

**Supplying Datacenters with Carbon Neutral
24x7 “Baseload” Power to Help Solve
The Mismatch between US Electricity
Demand and Supply
AND
Provide New Markets for a
US Pellet Production Sector
Facing a Major Drop in Export Demand**

Presented by William Strauss, PhD, President, FutureMetrics

November 10, 2025



This session discusses the emerging opportunity to use sustainably sourced forest-derived biomass (that is already being converted into coal replacement solid fuel by existing US wood pellet factories) to replace coal in US coal-fueled baseload power stations and produce low carbon 24x7 power for data centers.

FutureMetrics - Consultants to Many of the World's Leading Companies with Interests in the Wood Pellet Fuel Sector



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First

The Looming UK Demand Shock!

A new UK support policy starting in April 2027 will have profound impacts on pellet demand.

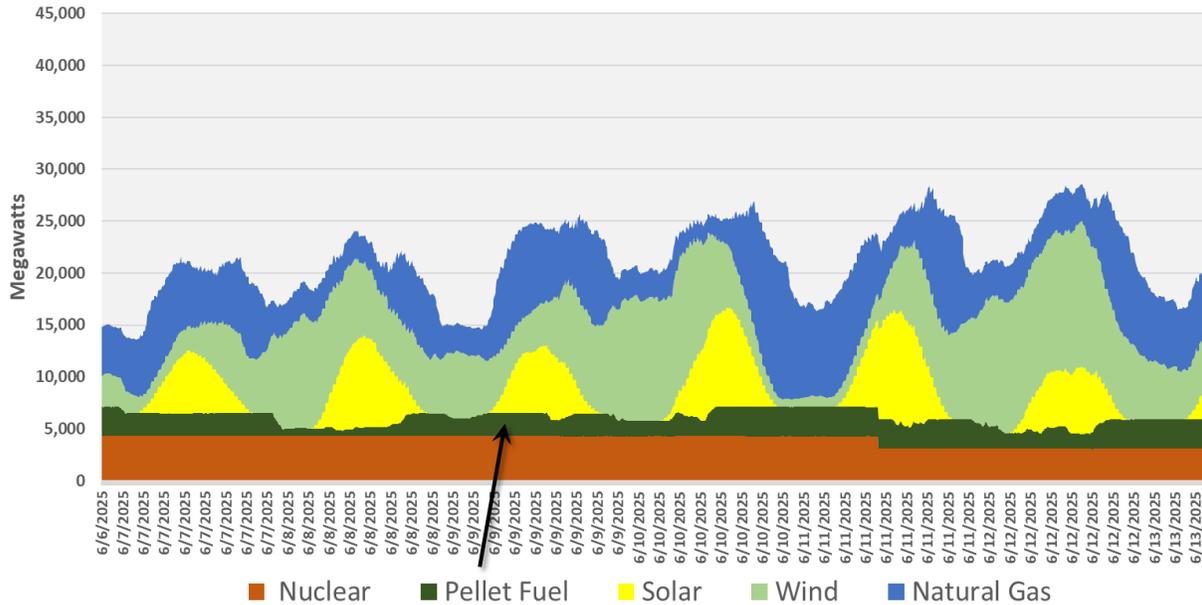
US producers should be highly motivated to seek new markets such as those we will discuss in this session.

Why the Change in UK Policy in 2027?

The **UK** generally has an abundance of wind and solar generated power in the summer months.

Summer

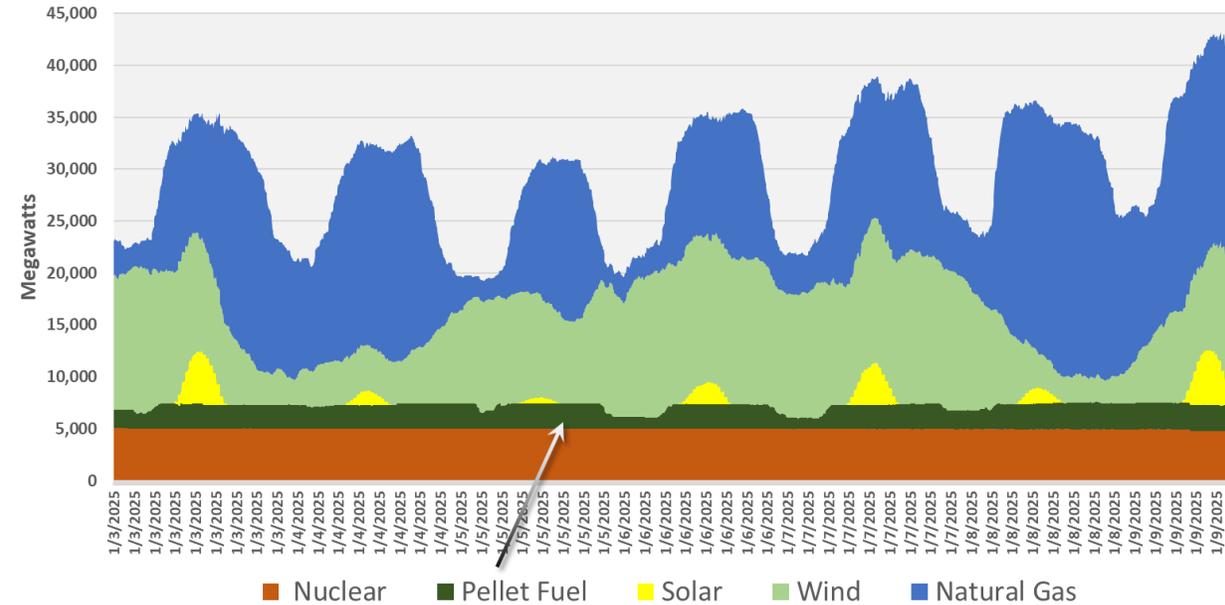
The UK Generation Mix Week of June 6 to June 13, 2025



