



Electricity 4.0

The fastest route to Net Zero

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To tackle **Climate change**, we need to understand the cause

Energy Issue

>80%

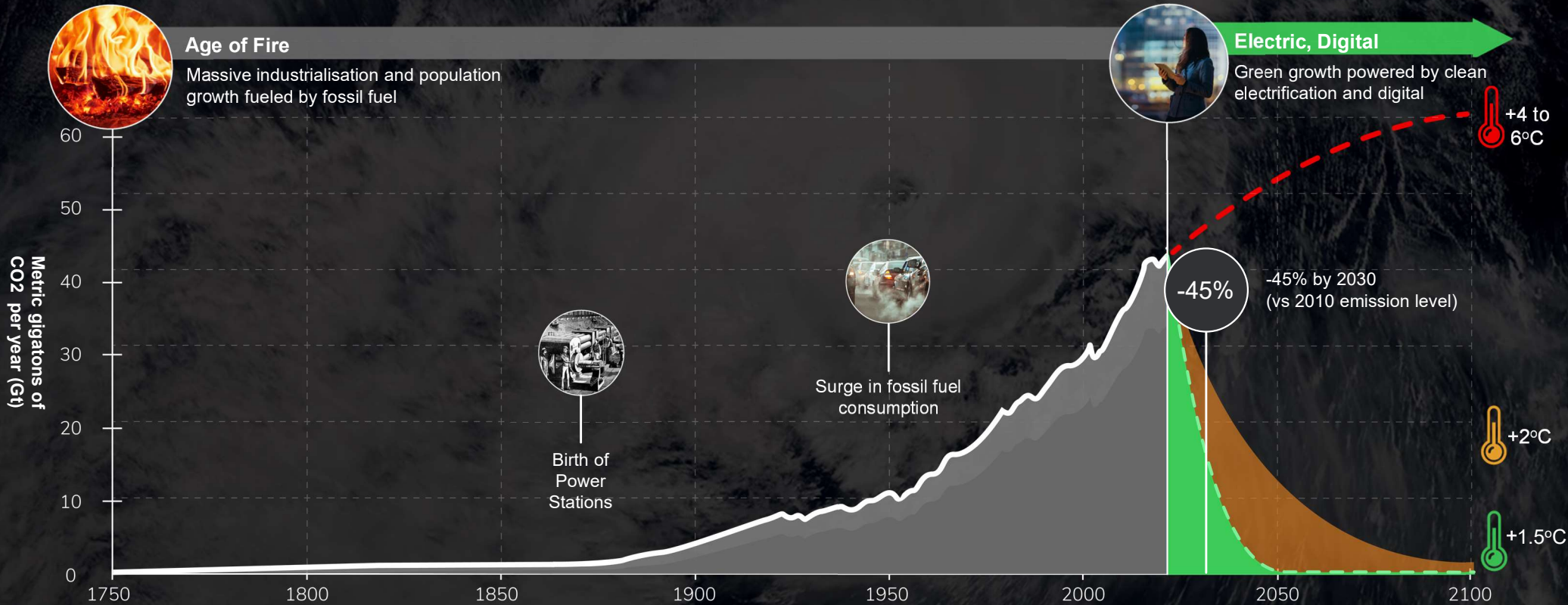
of the world's CO₂ emissions are linked to the production and consumption of energy

Inefficient

60%

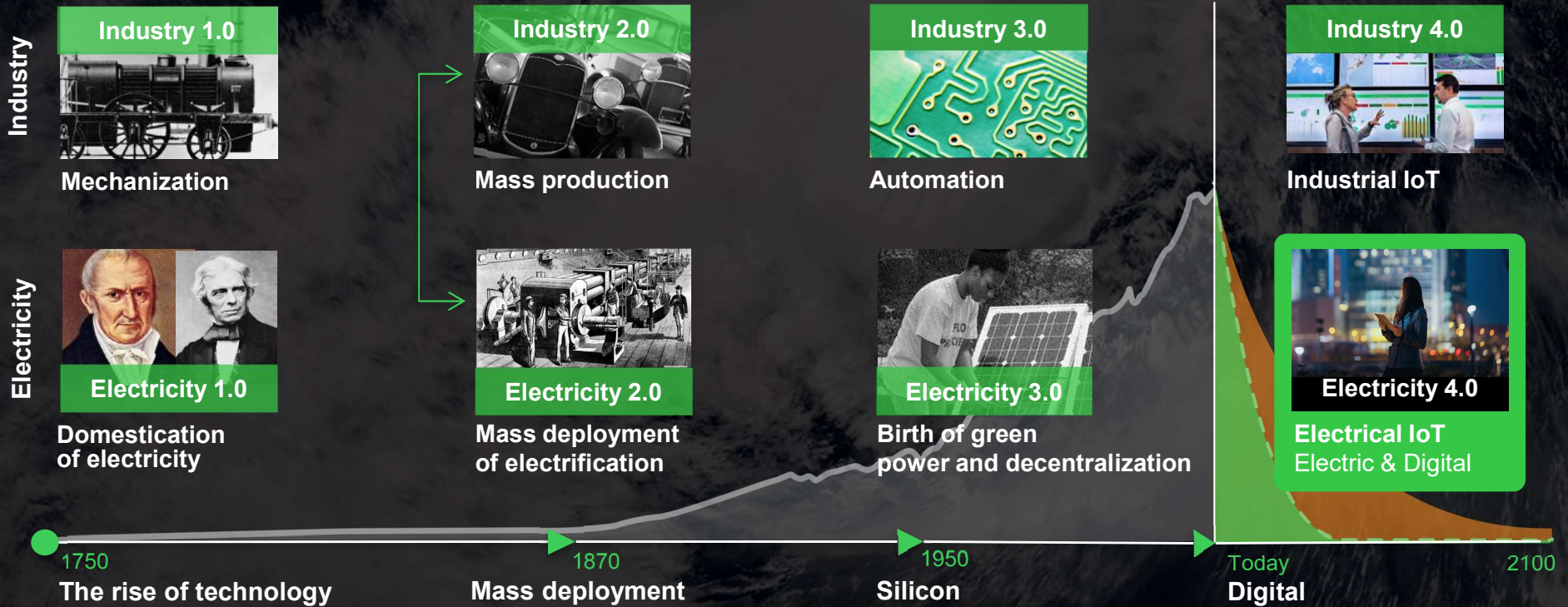
Of the energy produced is either wasted or even lost

