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MICROREACTORS: TEXAS'S SECRET WEAPON FOR DATACENTERS?

Can microreactors help Texas data centers meet AI's energy demands without overloading the grid?

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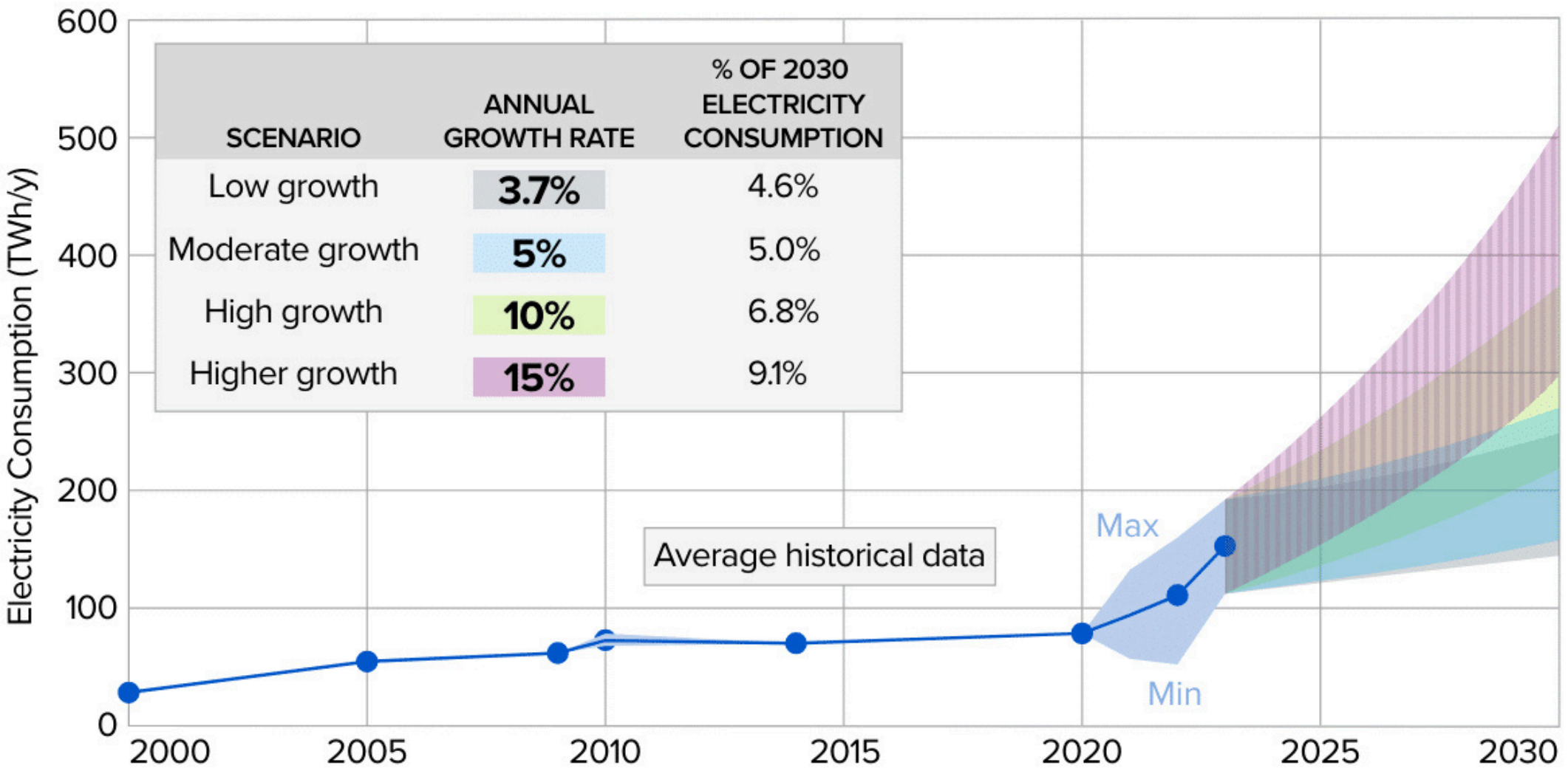


Figure ES-1. *Projections of potential electricity consumption by U.S. data centers: 2023–2030 . % of 2030 electricity consumption projections assume that all other (non-data center) load increases at 1% annually.*

1 Texas' Grid may not be able to keep up

Texas' data center boom is colliding with a grid at its limits. ERCOT predicts peak demand will hit **149 GW** by 2030—double today's capacity.