Source: Data fom GB Gridwatch, Analysis by FutureMetrics

Winter

The UK Generation Mix - January 3 to January 10, 2025

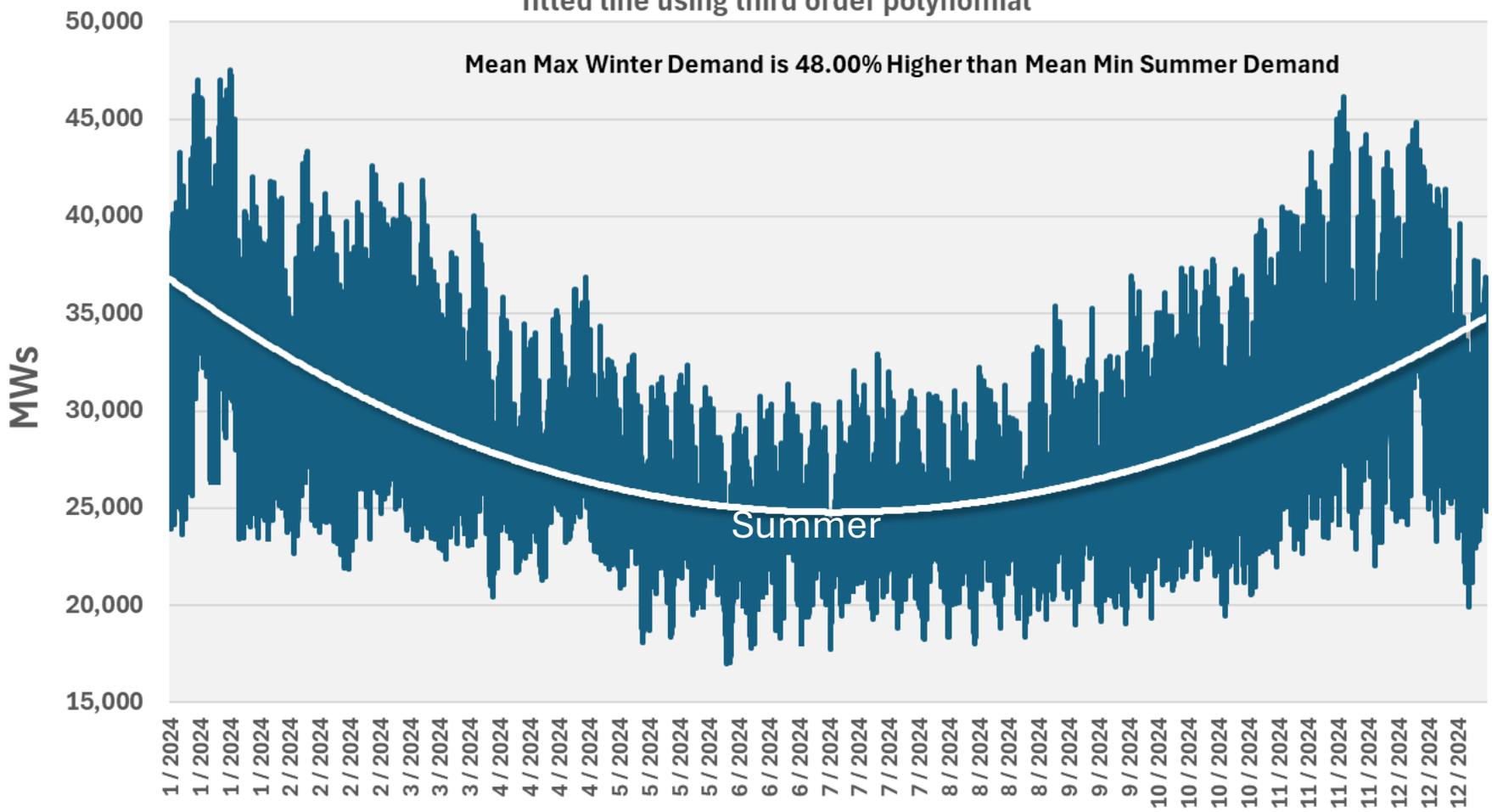


Source: Data fom GB Gridwatch, Analysis by FutureMetrics

In the winter months, solar is nearly nonexistent while demand for power is much higher than in the summer.

UK Electricity Demand in 2024

fitted line using third order polynomial



source: UK Gridwatch; Analysis by FutureMetrics

In summer months, the current CfD support scheme subsidizes pellet fueled generation even when the UK does not need it to meet its goals for decarbonization.

Big changes are coming

The UK “bridge policy” deal with Drax (announced in early November 2025), starts in April 2027.

