

Black Pellet Markets Will Grow Significantly

Presented at the Wood Pellet Association of Canada Conference

Presented by William Strauss, PhD – Founder and President of *FutureMetrics*

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Why all this matters...

CO₂ Emissions → Climate Change

and

A future of energy scarcity if we do not figure out how to supply energy for heat, transportation, and power without using a depleting resource.

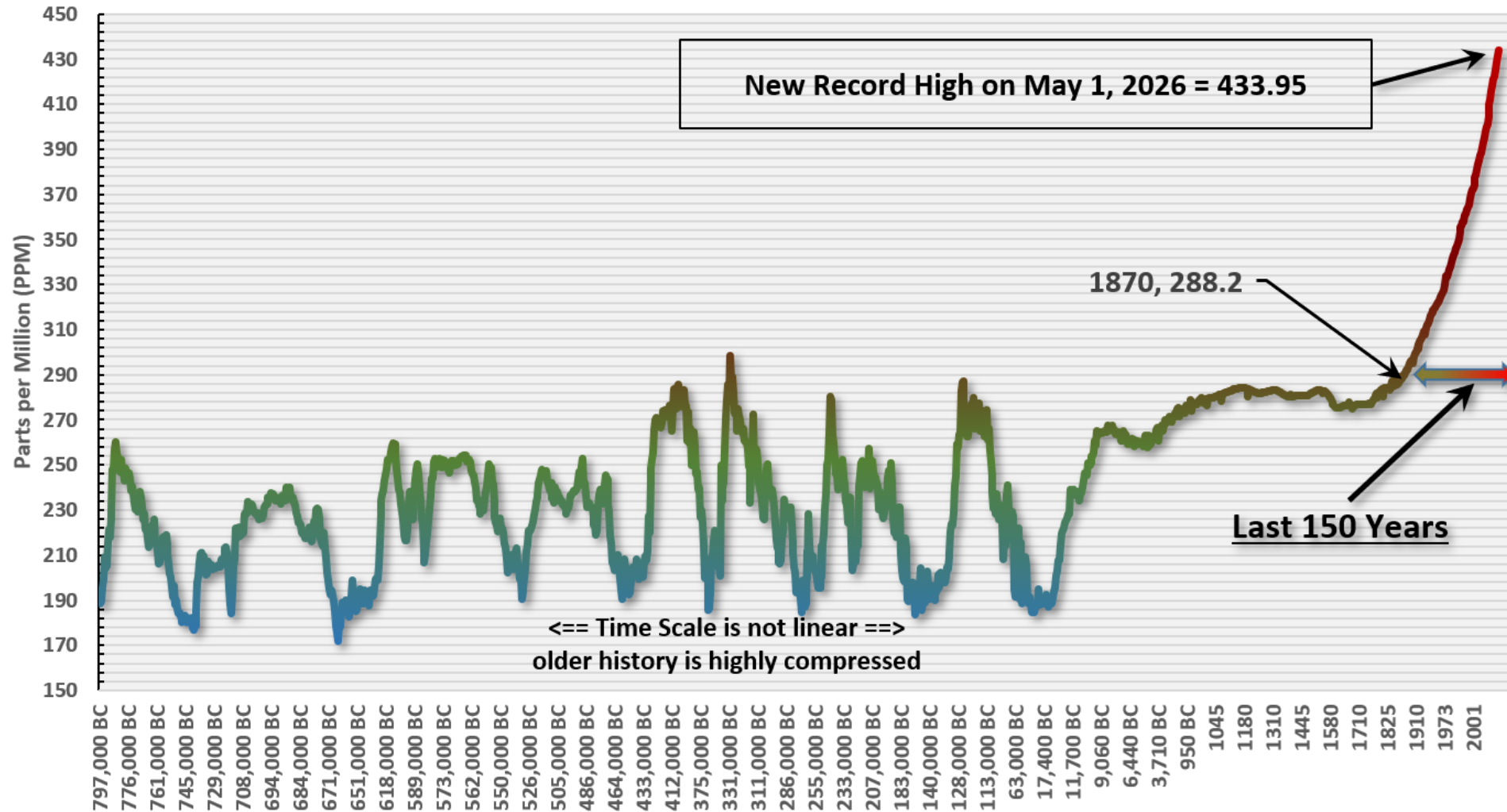
We are not “decarbonizing”

Carbon is essential

We are replacing depleting non-renewing geologic carbon with perpetually renewing biologic carbon.

