

Solar Energy 101

Andrew Makee

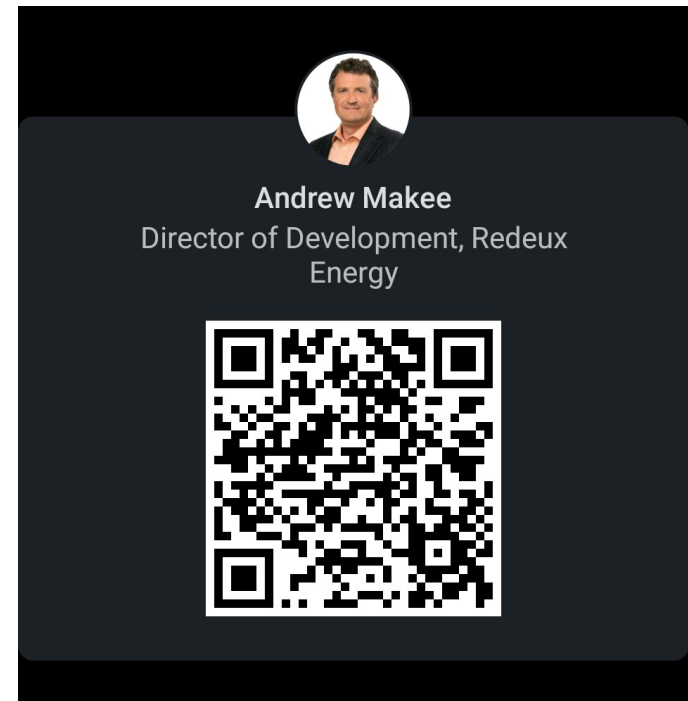


Renewable Energy Professional with 13+ years of experience developing utility-scale wind, solar and battery storage projects throughout the US.

Director, Development

Phone: 828.747.9354

Email: amakee@redeuxenergy.com



The Redeux Difference



Redeux is a leading utility-scale solar development company. We are experts in transforming greenfield, brownfield and industrial lands into renewable power projects that create new revenue streams, meet ESG goals, and support local economies and workforces.



➤ **Highly Qualified Team:** Led by veterans of the largest Independent Power Producers with decades experience in clean energy project development, finance, construction and operations



➤ **Development Focused:** Specializing in early-, mid- and late-stage project development; successfully navigating the challenges and risks of land acquisition, project engineering, interconnection, permitting, power offtake, financing and community engagement

