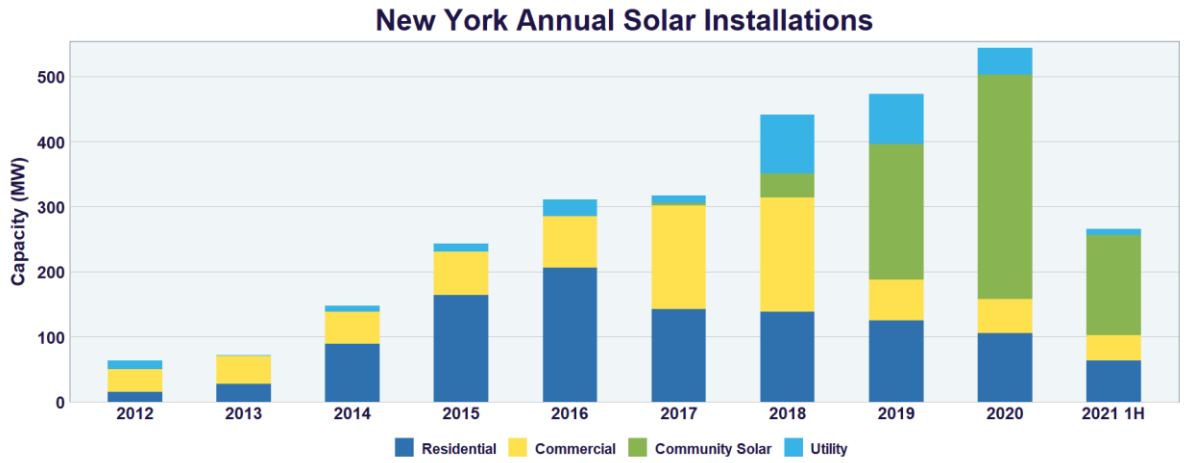
IDA Involvement in Solar Projects in the Genesee-Finger Lakes Region

Empirical data from interviews with County IDA officials in the Genesee-Finger Lakes Region

Contents

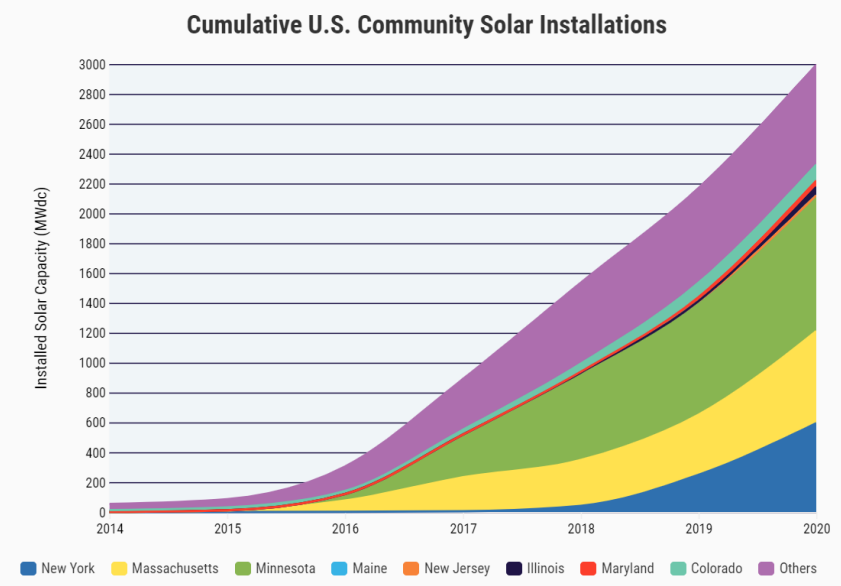
Introduction

Solar development is growing throughout the U.S. and rapidly expanding in New York State. According to the Solar Energy Industries Association, in the last decade, "solar has experienced an average annual growth rate of 42%."[1] Solar energy is powering nearly 19 million homes in the U.S., and over 230,000 Americans have jobs in the solar industry. In New York, the solar industry has invested over $7 billion, with $899 million of that coming in 2020.[2]



