Climate Considerations in the Era of AI

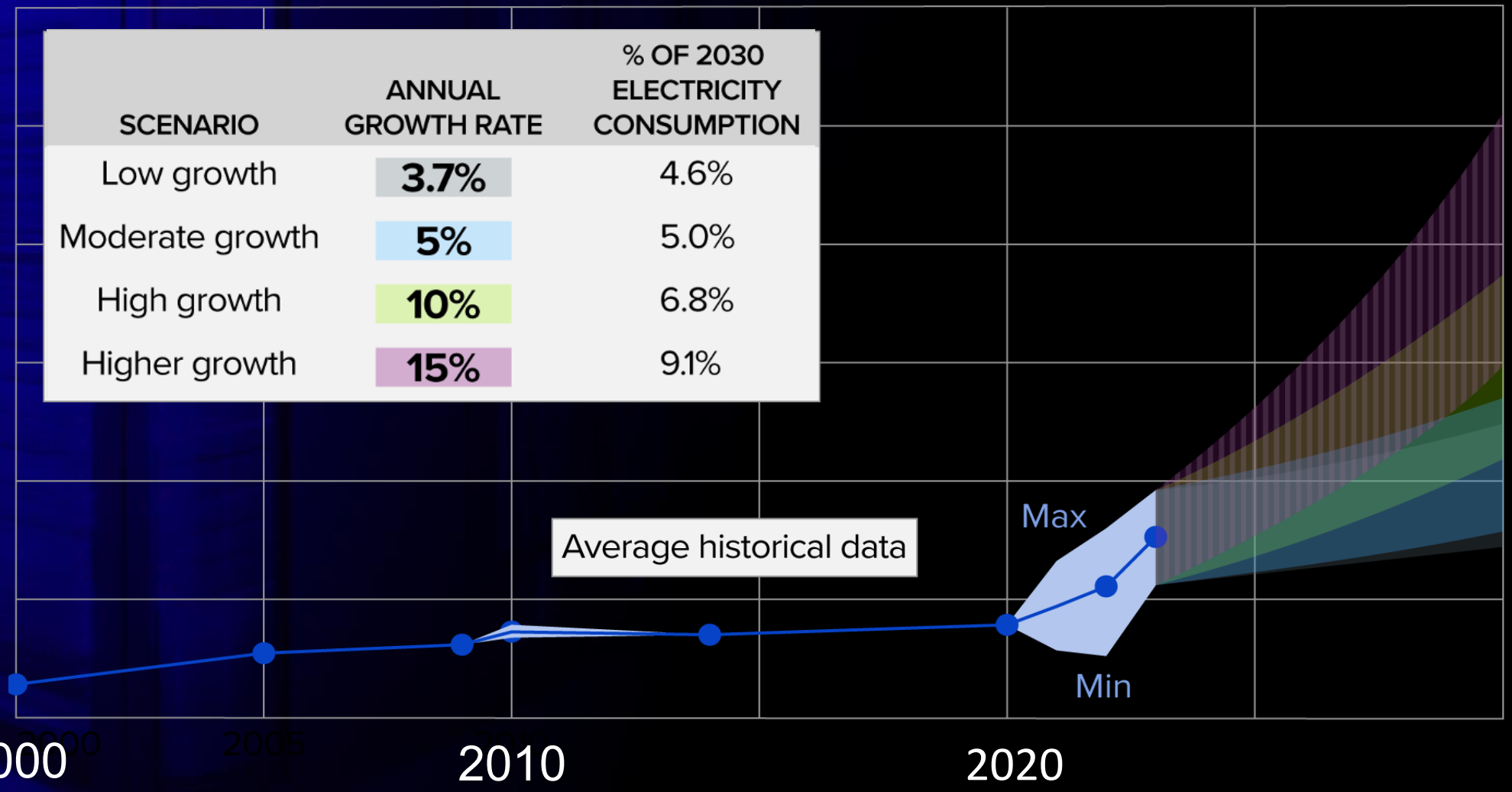
EPRI Energy & Climate Seminar

Morgan M. Scott
Vice President Global Partnerships & Outreach

May 2026

AI is Driving a Third Wave of Data Center Growth

SCENARIO	ANNUAL GROWTH RATE	% OF 2030 ELECTRICITY CONSUMPTION
Low growth	3.7%	4.6%
Moderate growth	5%	5.0%
High growth	10%	6.8%
Higher growth	15%	9.1%



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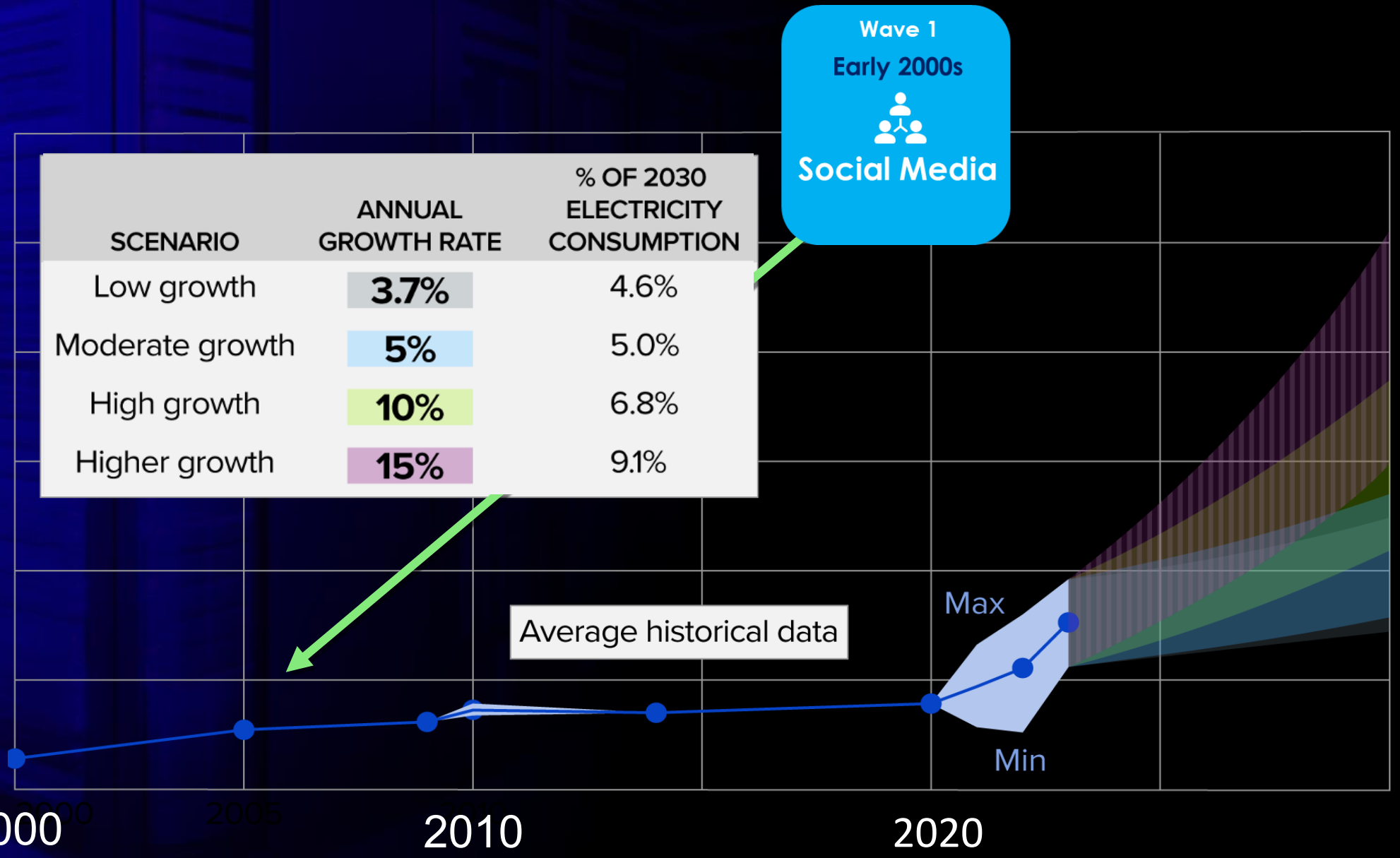