AI-driven facilities now request **1 GW each** (enough for **250,000** homes), while total grid connection requests have spiked to **99 GW**

Data centers, crypto mining, and hydrogen projects could push ERCOT to the brink. In fact, a new Texas bill may force data centers to power down during emergencies

Texas needs solutions that scale ***fast***.

Enter nuclear microreactors—compact, carbon-free, and designed for rapid deployment.

A rendering of Last Energy's Northwest Texas project. Source: Last Energy.

2 Data Centers' Insatiable Appetite

Texas hosts **340+** data centers consuming **8 GW** annually (9% of state demand). OpenAI's $500B "Stargate" project in Abilene and Google's Dallas expansion alone will require **43 GW** in DFW

ERCOT warns 30 nuclear reactors' worth of new power is needed by 2030. But traditional plants take a decade to build. Data centers can't wait—**84%** prioritize **"speed to power"** over cost

Microreactors like *Last Energy's PWR-20 (20 MW each)* offer a plug-and-play fix. Thirty units could deliver **600 MW**—enough for **10+** hyperscale facilities

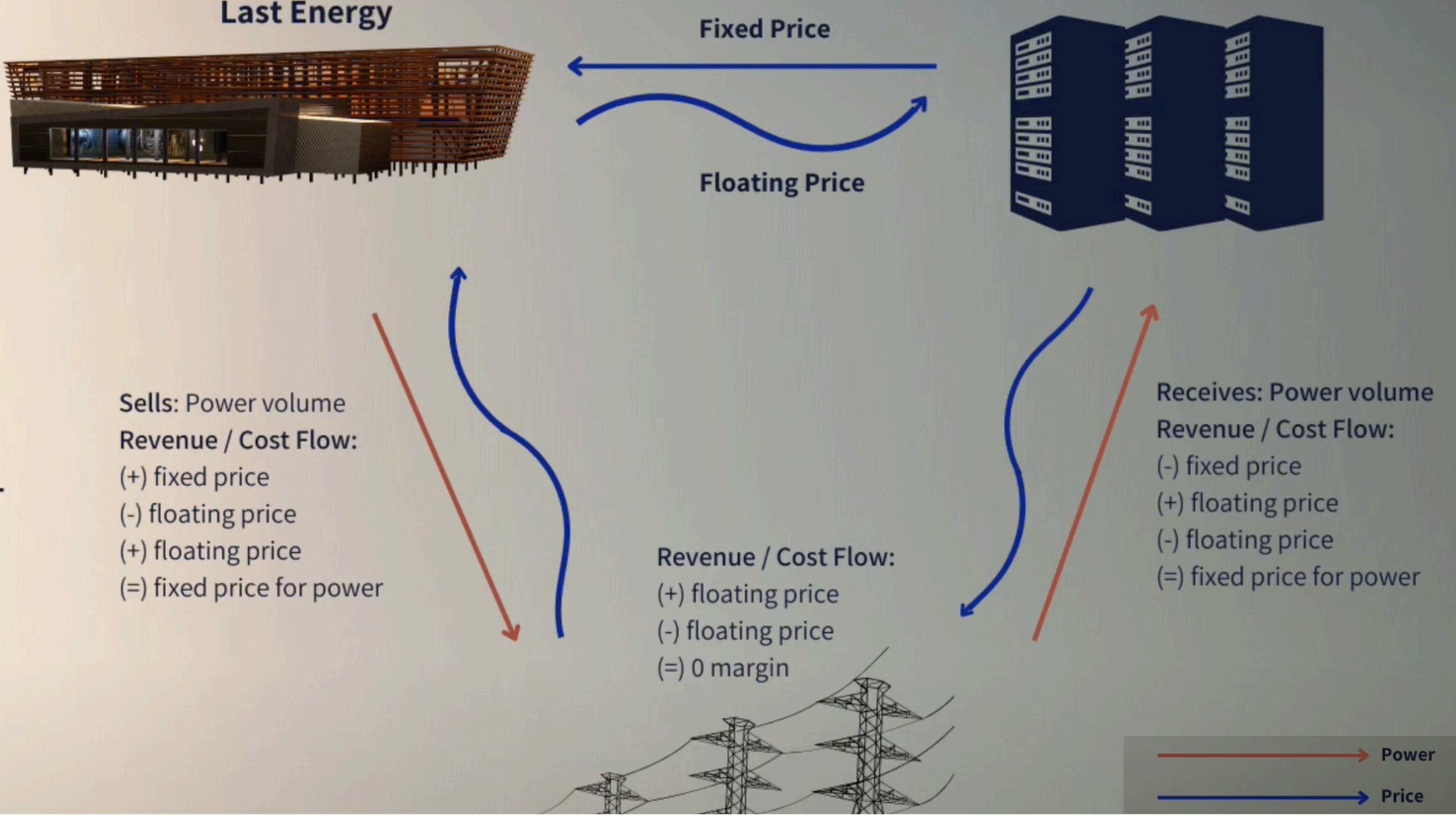
3 Fueling Data Center Growth without Grid

