Lesson Learned From Hurricane Ian—Let's Embrace Nuclear

Microreactors can consistently produce clean, carbon-free energy with only a fraction of the critical minerals required by other energy sources like wind and solar.

OPINION

DECEMBER 5, 2022

By Rep. Byron Donalds

On September 28th, 2022, life in Florida's 19th District changed forever. After rapidly intensifying over the warm waters of the Gulf of Mexico, the infamous eye of Hurricane Ian approached Florida's shoreline.

The **historic** hurricane produced dangerous 155 mph winds, a devastating storm surge, and catastrophic widespread damage as the unforgettable storm pummeled Southwest Florida. Simply put, residents of SWFL will never forget Hurricane Ian.

But while I share my constituents' disheartening sentiment of desolation and as our community continues the post-hurricane rebuilding process, looking back, I wholeheartedly believe that utilizing **nuclear energy**—specifically advanced nuclear microreactors—could have made a positive difference for Florida's 19th District in many ways.

To begin, what is a nuclear microreactor and why are microreactors superior to other energy technologies? When people hear the words "**nuclear energy**," the first thoughts that come to mind are large smokestacks, nuclear waste, and nuclear meltdowns.

However, the inherent nature of microreactors automatically put these thoughts to rest. For example, microreactors provide 20 megawatts or less of electricity—which is much different than the conventional "smokestack" nuclear reactor that provides hundreds of megawatts of electricity at a single facility.

In turn, microreactors are small, versatile, and extremely reliable pieces of innovative technology that have the capability of running for several years without the need to refuel—which inherently circumvents consequential supply chain disruptions and unforeseeable diesel price fluctuations.

This leads to the next major thought: what about the nuclear waste? Several microreactors have the intrinsic capability of reprocessing nuclear waste to power the microreactor itself—which ultimately makes use of the

96% of reusable energy content that remains in spent nuclear fuel while simultaneously minimizing the quantity of spent fuel overall.

Finally, many microreactors utilize a fundamentally safe fuel source and contain intrinsically safe designs that automatically shut the microreactor off if certain circumstances present themselves—thereby making it impossible for the microreactor to experience a nuclear meltdown. In addition, nuclear microreactors have essential benefits that no other energy source can provide.

To illustrate, microreactors can consistently produce clean, carbon-free energy with only a fraction of the critical minerals required by other energy sources like wind and solar.

It's also worth noting that most microreactors are easily transportable, land-efficient, and can be mass-manufactured in facilities throughout the United States.

With this information in mind, why aren't there any microreactors in America today? The answer is simple: expensive and unnecessary government regulation.

But what if this wasn't the case? And how would decreasing these regulatory barriers have assisted Florida's 19th District with responding to the impacts of Hurricane Ian?

Generally speaking, microreactors could have been easily staged in areas of Southwest Florida prior to Hurricane Ian's arrival, and could have been deployed post-hurricane to impacted area(s) via air, land, rail, or ship.

Also, the deployment of microreactors throughout Southwest Florida could have: (1) reduced disaster-related mortality; (2) reduced direct disaster-related economic loss; and (3) reduced the overall disruption of basic services stemming from Hurricane Ian's devastation.

Specifically, a microreactor could have been flown or shipped to certain areas of my district, such as Sanibel Island or Pine Island, to supply much-needed electric power—especially since access on and off the islands was impracticable due to the severance of essential transportation corridors.

Moreover, the lack of reliable power meant no air-conditioning in certain areas of my natively humid district. This is concerning because many properties experienced severe water damage and subsequent mold infestations—coupled with the fact that many families remained in their homes, without power and air conditioning, due to lack of adequate housing options post-hurricane.

Nuclear microreactors could have supplied temporary power while the hardworking utility companies restored electricity across FL-19, and the resulting mildew infiltration could have been minimized if SWFL properties had a reliable source of power for air conditioning.

Furthermore, microreactors could have ensured sound and consistent power for Southwest Florida hospitals as they treated individuals who were physically harmed from the overwhelming impacts of Hurricane Ian.

Microreactors could have also powered energy-intensive water extractor machines to help retract saltwater that infiltrated the shores of FL-19 via the **historic** 16+ foot storm surge.

Additionally, microreactors could have powered: (a) water purification facilities to provide fresh potable water, (b) crucial communications centers to coordinate disaster response on the ground, and (c) various government facilities—such as my Lee County District Office—which remained closed for weeks due to widespread power outages in the surrounding area.

Finally, microreactors could have generated power for electric vehicle charging stations and other basic life necessities, such as: residential lighting, refrigeration units, central heat, cooking appliances, outlets to

charge cell phones, etc. Politics aside, microreactors provide benefits that emergency diesel generators cannot—such as being emissions-free, not vulnerable to fuel-related supply chain disruptions, and the inherent adaptability to be deployed for a range of life-saving possibilities.

But due to unnecessary government regulations, microreactors are currently not available to assist my constituents with their ongoing hurricane recovery efforts.

That's why I call on Congress to pass the National Strategy to Utilize Microreactors for Natural Disaster Response Efforts Act which is a bill I recently introduced to get ball moving on American microreactor deployment.

The fact of the matter is that hurricanes and other natural disasters will continue far into the future, and the United States should be prepared to embrace and deploy advantageous nuclear microreactors whenever necessary.

After personally witnessing the heart-wrenching devastation to SWFL caused by Hurricane Ian, and as my constituents continue to rebuild and recover from the impacts of the storm, it's important for various levels of government to begin the conversation about using microreactors to respond to the natural disasters of the future.

While emergency diesel generators get the job done, the fact of the matter is that microreactors provide inherent benefits like no other.

We must change nuclear's negative connotation and strike the unnecessary government regulations that currently inhibit the widespread deployment of microreactors.

My district's hurricane **recovery** efforts are far from finished, but we've made tremendous progress thus far. However in retrospect, the utilization

of microreactors could have made an indispensable difference in Florida’s 19th District.