Innovating Toward Net Zero: Next-Generation Data Center Solutions

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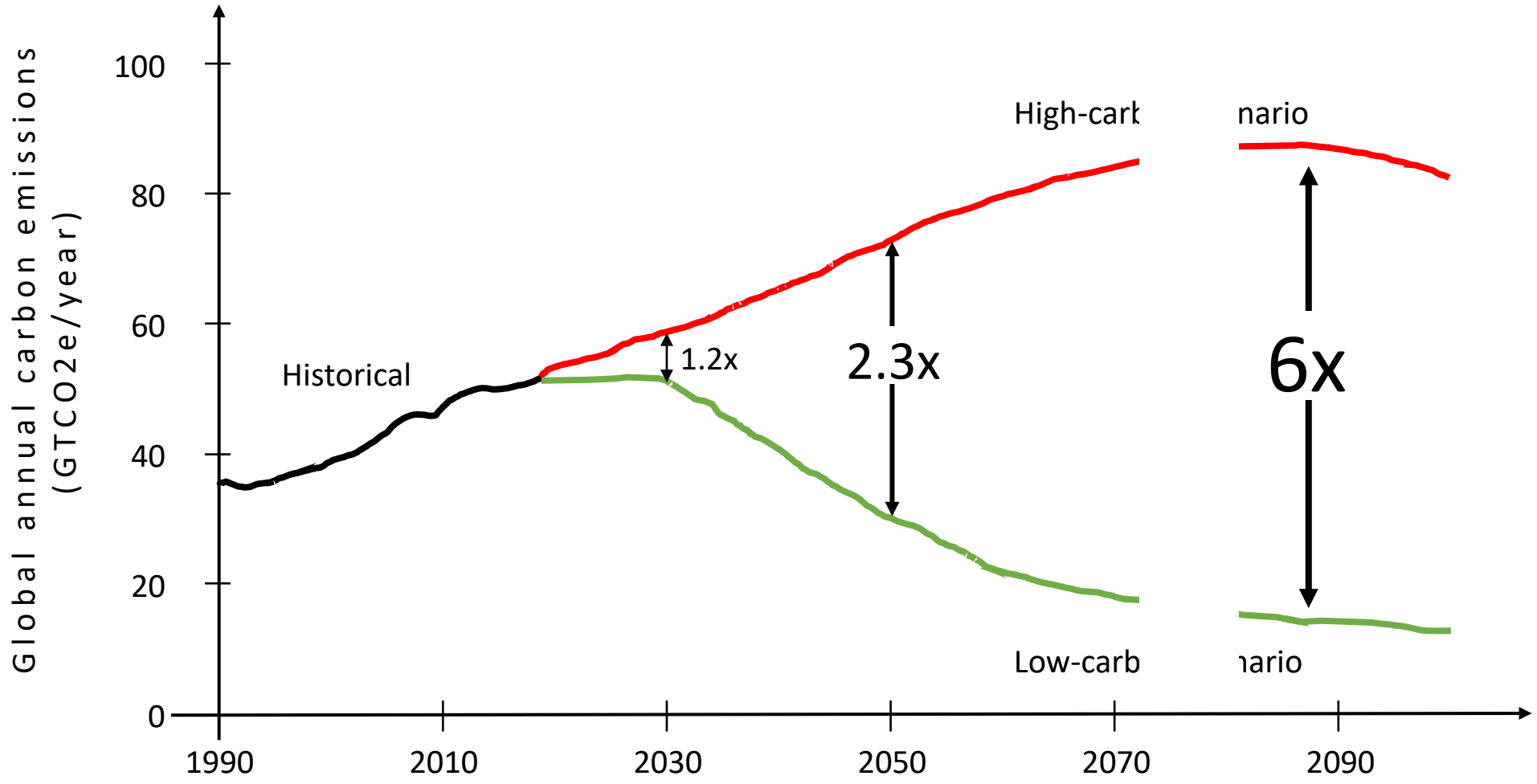
Our Path Forward



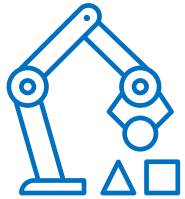
Our Carbon Footprint

Product Use

The use of the products we sell produces emissions accounted for in Scope 3. This includes emissions from the energy our products consume during customer use.

