



EPRI

# THE CLEAN ENERGY TRANSITION

Balancing the Increasing Power  
Demand with Clean Electric Supply

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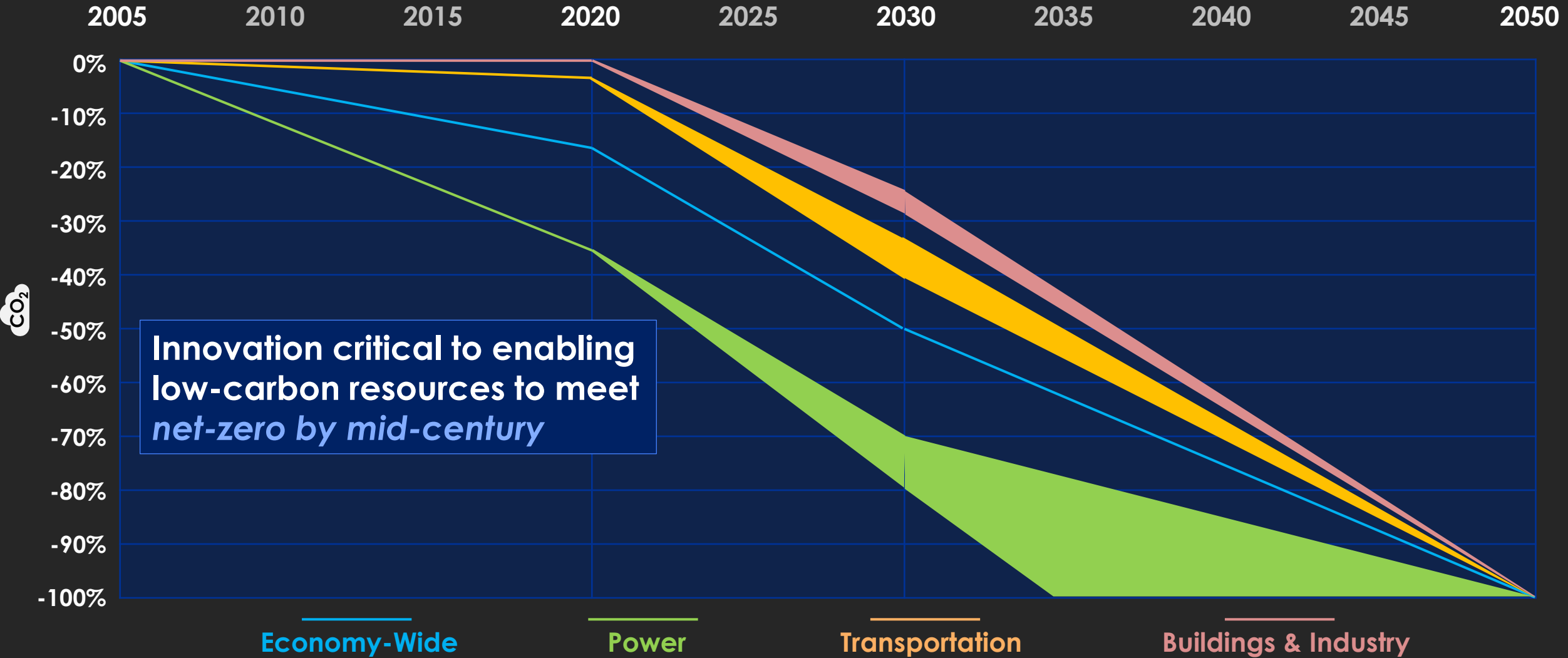
Steve Chengelis

