At least 10 reports say that Jacobson's WWS plan can't work.

"Mark Zachary Jacobson is a professor of civil and environmental engineering at Stanford University and director of its Atmosphere/Energy Program." Wikipedia

Here is the basic claim: *"This study presents roadmaps for each of the 50 United States to convert their all-purpose energy systems (for electricity, transportation, heating/cooling, and industry) to ones powered entirely by wind, water, and sunlight (WWS). The plans contemplate 80–85% of existing energy replaced by 2030 and 100% replaced by 2050."*

Here is the plan:

100% clean and renewable wind, water, and sunlight (WWS) all-sector energy roadmaps for the 50 United States by Mark Z. Jacobson
https://web.stanford.edu/group/efmh/jacobson/Articles/I/USStatesWWS.pdf

Here are the critiques that show that it just can't work:

Unintended Consequences: The Lie that killed millions and accelerated Climate Change by best-selling author George Erickson.
http://www.unintended-consequences.org/

Critique of 100% WWS Plan by Tim Maloney
http://TinyURL.com/TimMaloneyWorks

WWS (Wind Water and Sunlight): Jacobson's sorcery by Scott Luft
http://TinyURL.com/gtncvbp

Critique of the 100 Percent Renewable Energy for New York Plan, November 17, 2013 by Edward Dodge
http://www.theenergycollective.com/ed-dodge/301031/critique-100-renewable-energy-new-york-plan

Climate scientists skeptical about Mark Z. Jacobson's 100% renewable energy "plans" December 14, 2015 By Rod Adams
https://atomicinsights.com/climate-scientists-skeptical-about-mark-z-jacobsons-wws-plans/

The non-solutions project by Mathijs Beckers
https://www.amazon.com/non-solutions-project-Mathijs-Beckers-ebook/dp/B01N6SN5E1

The National Academy of Science refutes Mark Jacobson's dream that our economy can run exclusively on 'green' energy..
https://www.nationalreview.com/2017/06/renewable-energy-national-academy-sciences-christopher-t-m-clack-refutes-mark-jacobson/

ROADMAP TO NOWHERE, The Myth of Powering the Nation With Renewable Energy by Mike Conley and Tim Maloney
http://www.roadmaptonowhere.com/

Comment on Jacobson et al., *Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes* by Eugene Preston, g.preston@ieee.org
I can't find the web site for this but you can find it on the last page of this PDF file.

Critique of 'A path to sustainable energy by 2030'

by Dr. Barry Brooke, 11/03/2009

Does it stack up? Short answer, no. Here I critique the 100% WWS plan (both articles). https://bravenewclimate.com/2009/11/03/wws-2030-critique/

Mark Jacobson filed a law suit against the National Academy of Science:

Mark Jacobson filed a law suit again Christopher Clack and PNAS (National Academy of Sciences) for ten-million dollars for criticizing his work. https://www.washingtonpost.com/news/energy-environment/wp/2017/11/01/stanford-professor-files-libel-suit-against-leading-scientific-journal-over-clean-energy-claims/?utm_term=.de727985c857

Then Jacobson's law suit is retracted:

Mark Z Jacobson withdrew his suit against clack & PNAS
https://www.youtube.com/watch?v=Tc66mtGVIok&feature=em-subs_digest By Mathijs Beckers The Nuclear Humanist
Mathijs Beckers says that Mark Jacobson avoided the law suit because he knew that he would lose and he wanted to save face.

Eugene Preston, g.preston@ieee.org
Transmission Adequacy Consulting, http://egpreston.com
6121 Soter Parkway, Austin, Texas 78735 15 January 2016

Comment on Jacobson et al., *Low-cost solution to the grid reliability problem with 100% penetration of intermittent wind, water, and solar for all purposes, PNAS* 2015 112 (49) 15060-15065; doi:10.1073/pnas.1510028112

Three problems with the proposal by Jacobson et al. for transitioning off fossil fuels are:

1) Jacobson et al. WWS has no electrical system. The existing transmission system is not capable of handling the WWS power levels. The WWS needs a new grid design that meets the rigorous North American Electric Reliability Council (NERC) testing procedures (1). Legal challenges are likely to stop or delay many of the new power lines (2). Who will pay for the new lines?

2) Jacobson et al. suggests many new storage technologies. Some are being tested (3) while others will need more time and money to reach commercialization. Even though battery costs have dropped dramatically, an hourly model of ERCOT (Texas) powered 100% by wind and solar shows seasonal variations requires 330 hours of storage costing trillions of dollars (4).

3) Jacobson et al. err in interpreting reliability in section S1.L., "The electric utility industry standard for reliability is a loss of load expectation (LOLE) of 1 day (24 hours) in 10 years." This is an incorrect definition of the LOLE (5). One day in ten years means there is a brief outage that occurs on-a-day once in 10 years on average, not a 24 hour outage.

1. NERC, *Transmission Planning Rules*, http://www.nerc.com/files/TPL-001-4.pdf , accessed 22 Dec 2015.

2. Southern California Edison Co., *Devers-Palo Verde 500 kV Project*, http://prod-http-80-800498448.us-east-1.elb.amazonaws.com/w/images/9/94/WP11_DPV2.pdf , accessed 09 Dec 2016.

3. DOE, *Grid Energy Storage*,
http://www.sandia.gov/ess/docs/other/Grid_Energy_Storage_Dec_2013.pdf , accessed 09 Jan 2016.

4. Preston, Eugene, *Microgrids Can Play An Important Role In Reducing ERCOT's Fossil Fuel Dependency*,
2016 Renewable Energy Law Conference, Feb 9-10, 2016, Austin, Texas,
http://egpreston.com/PrestonFeb2016.pdf , a preprint, accessed 09 Jan 2016.

5. Keane, Andrew et al, *Task Force on the Capacity Value of Wind Power*, IEEE Power and Energy Society,
http://www.nerc.com/docs/pc/ivgtf/ieee-capacity-value-task-force-confidential%20(2).pdf , accessed 09 Jan 2016.