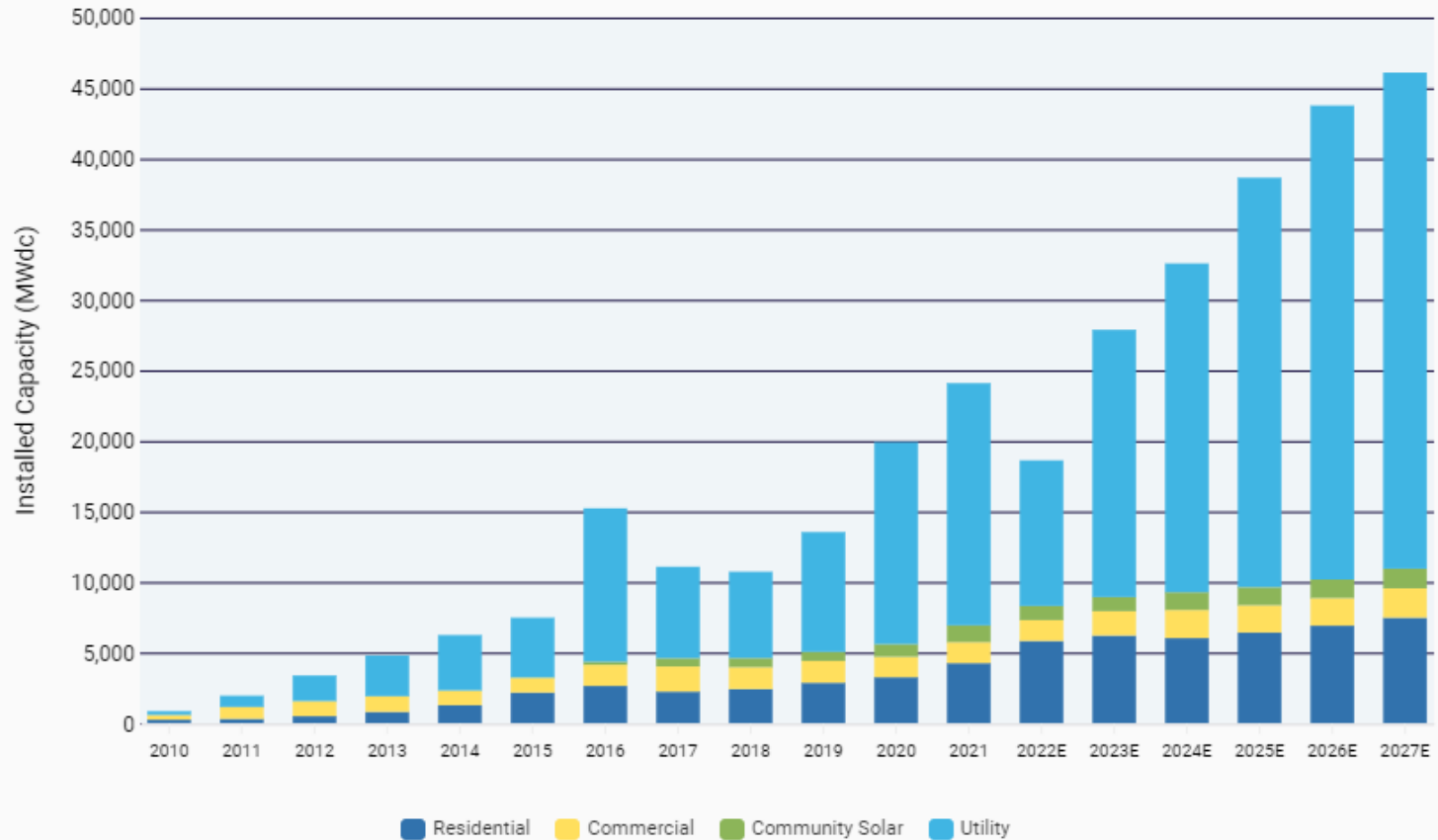


➤ **Owner's Mindset:** Developing with a blue-chip sponsor's mindset – ensuring economic and financeable investment opportunities for clients that build, own and operate



➤ **Well-Capitalized:** Backed by [Cathexis Holdings](#), a multi-billion-dollar diversified equity sponsor based in Houston, Texas

U.S. Solar PV Deployment Forecast



SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight Q4 2022



Components of a Solar Panel

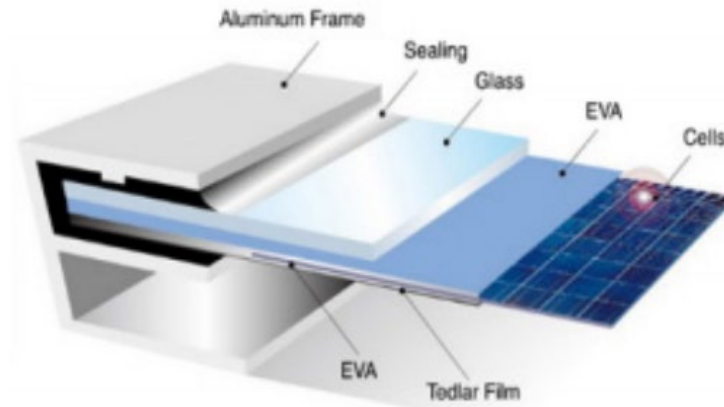


Figure 2: Components of crystalline silicon panels. The vast majority of silicon panels consist of a glass sheet on the topside with an aluminum frame providing structural support. Image Source: www.riteksolar.com.tw

