

March 6, 2023

Charlotte A. Mitchell, Chair
NC Utilities Commission
430 North Salisbury Street
Dobbs Building
5th Floor
Raleigh, NC 27603

Subject: Stationary Fuel Cells and Docket No. E-2 Sub 1300

Dear Ms. Mitchell,

Seeing Duke Energy (aka DEP) ask for a rate increase after observing their description of the technical reality of Stationary Fuel Cells (SFCs) for about 20 years now has been appalling. Mainly because public good bodies just like NCUC and the Governor's Office under various administrations just go with the flow.

Whether it is HR 951 and the resultant Duke Energy Carbon Plan and the ambiguous NCUC response; or the governor's *Deep Decarbonization Pathways Analysis*, **we are not firing on all cylinders...** to use a fossil fuel era metaphor.

The most recent DEP / DEC Integrated Resources Plan (IRP) mentions SFCs. That description has changed a bit from their first mention of SFC years ago; but is basically the same message as always: SFC are niche and not a mature technology.

Then why does Duke Energy use SFCs at 37 MW scale in other states?

Duke Energy to offer Bloom Energy distributed fuel cell technology to customers

<https://news.duke-energy.com/releases/duke-energy-to-offer-bloom-energy-distributed-fuel-cell-technology-to-customers>

Along with Bloom Energy, FuelCell Energy is an amazing success story in American innovation. Because the State of North Carolina has been trapped in a Duke Energy / Sierra Club 'Hydrogen Hatred and Ignorance Infodynamics Vortex' for years and years, when the Biden Hydrogen Hub initiative popped up no one in North Carolina – I guess besides myself – can evaluate the terrain.

Burning hydrogen in centralized Combined Cycle Natural Gas (CCNG) plants rebranded as using 'Green Hydrogen' is folly. Using what electrolyzers that can be produced in the next decade to waste H₂ that way is negligent.

Burning H₂ in CCNG plants with turbines modified for more or pure H₂ compared to a vastly more efficient distributed energy modeling – where an Regional Transmission Organization (RTO) that allows for more municipal power options is Plan A – is something Duke Energy does not want the people of North Carolina to see. SFCs are one of the only high diffusion available mature decarbonization technologies that also checks off the all-weather day or night 24/7/365 baseload power box. SFCs and this new NC Decarbonization Plan A where a consumer benefit, resilience, sustainability, and innovation oriented RTO; distributed energy; high efficiency; and Smart Grid come in for a multi domain Big Idea that wins the future. The Duke Energy Business-as-Usual Model... where critical information as to where SFCs fit into the big picture are consistently obstructed at the cost of public good in North Carolina... had its day.

It's all in the past... as long as responsible bodies like NCUC pick the required, ethical, genius future on E-2 Sub 1300 and then on every subsequent strategic choice from here on.

It's also tragic that there is little to no solid DOE or other studies on SFCs... even in states like California and New England states where SFCs have been installed at some scale.

Had State of North Carolina assessed SFCs properly prior the construction of the Lake Julian CCNG plant it could have been possible to install 50 MW or more of SFCs across WNC working alongside the kind of battery microgrid DEP in fact commissioned recently in Hot Springs. Of course, high efficiency measures are needed.

The Apple data center in Maiden, NC uses SFCs with a solar farm. I believe some biogas was injected into the SFCs there. I don't know if that's a constant.

Yes, Green Hydrogen can be injected into SFCs... *with vastly greater efficiency than 'burning H₂' in a CCNG plant.* It's disturbing for organizations like the Sierra Club that SFCs can use natural gas.

The question for everyone is: What is more of a decarbonization step where reliability is very strong too.

A) Disinformation mixed with disappointing reality where renewables are described as too variable alone and rapid mass battery production turns out to come up short.

B) Or, the above new Plan A model that Duke Energy is actually a player in rolling out over recent years – once everyone takes off their blinders – where SFCs are surfaced finally as being a perfectly legitimate decarbonization technology that supports all-weather day or night

reliability as well. **With no debate on that SFC Plan A** when logic and evidence-based innovation management is employed.

Using way, way less natural gas on a MW-MW comparison with more CCNG plants even if SFCs are going to use natural gas for several more years is decarbonization.

50 MW of SFCs distributed here in WNC in smaller and larger configurations – including high efficiency Combined Heat and Power SFC systems – still needs to be modeled as a ‘Red Team’ study to demonstrate What Might Have Been... and thus Governor Copper’s Deep Decarbonization Pathways Analysis can have a chance at finally laying out a fresh High Magnitude Truth for all parties with that study as an addendum volume.

By the way, StratGen.org is in development. I look forward to launching StratGen in a few more weeks.



Grant Millin, Strategy Innovator and CEO
StratGen