Cornell Climate Smart Farming Team
Zoom Webinar: Implications of Large Solar Installations and Leasing on Farmland
Friday, February 12, 2021, 12:00-1:00pm

Speakers:

- **David Kay, Cornell University, dlk2@cornell.edu and**
- **Matt Johnson, Tug Hill Commission, matt@tughill.org**

Utility-scale solar projects have been expanding in NY recently due to the need for additional energy development, changing technology, and changes in policies at the state level. This webinar will discuss some of the implications of solar siting on farmland and how we can support renewable energy development while protecting farmland.

Questions and Answers from the Chat

Please note that all answers provided to questions from the chat represent the best available knowledge of our educators at the time of the webinar, and are not the official positions of Cornell Cooperative Extension or Cornell University, or our collaborators.

Question: If the exceedance of prime farmland is not included in the local solar law is there anything NYS Ag and Markets can do to prevent conversion of 50 acres of prime farmland into solar?

DK: *I think it would depend on the specifics of the situation. Very generally, I'd say that NYSDAM can't "prevent" conversion of prime farmland on its own, i.e. it doesn't generally have the authority to do so when a farmer chooses to lease to a solar developer and the local government has not passed land use controls like exclusive agricultural zoning (rare in NYS). Note further that a 50 acre solar development would imply about a 10+ MW development – well below the size threshold that moves the permitting process from local government review to state review. However, NYSDAM (along with local government, farmers, etc.) have many farmland preservation tools that could theoretically be engaged proactively to protect land. Particularly on larger/agriculturally significant properties, NYSDAM is likely to weigh in during the permitting process, thereby having some potential for influence.*

MJ: Ag & Markets review comes into play if a state subsidized project is located within a county agricultural district for projects under the 25 MW threshold. It is my understanding that A&M can make projects harder to complete by withholding state funding or requesting that the developer put money into a fund to purchase agricultural conservation easements elsewhere in the area. For projects over the 25 MW, Ag & Markets will be involved in the review, but is just one voice at the table in regard to the decision made.

Question: I consider solar a placeholder when it comes to ag-worthy soils. Panels are at least temporary compared to housing or any building which is not given the scrutiny regarding construction on these important soils. At least these panels will be replaced and or removed in twentysomething years. It is essential that dual uses such as grazing and shade crops be employed.

DK: You make some points well worth considering. Almost everyone agrees that it is very likely that solar panels will become technologically and economically obsolete within something like the timeframe you discuss. I'd highlight the obvious: replacing panels is not the same as removing them. Both options are likely to happen depending on circumstances hard to predict a couple of decades into the future. Farmers, landowners, regulators and others would be well advised to consider and protect their interests

as best as possible regarding either contingency. As far as dual use, there are many likely, possible, and demonstrable benefits, but it is not yet clear from a research and systems perspective (at least) how important or viable grazing and plantings of crops that do well in shade will prove to be at a wide variety of scales across New York's varied landscapes.

MJ: It is very important to include all available language in your municipality's local law to ensure construction on prime soils is done in accordance with Ag & Markets standards.

Question: Do solar panels interfere with precision ag?

DK: The best answer from me is I don't have enough expertise to answer. I would only speculate that solar could well interfere with some aspects of precision agriculture. I would at the same time speculate that some aspects of precision agriculture would enable greater compatibility with solar development as compared to conventional agriculture. But the economist in me suggests it might be less important to know whether or not there is "some" interference or even synergy, and more important to know in what circumstances the benefits of the solar/precision ag interactions would outweigh the costs.

Question: What potential exists for siting solar panels on water bodies where hydropower is already being generated, infrastructure already exists, no displacement of good farmland or forests?

DK: I don't know how much practical potential there is for this, or even whether this has been looked at carefully in NYS. I do know that there are some research and commercial applications of "floating solar" technology around the world. See, for example, Patil (Desai) Sujay S., Wagh M. M., Shinde N. N A Review on Floating Solar Photovoltaic Power Plants, International Journal of Scientific & Engineering Research Volume 8, Issue 6, June-2017.

Question: Is land in ag districts already subject to a special permit review?

DK: In general, this depends on local municipal law rather than state law for all projects of 20 MW or less, hence it would vary by municipality. Various kinds of local permit requirements, including but not restricted to "special permits" could be required. The state requires that local review of solar panels intended for "on-farm" use not be "unduly restrictive". More generally, see the information in <u>Solar Installations in Agricultural Districts</u>. Larger projects have long been reviewed under the state's Article 10 Law. That law has now been superseded by new legislation requiring review by a new office (Office of Renewable Energy Siting/ORES).

MJ: I would say, typically no, unless the municipality has written something into their law that requires all uses in ag districts to undergo special permit review. The location of a project in an agriculture district <u>WILL</u> likely require it to be reviewed by the county planning board and receive a consultation by Ag & Markets.

