SunShot
U.S. Department of Energy

Cook County Community Solar Project: Stakeholder Advisory Group Meeting

March 25, 2015

Agenda

- Introductions
- Stakeholder Engagement Process
- Community Solar Introduction
- Cook County Project Overview
- Timeline and Work Products
- Opportunity Assessment and Data Analysis
- Next Steps

Steering Committee

- **Cook County** – Overall Project Oversight and Direction
- **City of Chicago** – Steering Committee Member, Advisory Support
- **Commonwealth Edison** – Implementation Feasibility and Energy Market Expertise
- **Elevate Energy** – Program Management, Stakeholder Engagement, and Local Solar Market Analysis
- **West Monroe Partners** – Technical Expertise and Economic Modeling
- **Environmental Law & Policy Center** – Regulatory Expertise

ELEVATE ENERGY
Smarter energy use for all

ComEd
An Exelon Company

ENVIRONMENTAL LAW & POLICY CENTER
Protecting the Midwest's Environment and Natural Heritage

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Stakeholder Engagement

- Initial Stakeholder Advisory Group Meeting – every 6 months
  - Introduce project
  - Solicit ideas and feedback
  - Your ideas on who else should be involved

- 3 Working Groups formed later this Spring to identify barriers and find solutions to community solar in Cook County:
  (A) Business Models
  (B) Policy Issues
  (C) Education/Outreach

- Potential engagement in pilot projects

U.S. Department of Energy SunShot Initiative

- SunShot Initiative is a national collaborative effort to make solar energy cost-competitive with other forms of electricity by the end of the decade

- Solar Market Pathways Program supports 15 projects that are advancing solar deployment across the United States

- We are working collaboratively with other awardees across the nation and will share lessons learned

Background—Community Solar

- **Community solar refers to a solar photovoltaic system that provides power and/or financial benefit to multiple community members**

- National Renewable Energy Laboratory (NREL): **only 25% of residential rooftop area** is suitable for solar photovoltaic systems

- Community shared solar expands access to solar power to renters, those with shaded roofs, and those with financial barriers to installation

Background—Community Solar

- **Community solar primed for significant growth over the next 5-10 years**
- Colorado – one of first states to pass community solar legislation in 2012
- Minnesota – passed community solar legislation without cap in 2013
- 15+ states/municipalities developing community solar legislation/programs
- Municipal utilities developing community solar projects in Illinois, Wisconsin, Michigan, and other midwestern states

Cook County Project Overview

- The award will fund efforts over the next two years to identify and establish models for community solar and address barriers to implementing such projects

- Project data analysis and stakeholder engagement will help inform current community solar policy discussion in Illinois

Project Tasks

Quantify shared solar market potential by site characteristics or type, subscriber type and ownership model

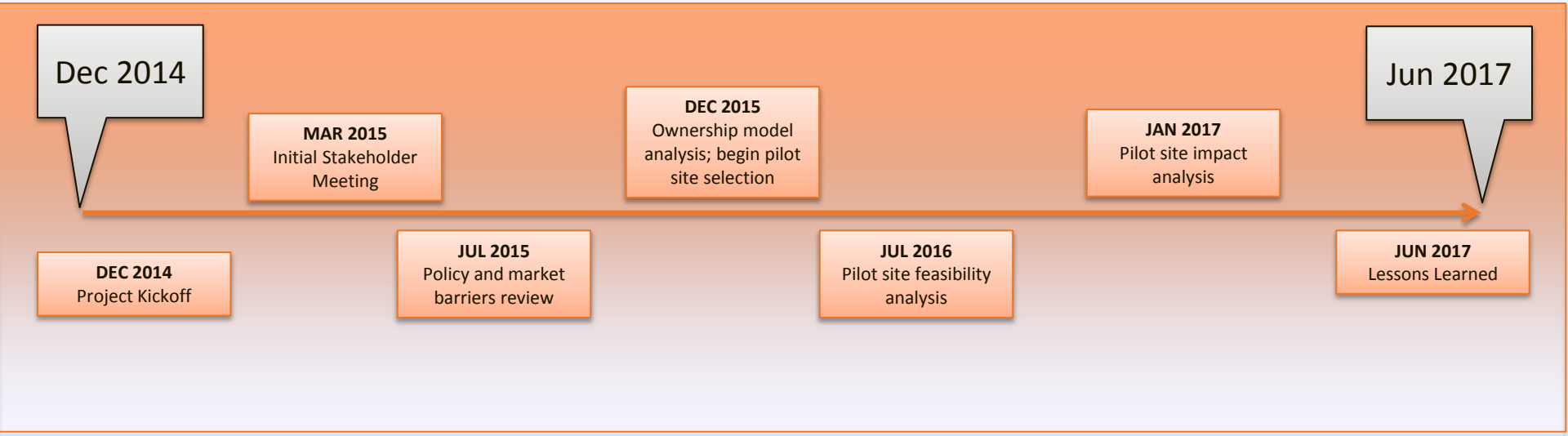
Facilitate stakeholder collaboration to identify, discuss, and resolve community-shared solar challenges

