REQUEST FOR PROPOSALS (RFP) FOR
LONG-TERM CONTRACTS FOR OFFSHORE WIND ENERGY
Issuance Date October [14], 2022

See R.I. Gen. Laws § 39-31-3 (defining “commercially reasonable”). In the Report and Order in PUC Docket No. 4929 issued June 7, 2019, the PUC found that the Revolution Wind Offshore Wind Power Purchase Agreement was commercially reasonable because: (iii) the benefits to Rhode Island, including the total **energy security, reliability, environmental and economic benefits** to the State of Rhode Island and its ratepayers, were likely to exceed the cost of the project.

R.I. Gen. Laws § 39-31-2. In sum, a PPA must meet the following ACES requirements for approval by the PUC: (g) regardless of location, the project must improve energy system reliability and security; enhance economic competitiveness by reducing energy costs to **attract new investment and job growth opportunities** and protect the quality of life and **environment** for all residents and business.

Rhode Island Energy will select a proposal or a portfolio of proposals for PPA consideration and negotiation from this pool unless it determines that **no proposal is likely to lead to a contract complying with ACES. Affordable Clean Energy Security Act (“ACES”), R.I. Gen. Laws Chapter 39-31**

<u>Limitations of 'Renewable' Energy</u>
While the wind itself may be “renewable,” the turbines, the raw materials that go into making them, and the lands and oceans they impact certainly are not.
It is misleading to not realize they require enormous amounts of energy and natural resources through extraction, manufacture and installation. Outsourcing those externalities will only

exacerbate climate change. They require tons of carbon emissions to produce so they are not carbon free and not green. They should be more appropriately termed energy capturing devices. To do not so is greenwashing. They are not alternatives to the energy and ecological crisis, but rather a part of it.. They do not “replace” natural gas and fossil fuels, not only because the so called “renewable” energy are not as potent an energy source as fossil fuel, but also because they rely on fossil fuel for basic operation. They contribute to the abuse, exploitation and plunder of nature. There are mountains of resources to support this. More dangerously, they lead us to false solutions, putting our much needed revolutionary energies into projects which only contribute to the problem. My opinion is we will have used precious, limited resources on a dead end mainly to continue the unsustainable. The energy we use on mining and manufacturing, installation and maintenance of “renewables” will only add on to our energy consumption and thus there will only be more fossil fuel emissions. This is especially true if one of the stated goals is to **attract new investment and job growth opportunities.** I am firmly opposed to these technologies.
The beauty of nature should be defended strongly. The “violent mechanization of [the] daily view of the natural world” should also be acknowledged to be a deep concern, indeed it is “extremely disturbing”.

“A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.”. — Aldo Leopold,

Mining Industry Warns Energy Transition Isn’t Sustainable

There are not enough metals in the world to replace fossil fuels. Nations of the world are only too aware that fossil fuels need to be phased out for two reasons. First, oil is a finite commodity. It’ll run

out in time. Secondly, fossil fuel emissions such as CO2 are destroying the planet's climate system.
However, a recent study puts a damper on the prospects of phasing out fossil fuels in favor of renewables. More to the point, a phase out of fossil fuels by mid century looks to be a nearly impossible Sisyphean task. It's all about quantities of minerals/metals contained in Mother Earth. There aren't enough. Simon Michaux, PhD, Geological Survey Finland has done a detailed study of what's required to phase out fossil fuels in favor of renewables, to wit:
"The quantity of metal required to make just one generation of renewable tech units to replace fossil fuels is much larger than first thought. Current mining production of these metals is not even close to meeting demand. Current reported mineral reserves are also not enough in size. Most concerning is copper as one of the flagged shortfalls. Exploration for more at required volumes will be difficult, with this seminar addressing these issues."
(Source: Simon P. Michaux, Associate Research Professor of Geometallurgy Unit Minerals Processing and Materials Research, Geological Survey of Finland, August 18, 2022 – Seminar: *What Would It Take To Replace The Existing Fossil Fuel System?*)
My main reason for writing this public comment is trying to bring reason to the supporters of these devices. They have an almost religious fervor making them (willfully?) blind to the total system needs and are living with and creating false hopes. These false hope will add to the trauma of facing the need to live at much, much lower energy level. It will also have us making decisions that will be detrimental to the next generations.