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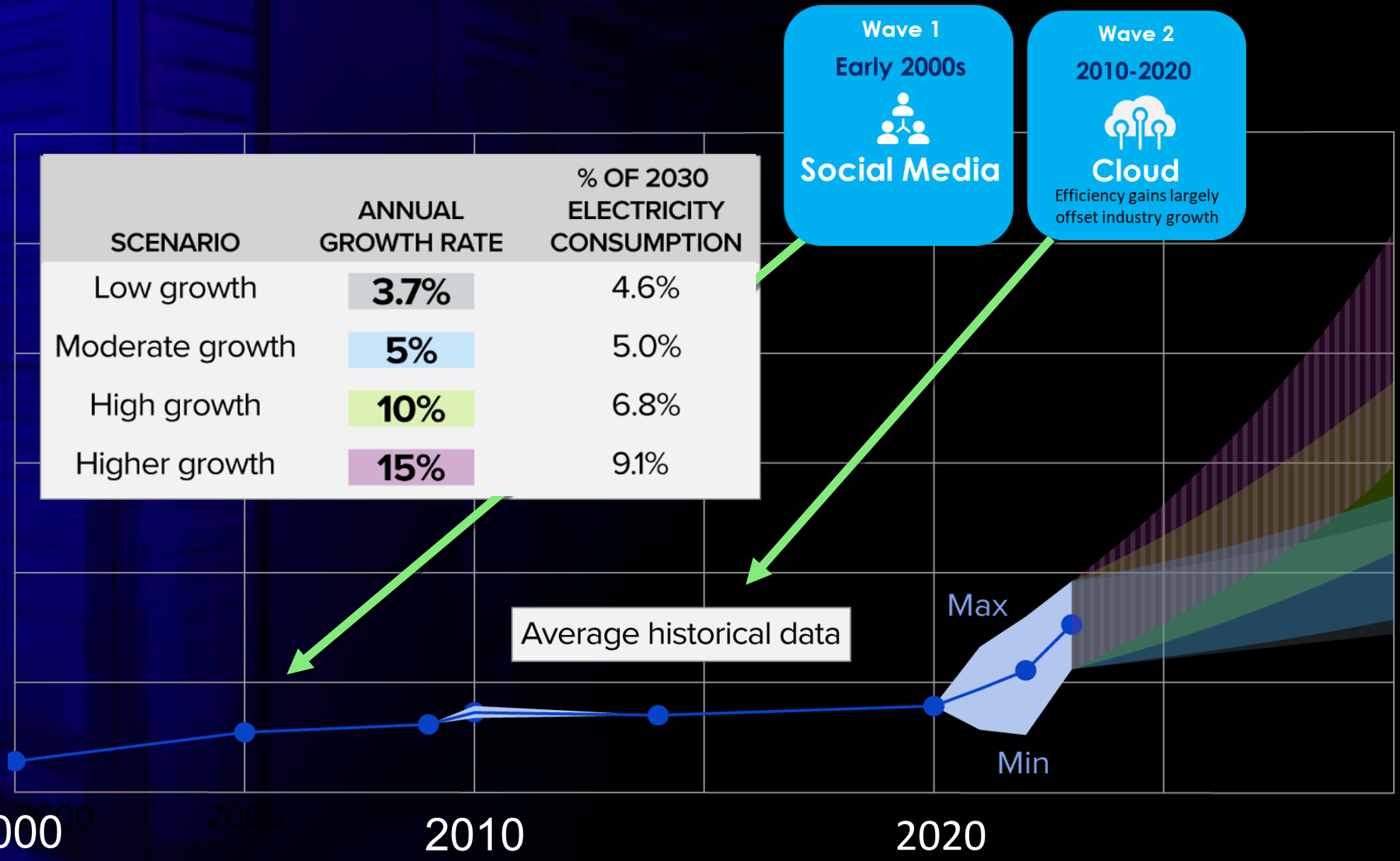

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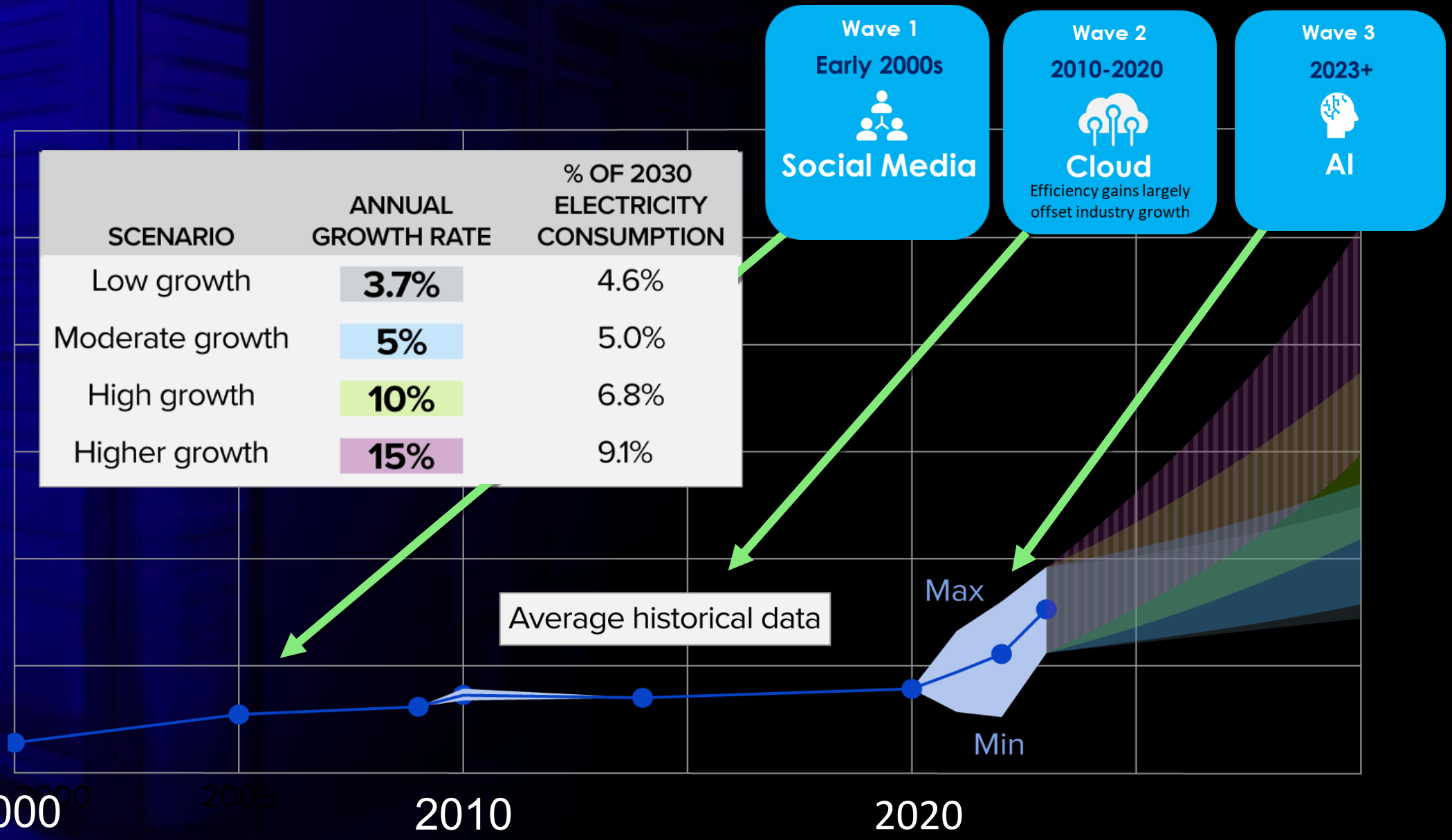
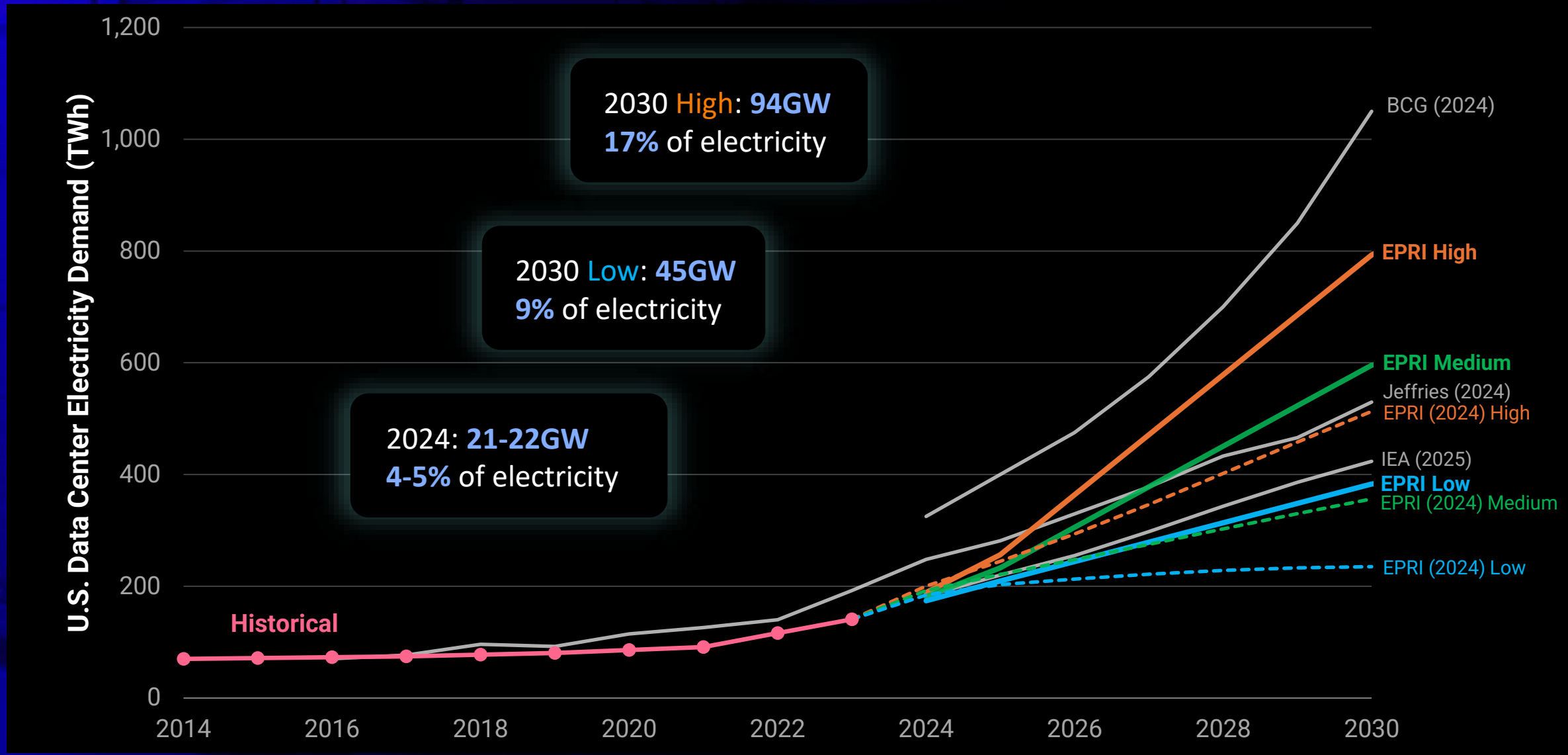