Address policy and market barriers that impose current challenges to shared solar success

Incorporate the successful framework elements into pilot demonstration sites in northeast Illinois

Document and disseminate the pilot site outcomes of the community shared solar costs and benefits to local, state and regional stakeholders

Project Timeline



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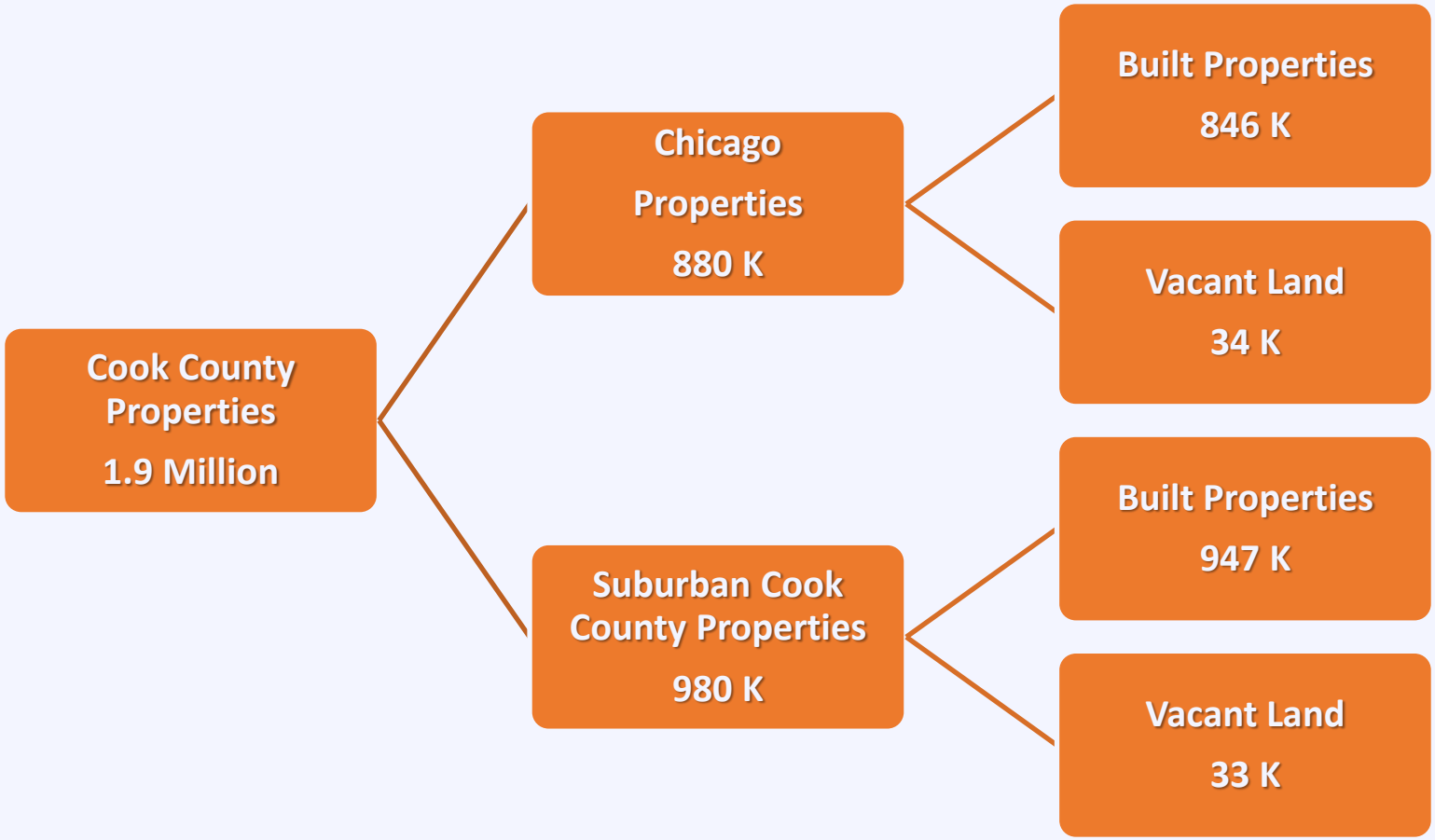
Goals