Question: Does local planning board have any input to solar projects that are very large scale in nature such as 250 megawatt?

DK: Caveat: I am not a lawyer, nor am I up to the minute on how the new legislation is being implemented. With that as a warning, I think it is accurate to say, speaking most broadly, that input is both possible and expected for projects 20-25 MW and above, though ultimate decision making authority rests with the state. Under the new law, "no application may be complete without [the

developer providing] proof of consultation with the municipality or political subdivision where the project is proposed to be located". Moreover, municipalities are expected to, "submit a statement to the [State] indicating whether the proposed facility is designed to be sited, constructed and operated in compliance with applicable local laws and regulations, if any, concerning the environment, or public health and safety."

So this makes clear that the municipality is expected to provide input. However, the State siting board, "may elect not to apply, in whole or in part, any local law or ordinance which would otherwise be applicable if it makes a finding that, as applied to the proposed major renewable energy facility, it is unreasonably burdensome in view of the CLCPA targets and the environmental benefits of the proposed major renewable energy facility." So the state review board is required to take local laws or ordinances into consideration, but may override those laws under the circumstances specified. I have no special insights into the obviously important question of how narrowly or broadly the State siting board will interpret this language.

It should be noted that similar but not identical language about "unreasonably burdensome" local laws exists in the legislation (Article 10) that already governed siting long before this new siting legislation was passed. Thus, Article 10 states that an electricity generating facility permit will not be issued "unless the [State] board determines that: the facility is designed to operate in compliance with applicable state and local laws and regulations issued thereunder concerning, among other matters, the environment, public health and safety, all of which shall be binding upon the applicant, except that the board may elect not to apply, in whole or in part, any local ordinance, law, resolution or other action or any regulation issued thereunder or any local standard or requirement, including, but not limited to, those relating to the interconnection to and use of water, electric, sewer, telecommunication, fuel and steam lines in public rights of way, which would be otherwise applicable if it finds that, as applied to the proposed facility, such is unreasonably burdensome in view of the existing technology or the needs of or costs to ratepayers whether located inside or outside of such municipality. The board shall provide the municipality an opportunity to present evidence in support of such ordinance, law, resolution, regulation or other local action issued thereunder."

I would note further that there is at least generally similar language about "reasonableness" in relation to broad state goals that enables the State (in this case the Commissioner of Agriculture) to conditionally override local governments if they enact local laws that "unreasonably restrict or regulate farm operations within agricultural districts in contravention of the purposes of this article unless it can be shown that the public health or safety is threatened." While there is a track record of decisions from which to learn how the State interprets this language, this is not yet available for the new siting board.

Question: Please touch more on the balance between the rights of the farmer versus planning approval or denial.

DK: The landowner (who may or may not be the farmer) has the right to accept or reject any purchase or lease offer made to them by a solar developer. Landowners can and should negotiate with the developer, generally with the assistance of legal counsel, to make sure their expectations are met and their interests are protected when the sign a lease. Landowners should be equally careful as well with any agreement they may sign with a developer they may be asked to sign before the full, formal lease (eg. a "Letter of Intent" or "Option Agreement"). Landowners and developers, in signing, may or may not choose to take the interests of agriculture into account in the terms that are incorporated into their agreement.

It is the developer who applies for planning approval from either the state or the local government. The government will take a variety of factors into consideration, and impose certain conditions, before it issues or denies a permit. But the landowner's substantive "rights" in the process are primarily in relation to the agreement they have signed with the developer, not in relation to any obligations the government has to the landowner.

MJ: There are remedies available to a landowner or developer whose proposed solar project is disapproved by a municipality. The aggrieved party can appeal decisions of the municipality to the zoning board of appeals for relief from certain zoning requirements and can ultimately appeal the municipality's final decision to NYS Supreme Court if they feel the municipality arrived at that decision in some arbitrary or incorrect manner.

Question: Are there any efforts/incentives to require solar project developers to have a percent of their project housed on residences, businesses, parking lots etc to make best use of land already being used? Near site or off site?

DK: There is a lot of interest in NYS and elsewhere in "low impact solar" siting – generally this is about trying to steer solar development to sites on which it is generally considered to be most appropriate. As mentioned during the webinar, several regional studies have used GIS and related tools to provide information with this kind of goal in mind (see e.g., https://www.scenichudson.org/our-work/climate/renewable-energy/howtosolarnow/ and http://solarroadmap.org/) "Requirements", however, would presumably be imposed in land use (zoning) legislation and project review processes, where state and/or local government are in the lead. I do not know how many local governments in NYS have been proactive in their zoning laws by steering solar towards some locations and away from others, but some certainly have and "solar zoning" is a topic of increasing interest. As noted in response to an earlier question, however, State law has long enabled the State to set aside provisions of local law that it considers "unreasonably burdensome". Also relevant to this is a provision in the new state siting law, now in the process of being implemented, which requires the state to itself become a kind of developer of "build ready sites". In particular, the Build Ready program is intended to involve the state in locating and prioritizing and preparing for development "existing or abandoned commercial sites, brownfields, landfills, former industrial sites, and other abandoned or underutilized sites." See https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Landowners-and-Local-Governments/Build-Ready-Program

MJ: For projects under the 25 MW threshold, there are some incentives in that SEQR review is not required for some projects that locate on disturbed sites. Some county Industrial Development Agencies (IDAs) are also trying to configure PILOT agreements in ways that incentivize location away from quality agricultural soils.