70%

Procurement and Product Manufacturing



Manufacturing and warehousing of Cisco components, products, and services produce upstream emissions that are accounted for in Scope 3.

23%

Logistics

Transportation and distribution of our products in the value chain produce emissions that are accounted for in Scope 3.

5%

Direct Operations

Emissions from the operation of Cisco facilities (electricity, fuel for heating and cooling, etc.) are accounted for in Scope 1 & 2.

<1%

Scope 3

Scope 1 & 2

SOURCE: Cisco FY23 Purpose Report. NOTE: Other value chain activities (e.g. waste and business travel) are also accounted for in Scope 3, but do not represent a large share of emissions. Percentages shown may be rounded.

Sustainability: A Business Imperative

Twin transition: sustainable and digital	73% of CxOs say becoming a “truly sustainable and responsible business” is a top priority[1]
Customer, investor and employee demand	68% of consumers say environmental sustainability is extremely or very important to them[2]
Legislation, regulatory requirements, reporting standards, scrutiny	150 countries have a net zero target as of July 3, 2023 [3]
Business efficiencies and opportunities (e.g., public funding)	62% of companies worldwide believe investments in IT are very or extremely important to reach sustainability goals[4]
AI is pushing infrastructure requirements	$500B Estimated CAPEX spend by 2027 in Data Center physical Infrastructure[5]

Energy Consumption in Data Centers

Data centers represent

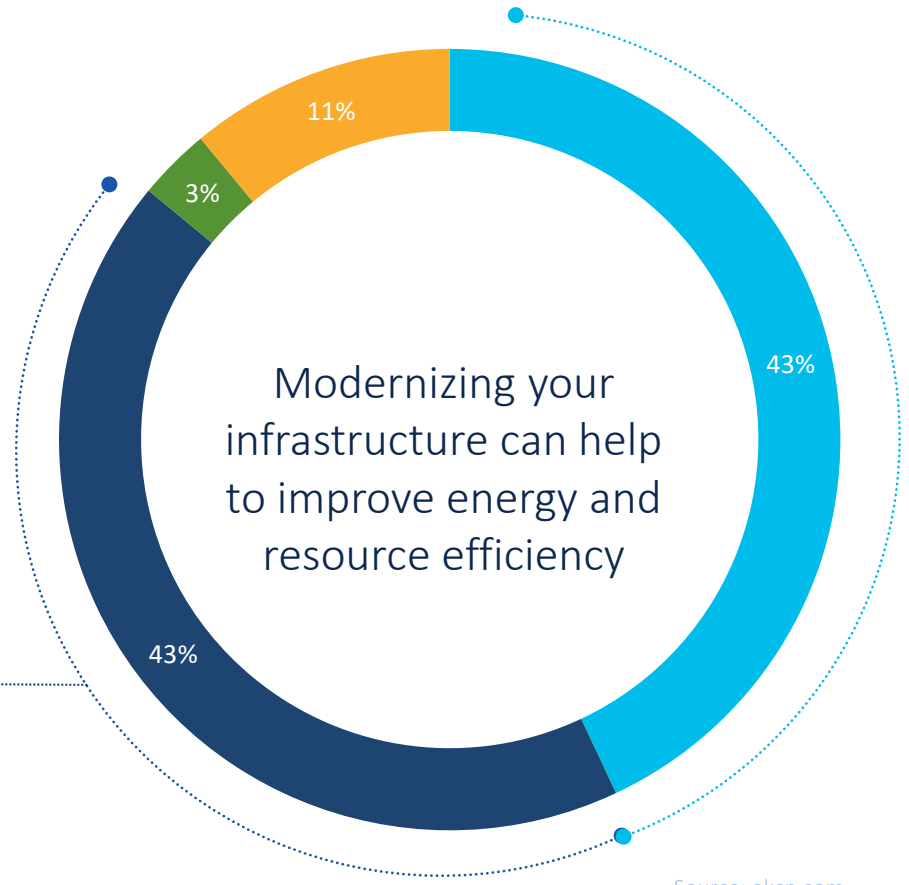
1-2% electricity use globally[1]