Sr. Director, EPRI



# PROGRESS...

## YET LIFT GETS MORE CHALLENGING



<https://www.youtube.com/watch?v=42UqxqCCYs4>

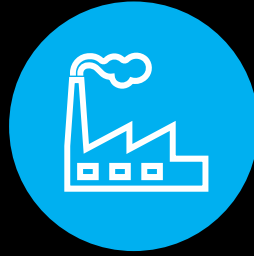
# Nuclear Beyond Electricity



**Flexible  
Electric Grid**



**Low Carbon  
Fuels**



**Process  
Manufacturing**



**District  
Energy**



**Data  
Centers**



**Water &  
Wastewater**

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**New for 2024**



**Maritime**

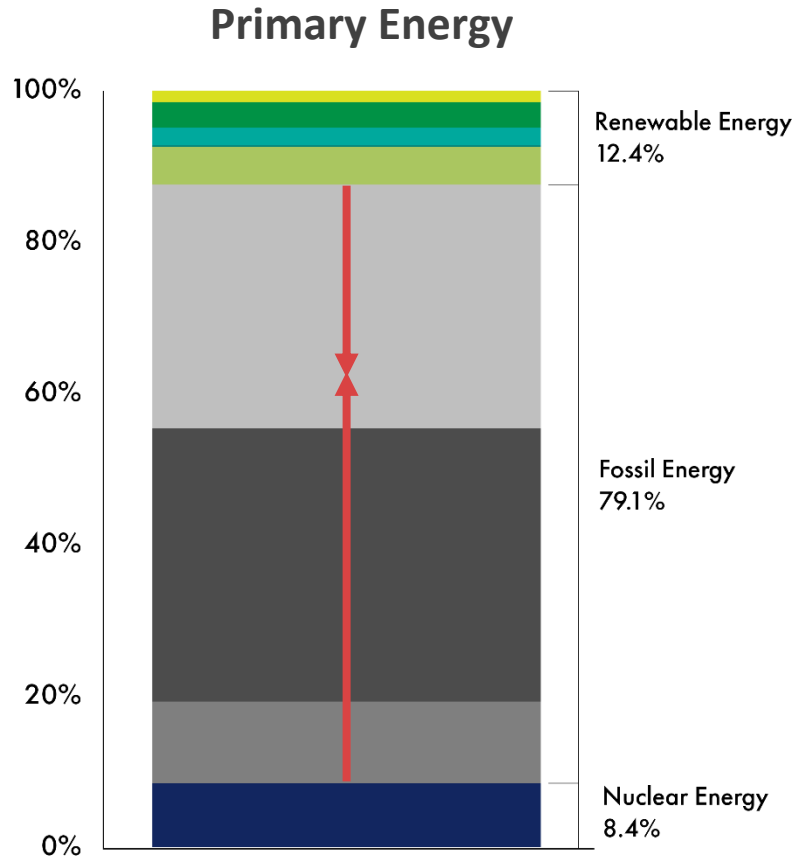
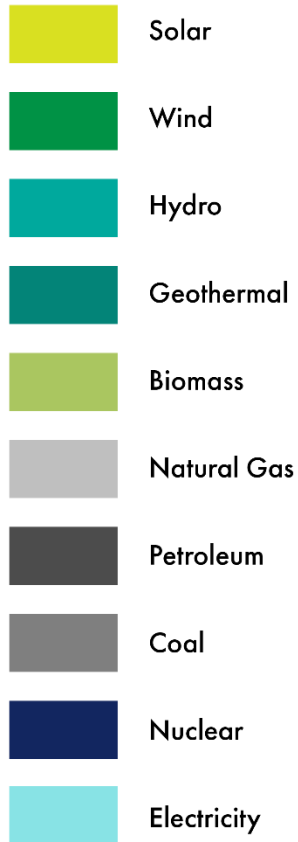