Source: SEIA

According to the SEIA, there are 10,214 Solar Jobs in New York State, with 761 Solar companies, including 91 manufacturers and 263 installers/developers and 149,041 total installations.[3] Though New York State only accounted for a small amount of installed solar capacity in the U.S. a few years ago, community solar development has grown rapidly here, making New York one of the leading



Source: SEIA

[1] https://www.seia.org/solar-industry-research-data
[2] https://www.seia.org/state-solar-policy/new-york-solar
[3] Ibid

states in the U.S. for community solar installations.

As more solar projects happen in Upstate New York and in the G/FLRPC region, IDAs have the challenge of negotiating PILOT agreements that meet the needs of developers for fiscal viability, while also providing benefits to the host community. We heard from IDA leaders in the Genesee/Finger Lakes Region that understanding the types of deals and incentives being offered by other IDAs would help establish reasonable expectations for host community benefits, payments per MW from the developer, and typical terms for PILOT duration and escalation factors. We additionally sought to capture some of the 'color commentary' of how deals are being negotiated and what IDAs are experiencing during this massive shift in the market. We conclude by identifying a few key areas for IDAs to look for future changes as solar development and technology evolves, particularly where it may impact how an IDA or community considers incentives, benefits, and costs.

Solar Development Incentives in New York State

Though RPTL 487 exempts the value that a solar project contributes to the assessment for local property taxes, communities are permitted to opt-out by local resolution, making the improvements to the property fully taxable. Communities that do not opt-out are permitted to make PILOT agreements with developers (provided they do not exceed what the taxed amount would have been absent the incentive) that allow for the development projects to go forward while providing revenue for the host municipality.

In various publications, NYSERDA admits that identifying the optimal level for a negotiated PILOT is complicated. If a solar developer seeks an IDA PILOT, what is a fair level that project developers can afford? Though each project is different and depends on the economics of construction costs and operation costs and revenues, NYSERDA estimates from their research that "PILOT rates should be negotiable between 1% and 3% of the compensation solar developers receive for the electricity their projects generate."[4]

NYSERDA offers a Solar PILOT Calculator to assist in identifying a range of PILOT agreements in terms of dollars per megawatt. The following table of sample PILOT rates are presented in the New York Solar Guidebook for Local Governments. ("Low" and "High" rates represent 1% and 3% of the compensation solar developers receive for the electricity their projects generate. NYSERDA's research of solar project economics across the State indicates that such projects should be able to afford rates within this range."[5])

[4] New York Solar Guidebook for Local Governments: Solar Payment-In-Lieu-Of-Taxes (PILOT)
[5] Ibid

	Low ($/MW AC)	High ($/MW AC)
Central Hudson	$2,600	$7,600
Orange & Rockland	$3,200	$9,500
National Grid	$1,700	$5,100
NYSEG	$1,700	$5,000
Con Edison	$3,700	$11,100
Rochester Gas & Electric	$1,700	$5,000

Based on the Rochester Gas & Electric region, the NYSDERDA "Calculator One" estimates that, based on a 5 MW project, the range of financial viability is from $1,700 to $5,000 per MW. Shades of darker green indicate a higher financial viability. Shades of red indicate that a project may not be financially viable at those PILOT levels.[6] The following tables provide estimates for the Rochester Gas & Electric, National Grid, and New York State Electric & Gas utility regions.

