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Dr Saul Griffith on Illawarra Offshore Wind

Dr Saul Griffith is an Illawarra local and resident of Austinmer. He's an engineer, inventor and renewable energy technology expert.

Illawarra offshore wind power is a great idea. We should embrace it and make it work for our community.



Change is hard. The global energy transition is going to be hard. Not dealing with it will be infinitely worse in terms of the misery caused by climate heating and the countless human and natural tragedies it will cause. I am aware that by supporting the Illawarra offshore wind energy zone I will be in conflict with my neighbours and some of the Illawarra community. I attended one of the DCCEEW information evenings as a local and was shocked at the level of misinformation being pedaled by opponents of the project. I was also shocked at the level of misinformation that many appropriately concerned citizens had gleaned from the internet. Change will only happen with trust, and I hope here to be a sane voice in the conversation.

In full disclosure, I have worked directly and indirectly in the wind and offshore wind industry since 2006. I founded a company — Makani Power — that was funded by Google and then Shell to pioneer a new type of airborne wind energy technology. Over time, the incredible cost reduction of traditional wind turbines beat our cost estimates and the company was mothballed. In 2019, I started a project with an offshore wind energy veteran, Sam Kanner, called Aikido Technologies, that's been funded by the US Department of Energy to work on radical cost reduction of offshore wind projects. I continue to work with one of my former professors at MIT on ways to lower the cost of the steel towers and offshore platforms so critical to bringing costs down. On another DOE project (Mariner) I have worked on robotically installed sea floor anchors for seaweed farms that look like they will be a low cost and low impact way of anchoring offshore wind platforms. So yes, I'm invested in offshore wind energy and believe it is important in the global energy transition.

Estimates of the lowest cost and highest reliability renewable energy systems typically believe somewhere between half and $\frac{3}{4}$ of renewable deployments will be wind power. I think solar will pick up a bit more of the tab, especially in Australia, but it is important to have a mix which increases reliability. Wind and solar typically counter-correlate, which means the wind blows more at night and in winter, the sun shines more during the day and over summer. They work well together in a clean energy mix.

The Illawarra wind project is meaningful. It is a 4.2GW nameplate capacity project that should typically produce 15,000 GWh of electricity, or an incredible 15 billion kWh of electricity, every year. It is more than enough energy to power a few millions of homes. To power every household in the Illawarra, including electric vehicles as a substitute for our high-emitting fossil fuel vehicles, would only need around 2 billion kWh per year. This project, in combination with community and rooftop solar and batteries, can easily guarantee a 100% reliable and clean energy system for every home in the Illawarra. In fact, there would be a huge amount of excess energy to power the industries of the future. We can and we should build the infrastructure of the 21st century in this community so that our children can live in this beautiful place while having an outsized impact on global climate solutions.

People worry about the ecological impacts, and they should. We should not repeat the horrific sins of the fossil fuel industry in this energy transition. Deep offshore wind power like the Illawarra project is very new with only a few pilot projects and installations globally this decade. The full effects are being studied. The wind community is fully engaged with the science on mitigating impacts. Anecdotal evidence even suggests that these installations become defacto protected marine parks and lead to increases in biodiversity. No energy technology is perfect, but wind power looks to be one of our two best options and we need diversity. People cite bird strikes, but in reality it is our cars, our windows, our buildings, our pesticides, communications towers, power lines, and our cats that kill birds at thousands of times the lethality of wind turbines. Similar disinformation and scaremongering is abundant about whales and marine life, yet that also looks like an extremely minimal impact and actually rather beneficial when compared to the horrific whale injuries, strandings, and deaths that we know to be associated with offshore fossil fuel extraction. Our community should expect a thorough Environmental Impact Statement (EIS) before passing judgement on the project.

People doubt the job creation and industrial benefits touted of the project. I do not. I understand how these job creation estimates are made because that is part of what I do when I think about best climate and energy policies. It strikes me that these estimates are low because they don't include the "indirect" and "induced" jobs created by these industries. Indirect jobs are the jobs supplying the industry with parts and services and induced jobs are the jobs teaching the kids of the wind energy work force and providing everyone with lunches and entertainment. Wollongong and the greater Illawarra can be an outsized winner in this energy transition.

Far from being the poorer cousin of Sydney, Wollongong is critical to so many export and energy industries; we can use this energy transition to both transform and clean up our environment, and also create a fairer and better society and social contract. We can sparkle where Sydney merely shines.

I now live on the railway line in Austinmer. Half a dozen times a day a huge coal train rolls past rattling my windows and bones: a constant reminder of our climate hypocrisy. When I swim each day or walk the dogs I see the dozens of ships carrying emissions, coal, and dirty ores to foreign shores. We can and should be making the steel for the structures required for wind and solar and electricity transmission. We should also be doing more value-added manufacture of the wind technology towers and platforms. We are only limited by our commitment and imagination. We have favorable port and industrial infrastructure and we could even be manufacturing solar components, electric vehicles and batteries. We can thrive as a community by embracing the future, not rejecting it.