**Medical Isotopes**

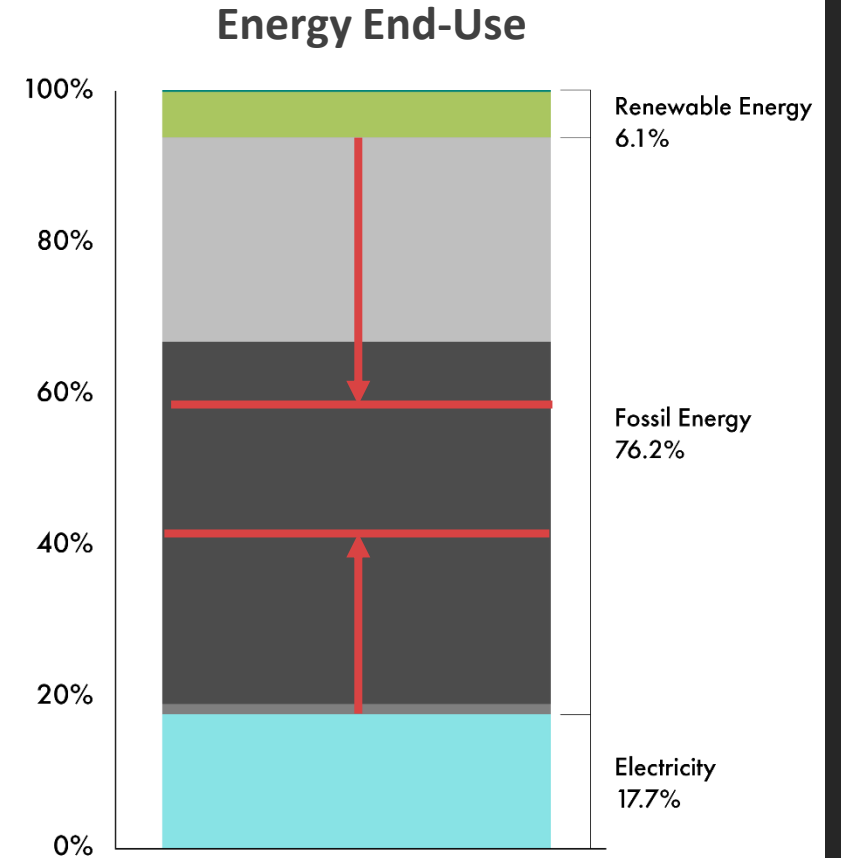
## **GOAL**

Enable existing and future nuclear plants to participate in energy markets beyond the practice of generating baseload electricity.