Renewable energy necessarily has a massive impact on the environment, simply because the scale of it has to be so large to collect what is - any way you look at it - a very diffuse and fleeting amount of energy. Each of these turbines are made of tons of material, steel, concrete, plastic and copper. This material comes from somewhere, and that somewhere is always someone's

home, someone’s sacred site, someone’s source of food and water and air. We just don’t hear about them, because if they are humans, they are usually poor and brown. This is where racism, colonialism, environmentalism, and extractive economics come together. Then at the end of their lifecycle they end up in a landfill because they are economically infeasible to recycle.
Other offshore wind challenges that also need to be considered are higher cost due to specialized installation, equipment, and more expensive support structures; (2) more difficult working conditions; (3) decreased availability due to limited accessibility for maintenance; and (4) necessity for special corrosion prevention measures. Hence the lower life cycle of 15 years for offshore wind.

So because the grid can store no energy at all, and power must match demand at all times. This is the concept of dispatch which is used to describe the processes involved in adjusting generator output to match demand. This is such an important and relevant - possibly the most important and relevant - issue when it comes to analyzing renewable energy. The key issue is that, lacking any ability to store electricity on the grid itself, there is no alternative but co-operation with dispatch-able power sources. Essentially any source of stored energy which can supply it at variable and controlled rates., when attempting to match generated output to actual real-world demand. And that technologies that render this more difficult, are in general to be shunned. The problems of fluctuating demand is, so to speak, bad enough already without making it far, far, worse..and that is precisely what renewable energy - of the more popular sort - does.

Which brings us neatly to the second issue that needs to be understood. The issue of intermittency. Intermittency is, quite simply, the fluctuating availability of an energy source. All power generating technology suffers from it. Things break and need mending. Supplies of fuel can get interrupted. Routine

maintenance can shut down a plant for weeks. But where we are considering conventional power stations that rely on stored energy fuel sources - coal, gas or uranium and the stored renewables of hydroelectricity, geothermal(It is arguable as to whether geothermal energy is ‘renewable'. In fact there is no 'renewable' energy in the universe. Thermodynamically there was one Big Bang and we live off the echoes…), and biofuels - such loss of availability is the exception to the rule, and equally as importantly, generally characterized by being both infrequent and of significant duration. Taking down a coal plant for a boiler inspection is a week or more to let it cool down, inspect it and restart it. But it happens only once a year (and generally in summer when demand is lower anyway).
By contrast, when considering the intermission of 'intermittent' renewable energy - that is wind, solar, tidal and wave power (which is really a sort of wind power by proxy!) the intermittency is characterized by being persistent and of short duration. Solar power varies from nothing at night to full power during the day every day , tidal does similar twice a day (roughly) . Wind power fluctuates randomly but with a general period that approximates to 3-5 days, that being the average time it takes for a low pressure system with associated wind to pass over a reasonable geographical area. Continental wind energy tends to peak at night, coastal wind energy tends to peak during the day, and most EV are charged at night. There is also more wind in the winter than the summer, problematic for air-conditioning in the heat, which keeps increasing.

The proposed mass adoption of renewable energy on a hitherto undreamed of scale has made another issue that was unimportant with conventional power stations, extremely relevant, and that is energy density, or rather power density. In its simplest terms what power density means in the context of electrical power generation is 'how big does my power station have to be, in order to generate the power I want? With the most useful metric being

how much land (or sea) area it is going to use up. How much real estate. And here we encounter the most easily understood, and the most insoluble of renewable energy's - including the 'stored energy' renewable sources like biofuel and hydroelectricity - its power density is very very low.

If we explored the power density issue, the government would need to entirely cover the Eastern Seaboard with offshore wind turbines, in order to meet its renewable target ' and latterly 'the pumped storage needed to back these up could be achieved by damming and flooding the landmass of Rhode Island with pumped-storage hydropower or the manufacture of huge battery storage giga-plants.