We are “defossilizing”!

Atmospheric CO₂ Concentration - 800,000 year history

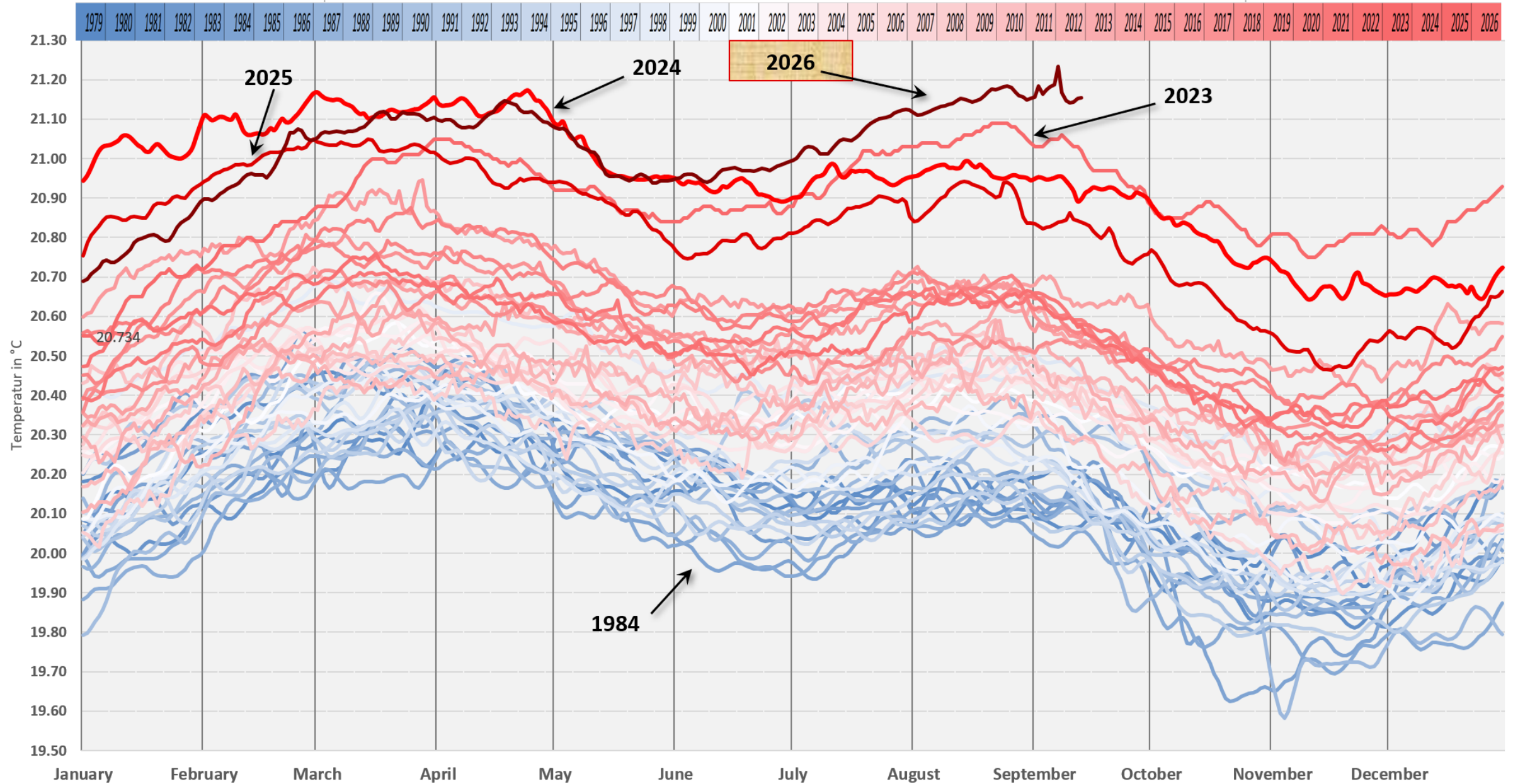


Millions of years of carbon sequestration trapped in geologic formations is being released in just a few hundred years...