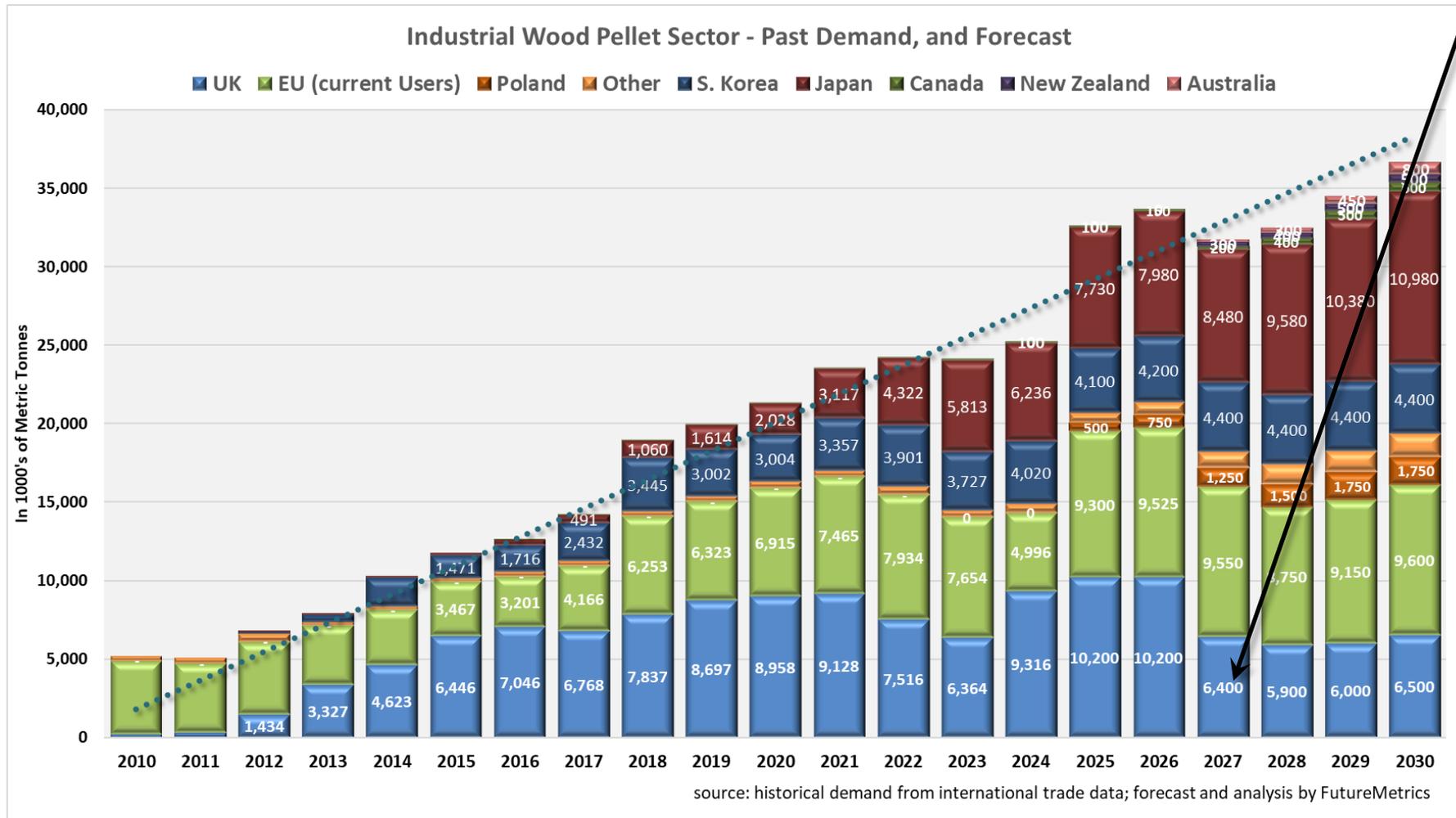
“Under the agreement DPS [Drax Power Station] will sell c.6TWh of power annually against a season ahead reference price (as per the current CfD scheme) and then seek to maximise generation from its four units at times of high demand and reduce generation at times of low demand, using the station’s flexibility to support UK energy security...”
(quote from Drax’s website [HERE](#))

It is expected that the “baseload market reference price” or BMRP is, and will continue to be, set separately for summer and winter.

This implies that winter generation under the policy will improve Drax’s revenue.

It is a compromise that satisfies ratepayers, taxpayers, policymakers, and Drax, and soon Lynemouth

Drax output this year will be around 14-16 terawatt-hours.
The *bridge policy* will limit policy support to a max of 6 TWh's.
Pellet fuel demand will be many millions of tonnes per year lower!

