Will County Land Use Department
Brownfield Prioritization for Solar Energy Development
Appendix 2: Site Selection Methodology

Introduction

The prioritization and ranking of potential sites for commercial-scale solar energy development projects in Will County followed a set of criteria adapted from the National Renewable Energy Laboratory (NREL) in conjunction with the US Environmental Protection Agency (USEPA) (see Appendix 1: Solar Project Site Prioritization Criteria). This process relied primarily on two types of input to map and analyze potential brownfield sites: 1) point data from the USEPA and the Illinois Environmental Protection Agency (IEPA) listing contaminated sites within the County, and 2) parcel data from the Will County Supervisor of Assessments, which included the size of each parcel and the value of land and improvements. Following the conventions of the USEPA, brownfields are defined as abandoned or unused industrial and commercial land that cannot be developed or expanded because of real or perceived contamination with toxic substances. CMAP generated a pool of potential brownfield locations for solar development by creating a link between the USEPA and IEPA point data and the Will County parcel data.

In order to identify potential site locations in addition to those discovered through the USEPA and IEPA data, the project team contacted municipal staff throughout Will County to determine whether staff was aware of additional sites that may be appropriate for solar development. This list was combined with the USEPA and IEPA site list and was then thoroughly reviewed by CMAP and Will County staff in order to produce a final list of appropriate sites for solar development. More information describing this process can be found below.

Data Sources

The following data sources were used to produce a pool of potential sites that were then prioritized for commercial-scale solar development:

- *USEPA Resource Conservation and Recovery Act (RCRA) Facilities:* Regulates the land-based disposal of waste, with the goal of reducing waste and encouraging recycling. All hazardous waste handlers must register to obtain an identification number of each shipment of waste, which is then tracked each time it changes hands.

- *USEPA Toxic Release Inventory (TRI):* Point database that tracks approximately 650 chemicals and chemical categories used by various types of industrial facilities.

- *IEPA Site Remediation Program (SRP):* Point database that identifies the status of all voluntary remediation projects administered through the Pre-Notice Site Cleanup Program (1989 to 1995) and the Site Remediation Program (1996 to the present).

- *IEPA Leaking Underground Storage Tank Incident Tracking (LIT):* Point database that tracks the status of all incidents of leaking underground storage tank reports to the Illinois Emergency Management Agency (IEMA) and the IEPA.

- *Will County Supervisor of Assessments:* Parcel database that includes detailed information about every parcel in Will County for property tax assessment.

Prioritization Methodology

Geographic Information Systems (GIS) software was utilized to identify appropriate locations for solar development and prioritize the sites to determine which sites would be most suitable for redevelopment. The prioritization procedure followed the steps of the Solar Project Site Prioritization Criteria (Appendix 1), but did not follow the steps in a linear fashion due to the constraints of the GIS data. The process for identifying potential solar development sites and prioritizing them to determine the sites most appropriate for future redevelopment included the following steps:

1. Using the National Renewable Energy Laboratory (NREL) Solar Prospector (http://maps.nrel.gov/prospector), the project team determined that all of the sites in Will County receive more than 3.5 kWh/m^2/day, which is the minimum solar resource necessary for solar development.

2. We assumed that certain types of non-residential and non-agricultural land uses were more favorable for solar redevelopment than other types of land uses. As such, parcels classified by the Will County Supervisor of Assessments as C Commercial, E Exempt Property, H Commercial Developers Relief, I Industrial, and J Industrial Developers Relief were selected and exported as a layer file in GIS.

3. In order to determine whether these parcels could be considered underutilized and therefore appropriate for low value, less intense development, the Improvement/Land (I/L) ratio was calculated to find parcels containing buildings with low value relative to the land. Parcels with I/L values of zero are assumed to be vacant (with the exception of Exempt Property, which may have a value of zero even if the parcel is fully utilized, since Exempt Property does not pay taxes). For this exercise, an I/L value of 1.5 was used as the upper limit for inclusion, meaning that buildings worth more than 150% of the value of the land were removed. Parcels with values less than 1.5 were exported to a new layer file.

4. Next, parcels were analyzed based on whether they were located within a floodplain, had a slope greater than six degrees, or if the site had land use restrictions, such as wetlands, critical habitats and wilderness areas. These layers were combined to remove whole or partial parcels from the database since they cannot be developed. So as not to remove too many parcels, certain parcels that fell into these categories were included even if the entire parcel was not deemed suitable for development.

5. In order to create sites out of individual parcels, the remaining parcels were dissolved in GIS utilizing the “Name” field in the attribute table, which represents ownership.

6. Sites greater than two acres were selected and exported as a new layer file in order to capture sites that had a minimum area appropriate for solar development.

7. In order to determine which parcels corresponded with the brownfield data received from the USEPA and IEPA, a 200 foot buffer was created around the point data received from the USEPA and IEPA to account for the varying widths of road rights-of-way in the area. In a number of

cases, the point data corresponded to an address that was located in the middle of a road right-of-way making it difficult to determine whether the site was located on one side of the road, or the other. Our goal in creating this buffer was to maximize the number of parcels that could be considered brownfields based on our knowledge of right-of-way widths in Will County. These buffered points were then joined to the sites generated earlier in the prioritization process.

8. GIS was used to determine that all of the sites identified were located less than one mile from an existing road, as per the project team's prioritization criteria.

9. Finally, the project team reviewed the final list of sites against local knowledge in order to remove any sites deemed unsuitable for development. The sites that were removed were either in active use; were incompatible with local plans for the site; were in an area that was better suited for residential, commercial or manufacturing uses; or were not appropriate for development for low value and low intensity land uses.

Data Limitations

The prioritization process described above faced several methodological limitations that should be discussed for those trying to perform this process in the future. While any sites unintentionally included in the site prioritization process were discovered and eliminated by the project team, it is possible that a small number of suitable sites were not located by the project team due to the following data limitations.

- The Improvement/Land ratio used to eliminate sites was an assumption based on our knowledge of land values in Will County, and this assumption was an approximation.

- The 200 foot buffer for the USEPA and IEPA point data was an assumption based on our knowledge of road right-of-way widths in Will County, and this assumption was an approximation.

- The USEPA and IEPA databases contained incomplete or inaccurate information that was particularly problematic in mapping the sites. In many cases the location of the XY coordinates of the site did not match the address shown in the attribute table. Furthermore, incomplete address information made geocoding many of the sites impossible. In a number of cases, the location of the site would include a general description of the location of the site, rather than an actual address. For example, locations would be given as one quarter mile west of I-55, rather than 123 Main Street.