Source: EPA's Climate Change Indicators in the United States: www.epa.gov/climate-indicators; NOAA for recent data; June 2026, analysis by FutureMetrics

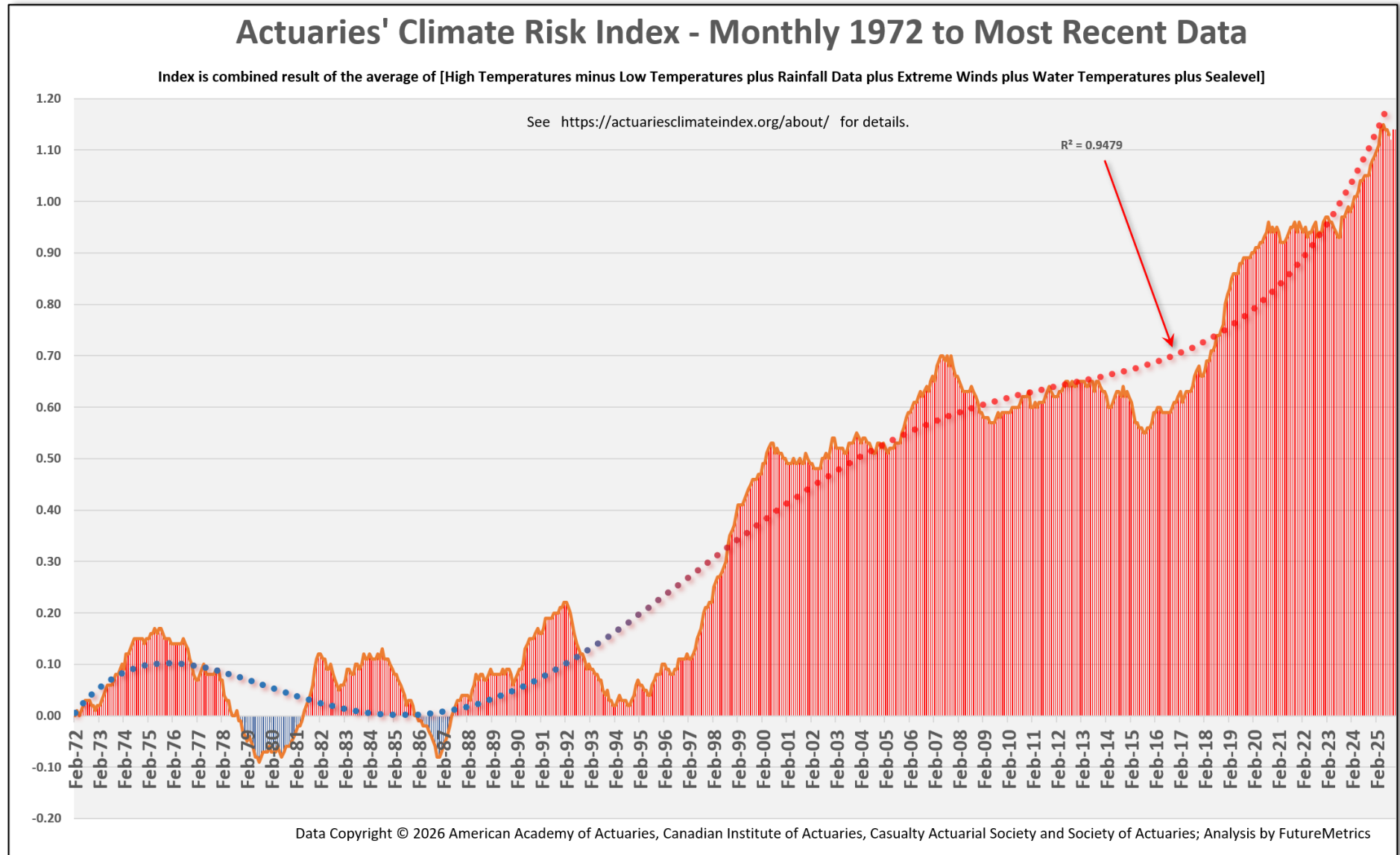
Daily global sea surface temperature; 60°S–60°N

Legend of Line Colors from 1979 (left) to Present (right)



The “100-Year Flood” or “100-year fire” is no longer a statement about frequency.