Model Output - PILOT Estimates		
% of Compensation	**PILOT ($/MW)**	**Total System PILOT**
1.0%	**$1,700**	**$3,400**
1.5%	**$2,500**	**$5,000**
2.0%	**$3,400**	**$6,800**
2.5%	**$4,200**	**$8,400**
3.0%	**$5,000**	**$10,000**
3.5%	$5,800	$11,600
4.0%	$6,700	$13,400
4.5%	$7,500	$15,000
5.0%	$8,300	$16,600

Rochester Gas & Electric

[6] "Sample PILOT rates are valid for a typical 2 MW community solar project in 2017. Sample PILOT rates represent a good-faith effort based on an independent analysis of current solar market data and an analysis of solar project compensation rates established under the preliminary value stack in the New York Public Service Commission's March 2017 Value of Distributed Energy Resources (VDER) order. Individual project economics will vary. NYSERDA continuously assesses solar market data and may revise this Toolkit when appropriate. PILOT rates are subject to change in accordance with ongoing Public Service Commission proceedings and market conditions."

Model Output - PILOT Estimates		
% of Compensation	PILOT ($/MW)	Total System PILOT
1.0%	$1,700	$3,400
1.5%	$2,600	$5,200
2.0%	$3,400	$6,800
2.5%	$4,300	$8,600
3.0%	$5,100	$10,200
3.5%	$5,900	$11,800
4.0%	$6,800	$13,600
4.5%	$7,600	$15,200
5.0%	$8,500	$17,000

National Grid

Model Output - PILOT Estimates		
% of Compensation	PILOT ($/MW)	Total System PILOT
1.0%	$1,700	$3,400
1.5%	$2,500	$5,000
2.0%	$3,300	$6,600
2.5%	$4,100	$8,200
3.0%	$5,000	$10,000
3.5%	$5,800	$11,600
4.0%	$6,600	$13,200
4.5%	$7,400	$14,800
5.0%	$8,200	$16,400

NYSEG

Though the calculators and research from NYSDERA are valuable to municipalities and IDAs considering PILOT agreements with solar developers, we sought to expand our understanding of reasonable PILOT agreements by documenting recent solar development incentive deals in the Genesee-Finger Lakes Region. By speaking with leadership from nine county industrial development agencies, we were able to collect data and narratives that further describe what is reasonable in a PILOT agreement based on the most recent local transactions. This data (summarized in the table below) shows that PILOTS judged by NYSERDA data to be at the upper-threshold of viability are common and that some IDAs even report higher $/MW could be sustained by the market. Moreover, we collected important information regarding the number of recent deals completed, expected new projects (and typical size of the project) and the typical terms in recent years.

Summary Table of Common Interview Responses

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Genesee	15	1	1.6-5 MW	$5,500 - $6,000	2%	15-20
Wayne	9	2	1-5 MW	$5,500	2%	15
Seneca	3	1-3	5 -80 MW	$4,500	2%	15

Livingston	10	3	2-5 MW	$5,500	2%	15
Wyoming	3	2	12.8-20MW	$3,500 - $5,000	2%	20
Monroe	2	0	5 MW	$0 (Only revenue is from sales tax on construction.)	NA	NA
Yates	3	1	3-5 MW	$4,250 - $4,860	2%	25-30
Ontario	4	0	4.2-20 MW	$5,000	2%	15
Orleans	0	1	200 MW	N/A[7]	N/A	N/A

Case Studies: What we learned from talking with IDA leaders in G-FL

Methodology

In early September of 2021, we contacted county IDAs throughout the Genesee-Finger Lakes region and invited them to participate in a phone call discussion to ascertain the current practices and 'on-the-ground' experience of IDAs as they are working with developers of solar energy projects. The following email was sent out to identify the value in sharing knowledge on solar development projects and incentives and to give respondents an opportunity to consider the types of information we were interested in collecting.

As a follow-up to G/FLRPC's recent Economic Development Advisory Committee (EDAC) meeting on 9/1, I would like to set up a call with you to discuss solar energy developments in your county. We are conducting research to determine how IDAs, in the Region and State, have handled these types projects thus far. Our goal is to encourage regional collaboration on these projects by providing transparency on how you and your neighboring counties have handled solar projects in the past.

