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As a member of the Warren County Agricultural Development Board I would like to express the opinion shared by the members of our board in opposition to the proposed New Jersey Energy Master Plan to allow large photovoltaic development projects on New Jersey farmland. The proposal is contrary to the purposes and objectives of Farmland Preservation in New Jersey. Looking to the farms across the state to find the space needed to expand solar generation to meet the goal of renewable energy by the year 2050 is shortsighted and backward thinking. Farmland is a limited and nonrenewable resource. This is akin to tearing down the walls of the house in order to feed the fireplace to keep warm.

The Master Plan proposes "In order to enhance smart siting of solar, the state should better define the areas that are considered marginalized, such that they have constrained economic or social value. The plan then begins to dissect "528,000 acres of unreserved farm assessed parcels" and shows maps of the vast areas of the state that would be impacted. The answer to finding room for expansion of solar generation is not to look to the remaining farmland in New Jersey but rather to investigate alternatives to which there are many. For instance there are concepts of putting solar panel arrays into earth orbit (as seen here-

<https://www.bbc.com/future/article/20201126-the-solar-discs-that-could-beam-power-from-space>

But rather than looking at science fiction look at the alternatives that are already working in the here and now. The California State Solar Mandate, a new building code as of January 1, 2020, requires all new construction of single family and multifamily homes to have solar photovoltaic systems as an electricity source. NJ has been a leader in the past for providing incentives for promoting solar. One step further would be a similar mandate.

According to the Research Institute for Housing in America, there are over 8700 square miles of parking area in the United States. A simple calculation translates that number into about 200 square miles or 128,000 acres in New Jersey. That includes private driveways and residential streets however a reasonable assumption would be 10's of thousands of acres of paved parking lots associated with commercial buildings, industrial sites and shopping malls. Covering these areas would have benefits beyond the electricity generated. Covered parking lots provide protection for pedestrians. Pavement is a heat sink that absorbs the sun's rays and radiate the energy back into the environment as heat. Parking lots are not even marginally productive in terms of agriculture are already flat and have planned drainage requiring no further degradation of the environment and are easily retrofitted. Rather than rezoning the states farmland to allow mega voltaic generation, allow a dual use zone for parking lots. The incentive would be the leasing fees received by the property owners. These images show some examples.

[https://www.google.com/search?q=solar+panel+covered+parking+lots&sxsrf=ALeKk03x5nxAkMiyrd-uViSpgrYE9zPAw:1616611791798&tbm=isch&source=iu&ictx=1&fir=5EwVWujgksOKNM%252CBDVRznxVYXdJ2M%252C &vet=1&usg=AI4 - kSmfDq\\_7waUiuormO\\_SqVLBGPA9Yg&sa=X&ved=2ahUKEwi5wduczMnvAhV5ElkFHelbB-sQ9QF6BAgdEAE#imgrc=5EwVWujgksOKNM](https://www.google.com/search?q=solar+panel+covered+parking+lots&sxsrf=ALeKk03x5nxAkMiyrd-uViSpgrYE9zPAw:1616611791798&tbm=isch&source=iu&ictx=1&fir=5EwVWujgksOKNM%252CBDVRznxVYXdJ2M%252C &vet=1&usg=AI4 - kSmfDq_7waUiuormO_SqVLBGPA9Yg&sa=X&ved=2ahUKEwi5wduczMnvAhV5ElkFHelbB-sQ9QF6BAgdEAE#imgrc=5EwVWujgksOKNM)

Most schools have open space surrounding the buildings as well as parking lots that are not productive farmland. North Warren Regional High School is one example of such an installation.

Germany has taken the lead among European nations in integrating solar into their electric grid by covering highway right of ways, roadway overheads, medians and even road surfaces. Pictures are worth 1000 words...

<https://www.rechargenews.com/transition/solar-panel-covered-autobahn-could-speed-german-energy-transition/2-1-854215>

<https://www.bostonglobe.com/metro/regionals/south/2015/08/26/kingston-close-agreement-proposed-solar-farm/HFAbJBv7IzkkK7x2EEctllN/story.html>

<https://solarimpulse.com/efficient-solutions/wattway-solar-road>

New Jersey has 38,131 miles of roadways, well over 150,000 acres not including the associated right of ways. The land in road easements are often contaminated by salt, oil and pollutants from gasoline additives from lead and heavy metals to organic toxins. These lands are unfit for ag production, costly to maintain and fire hazards if left unmaintained. Lease fees realized from the use of these land for solar installations could offset the costs of bridge and road maintenance and ease the budget burdens of state, county and municipal road departments. Roadway easements are always “grid ready” for hook up eliminating the added expense for service lines to remote areas.

New Jersey’s coast is being opened up to wind turbine generation. Floating solar islands that can withstand 170 mile per hour cat 4 typhoon winds similar to Norway’s Ocean Sun Company could be tethered to the off shore wind mills taking advantage of the same transmission lines to send generation to the mainland.

<https://www.cleanenergyauthority.com/solar-energy-news/biomimicked-floating-solar-073019>

<http://taiyangnews.info/markets/offshore-floating-solar-power-pilot-planned-in-norway/>

14.9% of non- offshore New Jersey or 834,560 acres is covered with water including lakes, rivers and reservoirs could provide large areas of surface for solar generation.

These concepts are not science fiction but science fact present day solutions to the problem of finding space for expansion of solar generation- without taking any more farmland. Marginal or not farmland in New Jersey is precious. It is time to start thinking outside of the box instead of the same backward thinking that progress inevitably means loss of farmland. A quote attributed to Mark Twain in the last century goes “buy land they aren’t making anymore of it” can be updated to include... that aren’t making anymore of it so preserve what we have remaining.