



# Building and Operating Data Centers for a Sustainable Tomorrow

Satu Merenheimo, Schneider Electric



An aerial photograph of a lush green forest. A river winds through the lower portion of the image, reflecting the surrounding greenery. The text is overlaid on the upper half of the image.

Our constantly **increasing** use of **data** poses a threat to our planet

#TimeToAct





1 Instagram post  
consumes **42MWh**



A 2.5h movie  
consumes **3kWh**

**6x around the world** in  
a Tesla Model Y Perf.

**733 GWh / month**  
(just Netflix, just UHD, just US)



„You can't manage what,  
„Measure what you need!,  
you can't measure

#NeedleInTheHaystack

# Bold pledges from industry leaders



Carbon-free by 2030



Net-zero emissions by 2030  
across full value chain



Carbon-negative by 2030,  
including full value chain



Net-zero carbon across  
all businesses by 2040



Zero waste by 2030



Zero waste by 2030



Water positive by 2030



Water positive by 2030



# The five key areas of impact



## Energy

Data Centers consume 1 - 2% of global energy



## GHG emissions

Scope 1, 2 and 3 emissions have direct impact on climate change



## Water

Data center cooling systems and power plants use significant amounts of water



## Waste

Waste is generated during construction and operations



## Land and biodiversity

Data center facilities and upstream value chain have impact on the ecosystem

# The journey to holistic environmental sustainability

## Beginning

- Energy
- GHG emissions
- Water

## Advanced

- Energy
- GHG emissions
- Water
- Waste

## Leading

- Energy
- GHG emissions
- Water
- Waste
- Land and biodiversity



White Paper 67

Life Is On

Schneider  
Electric

## Guide to Environmental Sustainability Metrics for Data Centers

### White Paper 67

Version 1

by Paul Lin and Robert Burger

#### Executive summary

Many companies are now reporting on sustainability as a supplement to financial reporting. They are communicating their commitment to Environmental, Social, and Governance (ESG) programs. The data center industry has unique characteristics, such as high energy intensity, rapid growth, large power consumption and water usage that require specialized metrics. Standardizing these metrics will help with adoption, improve benchmarking, and progress sustainability within the industry. We propose five categories, which include 23 key metrics for data center operators who are in the Beginning, Advanced and Leading stages of their sustainability journey. We also identify the 17 most relevant sustainability frameworks and standards to guide data center operators in target setting, reporting, and certifying.

RATE THIS PAPER ★★★★★



Climate Change  
Advisory Services

Life Is On

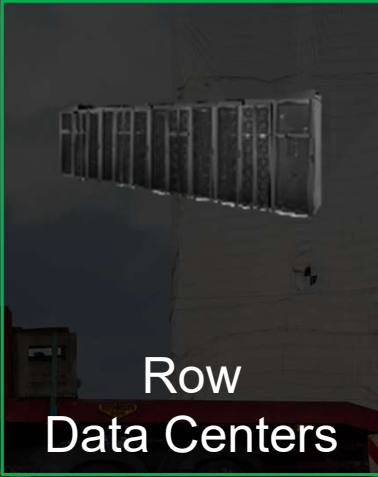
Schneider  
Electric




# Modular, scalable, repeatable designs with software-driven operations

A white Volvo truck cab with a red and white HSC logo and 'ESBJERG' text. It has several small, white, modular data center units mounted on the side.

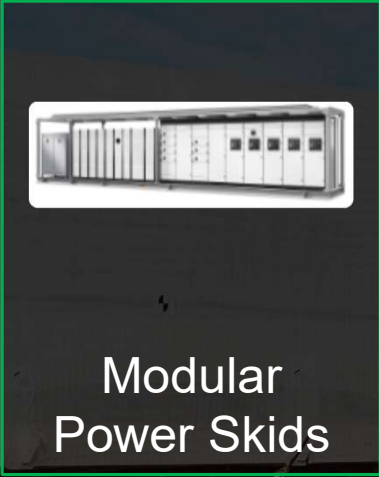
Micro  
Data Centers

A long, white, modular data center unit with multiple ventilation grilles on the side.