During the discussion, we would like to cover:

- How many solar projects has your IDA completed? Is there anything in the pipeline?
- What is the typical range of your PILOT agreements, in terms of price/MW and duration?
- Do projects in your county typically include a Host Community Benefit? If so, how much is the HCB? Does that amount influence the PILOT per-MW amount?

From the EDAC discussion, it is clear that each of the GFLRPC counties are dealing with solar projects and are looking to each other for guidance. We are hoping that this research will provide valuable insight on the reasonableness of solar project PILOT requests that your county is sure to receive in the future.

[7] Not yet induced a project at the IDA level

From September 9th to November 1st we spoke individually with leaders of county IDAs in the Genesee-Finger Lakes region over the phone in conversations ranging from 20 minutes to around 1 hour.

Our first goal in these conversations was to gather responses to a consistent set of questions regarding the number of solar projects, range of size of projects, agreed-upon payments from developers, escalation rates used in deals and the typical number of years for most deals. Our second goal was to learn and record what IDAs in the G-FL region are 'seeing on the ground,' and provide context and narrative to go with the numbers.

Genesee County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Genesee	15	1	1.6-5 MW	$5,500 - $6,000	2%	15-20

Of the 8 county IDAs with which we spoke, Genesee County reported the largest number of projects with 15 completed projects and 1 currently in the pipeline. At the time of our interview, Genesee County reported a total of 59.65 MW of projects with $76,917,873 of capital investment. Future county, town, and school PILOT agreements total $5,847,890, and there are $375,000 in one-time community host benefits.

Genesee County reported that they started at $5,500/MW PILOT with a 2% annual escalator over a 15-year term. These deals included a one-time $25,000 host community benefit payment for workforce development and economic development programming.

As of 2021, deals were based on $6,000/MW PILOT with a 2% annual escalator, 15-year term, and one-time $25,000 host benefit for workforce development and economic development programming.

The project currently in the pipeline is a large-scale 280 MW facility that has will pay a total of $6,500/MW in a 'pot' of both PILOT and host agreements, with a 2% annual escalator and a 20-year term (breakdown below).

Excelsior Solar (280 MW NYS Article X)	Year 1 Project Revenues	Years 1-20 Project Revenues
Genesee County (Total Host + PILOT)	$1,281,775	$7,846,391
Genesee County (1-Time Host)	$1,000,000	$1,000,000
Genesee County (PILOT)	$281,775	$6,846,391

Town of Byron (Total Host + PILOT)	$862,522	$20,957,016
Town of Byron (Host)	$742,000	$18,028,648
Town of Byron (PILOT)	$120,552	$2,929,097
Byron-Bergen School (PILOT)	$675,703	$16,417,806
All Municipalities (All PILOT + Host)	$2,820,000	$44,221,213

Other notes from our conversation:

- Farmers are getting proposals from developers who are reaching out with greater frequency to 'almost anybody – like Dollar General' provided sites are near power lines.
- In 2021, the county is going to move to $6,000/MW for all projects.
- Bringing in ~$50m over 15-20 years from all projects.
- Cider Solar paid a one-time $25,000 to workforce and economic development – Deals have "strong potential for workforce training opportunities"
- Recommended approach: 1. Go for highest $/MW deal 2. Then work on PILOT and host community benefits, i.e., first grow the pot, then negotiate splits.
- Cites problem where, e.g., school district negotiates first, and then other municipal units are left out and revenues are lost.
- Get to highest possible benefits first with $/MW before moving on to other incentives.

Wayne County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Wayne	9	2	1-5 MW	$5,500	2%	15

In addition to the information summarized in the table above, our conversation with Wayne County revealed that there was an additional one-time host community benefit of $25,000 per MW paid at the close of the deal. This benefit was paid exclusively to the Town.

- Wayne County expects more large-scale projects on the way.
- Most of these deals have been "working pretty well".
- The IDA started negotiating with developers in 2018.
- Seeing 'steady' interest in projects of 2 to 4 per year.
- Starting to hear of more large-scale projects, discussions are underway for a ~350 MW facility.

