SOLAR FARM DEVELOPMENT INFORMATIONAL REPORT

Planning, Zoning, & Agriculture Committee

Kankakee County Supervisor of Assessments
Erich Blair, CIAO
Supervisor of Assessments

Kankakee County Planning Department
Delbert Skimerhorn, Sr., AICP, GISP, CFM
Planning Manager /GIS Manager

WHY NOW?

New Legislation

- The “Future Energy Job’s Act” was enacted in December 2016 and went into effect June 1, 2017.
  - Subsidize nuclear power through credits from zero emission facilities.
  - Fear of two nuclear plant closings; Clinton & Quad Cities. “Potential Nuclear Power Plant Closings in Illinois-2015”
  - Expand the states renewable portfolio;
    - Requires 3000 MW of new solar and 1300 MW of new wind power to be built in Illinois by 2030.
    - That sounds like a lot, but land consumption is estimated to be between 8000 and 15,000 acres state wide. That’s between 12.5 and 23.5 square miles or only about 78 to 147 acres per county.

    (You can read the law at your leisure for full details, 500+ pages.)

Credits by Facilities Type

- Utility Scale Solar Farms (40%)
  - Large scale facilities usually 20+ acres strictly for the production of electricity to be sold on the open market. These facilities must have or be near a sub-station.

- Community Solar Farms (50%)
  - Smaller scale facilities usually between 5 and 10 acres. May be used for commercial generation or for community use such as a university, municipality, or other large land use or land use group. These do not need a substation and can be constructed anywhere a three phase line exists.

- Brownfield (2%)

- Light Renewable Program (8%)
  - Private, individual installations.

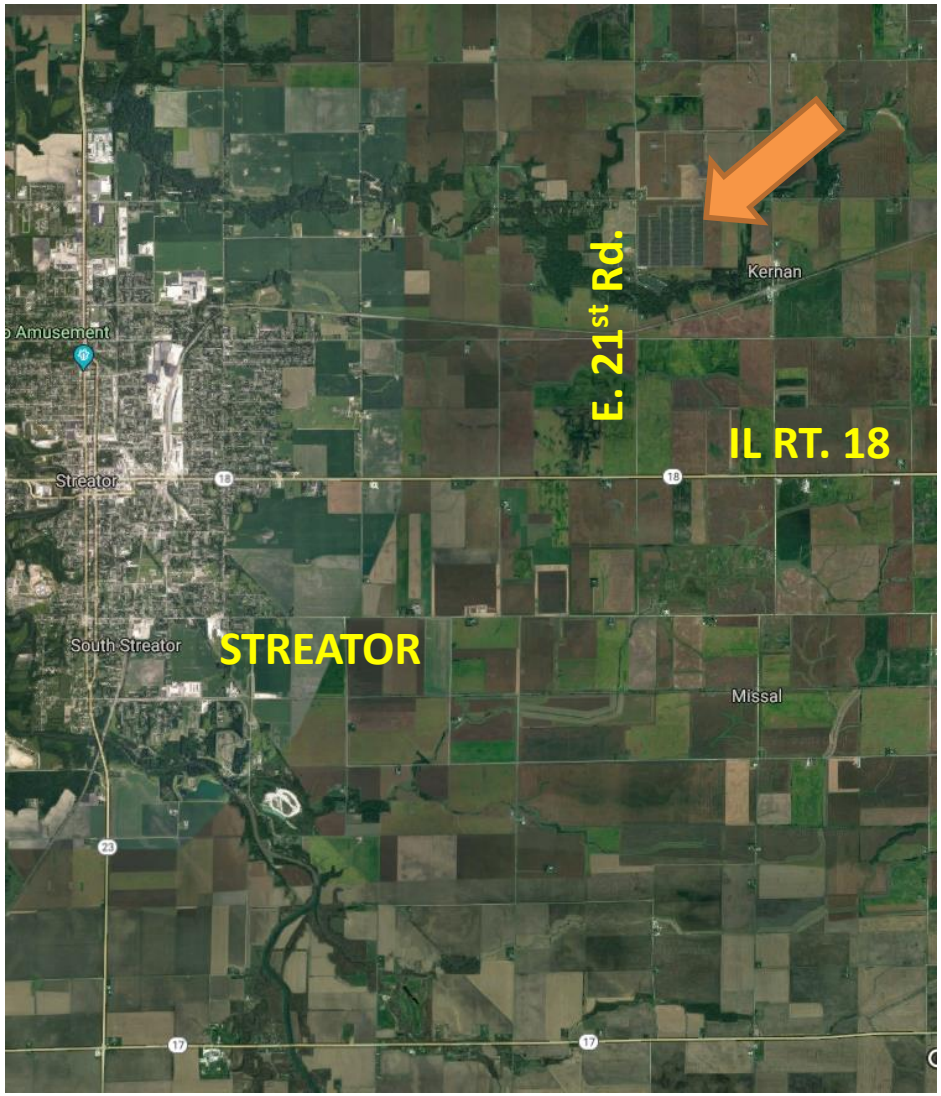
COMMERCIAL SOLAR FARMS IN ILLINOIS

Grand Ridge Solar Farm (Operating)