Row  
Data Centers

A white, modular data center unit with the Schneider Electric logo and a green stylized 'E' logo.

Modular AiO  
Data Centers

A white, modular power skid unit with multiple electrical compartments and ventilation grilles.

Modular  
Power Skids

BMS

EPMS

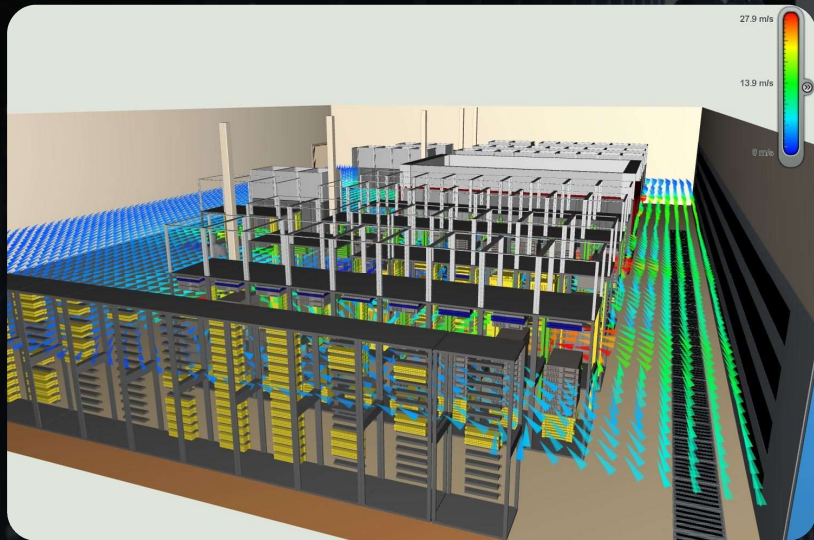
Eco  truxure™  
Innovation At Every Level

DCIM

EMS

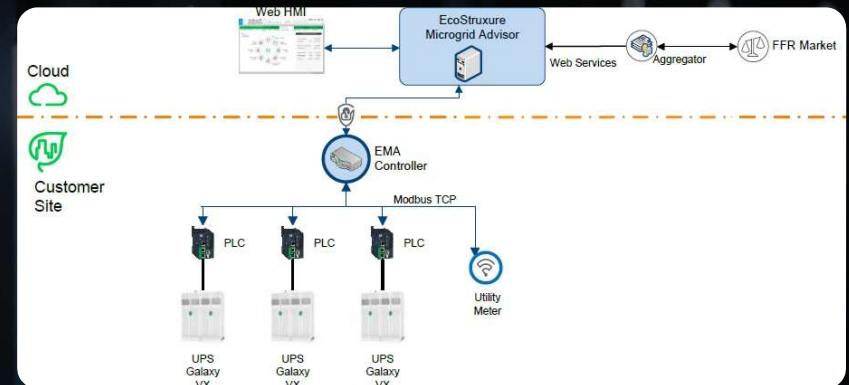
# The Data Center has a huge role to play in a **sustainable ecosystem**