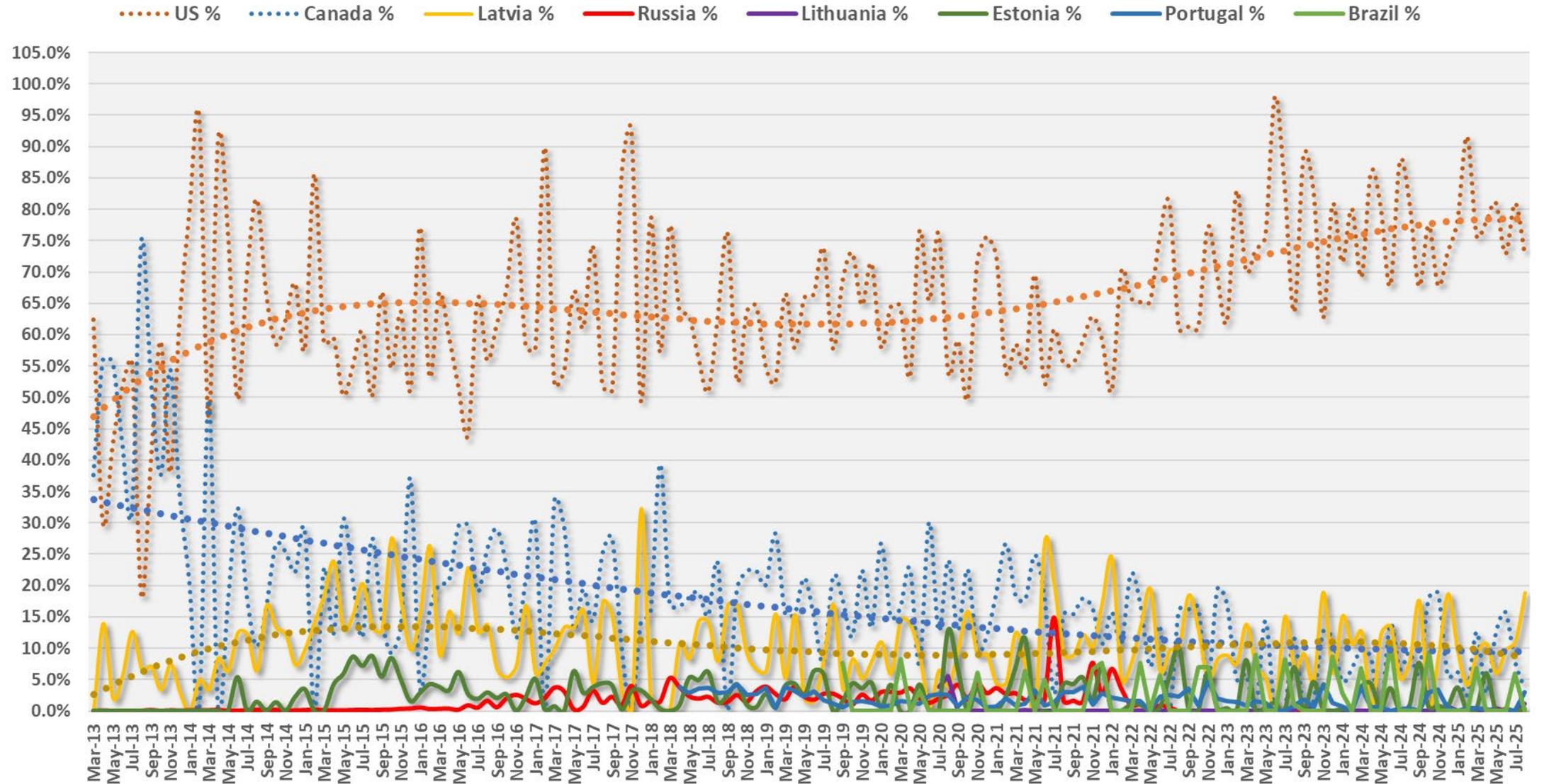


Note that if not for expected growth in Japanese demand, the stack would be even shorter in 2030.

→ Ask me later about the pellet inventory management challenges this will present.

The US Supplies 70% to 80% of the UK Pellet Imports

Market Share of Pellets Imported into the UK



source: International Trade Data, October 2025; Analysis by FutureMetrics

North American pellet exporters who are used to exporting pellets to the UK and western Europe will likely face a very challenging period beginning in spring 2027.

There will be significant overcapacity!

(What does that mean for prices? We can discuss later...)

Curtailments and closures of existing pellet factories in the US (and Canada) are likely!

Financial stress will be hard to avoid.

Don't jump out of a window yet!

Some good news on the next slides

Some Good News...

(but not a short-term fix)

The UK Bridge Policy is intended to keep the big stations viable with power sales support until they can get their BECCS projects into production.

That is expected in early 2030's.

Once BECCS is fully operational, Drax and Lynemouth will have every incentive to consume as many pellets as they can to maximize revenue from CO₂ sequestration.

**So, by perhaps 2033 or so,
UK demand will be fully rebounded
and may be higher than its current peak.**

The Looming Demand Shock is Temporary.

More good news...

There is a high likelihood for significant new demand from Poland.

See the recent FutureMetrics white paper free to download from <https://www.FutureMetrics.com/>

Example: A 650 MW coal fueled station in Poland that wants to meet the maximum CO₂ emissions limit of 550 tonnes per GWh in order to participate in the capacity markets **will need about 800,000 tonnes per year of pellet fuel** (a ratio of about 48% pellets and 52% coal).

There is also the New Brunswick Power conversion of their 450 MW PC station in Belledune to 100% pellets by 2030.

But, at least for now, they will not buy US pellet fuel!



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The Potential for Significant Pellet Fuel Demand in Poland

(plus, an update dashboard)
September 12, 2025

By William Strauss, PhD, President, FutureMetrics

There is justified angst over the likely significant drop in fuel pellet demand when the UK's so-called Bridge Policy kicks in after March 2027. FutureMetrics and other consultants expect a drop in UK demand of at least 4.0 million tonnes per year. Some estimates are for a drop of nearly 4.5 million tonnes per year. The Dutch market is also uncertain and demand for pellet fuel may fall there as well.

But there is a possible bright spot. The potential for increased demand for pellets replacing coal in power generation in Poland has been discussed for several years. It would appear that the time for serious consideration has come.

The pathway is via the capacity markets in Poland.

Capacity markets in the power sector are a support mechanism that provides payments to generators for being ready to supply power during periods when the grid is challenged by supply-side shortfalls or transmission problems. Poland's capacity market has been in place since 2018.

As of the most current auction, a total of about 20.4 GWs was contracted in Poland's capacity market. Current total contracted capacity is about 18 GWs. But future contracted capacity declines steadily into the 2030's to well below 10 GWs even as future demand for electricity is expected to increase¹.

The critical requirement for being qualified for Poland's capacity market is a limit on CO₂ emissions per MWh.

From July 1, 2025, only units emitting below 550 kg CO₂/MWh are eligible for state aid in the capacity markets. But Poland, on January 24, 2025, amended the Capacity Market Act to allow time for transition into the lower emissions level. High-emission units can continue to generate until end of 2028².

Coal plants have been absent from recent auctions, but cumulative awards from past Polish auctions have about 7.9 GWs of coal fueled generation through 2028 and just under 4 GWs from 2029 to 2035. However, coal units emit too much CO₂ per MWh to be allowed to participate in the capacity markets after 2028.

Coal fueled power generation units, depending on the type of coal and on their efficiency emit between 800 and 1,200 kg of CO₂ per MWh. Thus, all coal fueled units in Poland will be unavailable for the capacity markets after 2028. And no new coal plants can bid into current auctions.

¹ See [HERE](#).

² See [HERE](#).

And more good news

which is the basis of this session.

Today, Pete Madden and I are doing a session that includes the potential for some US coal fueled power stations to convert to pellet fuel to supply datacenters with baseload 24x7 electricity.

This solution can be deployed quickly and at modest cost to the power stations.

If action is soon, by 2027 pellet demand within the US could be many millions of tonnes per year.

FutureMetrics wrote a white paper recently highlighting the challenge for US electricity supply and proposing the solution discussed in this session.