New Insights from EPRI on U.S. Datacenter Growth



Source: EPRI Powering Intelligence 2026

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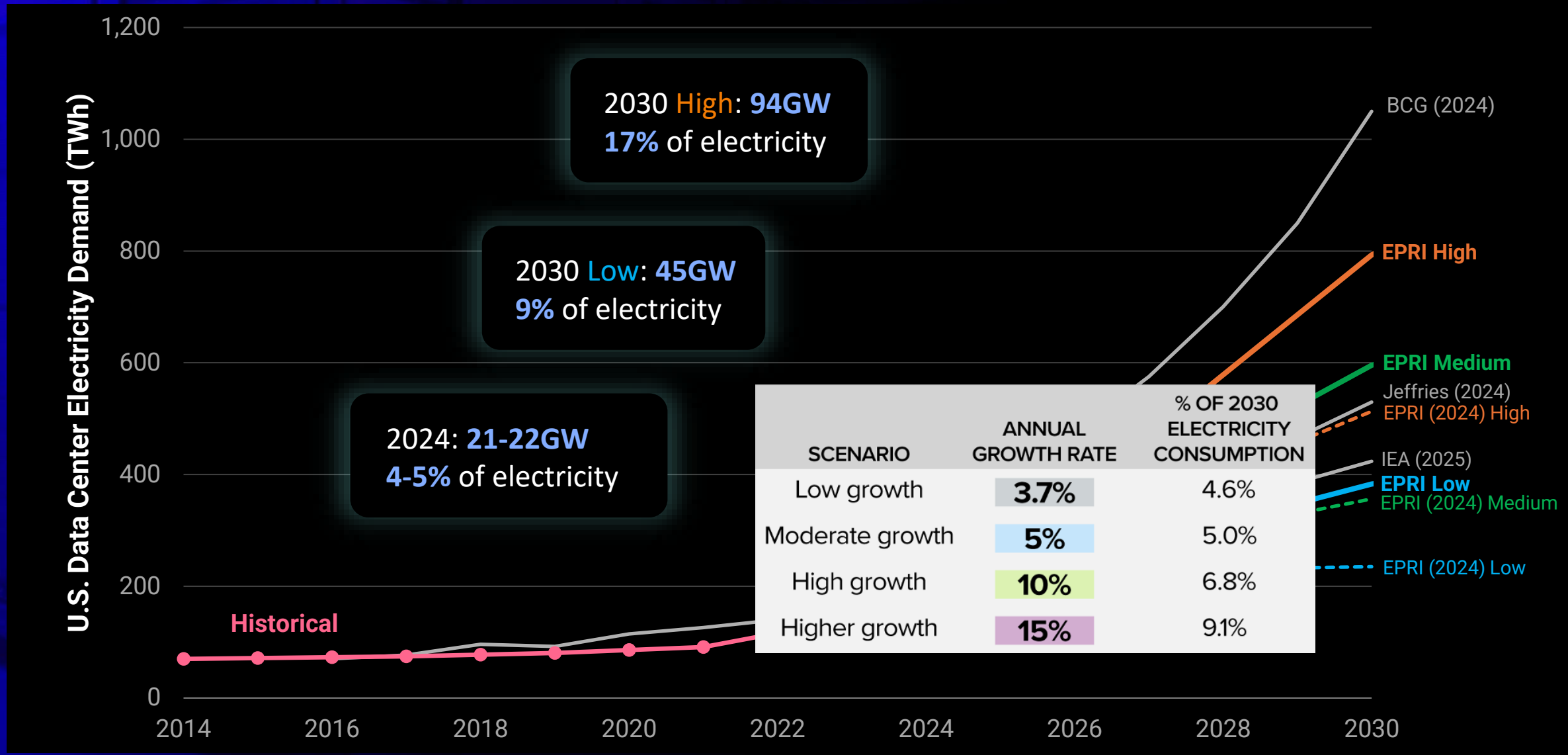

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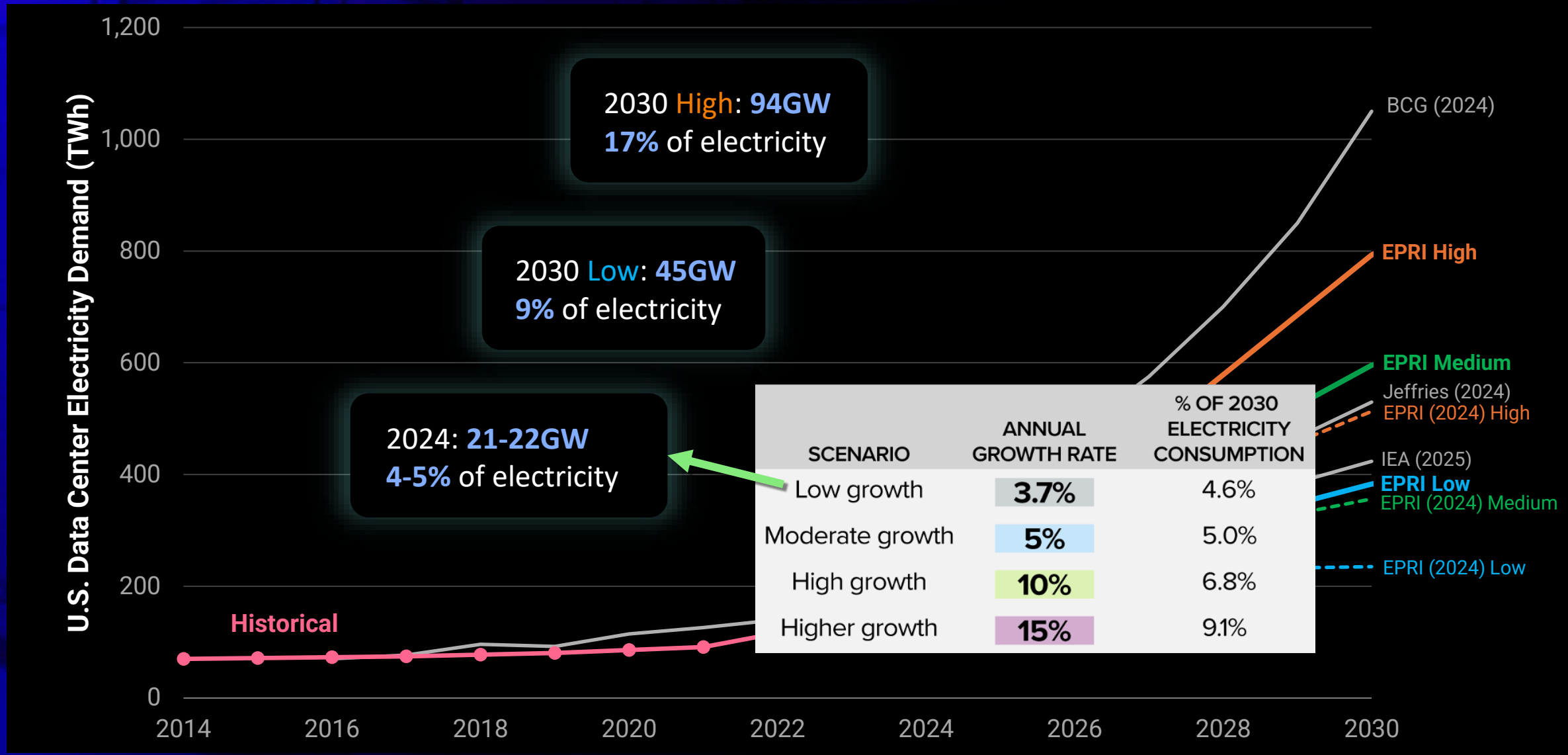