# Our Sustainability Challenge: Replacing Fossil Fuels



Source: EIA

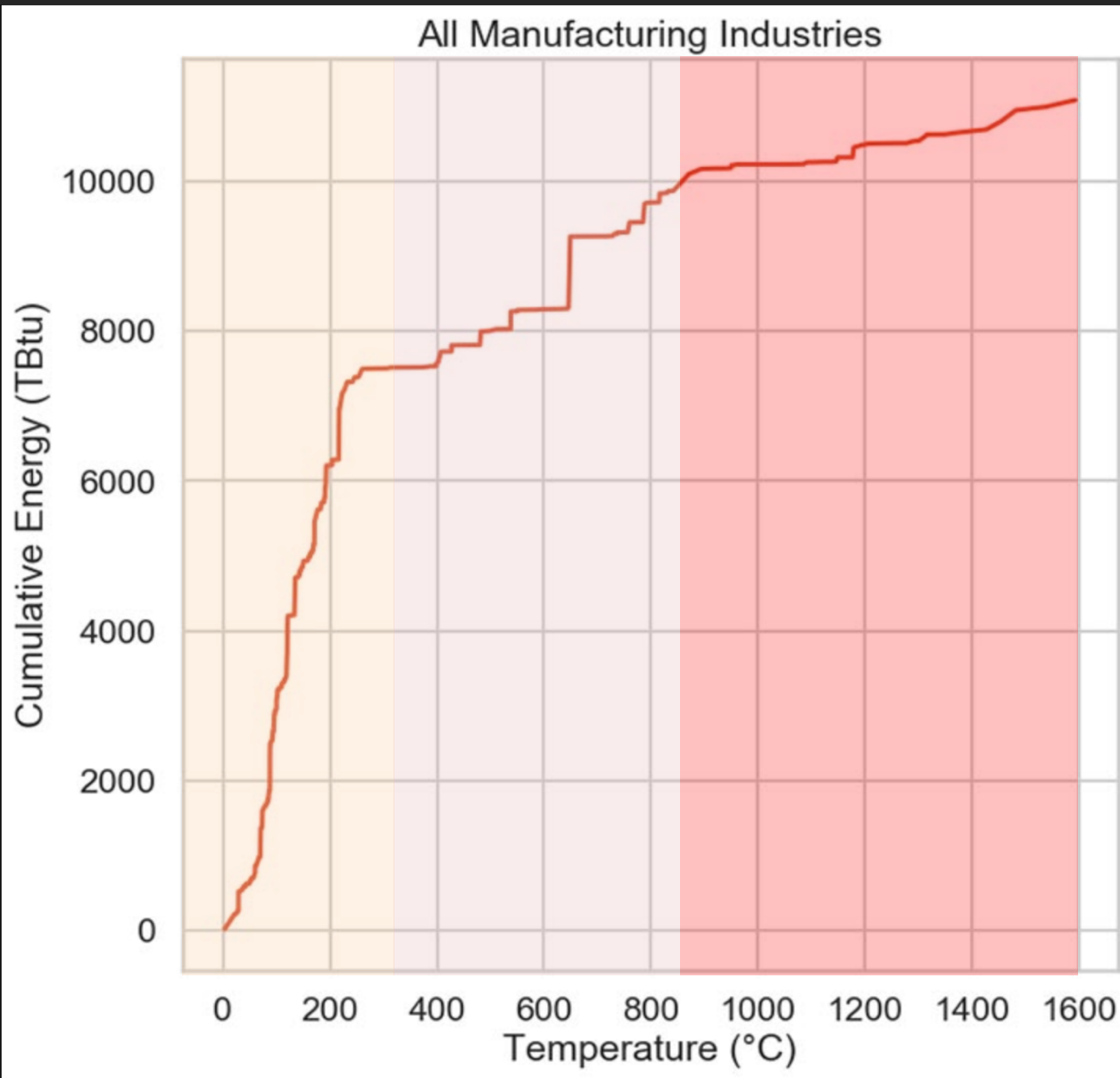


Source: EIA

Nuclear and Renewable Energy Will Have to Fill the Gap

Expect Limits To Electrification and Renewable Energy in End Use Applications

# Energy Demand vs Temperature

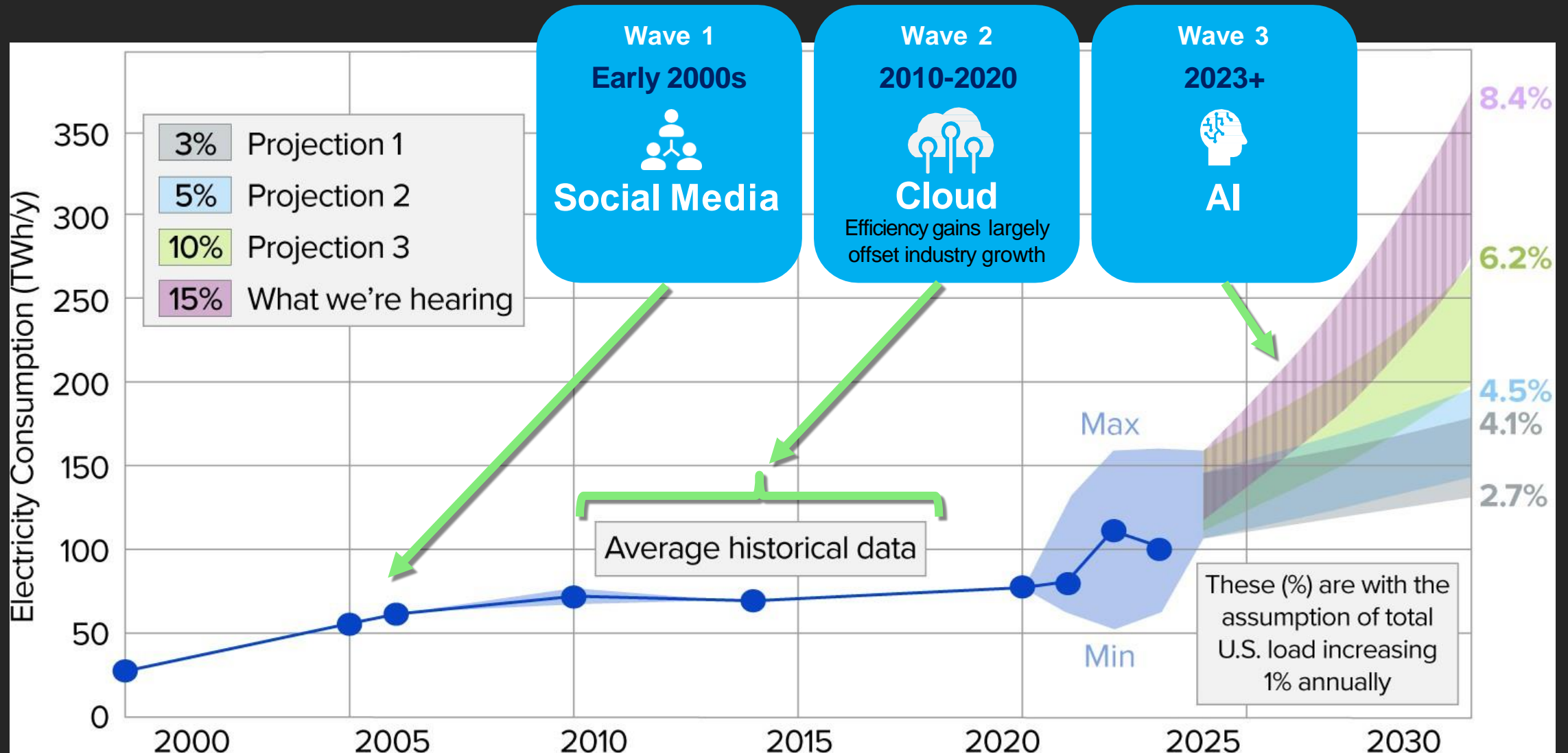


Existing water-cooled reactors can satisfy ~65% of heat energy demand which exists below 300 °C

Advanced Reactors can support higher temperature demands, covering ~90% of industrial heat demand.

~10% of the heat market still lies outside of the design capabilities of today's reactors.

# AI is Driving a Third Wave of Data Center Growth



# A PERFECT STORM

This Decade  
Represents a  
Perfect Storm of  
Challenges and  
Opportunities.

2020

2021

2022

2023

2024

2025

2026

2027

2028

2029

2030

