



Semiconductor
Climate Consortium
FOUNDING MEMBER

Catalyzing a Brighter Future for the Chip Industry

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How we use energy is unsustainable.

Today

800M

people without access

In next 30 years

+2B

world population

Climate change is

75%

about energy

3x faster
3x more
to meet 1.5
°C trajectory

Minimum required
savings by 2030

2.5°C

4 GT

CO₂ saved
annually

1.5°C

**10–15
GT**

CO₂ saved
annually

1850

1900

1950

2000

Today

2030

2050

*Global Carbon Budget (2019); IPCC (2020), ETC, Making clean electrification possible (2021); Schneider Electric Research Institute
View includes industry process emissions, changes in land uses, such as deforestation*

Fast-forward to a net-zero 2050

Today

2050

8_B

World population

9.8_B

800_M

People without
access to energy

ZERO

3_B

Middle class
population

7_B

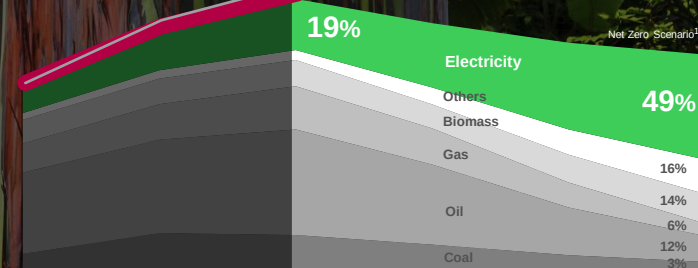
¹Net Zero by 2050, International Energy Agency

²Announced Pledges Scenario, International Energy Agency

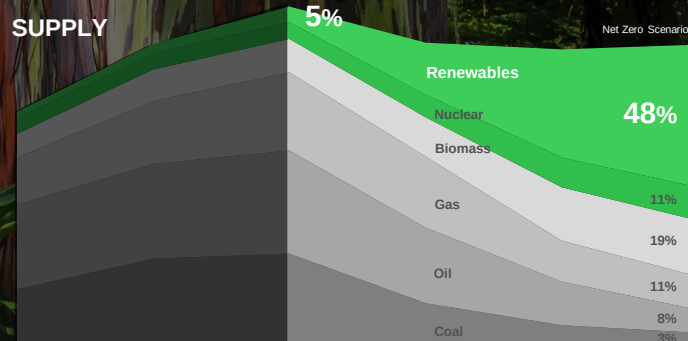
³Back to 2050, Schneider Electric Sustainability Research Institute

⁴Oxford University Press

DEMAND



SUPPLY



2000

Today

2050

Energy efficiency
and circularity

Growth in
electrification

Decarbonization
of fossil fuels

Shift to green
electrification

Decarbonization
of fossil fuels

Life Is On

Schneider
Electric

DIGITAL + ELECTRIC = SUSTAINABLE

For efficiency
and circularity

For decarbonization

Smart and green



The **European Union** has pledged to
become the first **climate neutral**
continent by 2050

[New Scientist Emissions from 2015 Chip Manufacturing](#)

Regaining the EU's technological autonomy... **Sustainably**

1.

Reduce Europe's Chip dependency to ensure against potential future supply shortages

2.

Build new semiconductor fabs that have the right built in technology to create an efficient, resilient and sustainable operation, also while updating existing fabs

2030 emissions goal of at least 55%

[Guide to Semiconductor Jobs in Europe](#)
[Semiconductor Chip Shortage Supply Chain](#)
[How the EU plans to gain Microchip race](#)
[European Chip Act Investment](#)

The Semiconductor Segment Outlook in Europe

by 2027...



€58.9B

Semiconductor
Market

€14.4B

60

Semiconductor
companies fabs
online

14

16

New construction

5

by 2030...

20%

Increase EU's global market
share in chip production from
10% to 20%, doubling current
production by 2030

15%

Increase annual growth of
leading-edge semiconductors

¹AZoNano, 2023

²McKinsey & Company, 2022

EU Chip Act semicon projects

Overview of EU Semiconductors Industry

Semiconductors Germany Revenue

Leading Edge Semiconductor Industry

The carbon footprint of the semicon industry is massive and will expand if no immediate action is taken

41 Mt

2020 CO₂ emissions
from the semicon
industry¹

86Mt

CO₂ emission by
2030,
(that's 2x annual
emissions of Portugal)

237Twh

Estimated electricity
consumption by
2030²

¹SEMI Blog 2020.