Question/Comment - if the farmland where the panels are going is receiving an Ag Assessment (exemption), they will have to pay back the savings for the last 5 years (if in a district) or 8 years (if outside). That is being missed by some farmers and they are surprised at the very large penalty.

DK: This issue – whether the landowner (who may be a farmer) who received a reduced assessment for farmland will need to pay a penalty – is important. NYSDAM does not currently consider land dedicated to solar energy to be eligible for an ag assessment. Whether that could change in the future for some kinds of "agrivoltaic" operations is an open question. Most landowners will want to check carefully to see whether the lease they sign requires the developer or the landowner to pay any increased property taxes, inclusive of the 5 year penalty you mention.

Question: Is it better to opt out of the PILOT and work off the assessed value of the panels on large projects?

DK: The answer to this will depend on your municipality's priorities and values. There is relevant information about this available in the NYS Solar Guidebook's section on Solar Payment-in-Lieu-of-Taxes (PILOT) agreements, which discuss the State's 15 year solar tax exemption:

"The law does, however, allow any taxing jurisdiction (town, school, etc.) to "opt-out" of the tax exemption by adopting a local law or resolution, making the added value of a solar panel system fully taxable. Alternatively, a taxing jurisdiction that does not opt-out can require a solar developer to pay an annual fee or "payment- in-lieu of taxes" as a replacement for the taxes it would have otherwise collected. Under the law, PILOT amounts cannot exceed what the tax amount would have been without the exemption. Additionally, the law does not allow jurisdictions to partially opt out of the law to generate tax revenue from large solar projects while exempting the small systems of homeowners. Opting out of RPTL § 487 makes community solar projects financially unviable and makes homeowners' rooftop systems more expensive. See
https://www.nyserda.ny.gov/All%20Programs/Programs/Clean%20Energy%20Siting/Solar%20Guidebook
There is a list of municipalities that have chosen to "opt out" at
https://www.tax.ny.gov/research/property/legal/localop/487opt.htm

Question: I am on a zoning board, almost all the solar farm apps in our town ask for variances on code. seems like many towns are behind the times on their laws.

DK: would tend to agree. Almost by definition, if variances are repeatedly granted for the same situation, something has gotten out of kilter. Variances are generally intended to accommodate exceptional circumstances, not routine ones which are more properly handled through amendments to the land use/zoning law.

MJ: It is important that municipalities build some flexibility into their laws and review processes. What works on one site might not work as well on a site in another part of town.

Question: I believe that the Scenic Hudson Solar Siting Tool shows the high capacity lines where it is easier to hook up large scale solar. NYPA and maybe NYSERDA has similar data.

DK: As I understand it, the availability and quality of interconnection information has varied from utility region to utility region. While the location of the lines tends to be available and is very useful for planning purposes, the capacity of specific lines at specific substations to absorb additional electricity is less available. The actual ability of a specific large solar proposal to connect to the grid requires a significant study in conjunction with the state's electricity grid manager, the NYISO.

Question: A developer is telling our board that the solar electricity from a local site only stays within the community. Doesn't this just go out to the grid??

DK: Once electrons are supplied to the grid, you are correct. For nearly all large scale solar facilities this would be the case. If the solar facility is not connected to the utility grid (used only on-farm, for example; or by an "islanded" microgrid).

Question: If you have a farm and want to convert some of it to solar. Is it still considered for Ag exemption or does that part revert back to regular land. And what if we put sheep in with the solar panels?

DK: As noted in an earlier response, the acreage that is devoted to solar will no longer be eligible for the ag exemption. Grazing sheep on the solar property does not, under current rules, enable the land to retain the ag exemption.

Question: What about tearing down forest land for solar farms, how does this harm our communities?

DK: Forests provide many kinds of services to humans and to nature. Converting forest or woodland to solar panels would certainly have an impact on those services. Whether this was considered "harmful" or "beneficial" would likely depend on the circumstances and definitely on who was making the judgment. While large scale solar does impact forested acreage, our analyses so far suggest that solar developers tend to propose facilities more often on pasture and cropland.