2021: 200 terawatt hours (TWh) per year
2030 Growth Estimate: 3,000 (TWh) per year

- Servers
- Chillers, Fans & pumps
- Network
- Storage

86%

Cooling, power systems & servers



Source: akcp.com

[1]https://www.iea.org/energy-system/buildings/data-centres-and-data-transmission-networks

Transforming Data Center Infrastructure

Optimize efficiency, visibility, performance and cost across your networking and compute infrastructure

Build

Decrease Energy Consumption

Solutions designed with less energy and resources, reducing waste in systems

Deploy

Increase Energy Efficiency

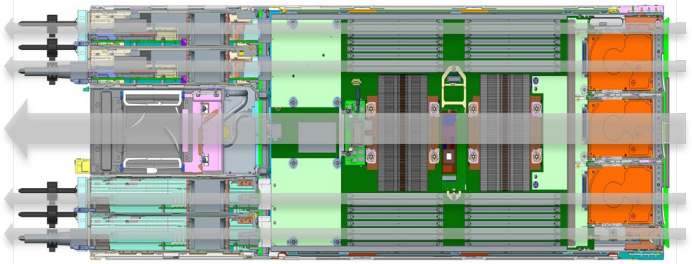
Modern architectures enabling consolidation, power and cooling optimization and future-readiness

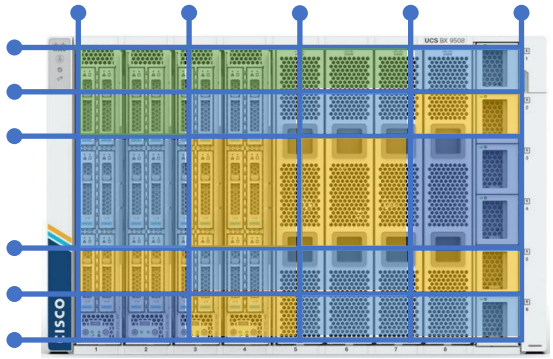
Operate

Cloud Managed Sustainability

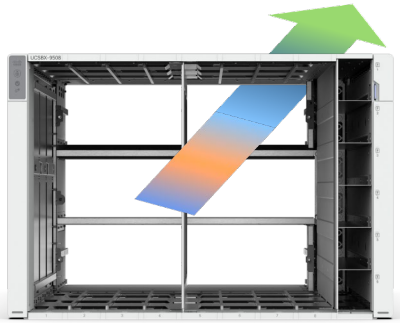
Real-time visibility of energy consumption, and workload and resource optimization