²Greenpeace Energy Consumption Report, 2023

Regaining the **EU's Technological Autonomy** all while building and updating **Sustainable Fabs**?

Estimated **7.7** Twh of
energy annually¹

for advanced 3nm chip
manufacturing

Smaller node sizes
are also **more energy**
intensive

and consume more electricity
than larger nodes

55% reduction in
energy consumption
by 2030²

to successfully reach the
1.5 °C commitment

[New Scientist Emissions from World's Chip Manufacturing](#)

Increase production, improve reliability, or lower emissions?

Digitization means you don't have to choose.

Up to

30%

energy cost savings
at a 300 mm fab¹

30%

average improvement
in efficiency²

15%

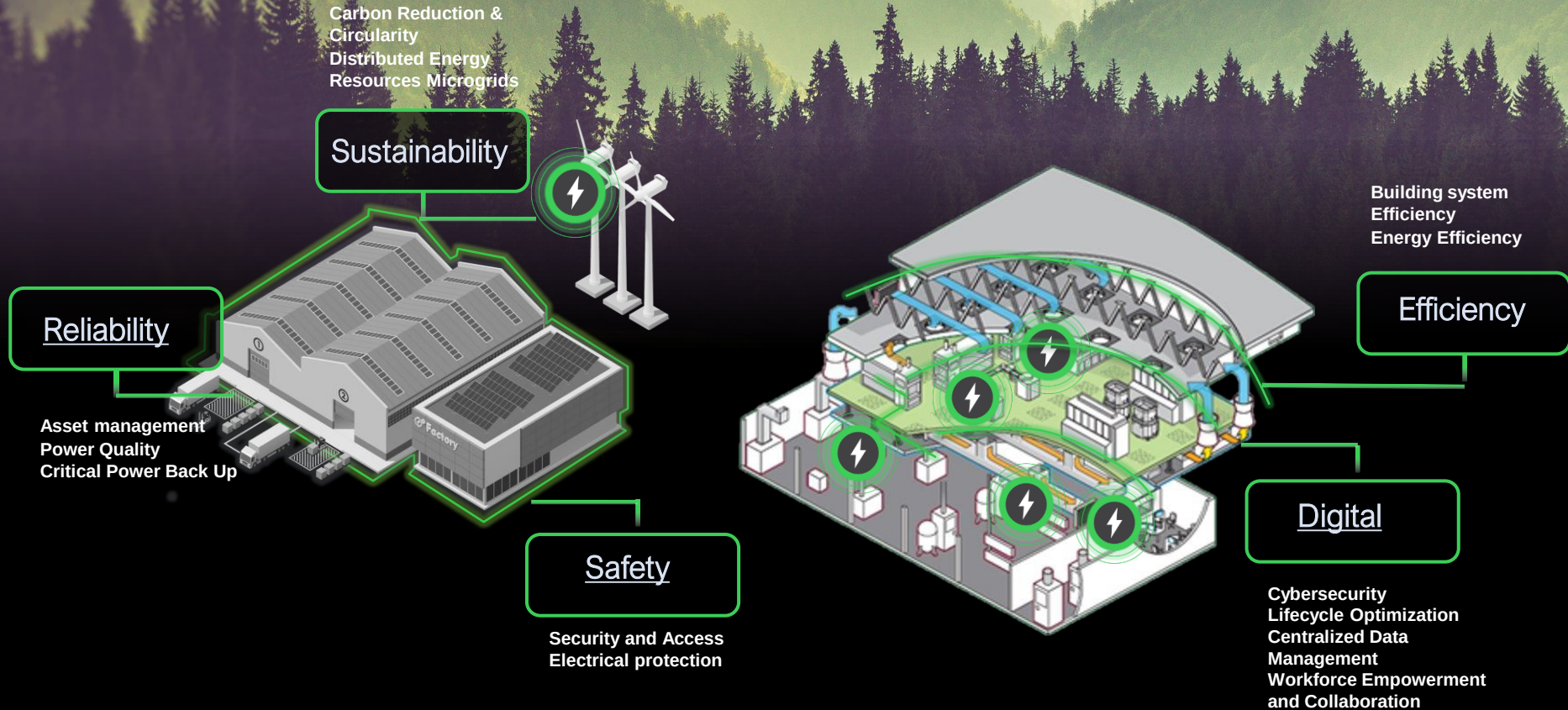
reduction in greenhouse
gas emissions³

¹Energy Efficiency to the Fab 2018

²Entech 2018

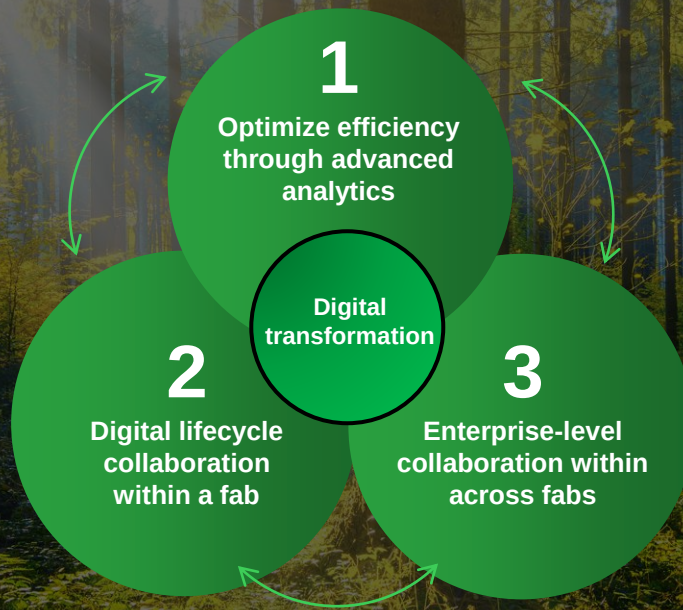
³Semiconductors Helping solve the climate challenge

Implications for a Semiconductor Fab: integrated, efficient, sustainable



Digital technologies can help reduce your carbon footprint and make fabs **more sustainable.**

Machine learning, analytics and AI
optimize your fabs' energy efficiency.



An electrical **digital twin platform** across the lifecycle of your fab can reduce production loss and energy waste.

Centralized, enterprise-level insights **across multiple fabs** bring together your key stakeholders.