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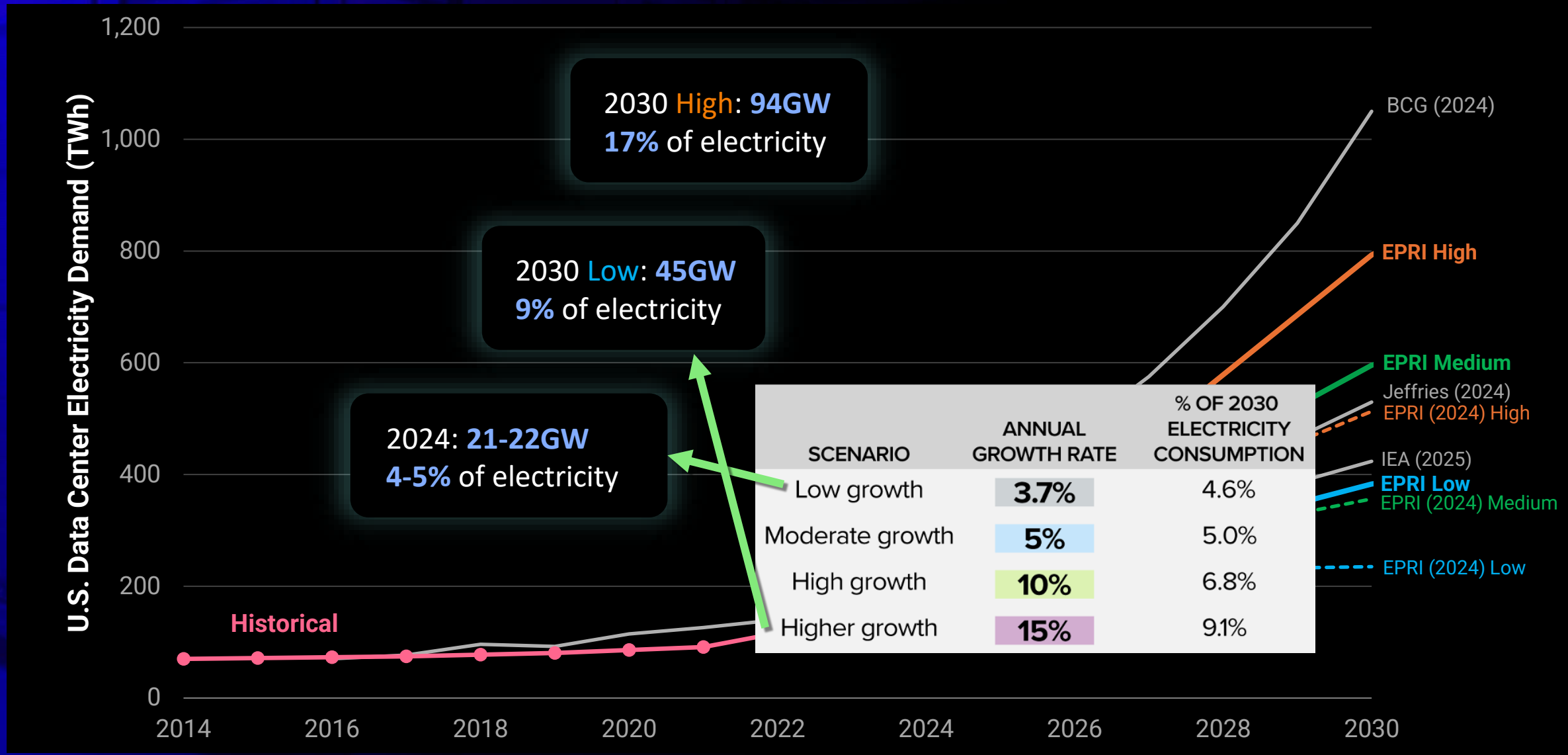

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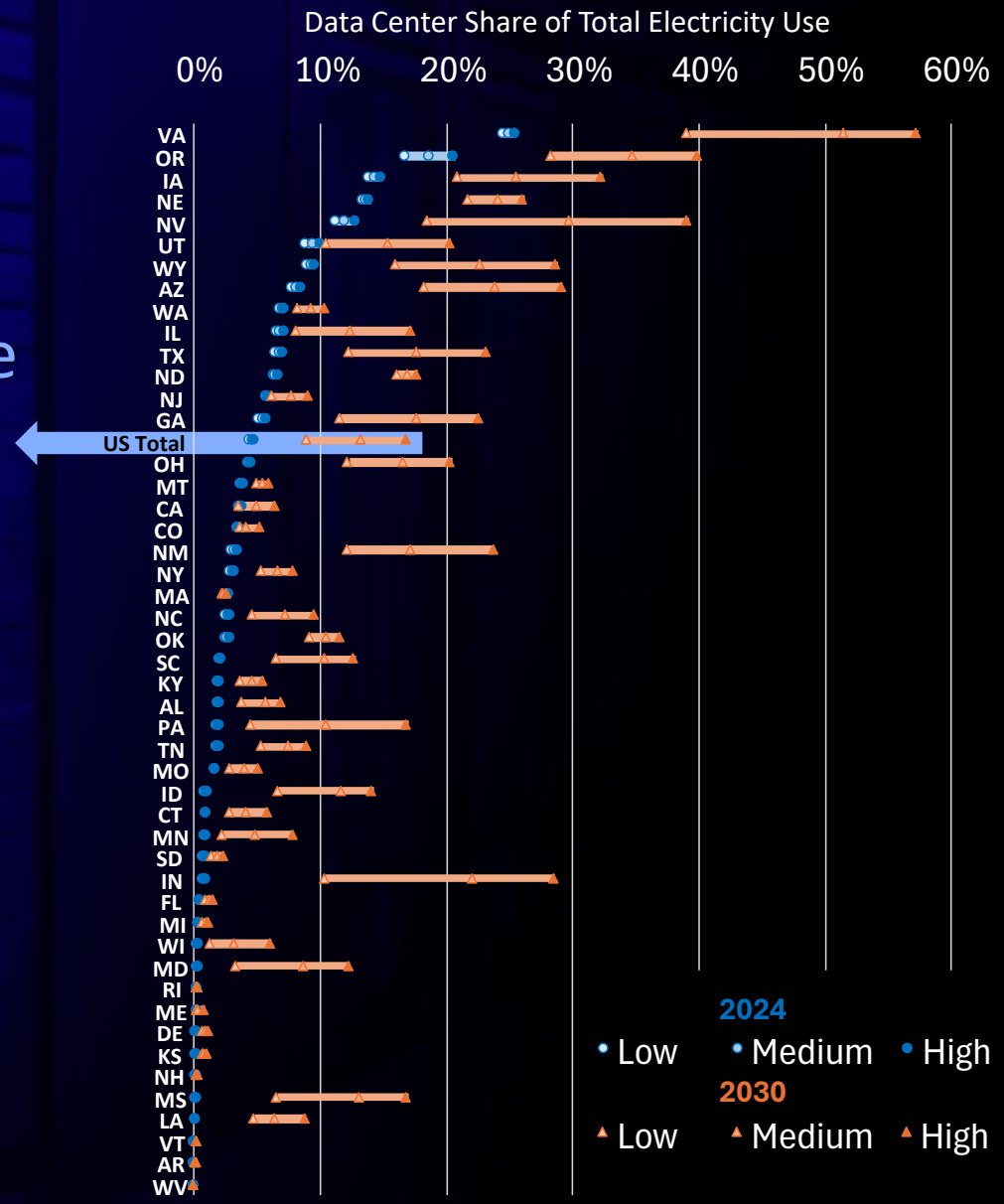
New Insights from EPRI on U.S. Datacenter Growth