- LaSalle County – NE of Streator
- 160 acres
- 20MW Facility
- Photovoltaic
- Owned by Invenergy

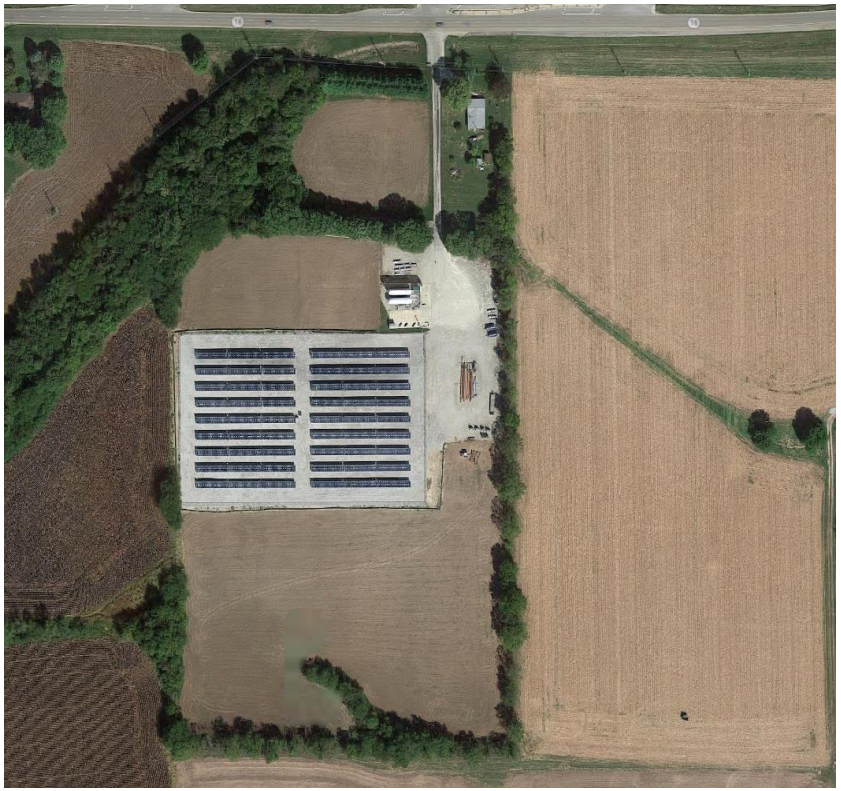
Grand Ridge Solar Farm

Unamed



Shelbyville Solar Farm (Under Construction)

- Shelby County – East of Shelbyville
- 20 acres
- 500kw Facility
- Owned by Prairie Power



Spoon River Solar Farm (Under Construction)

- Mason County – Between Astoria and Havana
- 20 acres
- 500kw Facility
- Owned by Prairie Power

Additional Solar Farms

- There are two additional solar farms in Illinois.
  - The West Pullman Farm is 10MW on Chicago's south side. The largest urban solar farm in the country.
  - U of I built a 5.97MW Farm in Champaign to power the university.
- Neither of these are commercial farms.
- There may be others.