- Inventory community solar marketplace
- Identify the potential market for community solar
- Analyze the economics of different ownership structures
- Identify the structural and policy barriers to community solar and propose approaches to address those barriers
- Select 5-7 pilot sites and conduct technical and economic feasibility analysis
- Disseminate lessons learned from the pilots so other projects can succeed

Opportunity Assessment Approach

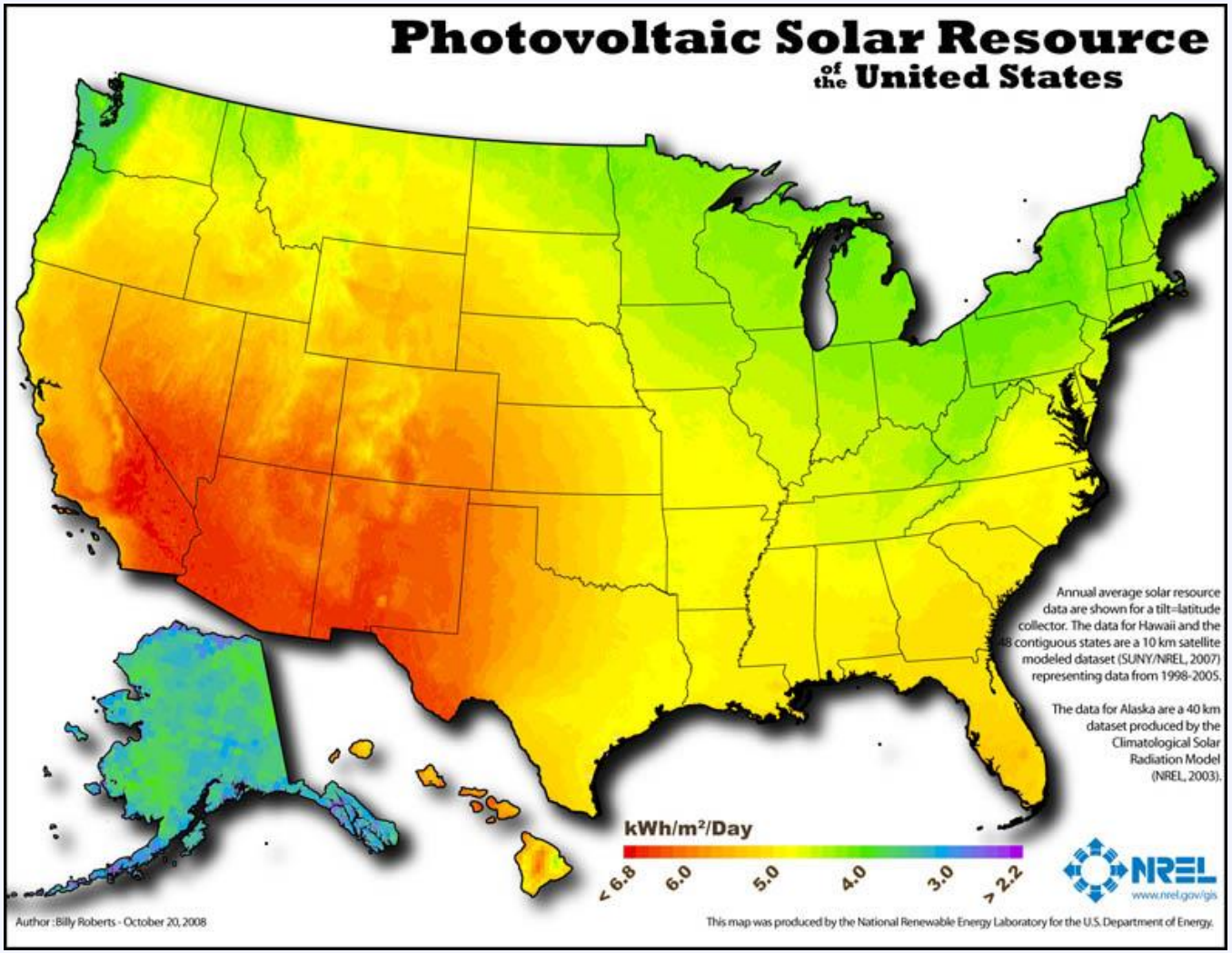
- **Two parts: physical characteristics and demographics**
- Acquired local data and national data
  - Cook County Assessor's Office, Cook County Land Bank Authority, ComEd, U.S. EPA, NREL
- Looked at national best practices for site screening and evaluation
- Apply local lens to develop additional criteria
- Filter data through criteria to find best sites