It is a statement about magnitude.



Why “Black” Pellets can be an Optimal Choice?

- Traditional use as fuel pellets when capacity factors at newly converted power stations are low.

Supplying Energy

- Emerging use as feedstock for sustainable liquid fuels.

Supplying Carbon

- Emerging use as a reductant in iron or refining and scrap steel recycling.

Supplying Carbon

New Brunswick Power

NB Power's strategy for buffering continuous supply against large demand for only a few months per year is to store hundreds of thousands of tonnes of water-resistant pellet fuel ("black pellets") in its existing coal yard.



Sustainable Aviation Fuel (SAF)

SAF demand will grow from the current ~2-3 million metric tonnes per year to ~40 million tonnes per year in 2035 and, if net zero is to be reached for air travel by 2050, more than 300 million tonnes per year*.



Currently most SAF comes from used animal fats, used cooking oil, and waste with high lipids content.

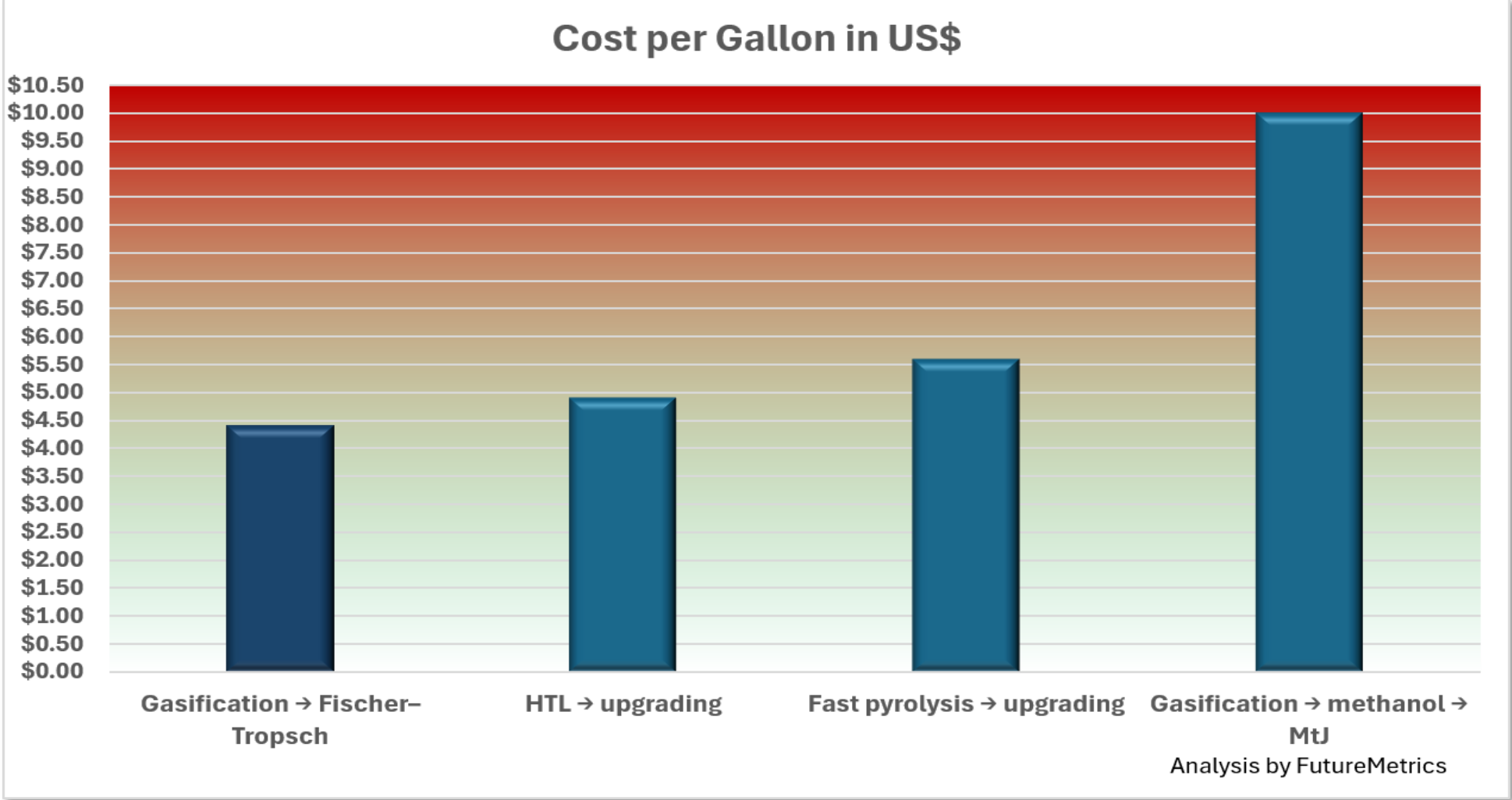


But those feedstocks are limited and cannot come close to satisfying the expected long-term demand.



The future supply of SAF will depend on biomass (biogenic carbon).

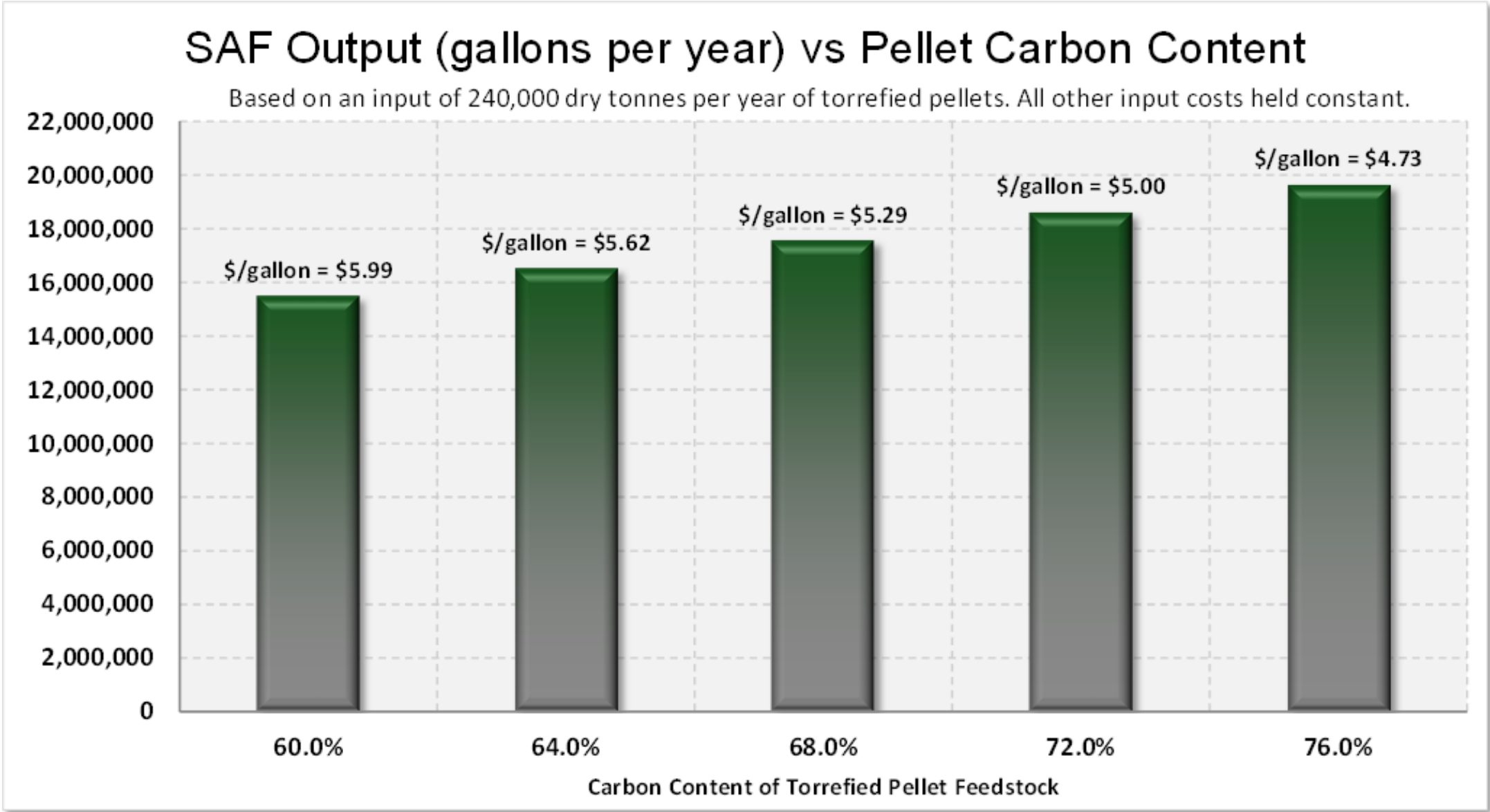
The Lowest Cost Pathway is via the Use of the Fischer-Tropsch Process with Biomass Derived Carbon (torrefaction/carbonization)