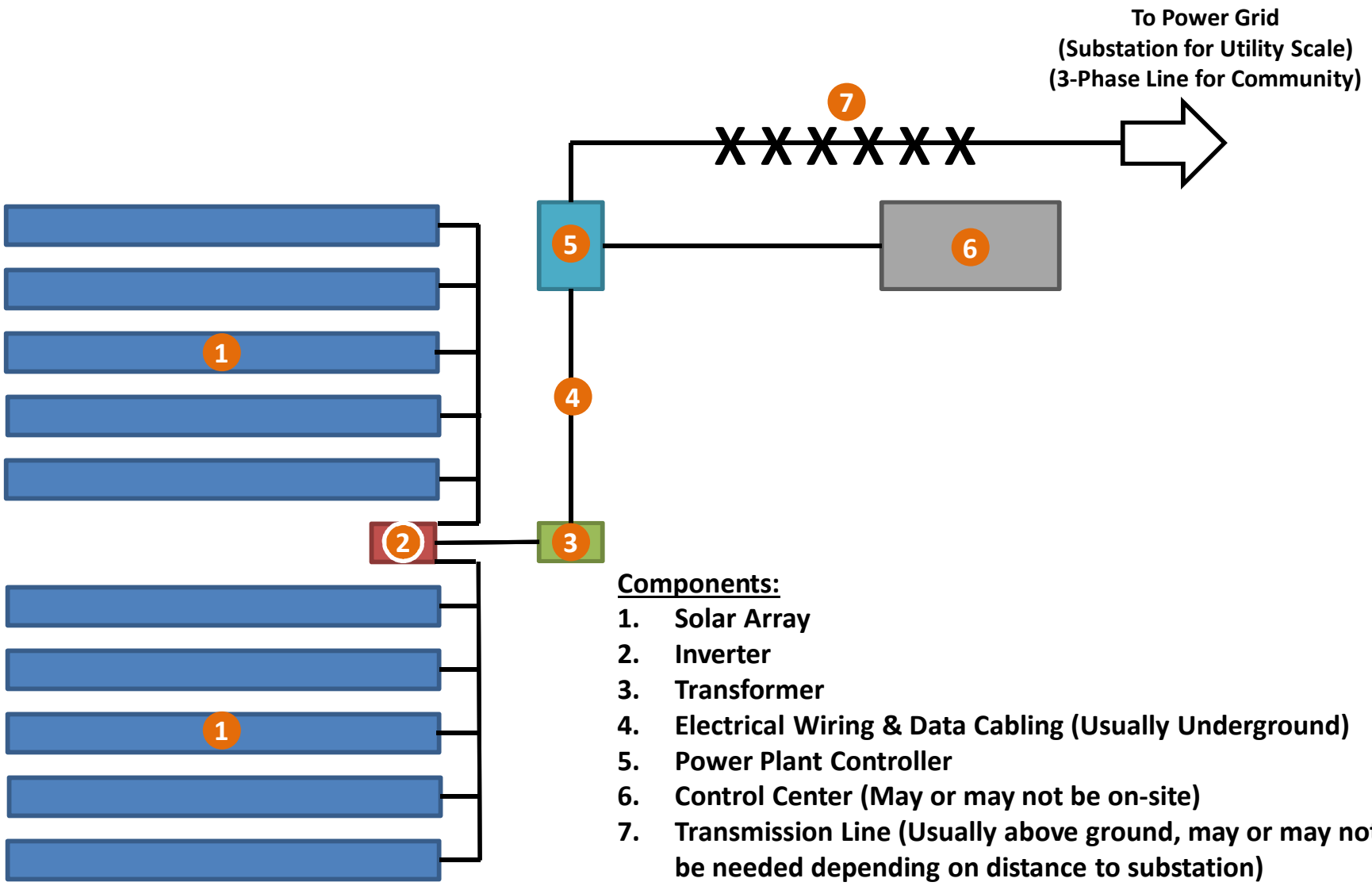
TYPES OF SOLAR TECHNOLOGY

Types of Solar Power Technology

- Basically there are two (2) types of facilities:
  - Photovoltaic which use solar panels to convert sunlight to energy.
  - Solar Thermal Power Plants which use parabolic devices to direct sunlight to central location to heat fluid which is then converted to energy.
- The photovoltaic type will be used in Illinois.

COMPONENTS OF A SOLAR FARM

Typical Components of a Solar Farm



Components:

1. Solar Array
2. Inverter
3. Transformer
4. Electrical Wiring & Data Cabling (Usually Underground)
5. Power Plant Controller
6. Control Center (May or may not be on-site)
7. Transmission Line (Usually above ground, may or may not be needed depending on distance to substation)
8. A security fence, signage, and access roads are also usually included.

Components Continued

1. Solar Array

1A. Solar Array Racking & 4. Wiring

2. Inverter

3. Transformer

Components Continued

5. **Power Plant Controller**

6. Control Center

7. **Transmission Lines and/or substation**

Foundations

- Solar array foundations are usually pipes or tubular steel driven into the ground. Concrete is only used if soil conditions warrant it.
- Solar arrays in our area are usually stationary mounted and do not move or tilt. Those are generally only needed in western desert regions.

Time Lapsed Construction Video (3min)

Published on Nov 23, 2015

This inspirational time-lapse film creatively presents the key stages in the construction of a Belectric solar farm. Shot over three months in Oxfordshire using a DJI Phantom 2 quadcopter, Gopro & conventional time-lapse techniques, it takes us on a frantic, techno charged journey from empty fields to gleaming solar panels in under 3 minutes. Landmead delivers 46 Megawatts, powering 14,000 UK homes for 25 years. Welcome to the Clean Energy Revolution!

ZONING

Zoning Ordinances

- When we started this process a year ago, ordinances relating to solar farms were nearly non-existent in the State of Illinois.
- Many Counties are now in the process of adopting ordinances (Using our ordinance as the model).
- Kankakee, Livingston, & LaSalle now have ordinances in place.