Single-Axis Trackers vs. Fixed Tilt



Solar Array/Support Racking/Single Axis Tracking



Inverter/Transformer



Photo courtesy of the Department of Energy

Substation



Fencing



Credit: Rachel McDevitt/State Impact Pennsylvania

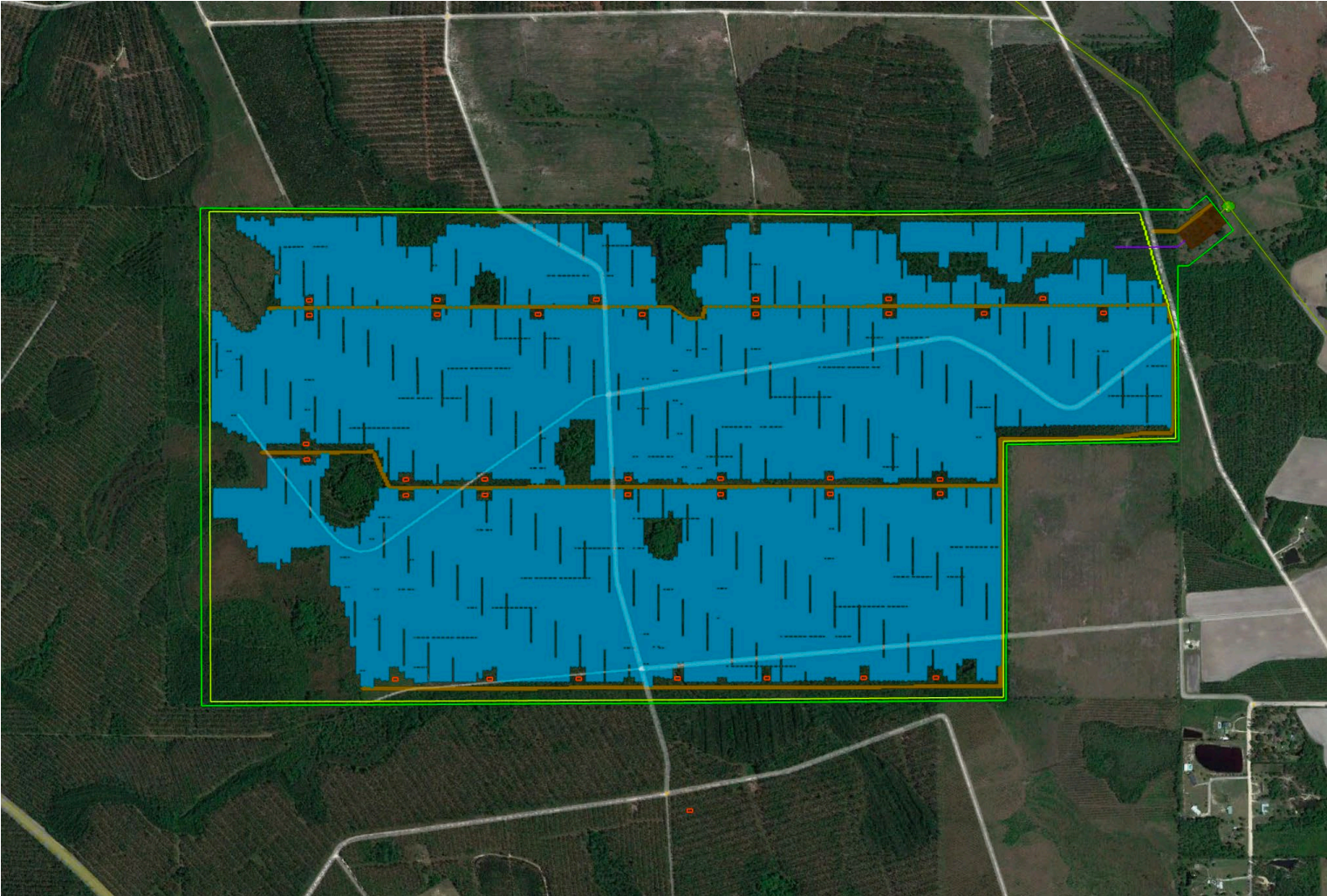
Vegetation Screening



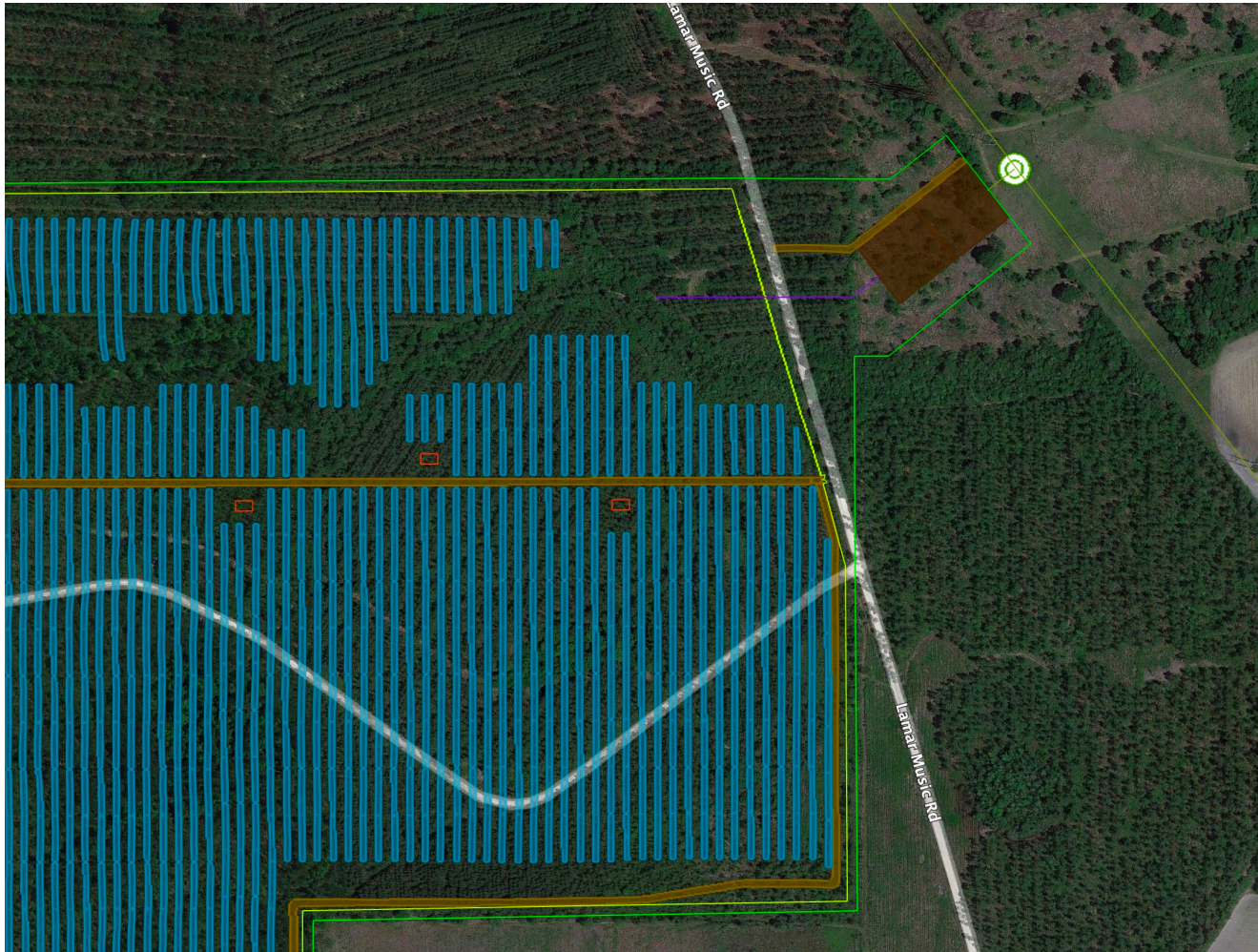
Road Structure



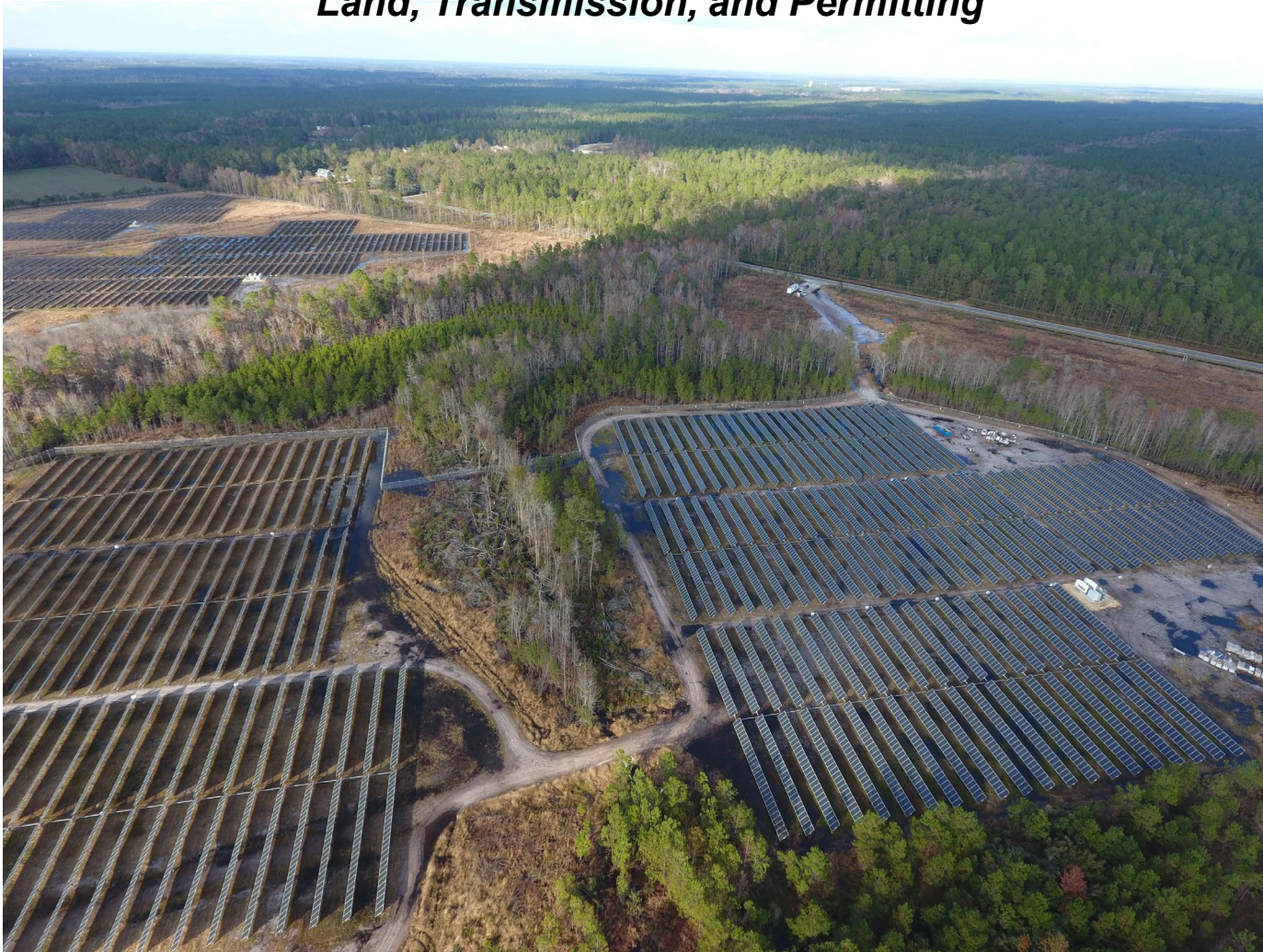
Example: Solar Site Layout