Question: Do you see the potential of the state's push for solar development resulting in an expansion of eminent domain provisions - allowing for powerline linkages of solar sites to transmission lines, and adding another concern for obstructions to affected farms.

DK: I know that the new siting law contains some language about "priority projects that the authority determines to undertake and that are not substantially within the power authority's existing rights of way", and that several studies regarding the needs for grid upgrades are describe by NYISO in their 2020 Power Trends report:

https://www.nyiso.com/documents/20142/2223020/2020-Power-Trends-Report.pdf/dd91ce25-11fe-a14f-52c8-f1a9bd9085c2. But I do not know enough about the scope of authority to use eminent domain, or the probability that such authority would be used in practice, to answer the question directly.

Question: Someone told me there is actually a limit on the amount of solar power a town can develop. I can't find any such information. Is there anything stopping a town from going beyond a certain percent solar.

DK: I'm not sure what kind of limit this would be. I can't think there of any legal limits that would "stop a town from going beyond a certain percent solar". There may, however, be some limitations pertaining to grid interconnection capacity at certain locations.

MJ: I have not heard of this.

Question: Have you typically seen panels sited within wetlands, or is it your opinion this is poor siting? We have about half a project sited within wetlands (about 12 acres) that received a local variance and a no permit needed from Army Corps (DEC does not have jurisdiction) Thank you!

DK: As you suggest, there is a great deal of federal and state policy that is intended to protect wetlands. This is because wetlands provide important ecosystem functions. However, not all wetlands provide the same benefits, and it sounds like the project you mention has not impacted wetlands that are "jurisdictional" under state or federal law. It's unclear whether the local variance you say was granted was related to the wetland or a local wetland law specifically, or whether the variance was justifiable. I am in no position to second guess any decision that was made. What I can say empirically is that based on our analysis of the 40 projects being considered for large scale solar development under Article 10 as of last year, almost half of the land within the project boundaries was in crop or pasture, about a third was forested, and about 10% was wetland. Most of these projects were in various stages of review, which in part is supposed to consider where, within these boundaries, the solar panels can or cannot be installed, i.e. not all of the acreage within the project boundaries would end up under solar panels even when fully developed.

Question: Could county planners provide maps that show sites that are suitable for big solar projects and a layer that shows best ag soils for communities to be able to utilize in making informed choices. Could county planners provide information about local electric needs.

DK: That will depend on the county, but many county, regional and other planners do have the capacity to identify sites that would be most suitable considering various criteria. Having the capacity conduct such an analysis is not equivalent, however, to having the priority or time for the analysis.

MJ: County and regional planning agencies may be able to help with this as time allows. County soil and water conservation districts may be able to help as well.

Question: There was a slide that said 48% of the land cover within proposed project boundaries was farmed acreage. At the same time, 12% is wetland and 33% woodlot. Realistically, wetlands will not be developed, and removing forests is quite unpopular and has a much higher environmental impact. So, isn't the functional amount of acreage that can actually be used almost ALL ag land? And 77% of that are soils of agricultural importance?

DK: This is a reasonable conclusion, considering that this data is only from these 40 large sites that are under Article 10 review already. Solar energy requires a relatively large amount of land per MW of electricity. Developers have various reasons that farmland can be especially attractive to them. Solar will go somewhere. As you suggest, it is not a foregone conclusion that the public interest may not be best served by trying as a rule to site all solar instead on wetlands or forest lands. There are also often economic, environmental, social or other practical barriers to siting solar on land that has already been disturbed for other purposes. This includes many "existing or abandoned commercial sites, brownfields, landfills, former industrial sites, and other abandoned or underutilized sites" that might otherwise seem ideal for solar development.

Question: Is there any experience in solar/wind projects as source of energy to heat captive greenhouses?

DK: I'd expect the answer is yes, but I don't have a good answer right at hand and I'm not sure what you mean by a "captive greenhouse".

Question: Has there been a limit set for the noise generated from the various size solar farms?

MJ: The draft Office of Renewable Energy Siting/Section 94c regulations has some requirements regarding noise generation for projects over the 25 MW threshold. See https://ores.ny.gov/regulations

Question: What control if any does a municipality have in controlling solar being installed on state land? Specifically Department of Corrections land?

DK: I don't know the answer to this either, but in general the State is likely to be able to supersede local authority on state land unless there is an arrangement to the contrary.

MJ: I would say, in most cases, the municipality would have no control.

Question: Are the runoff standards still built on the 100 year storm that is now occurring at shorter intervals with climate change?

DK: I don't know the answer to this question – you could contact the NYS Water Resources Institute.

Question: Is anyone researching small solar i.e. using house roofs rather than big solar?

DK: Yes, though I'm not sure what you mean by "researching." The NY SUN program provides a lot of information about solar for residential and business uses, much of which is rooftop. See https://www.nyserda.ny.gov/all-programs/programs/ny-sun