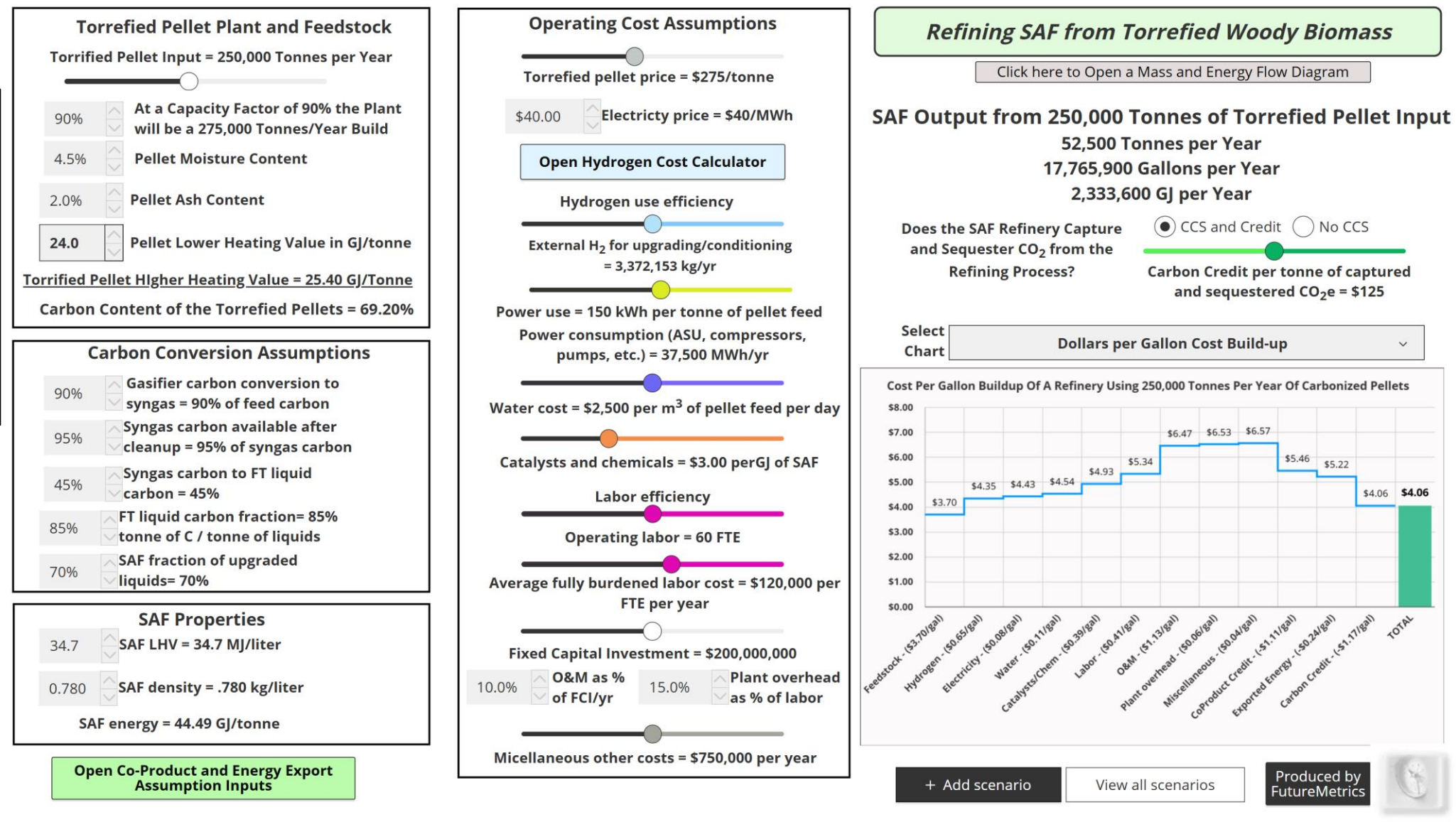
Indicative unsubsidized mature-process values, before LCFS/45Z-type incentives or carbon-removal credits.