AI-driven data centers require 24/7 power density that renewables alone can't deliver. By 2030, Goldman Sachs projects data centers will consume 12% of U.S. electricity, with Texas at the epicenter

- **Westinghouse's eVinci:** Deploys 5MW for 8+ years without refueling—ideal for edge/AI facilities needing "set-and-forget" power
- **TerraPower & Sabey:** Testing Natrium reactors to power Texas data centers with zero-carbon heat and electricity.
- **Google's Playbook:** Partnering with Oklo/Holtec to integrate microreactors directly into campuses, bypassing ERCOT's 99GW backlog

With 24-month deployment timelines, microreactors offer:

- Scalability: Add 5-20MW increments as compute demand grows.
- Grid Avoidance: Private wires sidestep ERCOT's $20B+ transmission upgrades
- Policy Tailwinds: The 2024 ADVANCE Act fast-tracks NRC permits for projects under 50MW.



Source: Last Energy.

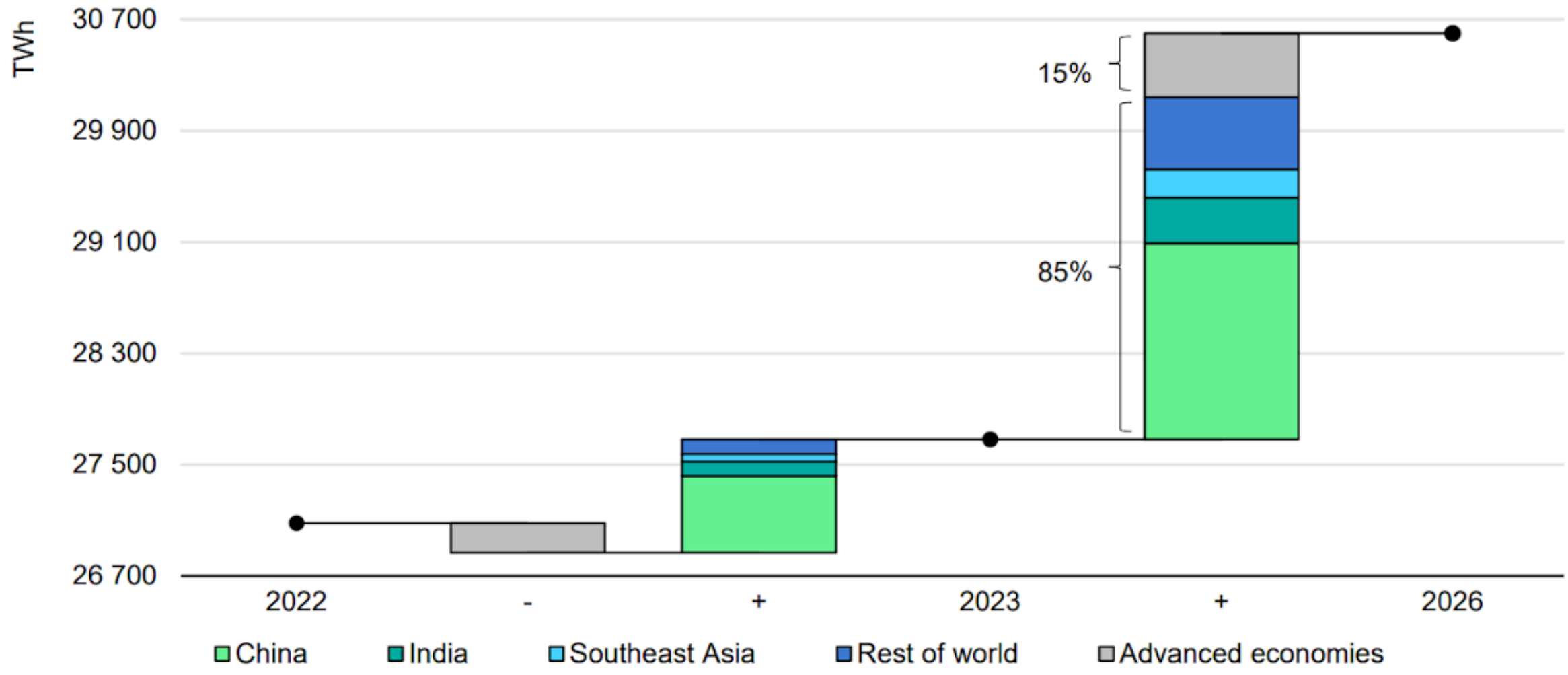
4 Front-of-the-Meter vs. Behind-the-Meter

Front-of-the-meter: The microreactors ERCOT connection lets them sell power grid-wide. **Behind-the-meter:** Co-located reactors give data centers direct, uninterrupted supply

Hybrid setups could balance grid strain. Example: During peak demand, behind-the-meter reactors reduce draw from the grid, while front-of-meter units stabilize ERCOT

Flexibility is key. Microreactors could avoid the **$20B+** transmission upgrades ERCOT needs by 2030