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The Growing Mismatch between US Electricity Demand and US Electricity Supply

Plus, a strategy to relieve some of the pressure contributing to increasing power scarcity

By William Strauss, PhD
August 21, 2025

The US needs to significantly increase generation capacity; and it must happen quickly. This challenge is amplified by the aging baseload fleets of power plants. Hundreds of old coal-fired generating units representing over 110 gigawatts (GW) of capacity are scheduled to retire: most of them between now and 2030. Others will likely be scheduled to retire in the next decade. Their retirement will bring a welcome improvement to the CO₂ emissions per GWh of electricity produced in the US.

But the loss of capacity is contrasted with a potential 175 GW increase in demand over current (pre-retirement) capacity. After coal station retirements, even if there are no retirements in the aging nuclear or hydro generation fleets, a gap of nearly 300 GW's of needed capacity exists between today's output and expected demand 10 years from now. Deepening the challenge, as is shown in this white paper, is the fact that the US nuke fleet is old. Many nuclear power stations are beyond their original useful life estimates. Announced new natural gas fueled generation will help but the gap will remain large.



We are not sure how the US electricity supply will rise to the challenge.



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Thermal Treatment of Biomass

Solutions for Coal Substitution in Power Generation and Metallurgy

Carbon-beneficial coal replacement for power generation when white pellets are not optimal. Carbon-beneficial reductant for iron ore refining.

—
Overview of Torrefied/Pyrolyzed and Steam Treated Pellet Fuels

—
Cost analysis of selected technology providers normalized for energy output with sensitivity to changes in critical inputs

—
Case studies of projects and technologies to watch

—
The economics of using bio-coke in steel making

—
Using EFB as a feedstock

—
Analysis of a heretofore poorly recognized challenge - Outdoor storage pile runoff (high chemical oxygen demand)

November 2025

Instead of my traditional skiing photo to end the PPT,
today you get this!

Bill Strauss in full Maine mode.

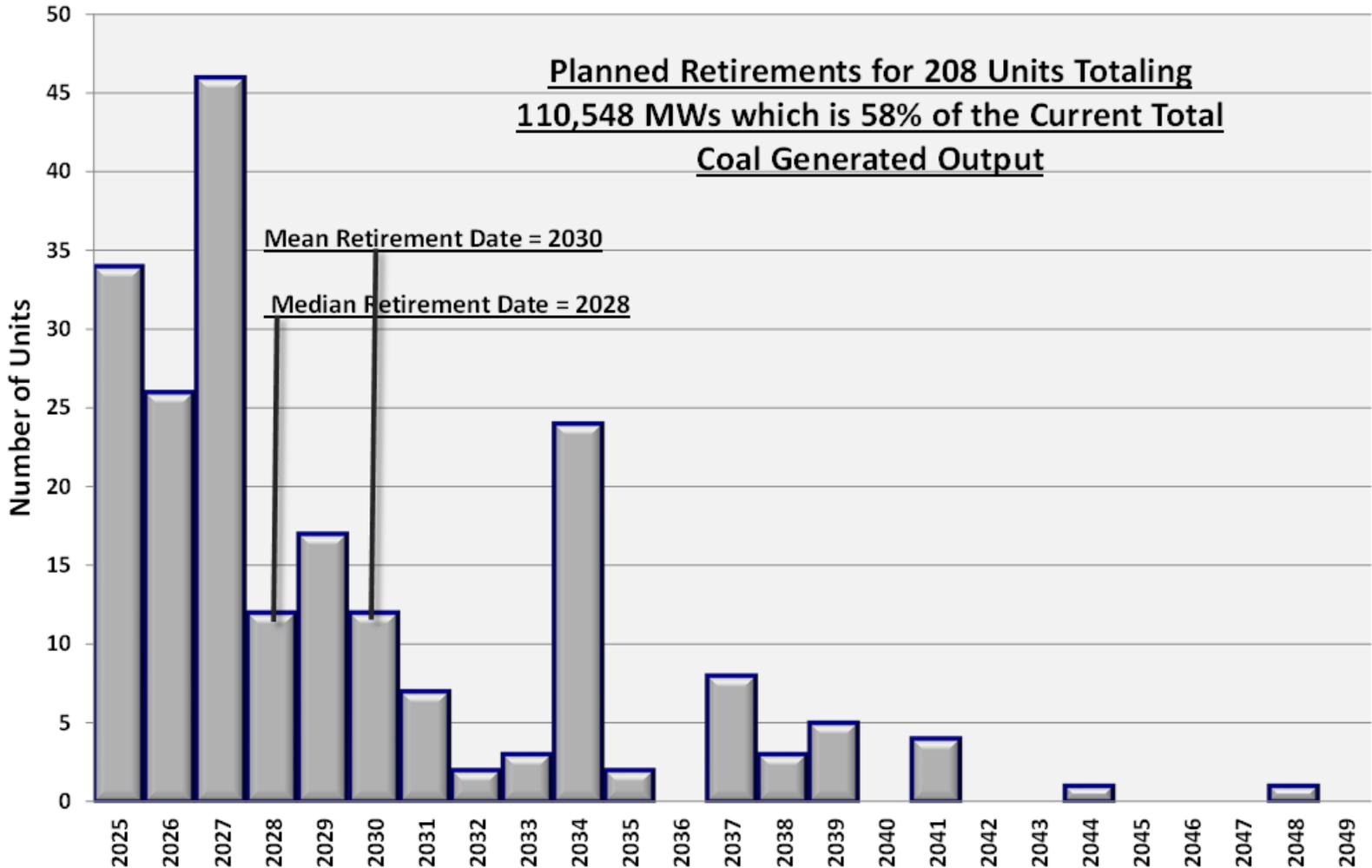
As some of you know, I live in Maine.

What you probably do not know is that we own a fully restored all original 1950 Dodge pickup...