We are at a **critical juncture**, and we need to **flatten the curve**



Data source: Global Carbon Budget (2019); IPCC (2020), ETC, Making clean electrification possible (2021), Schneider Electric Sustainability Research Institute
In addition to energy related CO₂ emissions, all pathways include industry process emissions, changes in land uses, such as deforestation

Over the **last 250 years**, the world has gone through **4 technology-driven revolutions**



We believe **Electricity 4.0** is the fuel
for a more **sustainable** and **resilient** Net-Zero World

Electric

Makes energy Green



Digital

Builds a Smart future

Electricity is the most efficient energy
and the best vector of decarbonization



Digital makes the invisible visible,
eliminating waste and driving efficiency

We need to save **4x** more CO₂ emissions between now and 2030 to be on course to limit global warming to **1.5-degrees**

Decarbonized Electricity

80%

of the world's CO₂ emissions are linked to the production and consumption of energy

Electrification at scale

24%

Of the world's CO₂ emissions are linked to non electrified industrial processes like Oil & Gas or MMM

Energy efficiency

x3-5

Electricity is known to be 3 to 5 times more efficient than other energy...And digital enable addressing a huge amount of untapped potential for energy savings

For sure **Electricity 4.0** is calling for a **massive technology shift** of the energy management solutions

more **Digital**

Sensors everywhere

More **wireless** connectivity

More **cybersecurity**

More computing capabilities at the **edge**

...Towards **software defined** architectures enabling **virtualization**

more **Electric**

More **power conversion**

More **power limitation**

...Towards **active** distribution networks, **connected or not** to the grid, with **decentralized resources** in AC and DC

And YES, to **implement our vision**, we bet on the **SemiCon fab of the future** to tackle **4** critical stakes

1

Win the
miniaturization
battle

2

Meet
exploding
chip demand

3

Cope with
geopolitical
tensions

+

4

Better
manage
the energy
equation

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Why is **energy** so critical for the semiconductor industry?

1 Significant part of OpEx

15~30%

operating expenses coming from electricity consumption

Source: mckinsey.com

2 Power quality and reliability

up to

€3.8M loss

per **voltage sag** event

Source: copperalliance.org.uk

3 Growing sustainability stakes

6

of the **world's most influential semiconductor businesses** are committed to 100% renewable electricity

Source: RE100, company websites

Time to market... average 18~24 months chipmakers would introduce new process technology with more transistor density*

*Source: semiengineering.com

And there is a path...to meet your **challenges** while enhancing fab **performance**

1 Efficiency

- Time to market & total cost of ownership

Optimized system architecture

Reduced energy bill through optimize energy usage

2 Resiliency

- Power quality & reliability

Products, software and solutions

Monitoring, control, and predictive analytics

Electrical installation audits

3 Sustainability

Consulting services to reduce carbon footprint

Energy as a Service

More renewables



CYBERSECURITY + SERVICES

across all energy management and industrial automation systems

Interestingly we do have serious **challenges**...that should be also considered as serious **drivers** !



Resilience

Whatever the issues (scarcity, demand, geopolitical...)



“Green electronic”

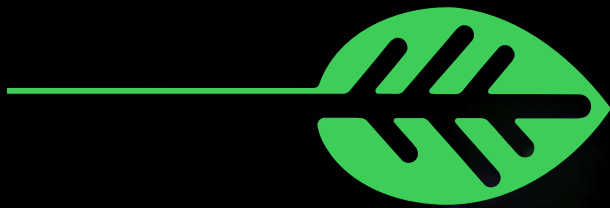
To make “more digital, more electric” a true solution, not one more problem...



Talents

As a key success factor to implement our vision

Time is **now**...and **technologies** exist !



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