UCS-X: Straight Airflow Thermal Solution





Zone-based cooling



350 W CPU Airflow cooling with no compromise

Future Liquid cooling capability
500 W CPU liquid cooling

200+ component sensor to feed cooling algorithm

Optimized fan power with zone-based cooling

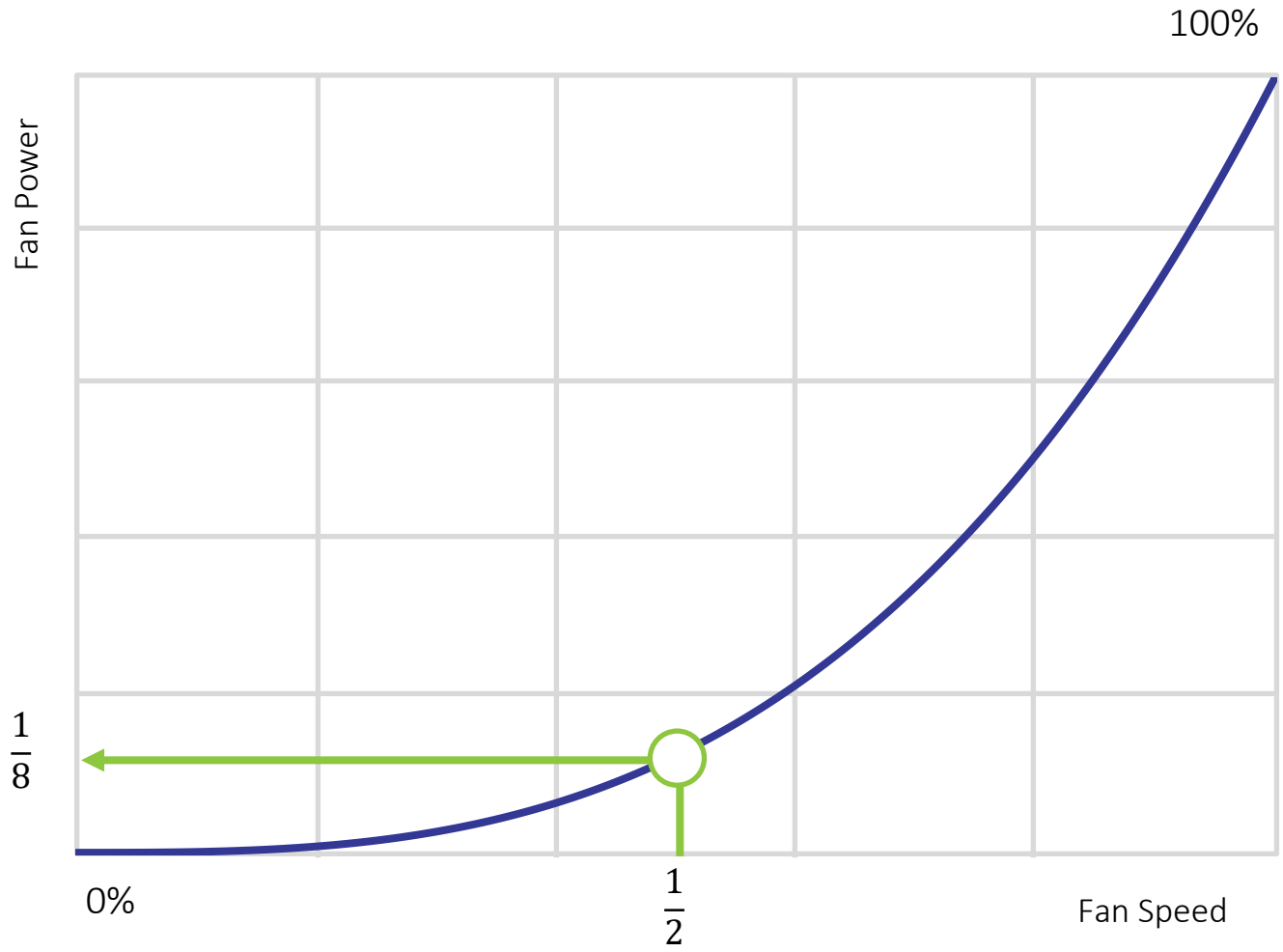
Increased air cooling efficiency

No midplane obstruction

Adopt the Highest Efficient Power Supply

80% 85% 88% 90% 92% 94% 96.5%