U.S. estimated share

4-5% in 2024

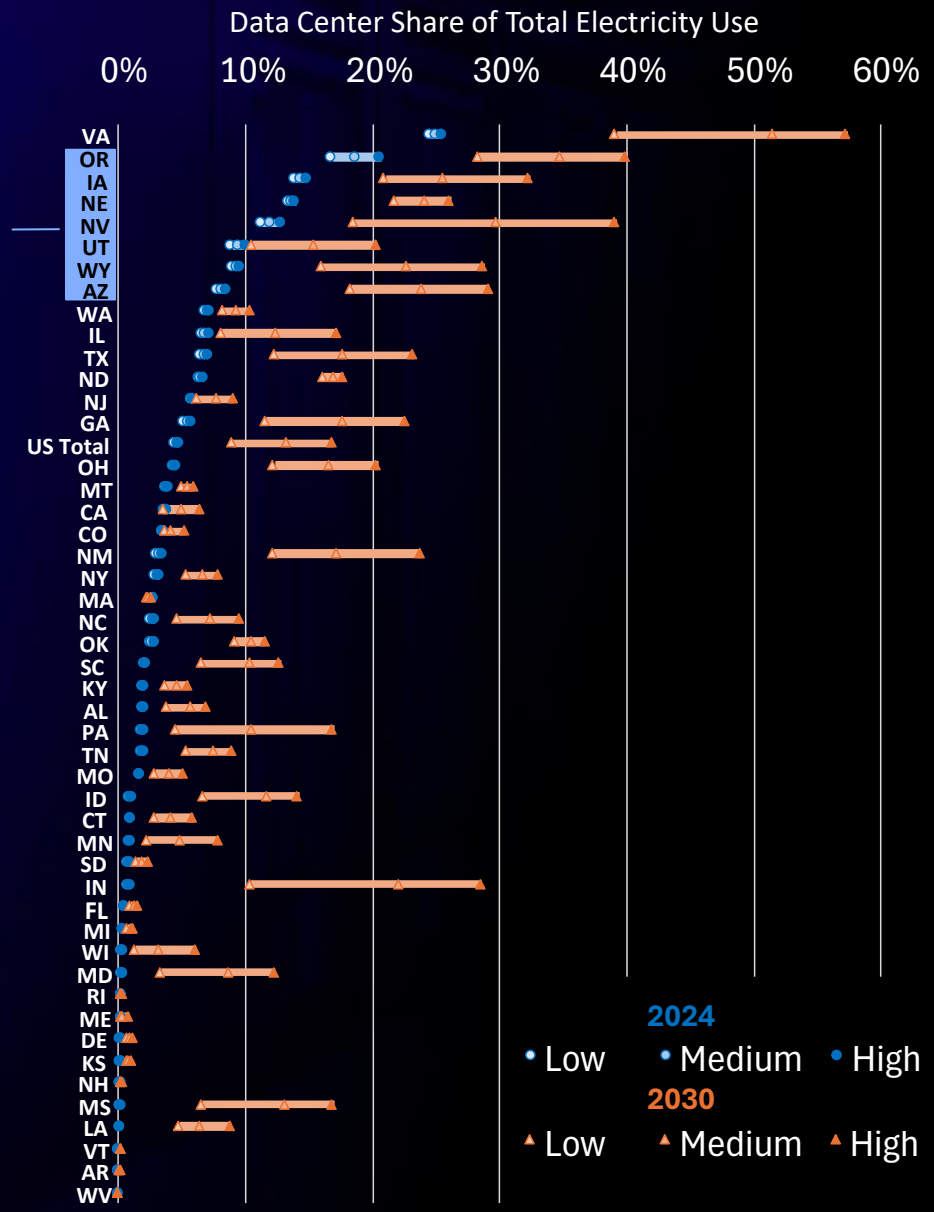
9-17% in 2030

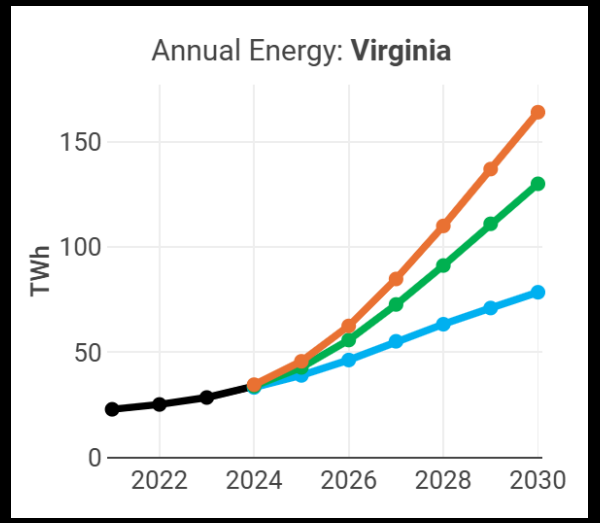


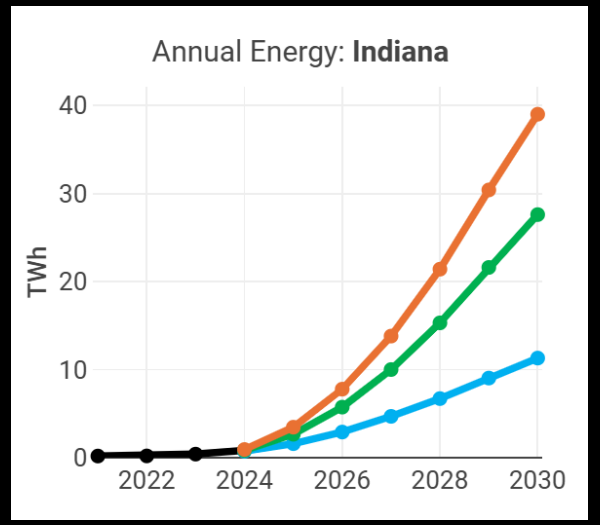
Source: EPRI Powering Intelligence 2026

Growing Data Center Share of Electricity Demand

Seven additional states could see data centers exceeding a **20%** share by 2030







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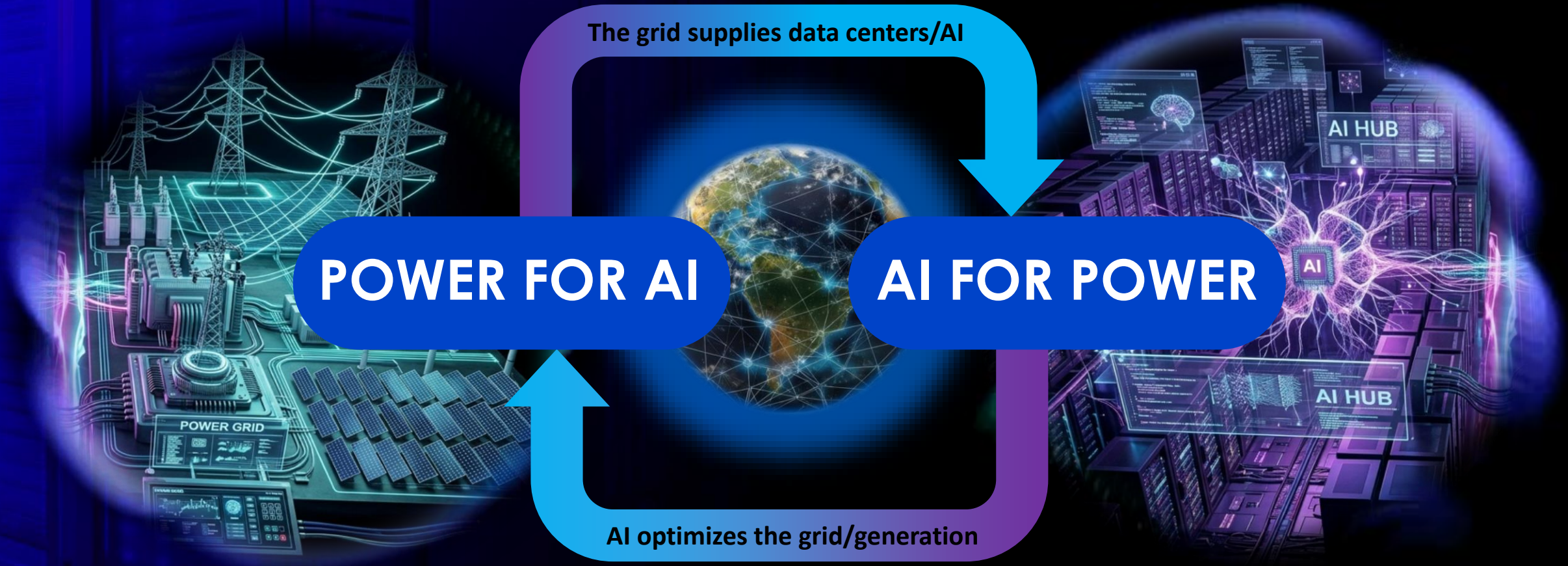


What Can We Do to Meet This Demand Growth?

What Can We Do to Meet This Demand Growth?

DCFlex Collaboration

Developers

COMPASS datacenters

QTS

Hyperscalers

Google

Meta

Microsoft

IPP's

CALPINE

Constellation

nrg

VISTRA

ISO/RTO

California ISO

CENACE
CENTRO NACIONAL DE CONTROL DE ENERGÍA

ercot

ieso
Connecting Today. Powering Tomorrow.

smart KPX

MISO

NESO
National Energy System Operator

pjm

SPP Southwest Power Pool

Technology Providers

CATERPILLAR

JENBACHER
INNIO

KRAKEN

NVIDIA

PADO

Schneider Electric

Advisory & Finance

EY

ING

KPMG

Engineering & Construction

CRIEPI
Central Research Institute of Electric Power Industry

QUANTA

Ulteig

wesco

Utilities

aes

Alliant Energy

AMERICAN ELECTRIC POWER

aps

Bonneville POWER ADMINISTRATION

CenterPoint Energy

AEH

Dominion Energy

DTE

DUKE ENERGY

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

ENOWA
NEOM

entergy

exelon

Georgia Transmission

ICEPCO

LES

LCRA

nationalgrid

Nebraska Public Power District
Always there when you need us

NEW YORK STATE OF OPPORTUNITY. NY Power Authority

OglethorpePower

PGE

ppl

PSEG

REC Rayburn Electric

RTÉ

RWE

SRP

Southern Company

TVA

TENNESSEE VALLEY AUTHORITY

UNITED POWER
Your Touchstone Energy® Cooperative

15

FLEX MOSAIC

INCREASING FLEXIBILITY

CLASS A	CLASS B	CLASS C	CLASS E
Critical Peaking	**Peaking**	**Prolonged**	**Fully Grid Responsive**
Day Ahead	Day Ahead	Day Ahead	> 5 Minutes
< 5 Hours	< 5 Hours	24+ Hours	24+ Hours
~ 1%	~ 5+%	< 10%	> 30%
respond to *rare* scarcity events 5 hours or less	respond to *frequent* scarcity events 5 hours or less	A + B + respond to *prolonged* events, up to 24+hrs	Fully *grid responsive*

CLASS D

Fast

> 5 min	< 2 Hours	> 8%
		A + B + provide fast response with short notifce

Notification Window
Activation Period
Annual Utilization

World's largest cross-sector collaborative on flexibility unveils

Common Flexibility Classification

to unlock grid capacity without compromising reliability and affordability

EPRI

Cohort 1

ARIZONA, U.S.
Compute Flexibility
Artificial Intelligence

NORTH CAROLINA, U.S.
Compute Flexibility
Hyperscaler

PARIS, FRANCE
Grid Services
Co-Located

DCFlex demonstrations

Cohort 2

ILLINOIS, U.S.
Compute Flexibility
Artificial Intelligence

TEXAS, U.S.
HVO Backup Solution

VA/ IL , U.S.
Compute Flexibility
AI & Geospatial Load Shifting

VIRGINIA, U.S.
Large Scale Compute
Flexibility

LONDON, UK
Compute Flexibility

TEXAS, U.S.
Compute and HVAC Load
Flex – Paired with BESS

ORACLE · Rte · COMPASS datacenters · Dominion Energy · NVIDIA · Schneider Electric · SRP Delivering More Than Power · pjm · comed AN EXELON COMPANY · Data4 SMART & SCALABLE DATA CENTERS · emeraldai · DUKE ENERGY · aps · Constellation · Google

EPRI

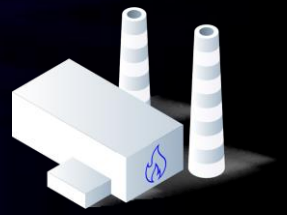
What Can We Do to Meet This Demand Growth?