Cook County Vacant Land and Building Stock



Source: Cook County Assessor, City of Chicago Data Portal

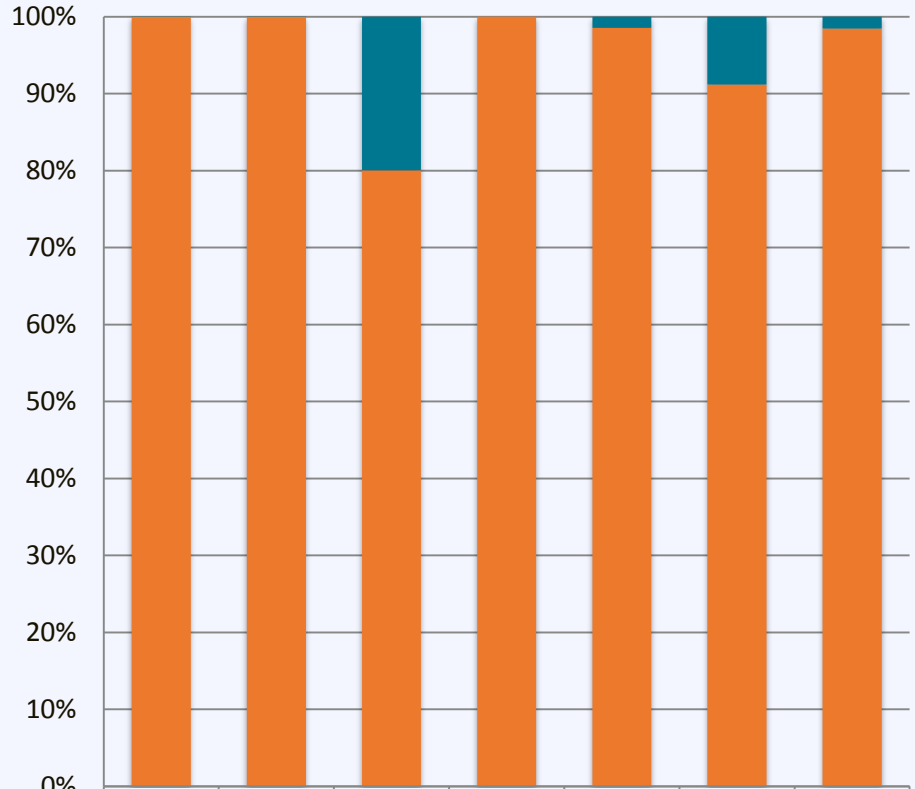
Decision Variable 1: Solar Resource Potential



NREL Solar Prospector Tool (Average Annual Direct Normal Irradiance 1998-2009)

Decision Variable 2: Area of Available Space

- **EPA Pre-screening Requirement for 1MW System**
  - Ground Mount Area ≥ 2 Acres
  - Rooftop Area ≥ 30,000 Square Feet
- **Chicago Rooftops**
  - Less than 1% of rooftops ≥ 30,000 Square Feet = 2,795
  - Non Profit and School properties have the highest percentage of available roof space ≥ 30,000 square feet by class = 268 buildings



	Single Family	Multi Family	Non Profit & Schools	Agriculture	Commercial	Industrial	Unclassified
>=30,000 Sq Feet	0.01%	0.04%	20%	0%	1%	9%	2%
<30,000 Sq Feet	100%	100%	80%	100%	99%	91%	98%