Supplemental Slides

US Coal Power Units - Planned Retirement Year



source: Global Coal Plant Tracker, August 2025 Analysis by FutureMetrics

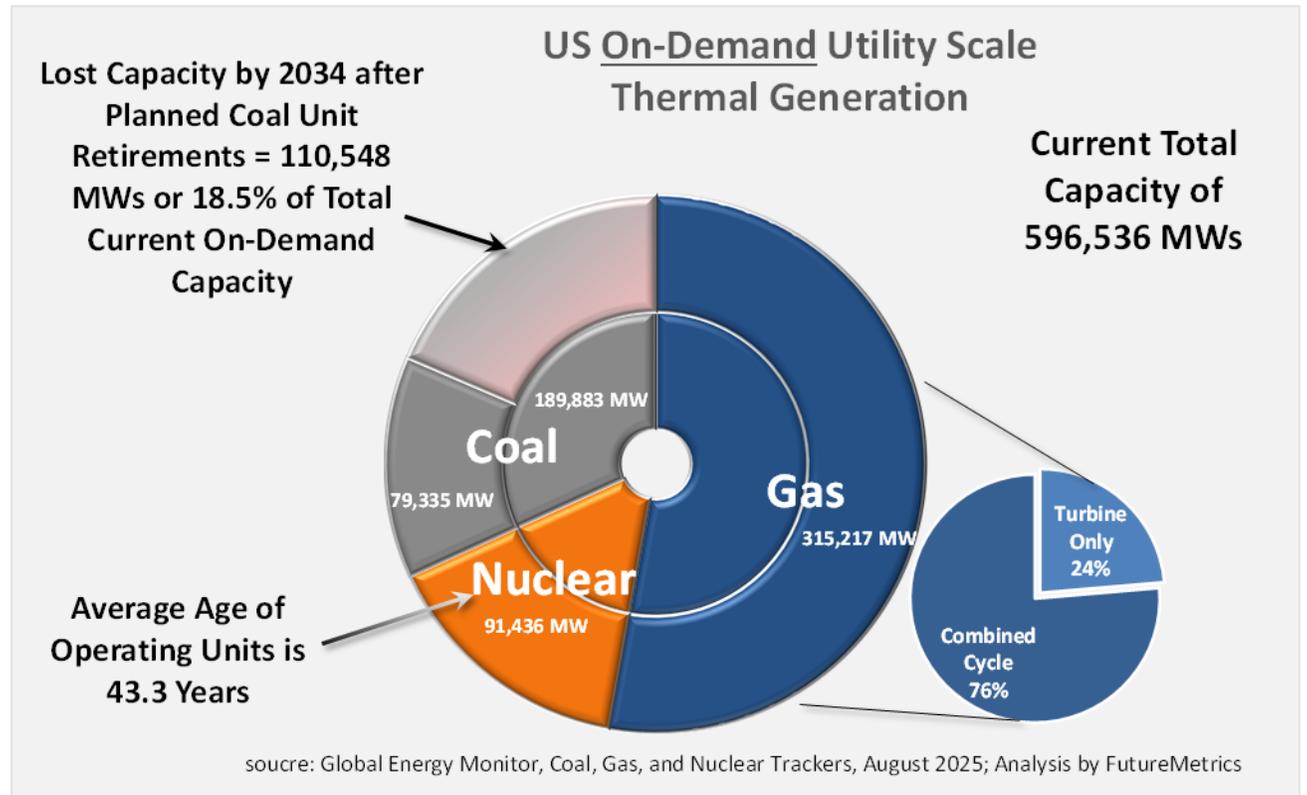
Scenario	Total 2035 Demand	Increase from 2025 Demand	Total Demand % Increase from 2025 to 2035	Data Centers & AI in 2035	Data Centers % of Total in 2035	Transport Electrification in 2035	Transport % of Total in 2035	Cooling and Heating in 2035	Heating and Cooling % of Total in 2035
Median	5,140	780	15.2%	450	8.8%	400	7.8%	75	1.5%
80th Percentile	6,200	1,840	29.7%	1,075	17.3%	700	11.3%	350	5.6%

Sources: BloombergNEF, NREL, USDOE, ACP; Apr 2025, Aug 2025, Aug 2025, Mar 2025; Analysis by FutureMetrics