Generation Buildout Is Not One-Directional

COAL

- 4,000+ MW on rolling 90-day federal extensions
- Retirements delayed beyond 2028 to avoid stopgap orders
- Driven by reliability needs, not economics

GAS

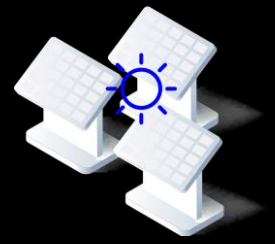


- Large turbines: sold out through late decade
- Small units (≤30 MW): scaling for data center load
- RICE fleets: modular, fast-to-deploy capacity

NUCLEAR

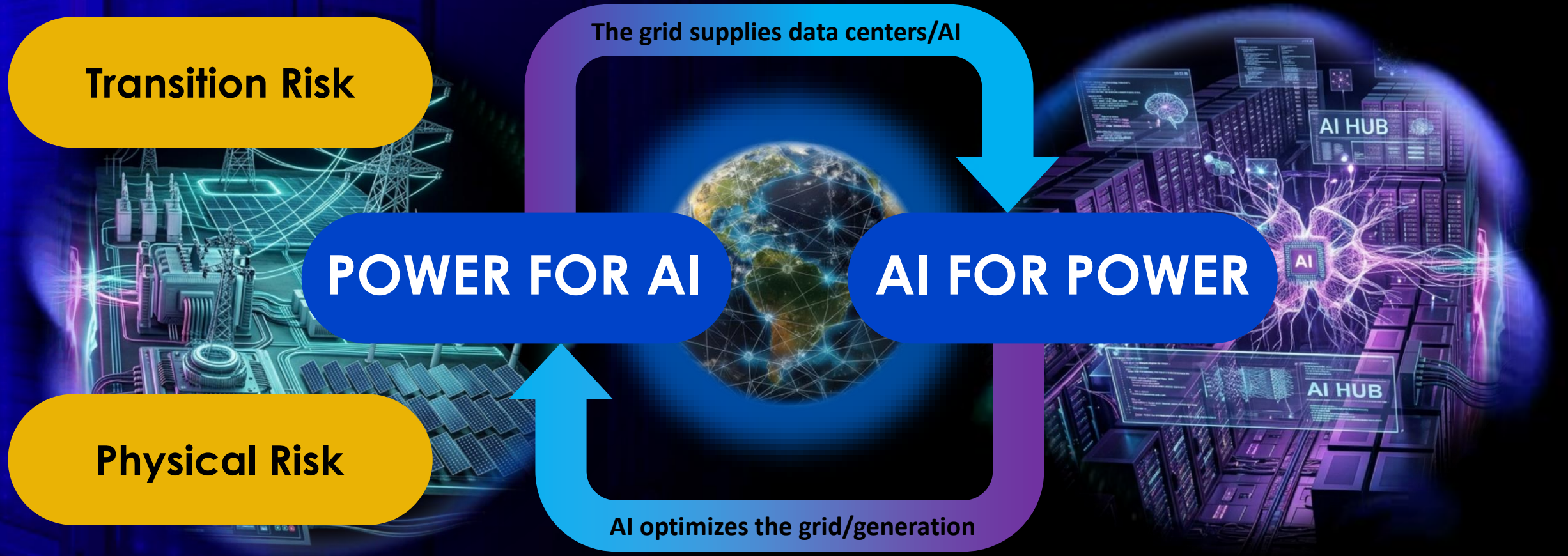
- First reactor restarts in decades
- Zero-carbon baseload growth
- U.S./intl builds (Hermes, TerraPower, OPG; Taiwan) + non-commercial microreactors underway

SOLAR AND BATTERIES



- 121 GW solar, 63 GW storage (2026-2030 pipeline)
- Largest share of new additions
- Storage provides firming + peak support

The Tie to Climate



Powered by EPRI

OPEN POWER AI CONSORTIUM

Our Work Groups

Domain-specific model

Domain-specific model trained on energy-specific datasets

Use Case Sandbox

Identify, prioritize, and evaluate real-world applications

Implementation

Share methods & best practices for AI deployment and scaling

Harnessing AI's transformative potential for a resilient, cost-effective energy future through collaboration

Open-source data and AI models for industry-wide value

NVIDIA. Google databricks

Microsoft ORACLE aws

Learn More:
www.openpowerai.org

Domain-Specific Model Includes Knowledge from

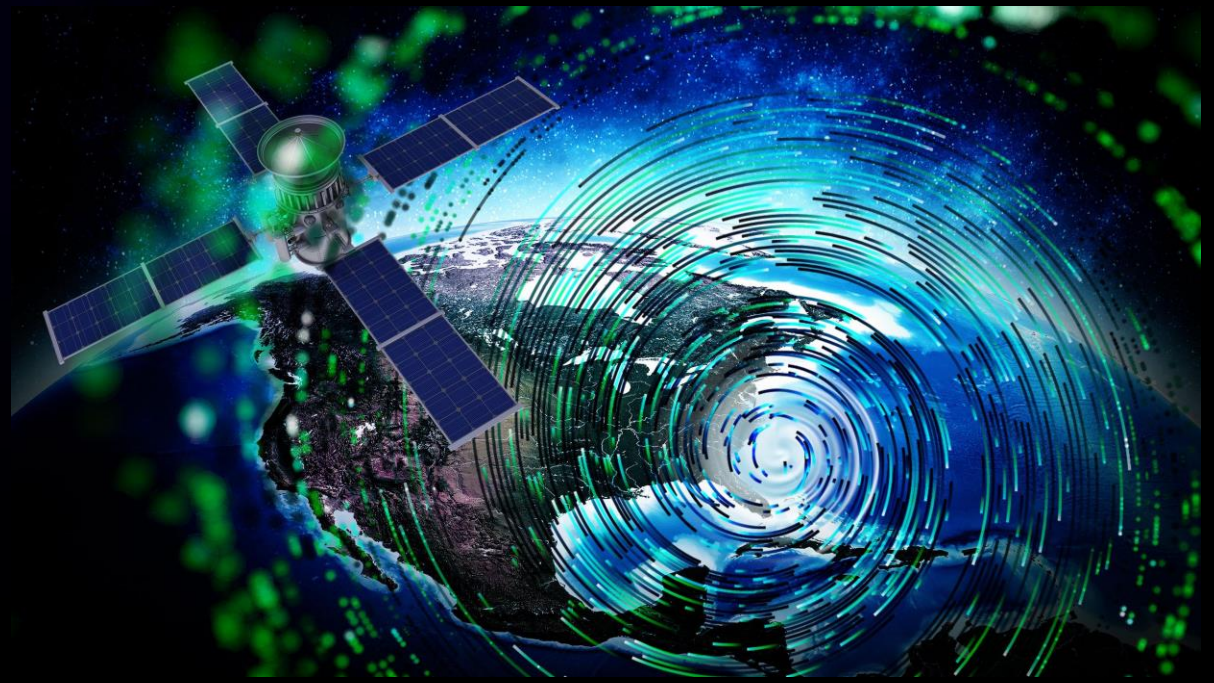
>10,000
EPRI reports

250+
use cases identified for consortium prioritization and development

Join us in Shaping the Future of AI and Energy

OPAI Use Case: Grid Extreme Weather Event Forecasting

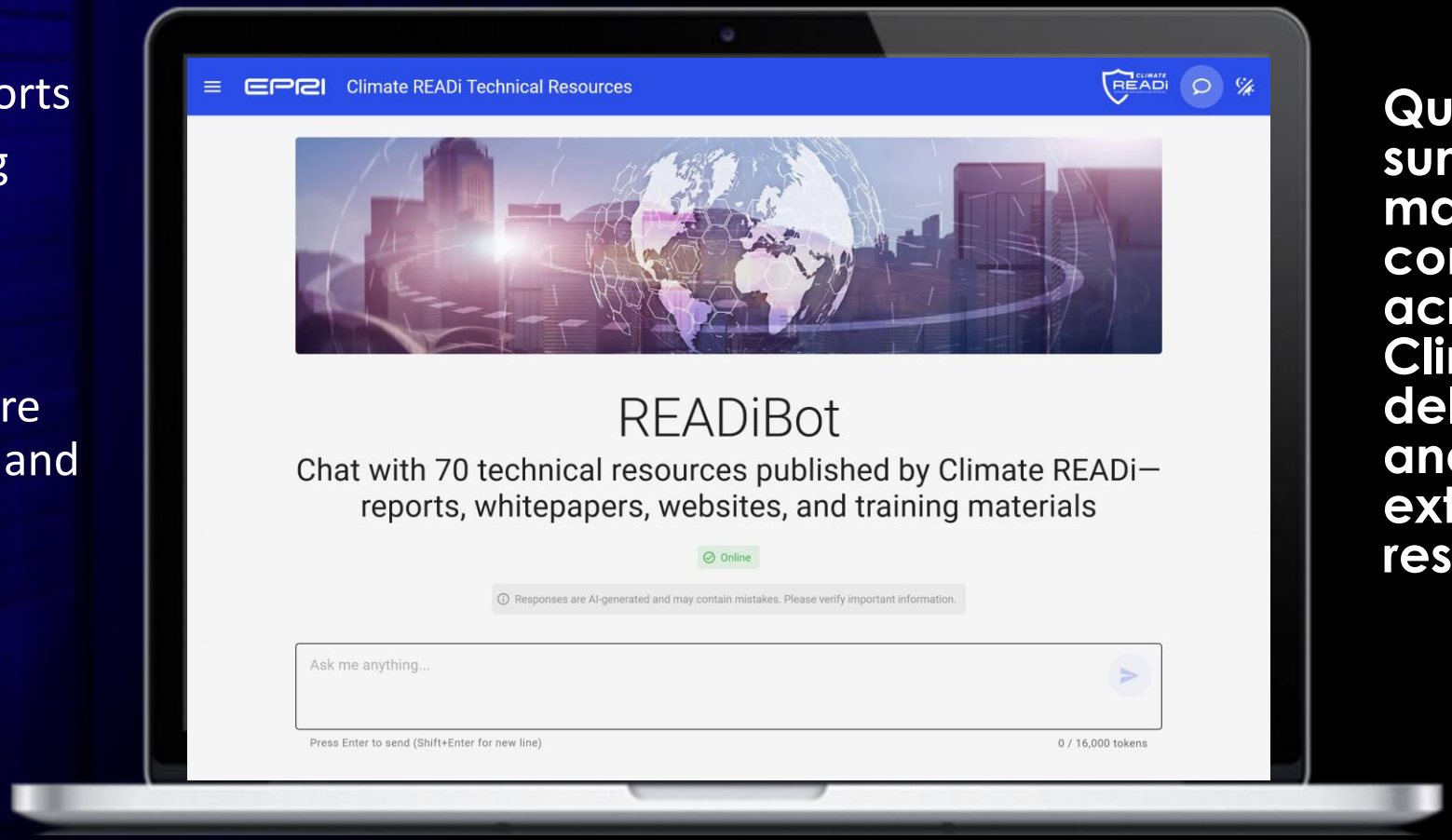
- **Forecasts extreme weather risks** (hurricanes, wildfires, heatwaves) using models, satellite data, and historical grid impacts
- **Assesses grid risk** by region and severity via classification models
- **Enables early warnings** for contingency planning and infrastructure hardening
- **Updates outputs in near real time**