source: model developed with ChatGPT by FutureMetrics

As Carbon Content in the Feedstock Increases, Output Increases and Costs Decrease



This dashboard shows the cost of producing SAF from torrefied pellet feedstock using the Fischer-Tropsch synthesis.



Dashboard link
[HERE](#)

Sustainable Marine Fuel (SMF)

The International Maritime Organization (IMO) strategy calls for zero/near-zero fuels to represent 5–10% of international shipping energy by 2030, and 70% by 2040.

Year	Sustainable marine fuel demand (millions of tonnes <u>per year</u>)	Share of marine fuel energy	
2030	15–25	~5–10%	Early transition
2035	50–90	~20–35%	Rapid scaling
2040	120–180	~45–70%	Sustainable fuels become mainstream

DNV's latest fleet analysis* shows that the physical capability to consume sustainable fuel is developing faster than fuel supply!

This is a market waiting for supply!

*[HERE](#)

The forest products industry will be a key contributor to the feedstock needed by SMF and SAF refiners.

They need carbon.

Torrefaction/carbonization upgrades green woody biomass to the high carbon content needed by the SMF and SAF refiners.

Existing pellet producers already know how to aggregate a diverse set of inputs to create a homogenous output.

Liquid fuels refiners just want the right stuff delivered to their gate.

Iron Ore Refining and Steel Recycling

Converting iron ore into pig iron (later upgraded to steel) in a blast furnace requires a lot of carbon.

Removing iron oxide (rust) from recycled steel in an electric arc furnace requires carbon.

Traditionally that carbon is supplied by coked coal. Coking is like torrefaction in that the coal is heated in an oxygen starved oven to drive off volatiles and leave behind the carbon that is used in the refining process.

Typical chemistry is: $\text{Fe}_2\text{O}_3 + 3\text{C} \rightarrow 2\text{Fe} + 3\text{CO}_2$

No need to be chemistry nurds... But notice that lots of CO_2 is emitted!

Pellet fuel markets are evolving and will continue to evolve.

But it is likely that the markets for white pellets for power generation will diminish over the next decades as existing and newly converted coal stations become more aligned with seasonal power demand (just like NB Power's Belledune station) or other flexible generation profiles.

This presentation has shown several potential pathways that can leverage existing pellet production assets into essential components of defossilization strategies.

The pathways require “black” pellets.

So what is the status of black pellet technologies?

**Can a black pellet business model be built
without technology risk?**

The short answer is “YES”

For certain technological solutions,
technology risk is no longer a concern.

But be careful.

There are still some less than credible developers offering thermal treatment solutions that may join the long history of failures.

[unreliable, inconsistent, unsafe, uneconomical...]

FutureMetrics is well-qualified to help you see if promises can be kept!

Thank you!

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FutureMetrics LLC™



Bill Strauss enjoying some BC deep pow...