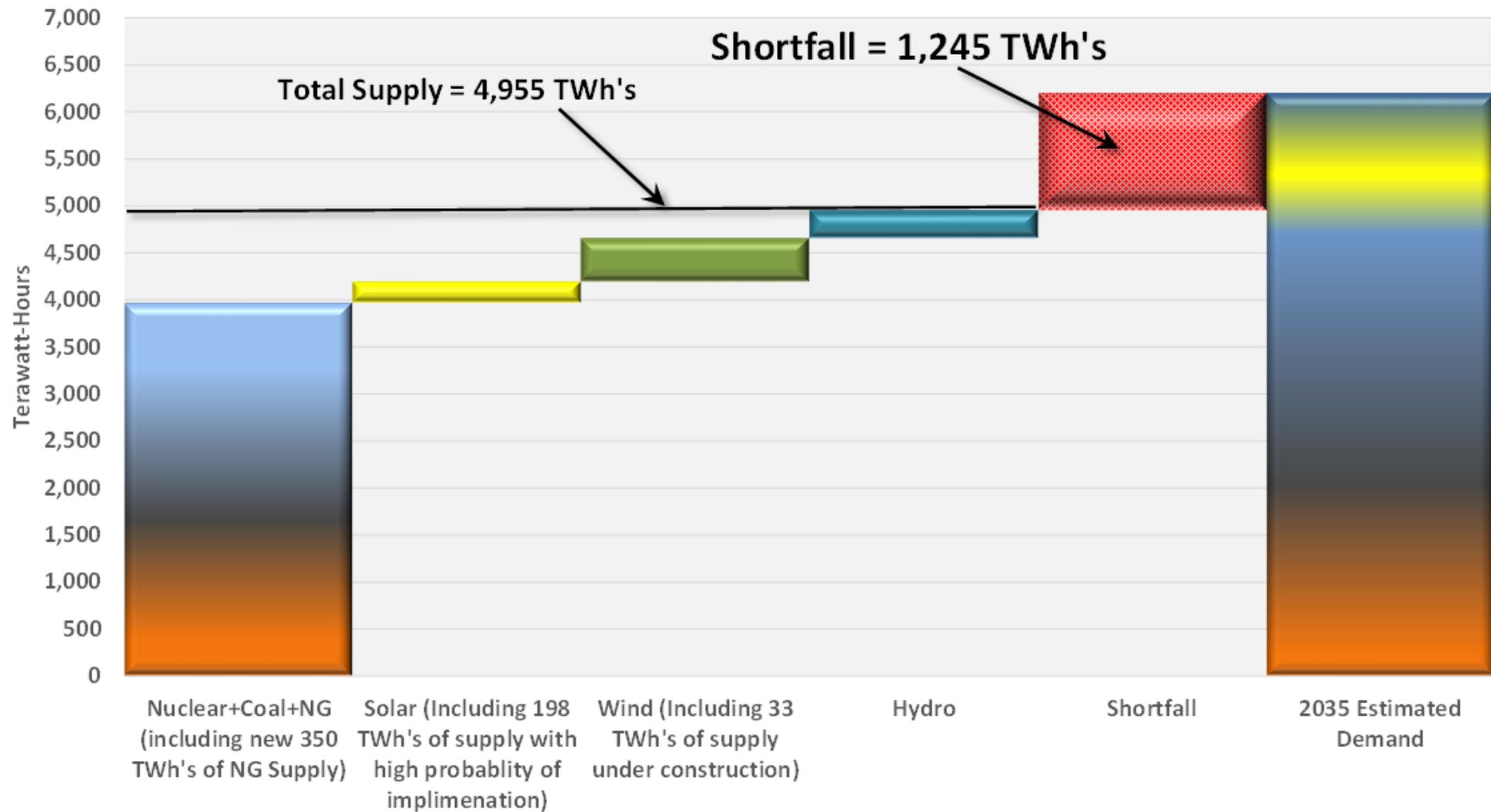
Rapidly increasing demand against serious shortfalls in supply.

	Capacity (MW's)	Average Capacity Factor	Effective Supply (MW's)	Supply in TWh's
On-Demand Thermal	485,988	85%	413,090	3,619
Solar	103,196	25%	25,799	226
Wind	151,429	34%	51,486	451
Hydro	91,812	37%	33,970	298
TOTAL	524,346		524,346	4,593

source: Global Wind and Solar Tracker; US EIA, US DOE, August 2025; Analysis by FutureMetrics