Of all the aspects of renewable energy, none is greater in impact or less well understood by the lay public than the question of intermittency, and how it relates to dispatch-ability, capacity factors, and affects the whole idea of trying to incorporate renewable energy cost effectively into the demand patterns that we have for power. It has been already stated that intermittency is a name applied to the availability - or lack of it - of any power generating source of electricity. Bearing in mind that sometimes it output would be essentially zero, and sometimes 4 times as much. 'All there is to be harvested' is a significant point. Its not possible to stop the wind in its tracks so you can never get the full energy that is in it, out. The analysis of how much you can get is encapsulated in a formula called the Betz law - see http://en.wikipedia.org/wiki/Betz'_law. In fact its a respectable 59.3% of which the average wind turbine can get 75% to 80%. Giving an overall efficiency of 45% or thereabouts for the turbine.

To summarize, the methods of dealing with intermittency all lead to non ideal solutions. Using geographical dispersion needs transcontinental power links of massive cost and low efficiency to transport huge amounts of power from 'where the wind is

blowing/sun is shining' to 'where it's needed' . Storage requires country sized installations of phenomenal potential destructive power and devastating environmental impact even if they don't disintegrate in a tsunami size dam burst. Oversupply of generating capacity to cover 'worst case' scenarios inflates the cost and environmental impact to the sorts of levels that would destroy a nation before it got the job half done. And moving from a 'demand dictates supply' to a 'supply dictates demand' grid would in the end equally disrupt society to a totally unacceptable degree.

The renewable lobby response to this is to hand wave it away with statements like 'well that's why we need diversity' and 'we simply need to build the storage', despite the fact that the actual numbers are nowhere to be seen, as to what the building of that storage would cost, or what impact it would have, over and above the massive costs already involved in 'renewable energy.' To get to 100% renewable would require a massive amount of storage.

Turbines create drag, or resistance, which removes momentum from the winds and tends to slow them. As the number of wind turbines increases, the amount of energy that is generated increases. But at some point, the winds would be slowed so much that adding more turbines will not generate more electricity. …
A study found that the climate effects of extracting wind energy at the level of current global demand would be small, as long as the turbines were spread out and not clustered in just a few regions. At the level of global energy demand, wind turbines might affect surface temperatures by about 0.2 degrees Fahrenheit and affect precipitation by about 1 percent. Overall, the environmental impacts would not be substantial. (emphasis added) The planned offshore industrial wind farm will effect the Tradewinds and the jet-stream. This would have devastating consequences on weather systems in a climate changing future. And then there are impacts that these machine will on the marine life in an ocean that

is already stressed to its' limit.

The breakdown of wind turbine blades during their 20 year lifecycle releases microplastics into the air. Their production requires fossil fuels. It is by definition unsustainable. Building wind turbine whether on shore or off will only continue the destruction of life on the planet. We can not save the planet by destroying it. There are no jobs on a dead planet.

"For an action to be sustainable, you must be able to perform it indefinitely. This means that the action must either help or at the very least not materially harm the landbase. If an action materially harms the landbase, it cannot be performed indefinitely"-What We Leave Behind
"The real world is the source of our own lives. A weakened planet is less capable of supporting life. The health of the real world is primary to any social or economic system. Reality trumps all belief systems: what you believe is not nearly so important as what is real." - Derrick Jensen

The Inflation Reduction Act contains several incentives for offshore wind development. These include:

- An energy investment tax credit (ITC) provides a scaled tax credit of up to 30 percent for offshore wind projects that begin construction before January 1, 2026.

Without these offshore wind would not be economically viable for any developer. "That's the only reason to build them. They don't make economic sense without the tax credit." - Warren Buffet

It is for these reasons that Rhode Island Energy should determine no proposal is likely to lead to a contract complying with ACES. Affordable Clean Energy Security Act ("ACES"), R.I. Gen. Laws Chapter 39-31.

Sincerely,

Carl van Warmerdam
Rhode Island Energy Customer