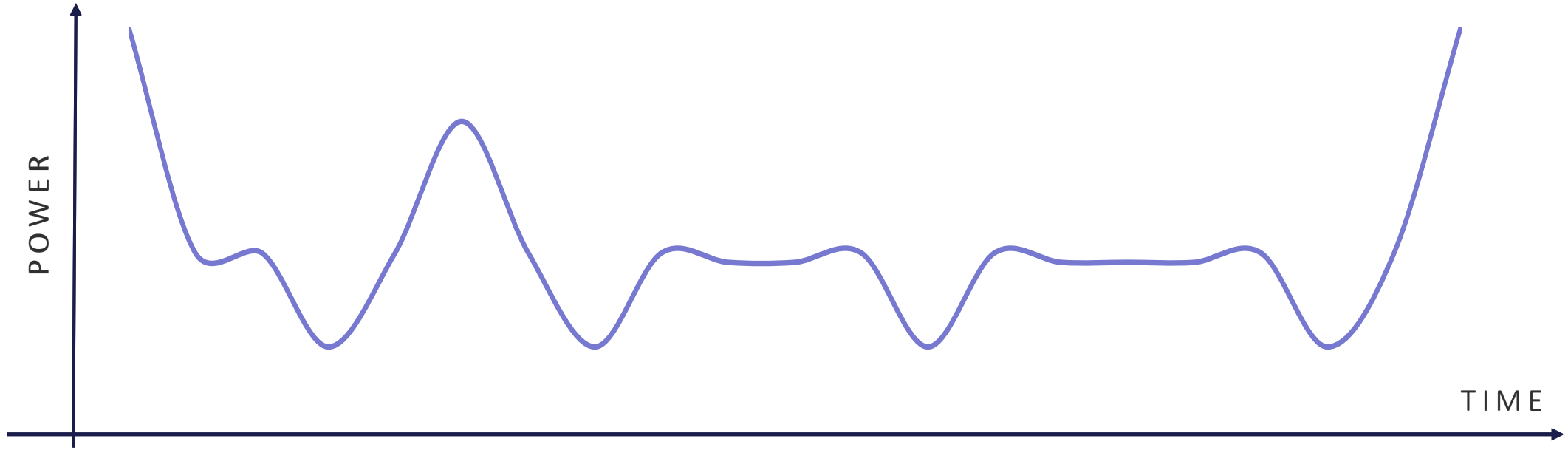
$$Fan\ Power \propto (Fan\ Speed)^3$$



Standard Proportional Integral Derivative

$$u(t) = K_p e(t) + K_i \int_0^t e(\tau)\,d\tau + K_d \frac{de(t)}{dt}$$

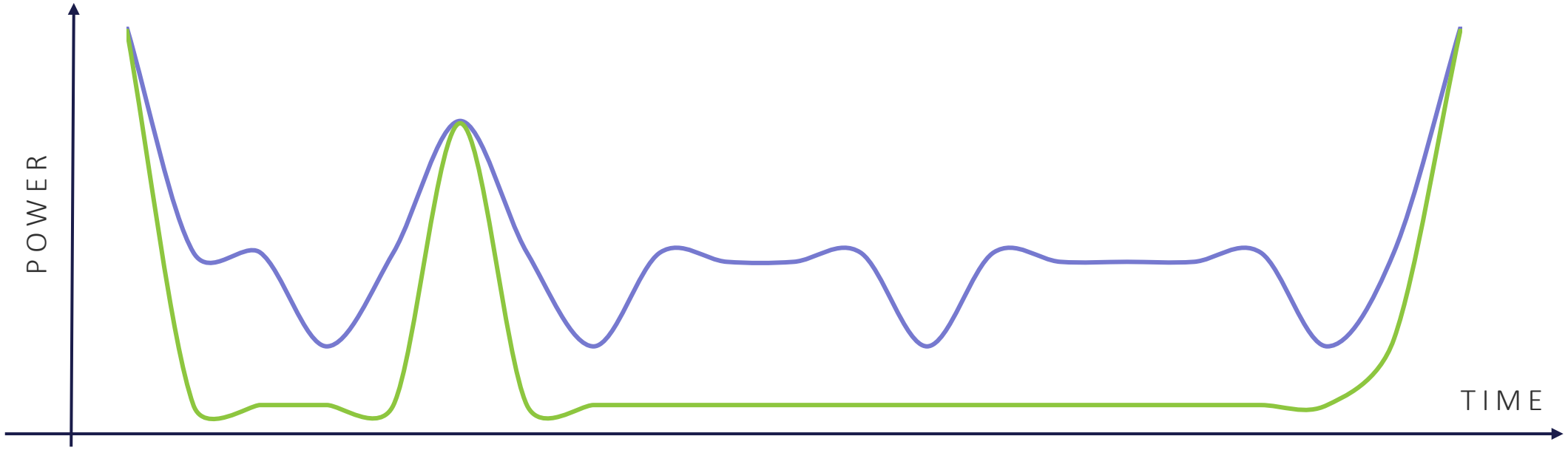
Controller Output — *Present Value* — *Past Value* — *Derivative Value*



Precursor Proportional Integral Derivative

$$u(t) = K_p e(t) + K_i \int_0^t e(\tau)\,d\tau + K_d \frac{de(t)}{dt} + K_u \frac{dU(t)}{dt}$$