Seneca County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Seneca	3	1-3	5 – 80 MW	$4,500	2%	15

Our discussion with Seneca County revealed that, like other counties in the G-FL region, there is a slow but steady pipeline of projects with at least one large-scale project expected. In this case, Seneca County reported that they had one 80 MW project last year and expect another of similar size in the near term. When it comes to larger solar projects, they expect a lower $/MW payment, stating that larger-scale project such as this would command smaller benefit payments of $2,000 - $2,500 per MW.

One suggestion that emerged from the discussion was that Seneca County felt standard terms across IDAs would assist in establishing starting points for negotiations with solar developers. The feeling from working with developers is that the amount of negotiated payment is not as important a factor in securing a deal as factors such as delays to the project schedule. Currently, Seneca County reports that developers haven't balked at $4,500/MW and the market for small projects sufficiently supports this price.

- Community benefits – have not been involved in negotiations but left it up to the Town
    - The town negotiated $750/MW with a 3% escalation rate. 'Might be for the full duration of the project.'
- Last year, they saw one project that was over 80 MW, and expect a few more larger scale projects a few years away.
- Question for the community is how to come up with PILOTS for larger scale projects – so far they have been looking to NYSERDA and other IDAs.

Livingston County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Livingston	10	3	2-5 MW	$5,500	2%	15

- 10 projects last year of 2-5 MW.
- Three large scale projects in the pipeline.
- $5,500 MW typical payment.

- 2% escalation.
- 15-year term but "we don't mind going longer – 30 years not a problem".
- Host community benefit agreements have been inconsistent.
- Questions about battery capacity:
    - Battery capacity changes income valuation.
    - There is disagreement on how to include in valuation .
- $5,500 is a consistent payment level, though split up of the payment is uneven across municipal subdivisions (town/school).
    - Town holds most, if not, all the risk for decommissioning the project should it default or be abandoned by developer.
    - Livingston County gets involved in town or host community negotiations to make sure that amounts get to same $5,500 level.
- Some developers have been taking advantage of the 487 exemption, sending notice to various offices/departments and waiting for the expiration of the statutory limit. In this way, they have apparently obviated the need to negotiate a PILOT or other arrangement. This has happened in some instances because the host community was unaware of its rights or did not know how to respond.

Wyoming County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Wyoming	3	2	12.8-20MW	$3,500 - $5,000	2%	20

Our conversation with Wyoming County revealed that three solar projects have been completed with two more coming down the pipeline. All of the solar projects completed thus far have been less than or equal to 20MW. One of the pipeline projects still being discussed is significantly larger at 175MW. In most cases, the County's solar projects include some form of Host Community Benefit that is negotiated with the host community prior to IDA involvement. In most cases, Town Boards are requiring a decommission bond to be included in the Host Community Agreement.

Other Notes:

- The IDA does not have a standard policy for solar in its UTEP – all projects are considered deviations.
- Solar projects can linger before they are closed. Some projects have been cleared through the IDA but held up on funding causing the projects to stall.
- Host Community Benefits are structured as a 80/20 ratio between the Host Community and the IDA respectively.

Monroe County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Monroe	2	0	5 MW	$0 (Only revenue is from sales tax on construction.)	NA	NA

COMIDA has been involved with two solar developments at this point. In both cases, neither development requested a PILOT from the IDA, but rather sought a sales and use tax exemption only. There are no projects in the pipeline at this point, but the County expects a steady increase in solar projects aligned with meeting the State's energy goals. The two projects completed thus far had agreed to Host Community Agreements prior to seeking IDA agreements. The Host Community Agreements did not impact the IDAs decision to grant exemptions for the projects.

Other Notes:

- The IDA was aware of one other project, Borrego Solar, that did not seek IDA assistance. This project agreed to a Host Community Benefit of $400,000 to be paid to the community before any permits were issued.