Year-on-year change in electricity demand by region, 2022-2026



Note: Advanced economies grouping in this chart excludes Mexico and Türkiye

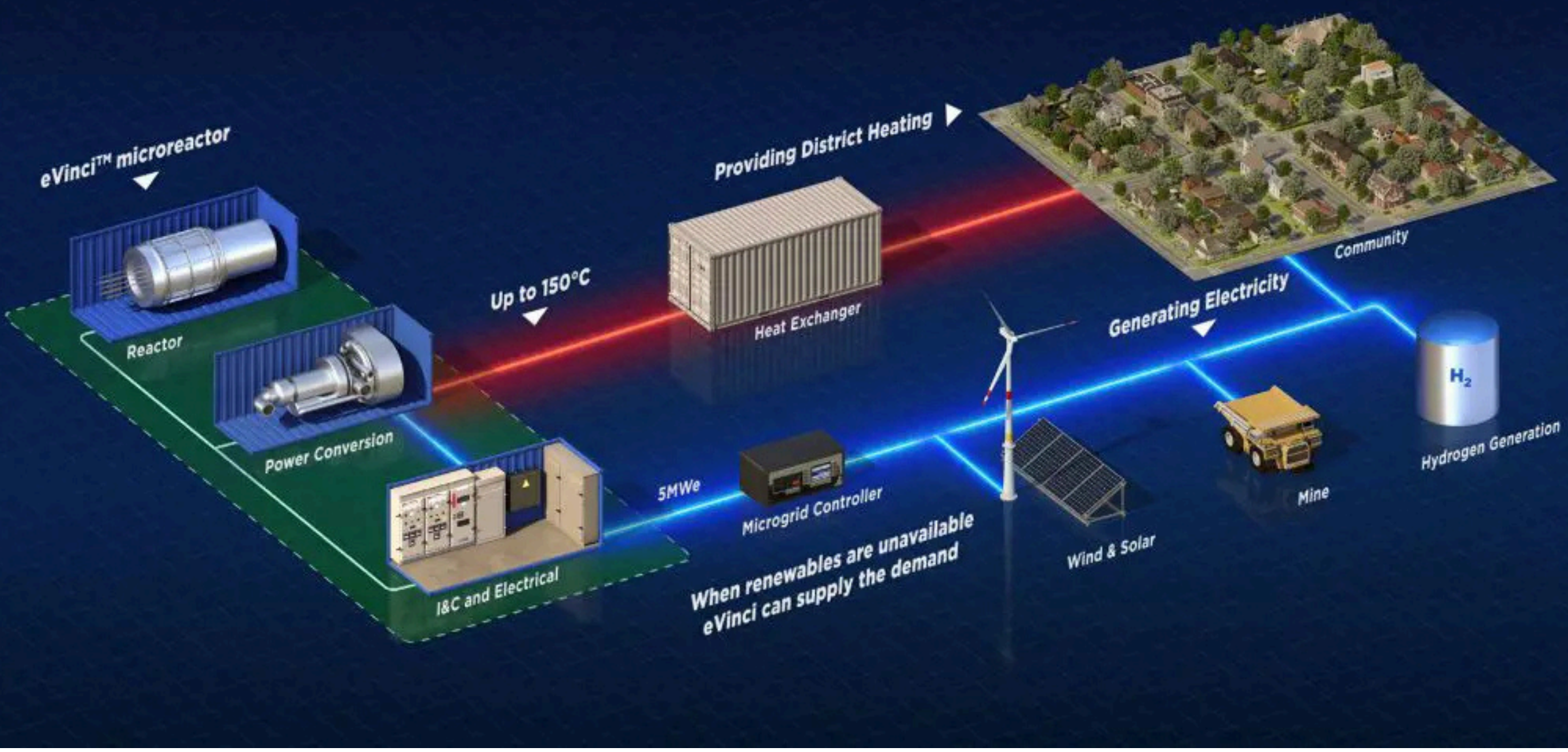
Source: IEA

5 Hurdles: Regulation & Reliability

Texas' Senate Bill 1739 could raise data center costs and mandate shutdowns during emergencies. Microreactors sidestep this by operating independently.

Critics question nuclear's safety and waste, but recent designs use proven passive safety protocols. NRC permitting remains a hurdle, but Early Site Permit filings are progressing.

With ERCOT's demand doubling by 2030, Texas can't afford delays. Microreactors offer a zero-carbon bridge while renewables and storage scale.



eVinci Microreactor: Westingtonhouse- Img source:https://westinghousenuclear.com/energy-systems/evinci-microreactor/

6 A Viable Stopgap?

Yes—if Texas leans into modular nuclear. Microreactors won't replace the grid but can buffer demand spikes and buy time for long-term fixes.

Projects like nuclear microreactors show the tech is ready. With 30 reactors by 2027, Texas could offset 5% of forecast demand growth.

For data centers, the choice is clear: Partner with microreactor firms now or risk being left in the dark.

As Kugelmass says, "Energy is the precondition for prosperity.

At Arcus Power, we help manage peak demand, optimize costs, and help integrate new generation sources and understand it's role on the grid. Our goal is to make your energy operations more efficient, sustainable, and reliable. Reach out to us today to explore how we can help you achieve that.

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