READiBot

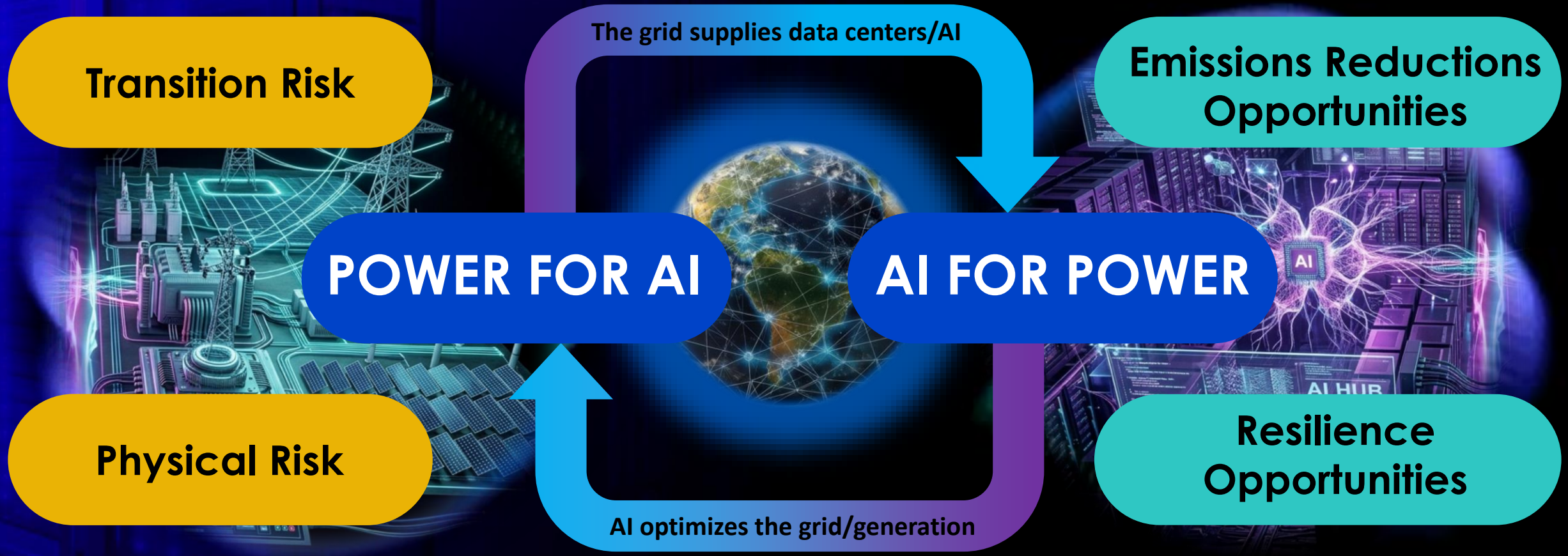
The READiBot prototype currently includes:

- 53 published PDF reports
- 10 websites, including data tables from all inventories
- 6 story maps
- 1 open-source software (RiSc Tool) - overview and user manual
- Climate 101 modules

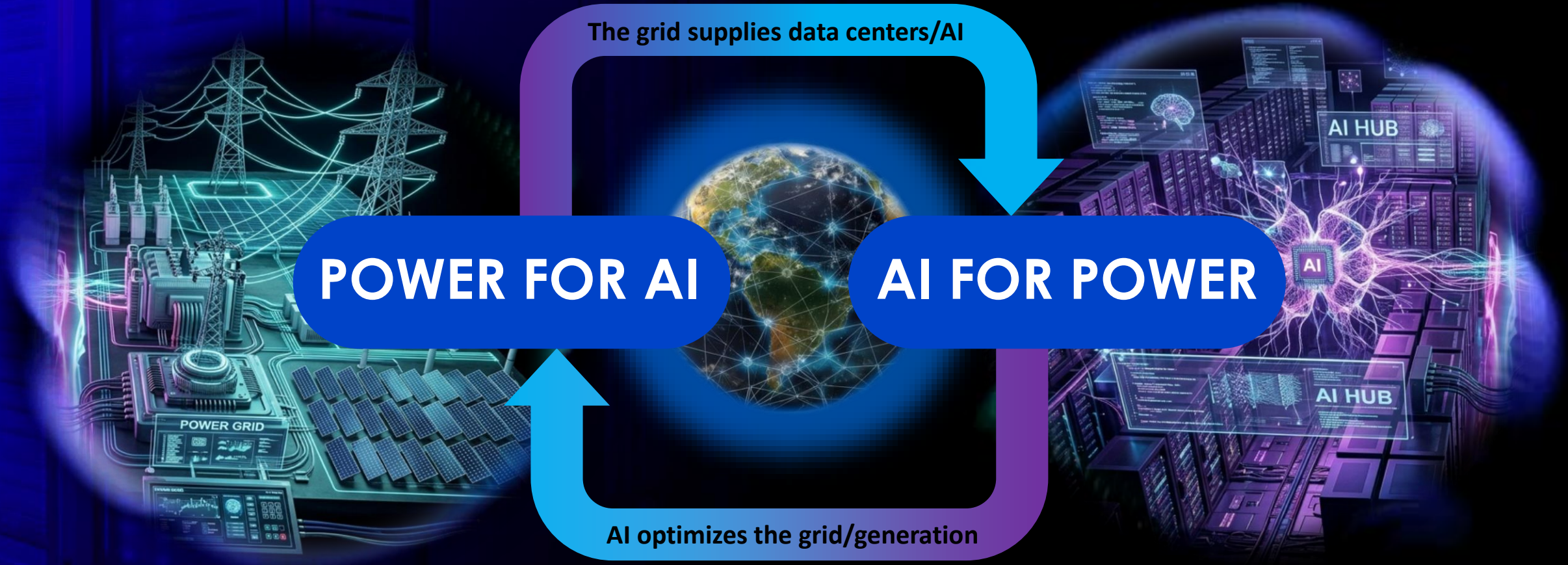


Query, summarize, make connections across all of Climate READi's deliverables and topics, incl. external resources