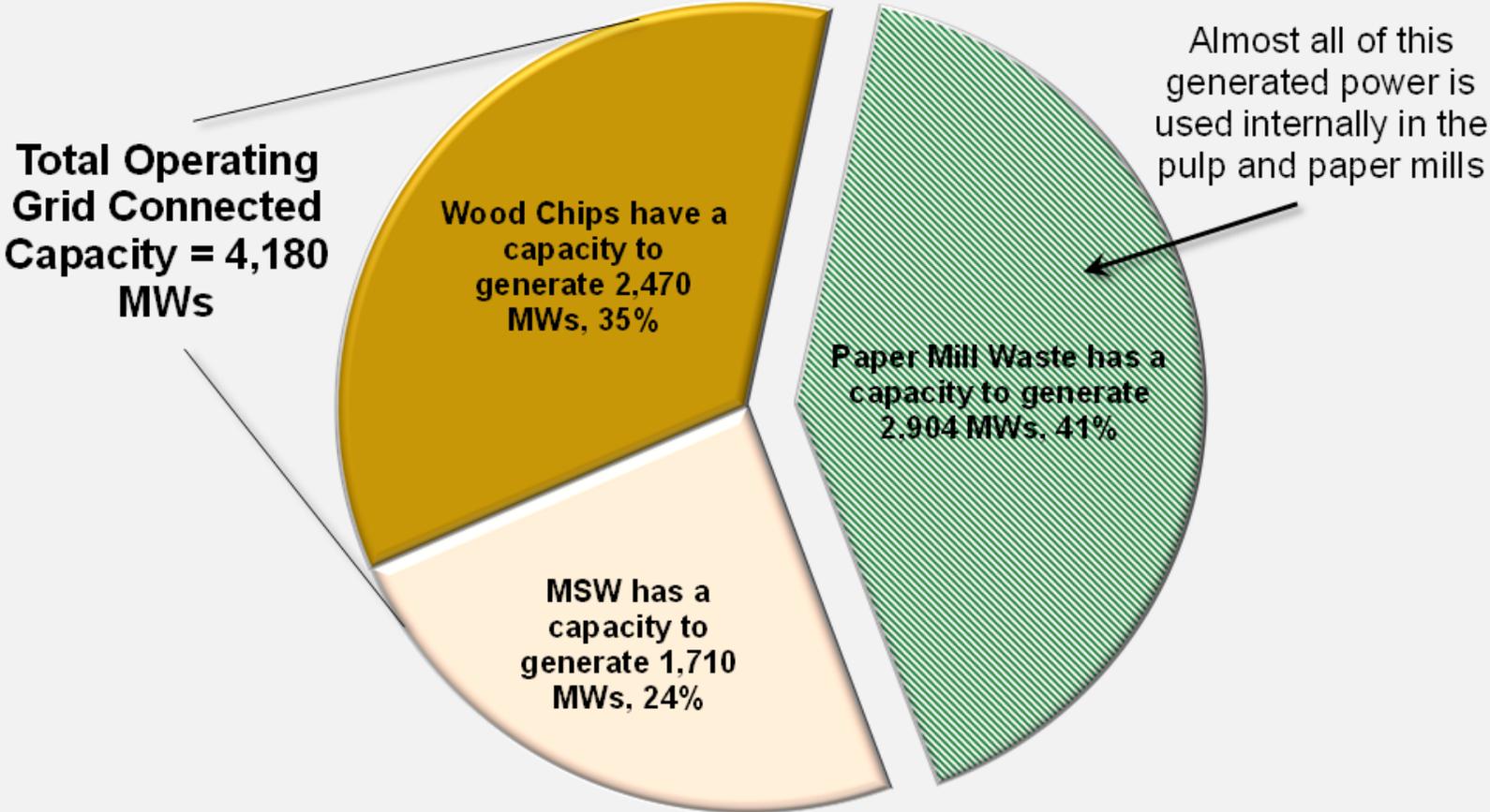


Supply of US Electricity in TWh's



source: from soucces cited in previsou charts and tables; Analysis by FutureMetrics

US Power Production from Biomass - MW's



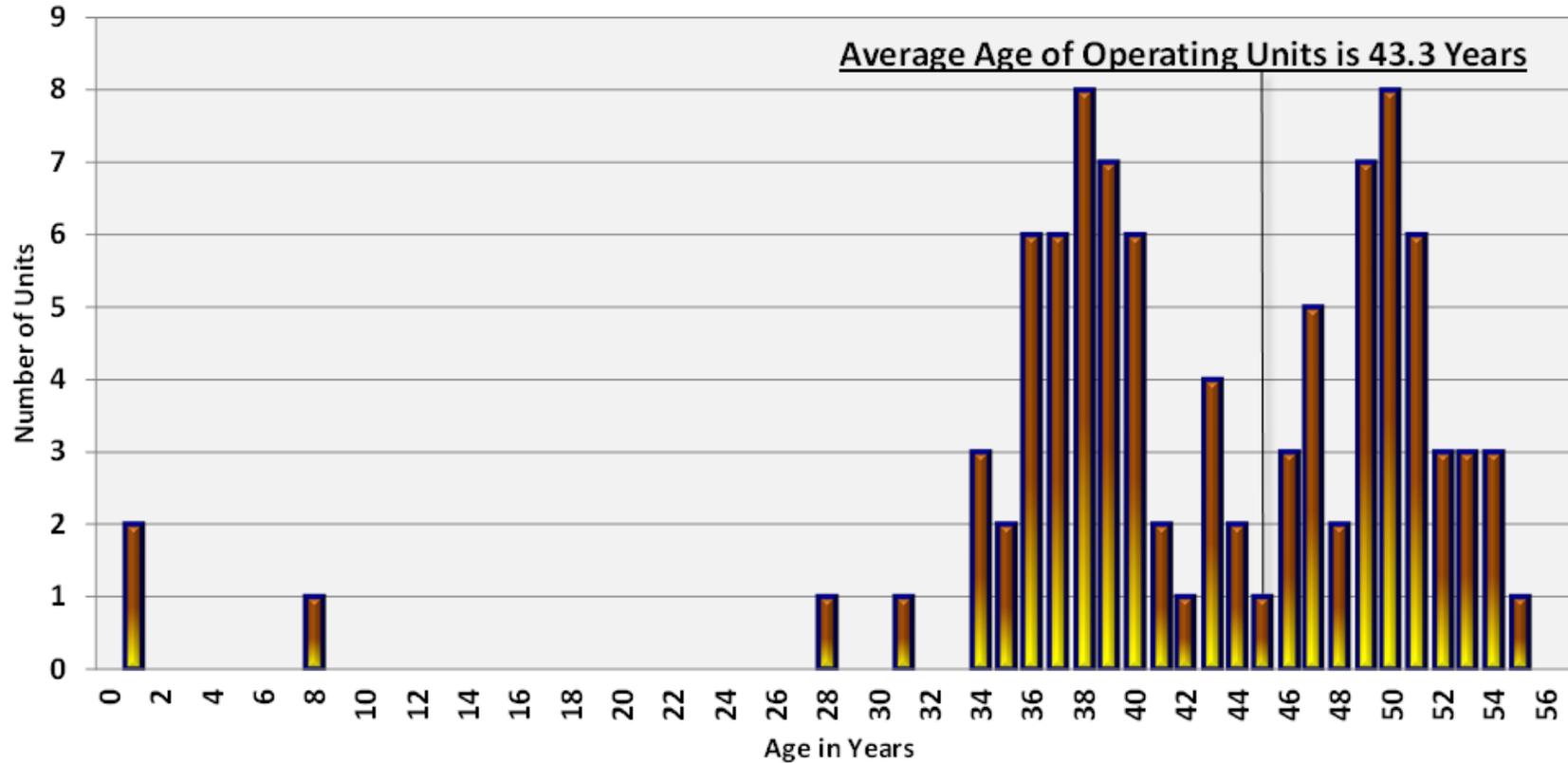
source: Global Bioenergy Power Tracker, September 2024 release; August 2025; Analysis by FutureMetrics

Selected States and Regions' Growth to Removal Status		
Geographic Area	Growth to Removal Ratio	Comments
Minnesota (private)	~3.67	Growth greatly exceeds removals
Minnesota (National Forest)	~3.48	Strong sustainability
U.S. North region	~2.4	Robust growth
Pacific Coast region	~2.0	Healthy growth
National average (U.S.)	~1.9	Balanced but growth-leading
South region	~1.8	Growth still exceeds removals
Minnesota (public/state lands)	~1.5–1.75	Moderate balance
South Dakota (statewide)	~0.35	Unsustainable (removals > growth)
Colorado, Utah, Wyoming	Negative net growth	Mortality exceeding growth

source: ChatGPT query

Age of US Operating Nuclear Power Stations

Total Output of Operating Units is 91,436 MWs



source: Global Nuclear Tracker, August 2025; Analysis by FutureMetrics