

**Before the Public Service Commission of Wisconsin****Roadmap to Zero Carbon Investigation**

Docket No. 5-EI-158

THIRD MEMORANDUM OF ROBERT H. OWEN, JR.

IN SUPPORT OF MOTION TO EXPAND PARTIES AND ISSUES

Recent developments in San Francisco and other cities and in the Minnesota Legislature again emphasize the importance of expanding the issues and parties in this proceeding to include gas utility decarbonization. Exciting new long-duration battery storage technology has just been disclosed. The U.N. issued a “code red” warning on climate today. Meanwhile, record heat has affected the Pacific Northwest, and deadly wildfire smoke has become a persistent presence in our state as the exceptional Western Drought continues.

**I. San Francisco and Other City Gas Bans**

Starting July 1 (for building permits applied for on and after that date), San Francisco has banned natural gas fuel for new homes and commercial buildings. These are new buildings that will be designed and built all electric and will not need expensive retrofits when fossil natural gas is no longer available or affordable. This is a smart decision by San Francisco County Supervisors, who were unanimous in enacting it last November. The sponsor of the measure, Supervisor Rafael Mandelman, said on Twitter at the time:

Natural gas is the second largest source of greenhouse gas emissions in San Francisco . . . All-electric construction of new buildings is a critical step toward a safer, healthier San Francisco and planet for future generations.

Amen! Dozens of other California cities have enacted gas bans too.

Denver is revising its building code and seeking to severely limit natural gas use, espec-

lally for heating, and to a lesser degree for cooking. The expectation is that there will be a considerable reduction in natural gas use and infrastructure additions going forward from 2024.

Seattle is also seeking to limit natural gas use within its more limited home rule authority. It is banning natural gas for space heating in new commercial buildings.

Cities around the country are beginning to take action to rein in natural gas use. So far, however, our state appears more intent on reining in common sense and home rule.

## **II. MN Senate Action on Gas Utility Decarbonization**

The Minnesota Senate passed S.F. 421, the Natural Gas Innovation Act (NGIA), 53-14 on May 6, 2021, with strong bipartisan support. The bill was authored by Bill Weber (R-Luverne). It encourages use of renewable natural gas (RNG) and of hydrogen made from renewable energy in lieu of fossil natural gas. It would create a new framework for the Minnesota PUC to evaluate renewable and end-user carbon-capture projects that help decarbonize the natural gas system.

Sen. Weber remarked on the job-creation potential of making clean energy in Minnesota. He represents SW Minnesota, an agricultural region with large wind farms. Making RNG and making hydrogen from temporary surplus wind energy would create jobs in SW Minnesota.

Making more biomethane, RNG, and renewable hydrogen and ammonia would create rural jobs in Wisconsin too.

A major Minnesota gas distribution utility, Centerpoint Energy, supported the NGIA. In contrast to some Wisconsin gas distributors, Centerpoint sees a role for utilities in providing a market for increased local production of RNG and hydrogen. Centerpoint is also touting

potential decarbonization of end use combustion of natural gas by capture of carbon post combustion in the form of carbonate powders.

What Centerpoint is NOT doing is maintaining that it will be able to sell fossil natural gas indefinitely to customers who will discharge the fossil carbon to the atmosphere in the form of CO<sub>2</sub>.

### **III. New Battery Technology Would Reduce Peaker Use**

While the commission has been prodigiously pondering submissions in this proceeding, a potentially game-changing battery technology has been announced. Iron-air batteries have a claimed long-term cost of less than \$20 per kWh and a storage duration of over 100 hours. Both claims are revolutionary compared to lithium-ion batteries, used in most utility-scale energy storage facilities now being installed. These claim only 4-8 hours of storage typically, inadequate to get us through a typical rainy day on a solar-powered grid.

Whether we are talking solar or wind energy or a combination of both, if we rely on lithium-ion batteries in our climate, we are going to need a lot of fueled generation to back up our solar and wind resources. Utilities mostly see that back up generation as natural gas combined cycle power plants burning natural gas or natural gas supplemented by some green hydrogen. But with 100-hour storage batteries on the grid, we will need to operate NGCC plants far fewer hours, greatly reducing the need for gas supply—and permitting us to use limited amounts of RNG and green hydrogen to fully displace natural gas in peaking power plants on those rare occasions when we do need to operate NGCC generation.

In other words, this new battery technology could be a valuable tool in getting our clean energy grid off fossil natural gas in the next decade or so.

The new battery technology from Form Energy is to be demonstrated at Great River Energy's Cambridge, Minnesota, gas-fired peaking plant. Form Energy is slated to install a 1 MW iron-air battery there in late 2023, with larger-scale batteries planned thereafter.

[www.energy-storage.news/long-duration-storage-mystery-revealed-form-energy-discloses-details-of-multi-day-battery-tech](http://www.energy-storage.news/long-duration-storage-mystery-revealed-form-energy-discloses-details-of-multi-day-battery-tech)

#### **IV. While Time Passes and Technology Advances, Alarming Climate Change is Happening**

This summer, the Pacific Northwest has been cooking in extraordinary heat. On June 27, Seattle had an all-time-record high of 104. On June 28, it smashed that record and soared to 108. On June 27, Portland reached an-time-record high of 112, smashing the previous record of 108. On June 28, Portland soared to 116. A town in British Columbia hit 120, setting the Canadian record. Widespread exceptional drought in the West contributed to these extraordinary temperatures. The drought and intensity of the heat wave are manifestations of climate change.