Yates County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Yates	3	4	3-5 MW	$4,000 - $4,860	2%	25-30

Yates County IDA has successfully approved three solar projects thus far and has at least four projects in the pipeline at this point. At the time of the interview one project is actively producing electricity while the other two are in construction. Recently, the Board of Directors voted to approve 3 additional 5 MW projects based on a 30-year PILOT with a $4,000/MW payment. Reductions in state incentives and changes to the solar appraisal

calculator factored into the approval of the payment, which was lower than previous payments.

Yates County reported their solar deals include a PILOT ranging from $4,250 - $4,860 / MW over a 25-30-year term. Typically, the IDA prefers to tie the PILOT term to the useful life of the equipment included in the development. In addition to PILOTs, solar projects also include sales and use tax exemption for the construction of the facility.

Other Notes:

- Prior to IDA involvement, one project has negotiated a host community benefit of $100,000 - $150,000.
- Host community benefits does not influence the PILOT term considered by the IDA.
- The IDA noted that lack of clarity on other state incentives that solar developers are receiving makes it difficult the reasonableness of the PILOT request.
- The IDA noted one potential challenge is the first few projects may serve as an "anchor point" for future request that may be unsustainably low.

Ontario County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Ontario	4	0	4.2-20 MW	$5,000	2%	15

At the time of the interview, the Ontario County IDA has completed four projects. All four projects have been approved by the IDA board but have not officially closed at this point. These projects range from 4.2 MW – 20 MW. While the IDA does not technically have a standard policy include in their UTEP, IDA inducement has generally followed a standard PILOT of $5,000/MW over a 15-year term. The IDA noted that developers typically seek a PILOT 30-year term. As such, the IDA is comfortable granting a 15-year term and would potentially consider granting a 15-year extension in the future.

Other Notes:

- The IDA had mentioned that their solar projects typically do not include ongoing employment at the Site after construction. As such, the IDA is interested in redefining the metrics of success and/or impact of these models.
- As of January 1st, 2022 most solar projects will be subject to prevailing wage laws.

Orleans County

	Number of Completed Projects	Number of Projects in Pipeline	Range of size of typical project	Developer Payment ($/MW)	Escalation Rate	Number of years
Orleans	0	1	N/A	N/A	N/A	N/A

While the IDA has not yet been involved in a solar development at this point, Orleans County IDA expects developers to undertake several projects in the coming years. Currently, there is one project in the pipeline, Hemlock Solar, that is a substantial 200 MW facility in Medina, NY.[8]

Consideration and Mitigating Factors

Future Land-Use potential

As more communities in New York State consider the opportunities presented by the development of community solar programs, it becomes increasingly relevant to understand the impact on agricultural use and the potential loss of farmlands. According to recent research from Max Zheng at Cornell, reaching the goals of New York State's 2019 Climate Leadership and Community Protection Act will require 21.6 gigawatts of utility-scale solar energy.[9] Their research recommends that future development of solar projects take into consideration the preferred use of lower-quality agricultural lands, avoid concentrated solar development that crowds out support businesses for agriculture, and creates stronger incentives for programs that combine agriculture with solar (Agrovoltaics.)

Strategies for Site Steering away from Prime Farmland Soils

In its Issue Paper Series[10], the New York State Tug Hill Commission has reported on policies adopted by counties in the North County of New York State that address the need to balance demand from solar developers of prime agricultural soils and the need to keep quality farmland in productive agricultural use. In addition to zoning, the paper identifies PILOT agreements as a tool that can be used to steer solar development away from prime farmland soils and towards other locations that have access to transmission lines, such as "remediated brownfields, unused parking lots, parcels adjacent to transfer sites, landfills, prisons and quarries."