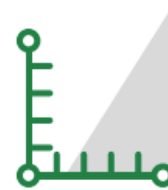
Example: Solar Site Layout



Land, Transmission, and Permitting



Land



700+ acres; use a portion of your land or build with a neighbor



Does not contain major flood plains or wetlands



Flat land or rolling hills with limited slope



Located near electrical transmission infrastructure

Transmission



Permitting

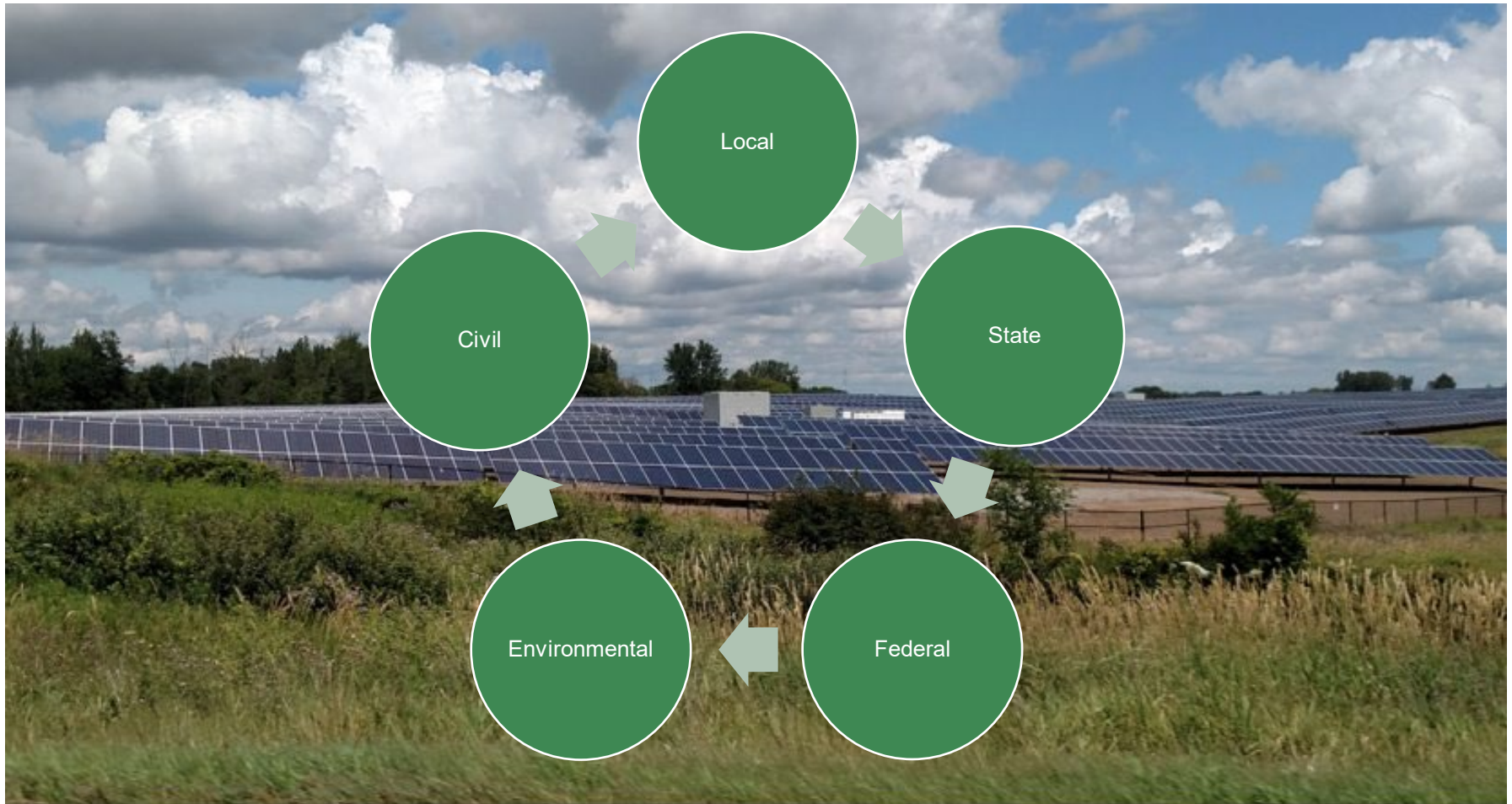
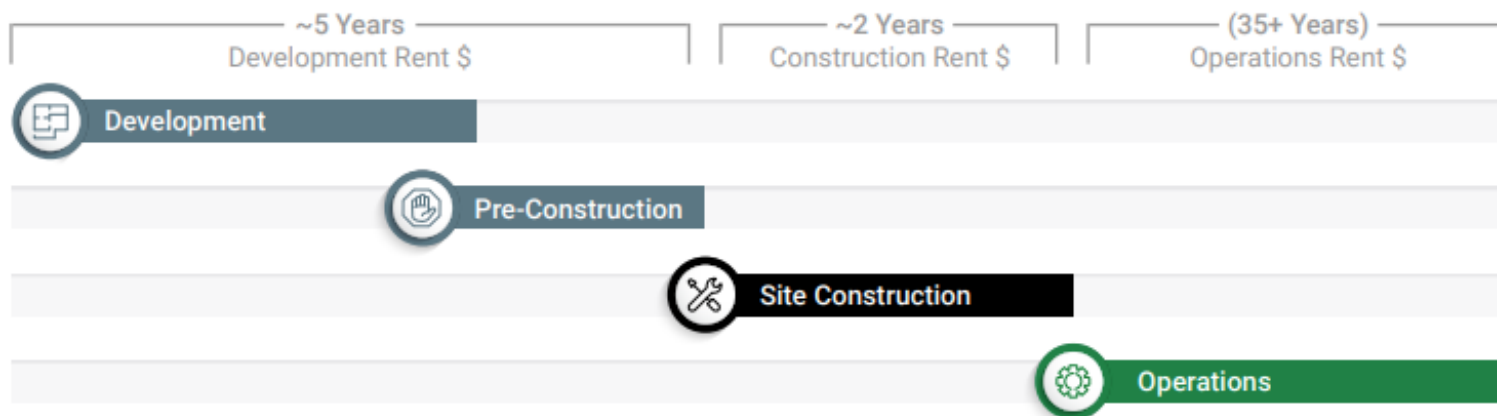