So are the persistent episodes of red sunrises and sunsets and haze, accompanied by elevated levels of fine particulate air pollution, here this summer. These effects are created by distant wildfires in Canada and the drought-stricken West. They are killing Wisconsinites.

Climate change is driven by both CO<sub>2</sub> and CH<sub>4</sub>, and the latter is much more important than most realize. Methane leaks and is vented from fracking wells, especially. Methane emissions to the atmosphere have increased substantially as fracking has accelerated in N. America.

[www.desmog.com/2019/12/22/methane-leaks-venting-blowouts-fracking-climate-change](http://www.desmog.com/2019/12/22/methane-leaks-venting-blowouts-fracking-climate-change). A

NASA study linked methane emissions to the oil and gas industry and fracking.

[www.desmog.com/2018/01/16/nasa-study-solves-climate-mystery-confirms-methane-spike-from-oil-gas](http://www.desmog.com/2018/01/16/nasa-study-solves-climate-mystery-confirms-methane-spike-from-oil-gas).

The oil-and-gas industry advertises constantly on TV telling us how "clean" its gas products

is or will be. This is simply another form of deadly haze. Natural gas is not “clean.” Producing and consuming natural gas fuel both produce greenhouse-gas emissions.

The industry also advertises its “cleanliness” and touts natural gas as a “bridge” fuel on Facebook. The “bridge” it offers would take us much too far over the climate cliff. But gas companies still distribute their propaganda. In 2020, they inundated Facebook with advertising responding to Joe Biden’s climate plan, potentially reaching 200,000,000: “Oil and Gas Industry Inundated Facebook with Election Season Ads after Biden Released Climate Plan,” [www.desmog.com/2021/08/05/oil-gas-facebook-election-ads-biden-climate](http://www.desmog.com/2021/08/05/oil-gas-facebook-election-ads-biden-climate).

Earlier today, the U.N. Intergovernmental Panel on Climate Change issued its Sixth Report, stating that global warming is close to being out of control and that human greenhouse gas emissions are to blame.

[www.reuters.com/business/environment/un-sounds-clarion-call-over-irreversible-climate-impacts-by-humans-2021-08-09](http://www.reuters.com/business/environment/un-sounds-clarion-call-over-irreversible-climate-impacts-by-humans-2021-08-09).

U.N. Secretary-General Antonio Guterres described the report as “a code red for humanity.”

Reuters, “Reactions to landmark U.N. climate science report,”

[reuters.com/business/environment/reactions-landmark-un-climate-science-report-2021-08-09](http://reuters.com/business/environment/reactions-landmark-un-climate-science-report-2021-08-09).

Climate change waits for no one, and it is already doing serious damage. That is why this proceeding is so important and deserving of the urgent attention of the PSC. “Code red” should mean an end to the summer hiatus in this proceeding. If the PSC or its staff is unwilling or unable to address this docket in timely fashion, the disabled members should “get out of the kitchen” (resign) in favor of persons willing and able to discharge their responsibilities under the Wisconsin Energy Priorities Law and address urgent climate action. Our descendants’ futures depend on it.

It is time for the parties to this proceeding and the commission to come together and

address it with the urgency and comprehensiveness the “code red” climate situation demands.

In contrast to the do-nothing fictional gas utility executives in the attached musical footnote,<sup>1</sup> we need the participants in this proceeding to come together now to plan a roadmap for a cleaner gas as well as electric future in Wisconsin.

### **Conclusion**

Maintaining fossil natural gas as a prospective fuel 20-30 years from now is an impossible dream achievable only if climate change is allowed to run rampant. We are not going to be heating our water or buildings, running our industrial processes, operating our natural gas combined-cycle power plants or making nitrogen fertilizer with fossil natural gas in 2050. If we are in some rare cases, we are going to be capturing CO<sub>2</sub> post combustion. We will use electric heat pumps, RNG, renewable hydrogen and ammonia, and sustainable biofuels. We need to face reality and plan now to make the transition swiftly in a sensible, cost-effective, planned manner.

It is time to start throttling down the natural gas supply valves in Wisconsin. Please include the gas utilities and the gas issues in this proceeding as part of an integrated planning process with the electric utilities to plot a true course to rapid decarbonization. Tell the utilities the time for foot dragging is over. Fossil gas must go, starting right now. If the utilities won't let go of fossil gas, the gas utilities themselves must go. “Code red” leaves no other option.

- Respectfully submitted in the hope of a less-fevered planet this 9th day of August, 2021.

/s/Robert H. Owen, Jr.  
Robert H. Owen, Jr.

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<sup>1</sup> This footnote entails wholesale changes in lyrics to the familiar tune “The Impossible Dream.” App. A

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## Appendix A

### The Impossible Dream (Natural Gas Ostrich Version)

To dream the impossible dream,  
To ignore indisputable science,  
To buy the last politician,  
To dodge the implacable foe.

To repose in endless denial  
While our old business model fails.  
To maintain the myth "clean transition"  
When the real end state is Hell.

This is our quest,  
To keep pushing Hell  
No matter the doubters;  
Our profits are swell.

To fight for the right  
Without hes-i-ta-tion  
To keep acting to make  
Hell on Earth happen.

And we know if we'll only be true  
To our gluttonous quest,  
That our wealth will be vested  
When we're laid to rest, dead.

And the world will be hotter for this,  
That gas execs, smarting from the heat,  
Still strive with our last ounce of craving  
To create really hellish heat  
And maintain our "clean fuel" saying.