## Reuse of excess heat



## Smart Grid Support System

### Fast Frequency Response (FFR)





# Getting off the Ground



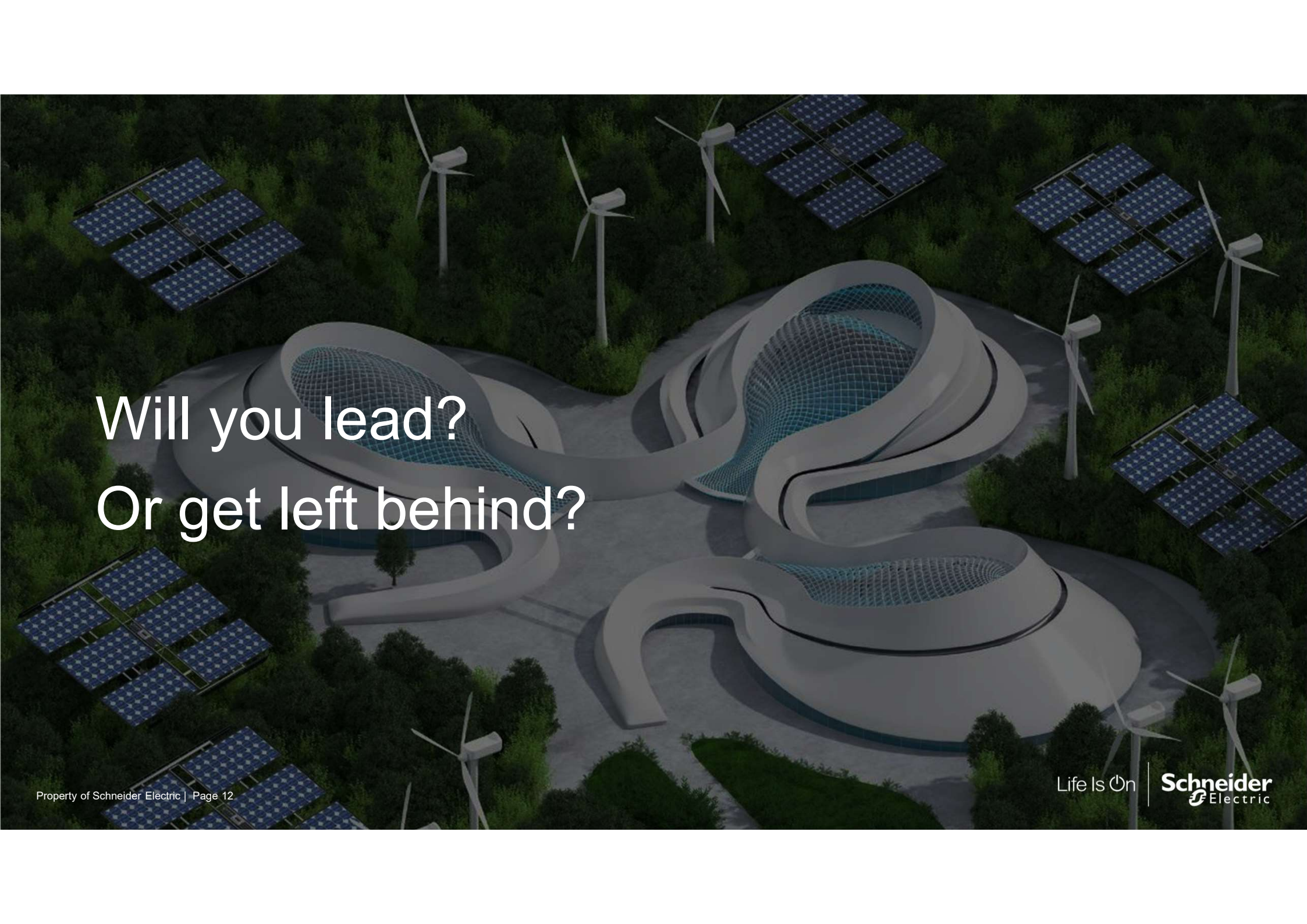
Set your **bold ambition** for your organisation and ensure this is cascaded and you have buy in for it



Translate your ambition in **concrete metrics** and define your **expected journey** (milestones). Track and adjust.



Consider **prefabrication** / **repeatable designs** as part of your methodology

An aerial view of a futuristic sustainable energy park. The landscape is covered in lush green trees. Scattered throughout are several large, rectangular solar panel arrays. Interspersed among the solar panels are several white, three-bladed wind turbines. In the center of the image, there are three modern, white, curved buildings with blue, grid-like roofs. The overall scene conveys a message of clean, renewable energy and sustainable development.

Will you lead?  
Or get left behind?



# Thank You!

#StartYourJourneyToday



Satu.merenheimo@se.com



+358 50 5650500



/satumerenheimo



@satumerenheimo

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