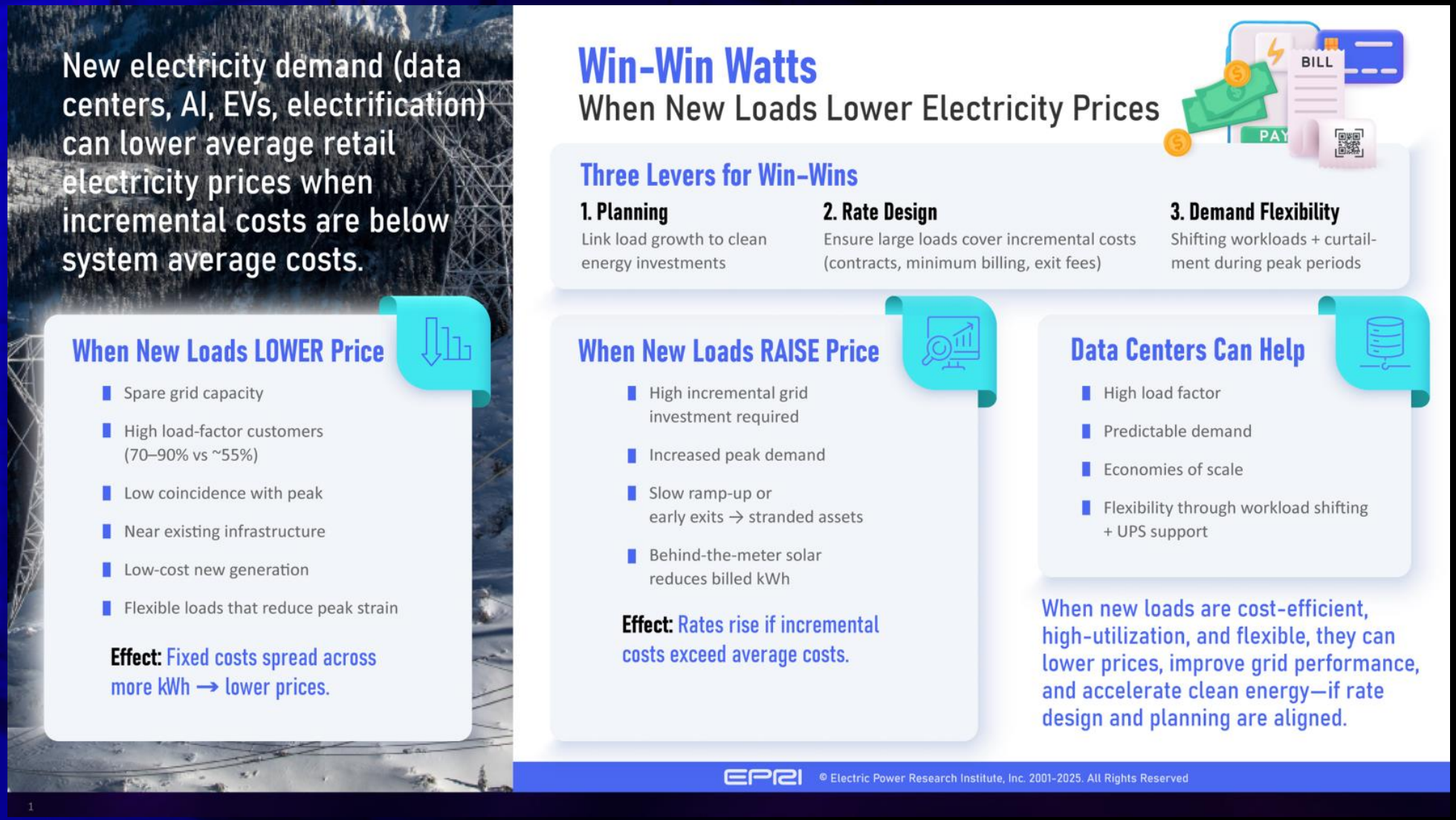
The Tie to Climate



At the end of the day, it's all Affordability



Growth costs money – affordability is THE conversation



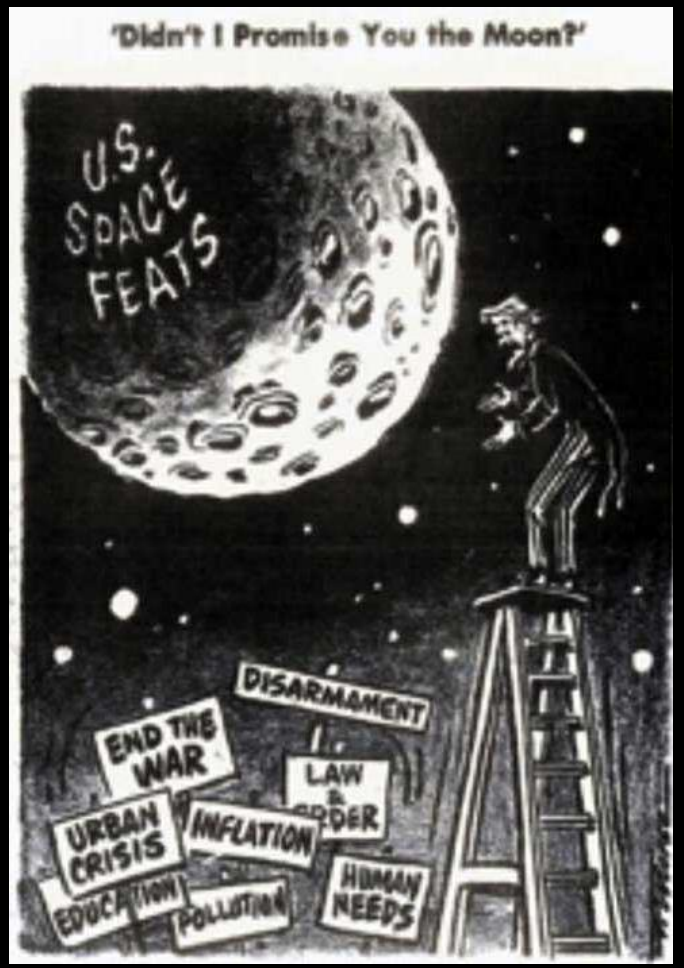
Win-Win-Watts

Energy Wallet

The Space Race

Chester Commodore, "What about the Space between Races of Man," Chicago Defender, July 12, 1969.

L.D. Warren, "Let's Take a Few More Deep Breaths, Buzz, before We Leave!," Philadelphia Evening Bulletin, July 22, 1069.

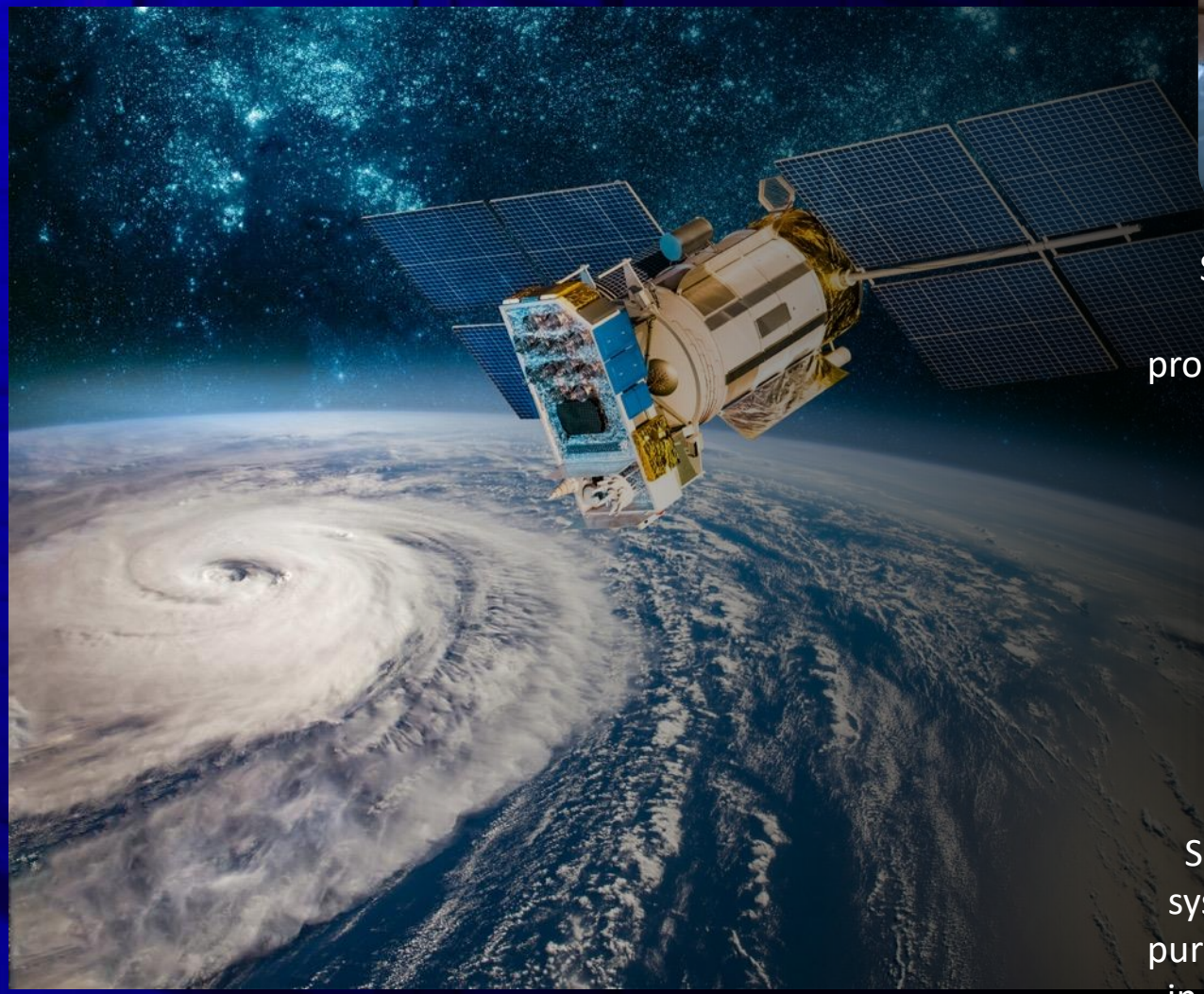


Franklin Morse, "Didn't I Promise You the Moon?," (Los Angeles) Herald-Examiner, May 20, 1969.

From Landing on the Moon to Powering the Future

1961	1962-1966	1967	1968	Early 1969	July 1969
JFK launches Moon mission goal	NASA builds human spaceflight capability	Apollo 1 tragedy forces program redesign	Apollo 8 reveals Earth from lunar orbit	Public debate questions space vs Earth priorities	Apollo 11 successfully lands humans on Moon

The Impact Today



Space imaging research advanced digital image processing used in medical CT development

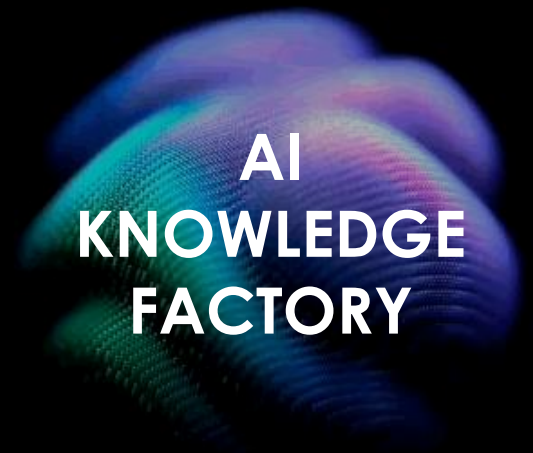
Memory foam developed for aerospace crash protection is now used in mattresses, prosthetics, furniture, and safety gear

Spaceflight water recycling systems enabled closed-loop purification concepts now used in remote and disaster water treatment

Space medicine advances in miniaturization and monitoring influenced biomedical devices and drug delivery systems, not insulin pumps

POWERING PROGRESS

- Abundant
- Reliable
- Affordable
- Accessible



PROTECTING THE PLANET

- GHG Emissions & Air Quality
- Water
- Biodiversity
- Land

ONCE IN A GENERATION OPPORTUNITY FOR POWERING KNOWLEDGE

EPRI

TOGETHER... SHAPING THE FUTURE OF ENERGY®