

Energy policy cannot be based on fantasy – the truth may yet prevail

Over the last week or so, the internet has been abuzz with articles on the recent paper published in the Proceedings of the National Academy of Sciences, ***“Evaluation of a proposal for reliable low-cost grid power with 100% wind, water, and solar”***, by 21 prominent scientists taking issue with Mark Jacobson’s earlier study claiming that 100% renewables is feasible in the USA by 2050. Given the strong desire to believe in this utopian future; and how many prominent people have referenced this Jacobson paper to support their energy views, it is somewhat surprising how much press the opposing view elicited. That being said, most of the articles had titles like, *“A bitter scientific debate just erupted over the future of America’s power grid”* or *“Fisticuffs Over the Route to a Clean-Energy Future”* making it seem like this is about scientific debate, when it is actually about a paper that has been proven to be false.



As stated by this paper's authors, *"In this paper, we evaluate that study [the Jacobson study] and find significant shortcomings in the analysis. In particular, we point out that this work used invalid modeling tools, contained modeling errors, and made implausible and inadequately supported assumptions. Policy makers should treat with caution any visions of a rapid, reliable, and low-cost transition to entire energy systems that relies almost exclusively on wind, solar, and hydroelectric power."* These are pretty strong statements for an academic paper.

Of course, for most of us in the industry this study is telling us what we already knew, that 100% reliance on intermittent low-density energy sources is not going to meet the needs of an energy hungry world. We suggest you read a few of the articles and of most importance, the actual paper. We would also recommend you read the article by James Conca *"Debunking The Unscientific Fantasy Of 100% Renewables"* which takes aim at the issue of bad science.

But the world is passionately in love with renewables. What can be better or more natural than wind and solar? It makes you feel good – there are no problems that can't be overcome with these wondrous technologies. They definitely don't cost too much [but they need subsidies], or have environmental or waste issues [solar waste is increasing] and of course their intermittency is a modest problem to be resolved by smart people [by building more gas to back them up]. On the other hand, fossil fuels emit carbon and while nuclear plants are low carbon, they are dangerous – everybody knows that. And in this era of fake news and alternate facts, why would anyone want to change this glorious view of the future?

Of course, the option that does tick all the boxes for a low carbon energy revolution is nuclear power. And we are starting to see this position being more widely accepted. As the dream of a renewables only future fades, the merits of nuclear are once again coming to the forefront. That is why

the US government is taking action to save its operating nuclear plants that are struggling in de-regulated markets, the UK is strongly supporting new build, Canada is refurbishing its aging nuclear fleet and China is rapidly expanding its share of nuclear production.

Countries like Germany that are committed to phasing out nuclear for a 100% renewable future are further proof that this approach to decarbonization is flawed as they add coal production to make up for their nuclear shortfall. Now Korea seems to be following this approach as their new president is committed to getting rid of both coal and nuclear (70% of their current system) for a renewable future. We only hope this analysis of Jacobson's paper is a wake-up call that is heeded in these markets that now seem to be following an unrealistic romantic world view rather than a realistic one.

Once again, I have to quote Michael Shellenberger. In his proposal for Atomic Humanism his first principle is – *“nuclear is special. Only nuclear can lift all humans out of poverty while saving the natural environment. Nothing else – not coal, not solar, not geo-engineering – can do that. How does the special child, who is bullied for her specialness, survive? By pretending she's ordinary. As good as – but no better than! – coal, natural gas or renewables.”*

And it is this pretending that needs to stop. There is no longer a need to be defensive when supporting the nuclear option. Or as stated by the Department of Energy in the USA. *“... we're particularly proud of the contributions being made by the nation's nuclear power plants. Nuclear is, in short, a clean, constant, and downright cool energy resource. Unfortunately, many people may not understand how remarkable this unique energy source truly is, or the role that it plays in our energy portfolio and Americans' daily lives.”*

We are at a crossroad. The time has come to strongly support the best technology that can reliably meet the energy hunger

of the world and we need to make it known to policy makers everywhere. Making energy policy on a hope and a dream is no way to plan our energy future. Nuclear power is the only true path to a low carbon future with the vast amount of energy needed to fuel the world that is both economic and reliable – and yes safe. If we work hard to support the facts, the truth may yet prevail. Or as stated by Michael Shellenberger – Nuclear is special – let's say it loud and let's say it proud!