Our energy management platform powered by machine learning and AI

Semiconductor energy management solution



Detect hidden energy consumption anomalies



Identify energy savings opportunities



Optimize energy usage from actionable insights

\$XXM

in cost savings
expected per year¹

¹Based on case of annual total energy consumption of 10M MWh

Practitioner and provider of supply chain decarbonization programs

Feb. 2021



The Zero Carbon Project

- Operational emissions of 1,000 suppliers reduced by half
- Support implementation of all decarbonization levers

Sept. 2021



- Complete value chain renewable program open to suppliers, partners, and contract manufacturers
- Goal to reduce Scope 3 GHG emissions by 40% by 2030

Nov. 2021

Energize

- Awarding winning supply chain renewable program reaching over 500 pharma suppliers
- 1 PPA cohort formed in Europe and North America representing a potential aggregate of 2 TWh of electricity



Introducing



CATALYZE

A program to increase access to
renewable energy
for the semiconductor supply chain

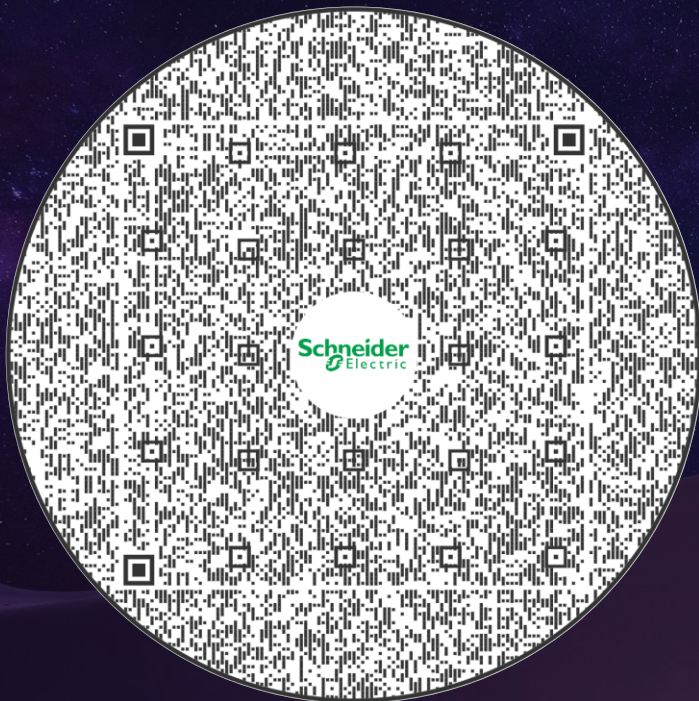
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To access additional details about **Catalyze** program, please scan the QR code provided below.



Jennifer Reece

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