Photo by Bradley Neuman and MSU

Project Timeline and Payments



Development

- Engineering, permitting, contracting and financing kicked off
- No limitations on current land use
- Initial landowner payments, growing each year

Pre-Construction

- Time frame 6 - 24 months, depending on logistical constraints
- Construction and financing arrangements finalized

Site Construction

- Current land use ceases within project area; final resource harvest
- 12 - 24 month construction phase
- Landowner payments increase

Operations

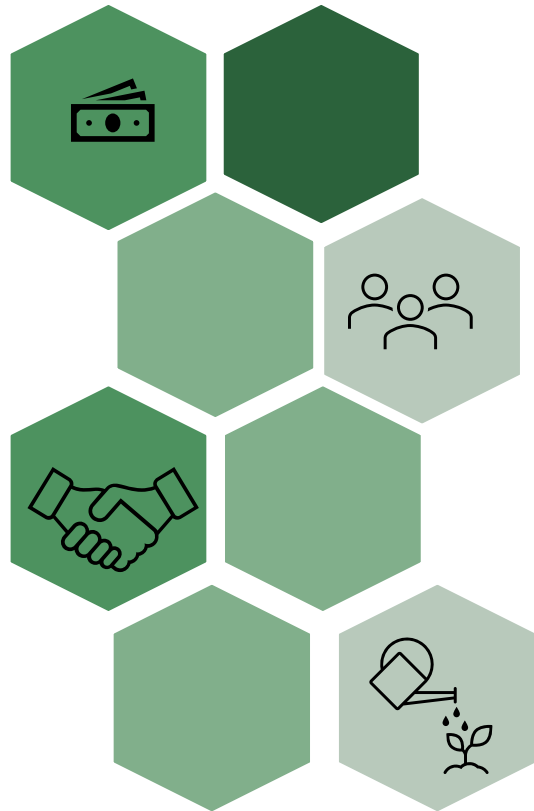
- Operational area enclosed within security fence
- Some acres returned to previous land use
- Site traffic reduced to daily monitoring and routine maintenance
- Highest landowner payments

