and lowest WUE at the same time is not possible
There is a relationship between energy, water and heat reuse

Recommendation

Attention for water stress, source, type and water treatment
Reuse of water inside the datacenter boundary, improve Cycles of Concentration

Opinions

Use or provide recycled water
If there is enough water, use evaporation cooling



Power generation

Fact

Majority of the heat produced in data centers is generated with renewable energy

Recommendation

Resolve energy grid congestion issues

Opinion

Nuclear power on the long term



Heat reuse

Facts

Large amount of energy available 24x7
Heat user is not always in the vicinity
Heat networks not always available and installation takes a very long time

Recommendations

Make regulations / contracts for distribution of heat more simple
Attention to different temperatures

Opinion

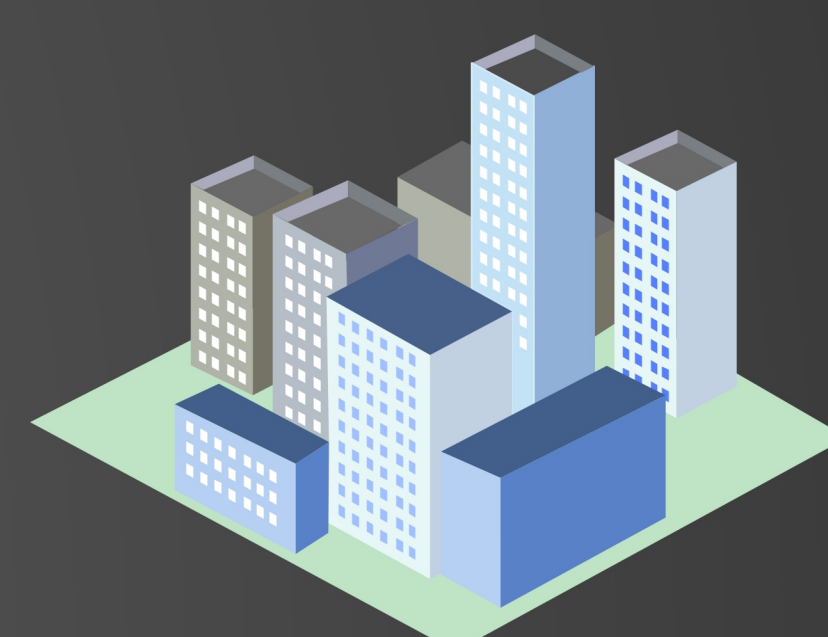
Datacenter industry is a strong supporter of heat reuse



Water

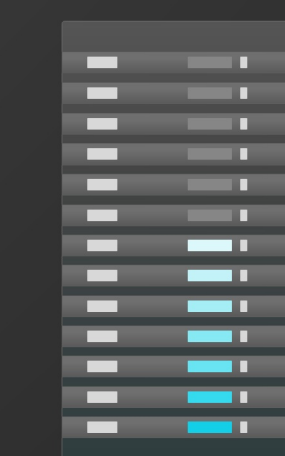


Heat reuse



ITEEsV

ITEUsV



IT Equipment

Fact

Measuring IT efficiency and utilization is a challenge

Recommendation

IT manufacturers must enable efficiency and utilization to be measured (better)

Opinion

Is IT equipment being used optimally?

ISO/IEC 30134 Series

Datacenter Key Performance Indicators

- 01 ISO/IEC 30134-1 Overview and general requirements
- 02 ISO/IEC 30134-2 PUE Power Usage Effectiveness
- 03 ISO/IEC 30134-3 RPF Renewable Energy Factor
- 04 ISO/IEC 30134-4 STEEsx IT Equipment Energy Efficiency
- 05 ISO/IEC 30134-5 STEEsx IT Equipment Utilization
- 06 ISO/IEC 30134-6 ERF Energy Reuse Factor
- 07 ISO/IEC 30134-7 CER Cooling Efficiency Ratio
- 08 ISO/IEC 30134-8 CHE Carbon Usage Effectiveness
- 09 ISO/IEC 30134-9 WUE Water Usage Effectiveness

IT Efficiency

Question

Do other industries have KPI's like the ISO/IEC 30134?

Reporting is important but make sure that there is still enough focus on saving energy.

Phased approach for Energy Efficiency for cooling

- 01 Optimizing airflow
- 02 Optimizing data hall cooling units
- 03 Optimizing cooling distribution
- 04 Optimizing cooling generation

- ✓ Keep it simple
- ✓ Think in opportunities
- ✓ Go faster | Start small and expand later

Datacenters were originally built for the availability of ICT equipment. Nowadays it is no longer just about availability, but about the balance between availability and sustainability

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