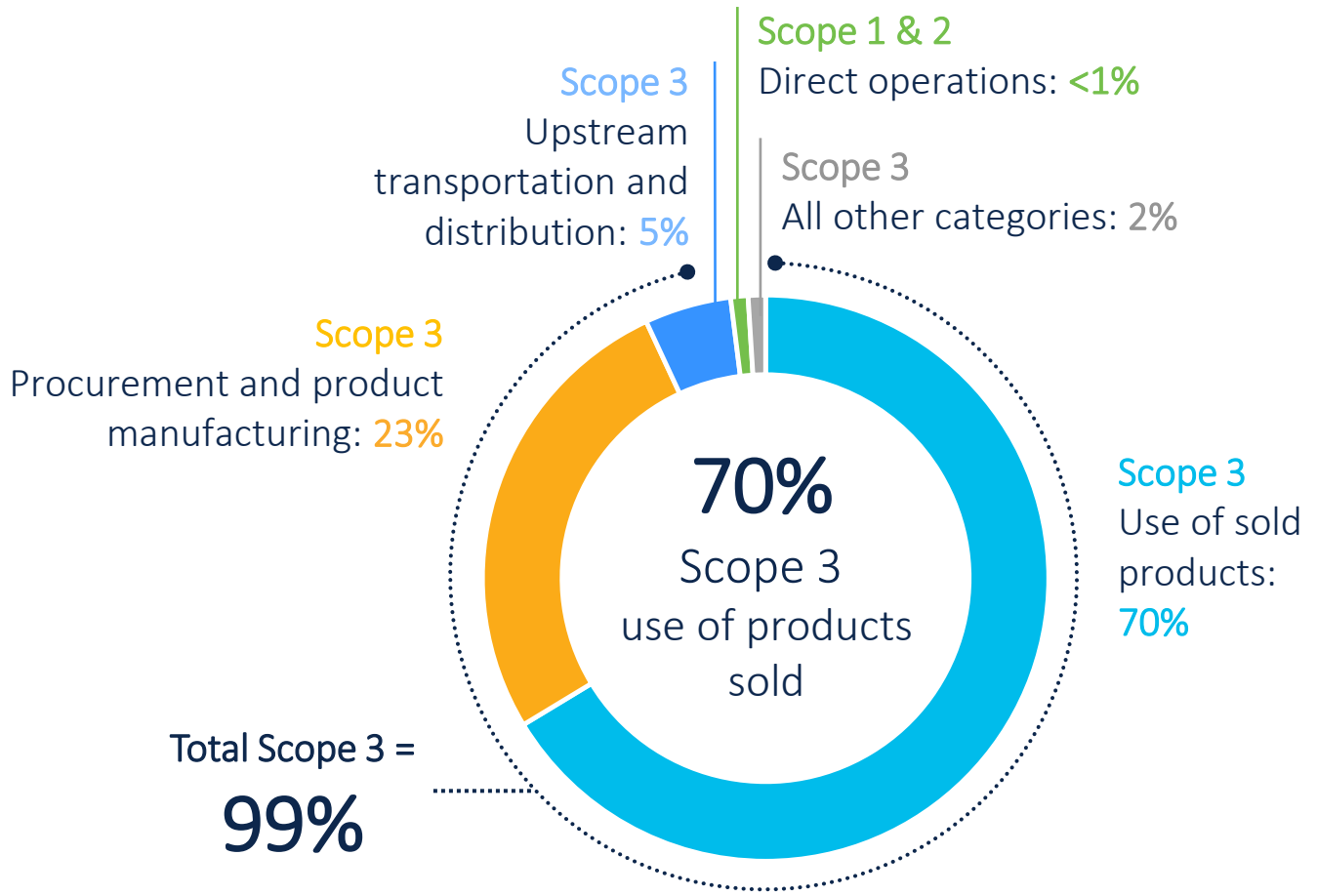
Controller Output — *Present Value* — *Past Value* — *Derivative Value* — *Precursor Value*



Advancing Our Goals

How we are planning to reduce Scope 3

- Improving product energy efficiency
- Collaborating with partners to increase renewable energy use
- Embedding circular design principles across our business
- Goal: 80% of our component, manufacturing, and logistics suppliers by spend to set a public absolute GHG emissions reduction target by FY25



Cisco FY23 Scope 1, 2, and 3 emissions summary

Thank you