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[8] Our conversations revealed that part of solar developers' interest is driven by suitable open land near power transmission lines. A non-technical review of transmission lines identifies few lines with substantial reach into Orleans County.
https://fema.maps.arcgis.com/apps/webappviewer/index.html?id=90c0c996a5e242a79345cdbc5f758fc6

[9] https://news.cornell.edu/stories/2021/05/engage-public-explore-methods-secure-nys-green-energy

[10] https://tughill.org/wp-content/uploads/2021/02/PLANNI1.pdf

In the fall of 2020, the Lewis County IDA revised their Universal Tax Exemption Policy (UTEP) to specifically address solar with a focus on creating a structure to incentivize the use of marginal agricultural land while also protecting a landowner's ability to develop their land as they see fit. The UTEP helps to guide how the Lewis County IDA issues Payment in Lieu of Taxes (PILOT) programs for new business development. The UTEP is available through the Lewis County IDA.

Some of the key revisions to the UTEP specific to solar development include asking the questions:

- Is the land proposed for development supporting a commercial farming operation (within the past 18 months)?
- Is the land the solar developer is pursuing labeled prime, prime if drained or land of statewide importance, as defined by USDA?
- Is the land considered marginal land (i.e. does not fit into the three categories outlined above)?

Each PILOT agreement will be considered on a case by case basis, with the proposal to start PILOT rates at $5,500 per MW for the use of prime, actively farmed land. The PILOT rate becomes more attractive for the developer as the developer pursues idle and/or lower quality soil types. This structure is an effort to more fairly compensate for the development of land with the highest value to the county's agricultural economy and encourage development of more marginal acres.

-New York State Tug Hill Commission, Issue Paper Series

Dual-use Solar

Kirk Siegler/NPR

According to the National Renewable Energy Laboratory, up to two-million acres of farmland could be converted into solar use in the next decade. In New York State, reaching CLPA goals of 70% renewable energy by 2030 means farmland will increasingly be a target for development. Dual-use solar/agriculture or 'agrovoltaics' present an option for gaining the benefits of steady revenue streams from solar development projects while continuing to benefit from productive agricultural use. Research from NREL has investigated the potential for dual-use energy and food systems to operate synergistically, where shading and water runoff from photovoltaic cells enhance agricultural production while agricultural use provides benefits to energy production by lowering

panel heat stress.[11] The researchers suggest that co-location of photovoltaic solar development and agriculture could provide win-win outcomes. IDAs and community development partners could work to structure incentives that consider dual-use approaches that present outcomes with fewer economic downsides where agricultural use (and the supporting nearby agricultural economies) are not sacrificed.

Conclusion

What is a 'Reasonable' incentive/deal for an IDA for a Solar Development? We have found that:

- Per-megawatt IDA PILOT payments have typically ranged between $4,000 - $5,000, but appear to be creeping upwards to around $5,500.
- Most IDA PILOTs include a 2% escalation per year.
- Most IDA PILOTs last for 15 – 20 years, though some offer up to 30 years.
- Host community benefit agreements are only sometimes used. When they are used, the combined amount of the host community benefit payment and the IDA PILOT payment is in the range described above.

Other trends noted:

- The overall trajectory of solar growth in NYS will require more use of farmlands.
- IDAs in some counties outside of the Genesee Finger Lakes region (e.g., Lewis and Jefferson counties) have revised their UTEPs to create structures to incentivize the use of marginal land over prime lands.
- Dual-use, or 'Agrovoltaics', presents an opportunity for communities to benefit from solar development projects while not losing all of the existing agricultural production benefits.
- With the newly-revised solar project tax assessment methodology, the need for IDA PILOTs may be reduced in the future.

Additional Resources

New York State Solar Guidebook (Includes Solar PILOT toolkit and calculator):

https://www.nyserda.ny.gov/solarguidebook

SEIA Major Solar Projects List:

https://www.seia.org/research-resources/major-solar-projects-list

Issue Paper Series: Planning for Offsite Solar Energy Projects, NYS Tug Hill Commission:

https://tughill.org/wp-content/uploads/2021/02/PLANNI1.pdf

[11] https://www.nature.com/articles/s41893-019-0364-5