Components of a Solar Lease

- ***Payment Terms***
- ***Lease Term***
- ***Periods of the Lease***
- ***Acreage Under Lease***
- ***Restoration Obligations***
- ***Taxes***
- ***Assignment***
- ***Agriculture Compensation***
- ***Additional Legal***



The Benefits of Hosting a Solar Project



- Turn your land into a source of long-term, reliable, and predictable income.
- Increase annual cash flow per acre vs. farming, ranching and other activities.
- Ensure your property stays in your family for the next generation.
- Hedge against commodity cycles and farm input inflation while generating continuous revenue.
- Give underutilized land holdings a new purpose.
- Continue using your property for crop growth and grazing outside the solar facility.
- Boost tax revenues and create jobs in your community.
- Support energy stability and independence for your region.
- Foster land regeneration during 35+ years of facility operations.

Frequently Asked Questions

Q: How are lease rates determined?

Lease rates are based on multiple factors, including:

- Location, topography, and “buildability”
- The property’s current use
- The current market values for similar properties in the area

We’ll give you a competitive lease rate that also ensures the project can turn a profit — increasing the likelihood of the development’s success.

Q: Where does the power generated from the project go?

That power goes directly into the electric grid for use by your local utility or large power users. Every 100MW of solar power generated creates enough energy for 26,000 homes!

Q: Can solar energy be stored?

Yes, solar energy can be stored! The last few years have seen huge progress in battery technology. With these advancements, we can now even control when and how much stored solar energy is released into the grid.

Q: What are the environmental benefits?

Solar projects have many environmental and health benefits — including reducing greenhouse gas emissions, such as carbon dioxide, nitrogen oxides and particulates.

Q: How are the property taxes handled?

The developer pays for any increase in property taxes caused by the change in the land use status.

Q: Can I still use my land during the Development Term?

Yes! You can continue using your land during the paid “Development Term” period - which typically lasts up to five years.

Q: What are the security measures for the project?

Access is controlled during construction and operations; a seven-foot-tall security fence will surround the operational facility.

Q: Can I sell my land after signing an agreement?

Yes! The lease is attached to the land and can be assigned to a beneficiary or the new property owner.

Frequently Asked Questions

Q: What is the visual impact of the project?

Our projects consider landowner and community input, including fencing and landscaping. Solar arrays have a low profile, typically no more than 8 feet from grade.

Q: Will the solar panels cause glare?

The solar panels are coated with anti-reflective materials that maximize light absorption and minimize glare.

Q: Will the project create noise?

The project is a solid-state power plant that makes very little noise itself. Solar modules are rotated to follow the sun via small, quiet electric motors. The medium and high voltage electrical equipment creates a slight hum, not audible outside the project perimeter. Vegetation management (mowing) will be audible near the project during the day, cycling within the fenced area once every two-three months.

Q: How is the project area maintained?

Routine vegetation management and equipment maintenance is performed in and around the site during daylight hours. Some projects even use sheep to control weeds!

Q: How many acres are needed for a project?

While every project offers unique opportunities, we typically look to lease as many continuous, buildable acres as possible on land that is relatively flat, cleared, and free of major wetlands or flood plain.

Q: What happens to the solar project equipment once the lease is over?

Decommissioning the solar project is a condition of the lease agreement. The lessee will remove all solar project infrastructure at the end of the lease before the land is restored to pre-construction condition.

Additional Questions?



Director, Development

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Director of Development, Redeux
Energy