Our Ordinance

- Zoning District – Solar Farms are only permitted in the A1-Agriculture District when a special use permit is approved by the County Board.
- Minimum Lot Size – 5 acres.
- Maximum Height – The maximum allowable height is 30’ but in most cases these installation are between 8’ and 14’ in height.
- Setbacks – Front setbacks are 100’ and a setback of 50’ is required form all other property lines with the exception that the solar farm shall be setback 100’ from neighboring properties which contain an existing residence or are zoned for residential use. The security fence does not need to comply with this setback.
- Screening and Fencing – An 8’ security fence is required around the perimeter of the site and at the discretion of the County Board other screening techniques may be required. The requirement for screening will be considered on a case-by-case basis and is usually only required to mitigate issues with neighboring properties. Knox Boxes are also required at all entrances for use by emergency service personnel.
- Lighting – Solar farms do not operate at night. Lighting is usually only installed for security purposes and Kankakee County’s ordinance requires that it be shielded.
- Noise – Like all uses in Kankakee County, noise is limited to 50 decibels measured at the property line.
- Signage – Solar farms are limited to signage for safety and fro contact purposes.

Approval Process

- No solar farm is permitted in unincorporated Kankakee County by right. **All** must be approved by the County Board through the issuance of a special use permit.
- The process is the same as any other special use permit; ZBA (hearing), PZA, County Board.
- The County Board can apply “conditions” to a special use permit.

TAXATION AND ADDITIONAL FINANCIAL BENEFITS

Taxation

- The first step in the taxation process is to develop a proper assessment for the solar farm.
- Currently, the Illinois Property Tax Code provides no specific guidelines for this unique development.
- In May, a subcommittee of county assessment professionals was formed to address the matter.
- A legislative initiative has been approved for the 2018 congressional session.
- The intent is to emulate the wind energy procedures as much as possible.
- The main differences are the value per MW, and the land value component.
- While the subcommittee has a supportable formula in our draft, the value components could likely change through the legislative process.
- Given that fact, any property tax estimates at this time are highly speculative.
- In the absence of new legislation, the cost approach to value will be utilized consistent with the methodology currently in use for the LaSalle County solar farm.

Example

Suppose a 10 Megawatt solar farm is constructed on an 80 acre parcel of farmland. As referenced above, each Megawatt requires five to six acres of land. For the purposes of the example, the project will use 60 of the 80 acres. The remaining 20 acres of the parcel would be eligible to retain its preferential farmland assessment provided those 20 acres continue to be farmed. I have selected a representative 80 acre farmland parcel within the unincorporated area of the county to illustrate the current assessed value and estimated tax bill prior to any construction on the site. The 2017 assessed value of this parcel is 9,821. The most recent applicable tax rate in this case is 7.8997%. The resulting estimated tax due for the parcel would be $775.83. Upon construction of the above mentioned solar farm, the total estimate of assessed value for the project, including the 60 acres of land needed for the project would be 2,599,740. Combining this estimated assessed value with the representative tax rate of 7.8997% results in an estimated tax obligation of $205,371.66 for the solar energy project itself. Adding in the 20 acres of farmland which remained in production agriculture in this example provides a complete evaluation of the estimated tax bill for the 80 acre parcel. By prorating the initial bill at 25% of the initial tax estimate for the 80 acres being entirely farmed ($775.83 x 0.25), the result adds an additional $193.96 to the estimated tax bill for the solar farm. Given these calculations, the total estimate of property tax owed on the 80 acre parcel after the construction of a solar farm would be ***$205,565.62****. In this example, the increase in overall taxation to the property amounts to $204,789.79 ($205,371.66 - $775.83).*

Additional Financial Benefits

- Special Use Permit Fees
- Building Permit Fees
- Other Fees (Project Dependent)

IMPACTS

Impacts and Mitigation

Types of Impacts:

- Noise – Virtually none after construction.
- Interference and Electro-Magnetic Fields –Similar to household appliance and they pose no health risk to neighboring residents.
- Water Use – Very little water used.
- Odors – No odors.
- Glare – Very little, if any.
- Heat – Very little.
- Aesthetics – Personal opinion
- Property Values – No study available but studies for wind power have shown either no change or a positive change.
- Drainage – Very little site disturbance. Regulations in place to protect drainage.
- Roadways – No impact once constructed.

WHATS NEXT

POTENTAIL DEVELOPMENT

- There are currently 14 “proposed” solar farm projects in Kankakee County from 9 different companies.
  - 3 are within municipalities.
  - Capacities range from 2MW to 70MW
  - Sizes range from 20 acres to about 450 acres
- There are also 3 new possible wind farms being considered by developers as well.

QUESTIONS / DISCUSSION