

June 14, 2012

Bureau of Land Management
New Mexico State Office
Attention: SunZia Southwest Transmission Project
P.O. Box 27115
Santa Fe, NM 87502-0115

Subject: SunZia Should Not Be Built

I am a research engineer who began my professional education studying energy systems [1]. Confident in the capabilities of solar energy, I later devised a way to destroy waterborne viruses using a solar-activated semiconductor [2]. The sun is our greatest resource, and Arizona's unique assets and talented residents can readily be engaged to create valuable technologies that utilize it. The SunZia transmission project would jeopardize these economic prospects by marring our renowned landscape and subsidizing non-Arizona interests (SunZia is tailored to the solar and wind energy ambitions of New Mexico [3]; Florida Power & Light Group owns New Mexico's largest wind farm [4]; Colorado, Wyoming, and Mexico (accessed at El Paso), would profit from SunZia's expansion of the territory of their coal energy sales [5]).

In response to Project Zia, SunZia was conceived in 2006 to sell power from New Mexico and the Bowie Power Station to western markets such as Phoenix, Los Angeles, and Las Vegas [5,6,7]. The gas-fired billion-watt Bowie station will emit a daily amount of carbon dioxide equal to that produced by burning more than a million gallons of gasoline [8]. Not surprisingly, SunZia and Bowie are promoted, managed, and financed by the same group, and they petitioned the Federal Energy Regulatory Commission to permit SunZia to transmit the non-renewable power of Bowie and other generators [9,10]. In effect, their petition also asked that 86% of SunZia's transmission rights be allocated to a New Jersey-California equity firm, a Louisiana construction company, a major foreign-based oil company, and a Colorado-New Mexico-Wyoming-Nebraska electric cooperative [11]. Only 14% was requested for Arizona electric utilities [12]. Thus, it seems the name "SunZia" was selected, and the renewable energy option was included, to muster public support by wrapping this otherwise unmarketable project in a green package. This scheme also enables New Mexico to unload the costs of its wind-generated electricity onto Arizona [13].

The expense and unreliability of wind-farm electricity is evidenced by New Mexico's desire to export this energy rather than consume it. When New Mexico proposed their exportation of wind energy in 2005, they were generating 97% of their electric power from coal (86%) and gas (11%), and only 2% from wind [14,15]. Wind power is a highly inefficient use of transmission line capacity, and it must be fed into a transmission system that predominately carries power from stable sources (such as coal and gas) that can compensate for its unpredictable variability. Ironically, not only do wind farms depend on coal and gas plants, but the carbon emissions benefit of wind power is substantially nulled by the increased emissions of the inefficient compensatory duty of the fossil-fuel generators [16]. Having these unacceptable flaws, wind farms exist only because state and federal taxpayers are forced to pay for them [17,18]. Furthermore, with Arizona's abundant solar energy, it would be foolish to subscribe to New Mexico's wind endeavors. The best wind farms produce about 5 kilowatts per acre, or 0.03 kilowatt-hours per square meter per day [19]. As a SunZia map shows, the sun offers 250 times more power to Arizona land at 7.5 kWh/m²/day [20].

The future belongs to innovations that give us full use of sunlight's tremendous potential. Ill-conceived ventures like SunZia should remain in the past. Instead of serving that harmful project, Arizona should focus on originating the technology needed to tap the wealth of solar resources with which it is blessed.

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Attached: Cited References

- Cited References for Sjogren's 14 June 2012 Letter to the Bureau of Land Management -

- [1] University of Arizona: BS Mechanical Engineering, MS Civil Engr, PhD Chemical/Envr Engr
- [2] <http://aem.asm.org/cgi/content/abstract/60/1/344>
- [3] http://www.blm.gov/nm/st/en/prog/more/lands_realty/sunzia_southwest_transmission.html
- [4] <http://www.pnm.com/systems/nmwec.htm>
- [5] http://www.westconnect.com/filestorage/swat_project_zia_081706.pdf
- [6] http://www.westconnect.com/filestorage/swat_mtg_min_101806.pdf
- [7] http://www.westconnect.com/filestorage/swat_sun_zia_status_101806.pdf
- [8] Estimate is based on 24-hr operation of 1000 MW gas-fired power plant, 1135 lb CO₂ per MWh (ref: <http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html>), 19.4 lb CO₂ per gallon of gasoline (ref: http://www1.eere.energy.gov/vehiclesandfuels/facts/2009_fotw576.html): $24 \times 1000 \times 1135 \div 19.4 = 1.4$ million gallons of gasoline per day.
- [9] http://www.southwesternpower.com/southwestern_power_group_project_listing.html
- [10] <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12258815>
- [11] 40%, Energy Capital Partners (founder and partners formerly of Goldman Sachs), Short Hills, NJ, and San Diego, CA; 40%, MMR Group, Baton Rouge, LA; 5%, Royal Dutch Shell, The Netherlands; 1%, Tri-State Generation and Transmission Association, Westminster, CO.
- [12] 13%, Salt River Project, Tempe, AZ; 1%, Tucson Electric Power, Tucson, AZ.
- [13] <http://www.wind-watch.org/news/2010/11/09/the-great-transmission-heist/>
- [14] http://www.westconnect.com/filestorage/swat_az_nm_status_082305.pdf
- [15] <http://apps1.eere.energy.gov/states/electricity.cfm/state=NM>
- [16] <http://www.power-eng.com/articles/print/volume-113/issue-7/features/calculating-wind-powersquos-environmental-benefits.html>
- [17] <http://www.wind-watch.org/documents/true-cost-of-electricity-from-wind-is-always-underestimated-and-its-value-is-always-overestimated/>
- [18] <http://www.wind-watch.org/documents/two-oil-companies-use-wind-farm-tax-breaks-to-shelter-profits-from-income-tax/>
- [19] <http://news.heartland.org/newspaper-article/2008/11/01/pickens-plan-fails-account-limitations-wind-power>
- [20] http://www.blm.gov/pgdata/etc/medialib/blm/nm/programs/more/lands_and_realty/sunzia/sunzia_maps.Par.41410.File.dat/WREZ-sunzia-corridor-map.pdf