The on-shore wind turbine industry is now mature with 3-6MW turbines at 120-150 meters of total height. The off-shore industry is nascent, and the cost pressure is to be even bigger which offsets maintenance costs. The current expectation is that offshore wind turbines will be 10-15MW and 200-250m in total height. Yes, these will be visible on the horizon, but only just, and only faintly, and not all the time. I personally find them beautiful, but I am an engineer. But my mother is an artist and avid environmentalist who has worked for the national parks and on behalf of our wildlife, and she too finds them beautiful. I think we all have the capacity to squint at the far horizon and see the slowly rotating turbines as the natural wonder that affords us a luxurious coastal lifestyle protected from rising sea levels and bushfires.

So what can our community do to make this the best possible thing for us?

We could fight to push them further offshore, but we can't push them indefinitely over the horizon. Offshore wind in Europe is mostly in 0-20m deep water where the "tower" or the stick is stuck into the ground. Our water is too deep, at around 50m, so we need floating platforms. But our continental shelf falls precipitously and beyond 100-200m the cables to secure the platform are too long and expensive. Even though each km will make them tinier, each km costs about \$1,000,000 more in the "extension cord" or cable to connect them. At some point we can't push them too far. Real conversations should be had about the right distance balancing aesthetics and cost.

The Australian wind industry isn't going to be big enough to host multiple tower manufacturers and platform builders. If the Illawarra embraced offshore wind, we could be the manufacturer of note not just for our offshore projects but for the Hunter and Gippsland and greater Australia and maybe South East Asia as well. We have a steel mill that rolls plate, and a deep water port, so if we play our cards right and work with the government to protect our industry from cheap Chinese turbines, we could even make the steel for all or most of Australia's on-shore wind industry too. These would be high-quality jobs in advanced manufacturing and increase the global standing of our local schools, universities, and vocational training. I met this week with a local union leader. He has been coaching the coal industry for more than a decade that the transition jobs are coming. The coal miners unions want this project. They want the jobs. They want their daughters

and sons to be welding wind turbines, not digging black rocks from the ground. We can deliver on these promises to the men and women who have kept Australia's lights on. But we can only deliver on it if we accept and embrace change.

The project visually will impact all of us. Some will see it as beautiful. Some will see it as an eyesore. It is well understood globally that communities that participate in the economic benefits of a project will be more inclined to say yes, not no. This logic was built into American climate policy in the Inflation Reduction Act, where projects in transition communities (such as ours that are losing jobs because of a declining fossil industry) get extra credits and fiscal incentives. In Victoria, a community-owned wind energy project, "Hepburn Wind," has been an exemplar in winning social license by sharing community benefit. If the people of the Northern Illawarra want to fight for something, we should fight for inclusion in the upside of this project.

Today I calculated some very rough numbers. With 15 billion kWh per year of electricity generation, we could demand as a community participation in the economic upside. We could call it a "community benefits subsidy" and insist that 1c/kWh of the project is returned to us. This would generate around \$150 million dollars a year. There are 129,000 households in the Illawarra and 313,000 people. There are 120 public primary and high schools. There are a lot of ways to look at this problem. With our community benefits subsidy we could give every household a \$1200 per year discount on their rates or as incentives to electrify our cars and homes. We could give every individual a \$470 voucher every year to spend in the local economy on yoga and boxing classes or on cafes and cinemas. We could give \$4900 per year to every school-aged child for extra-curricular activities, or we could give \$1.2 million dollars a year to every public school in the Illawarra to hire more teachers and provide more art classes and workshops and musical instruments. We could call it the gold-plated public schools with free puppy dogs renewable energy zone.

We have the capacity to show the world how this energy transition could be done right. Yes, this offshore wind project will impact the sight lines of our special and precious real-estate. But we could make this wind project a glorious constant daily reminder of our obligations to our children, and in fact a source of local revenue. Our community's commitment to the future could be rewarded with an annual stipend that provides us all with the security to look our kids in the eyes and say we have worked to save the future for you and make your future brighter.

Offshore Wind Zone >



We acknowledge the Dharawal people as the Traditional Owners of this land and pay our respects to Elders past and present. This is, was, and always will be Aboriginal land.



The Electrify 2515 initiative is a community initiative. This website is administered by the Electrify 2515 Committee - a group of local people from all walks of life, dedicated to advancing climate action in our own community and throughout Australia. You can contact us [here](#). **Please note:** all information on this website is general in nature and does not constitute financial advice. You should consider seeking independent legal, financial or other advice to learn how information relates to your own unique circumstances.