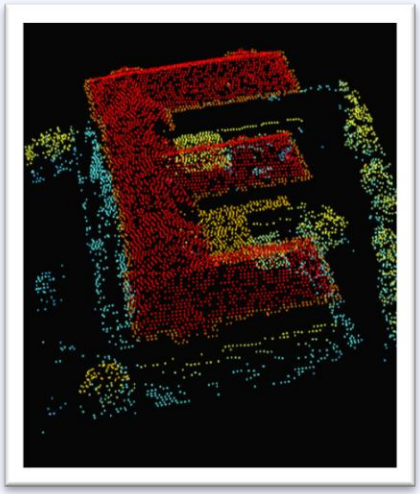
Source: Cook County Assessor, City of Chicago Data Portal, EPA Solar Decision Tree

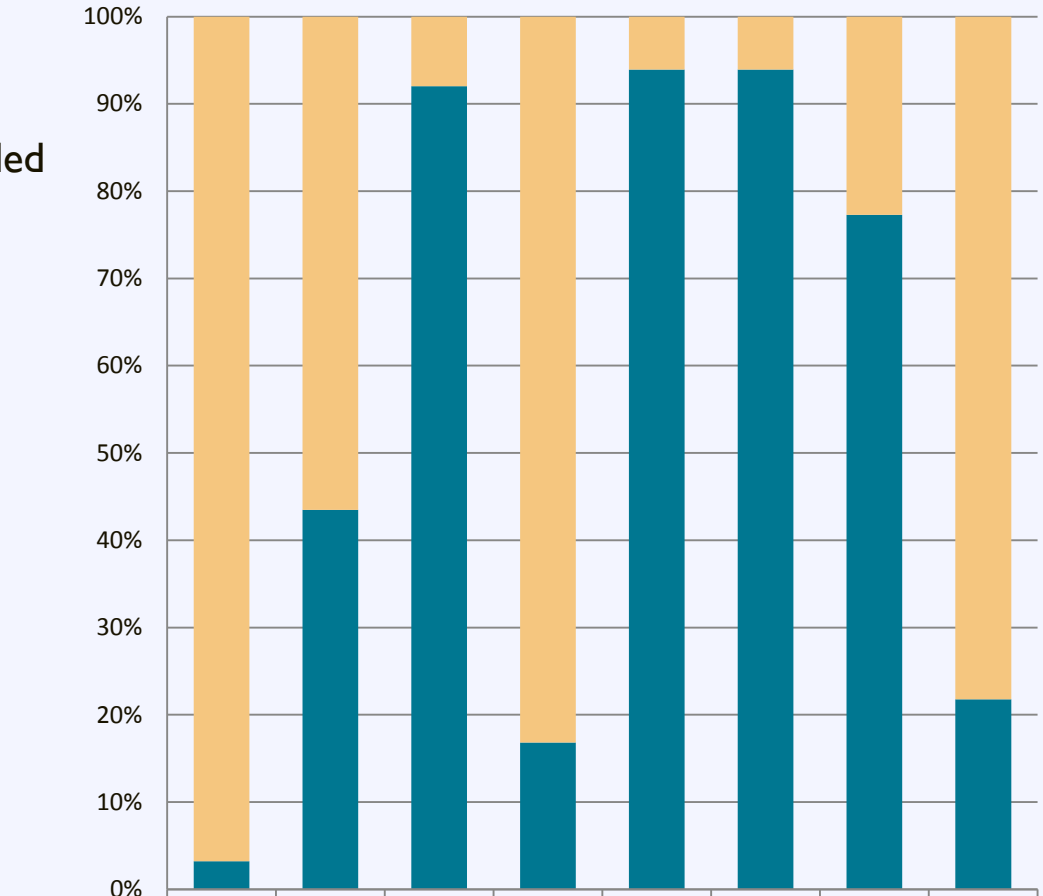
Decision Variable 3: Distance to Infrastructure

- **EPA Pre-screening Requirement**
  - Distance to Power Infrastructure
    - < ½ mile to transmission or distribution lines
  - Distance to graded roads
    - < 1 mile to road access
- **Chicago potential roof mount sites**
  - 100% buildings meet requirement

Decision Variable 4: Topography

- **EPA Pre-screening Requirement**
  - Land < 6 Degree and easily graded
  - Rooftop Flat ≤ 35 degrees
- **Chicago Rooftops**
  - 19% Flat; 81% Pitched/Complex





	Single Family	Multi Family	Non Profit & Schools	Agriculture	Commercial	Industrial	Unclassified	All Buildings
Pitched/Complex	97%	57%	8%	83%	6%	6%	23%	78%
Flat Roof	3%	43%	92%	17%	94%	94%	77%	22%

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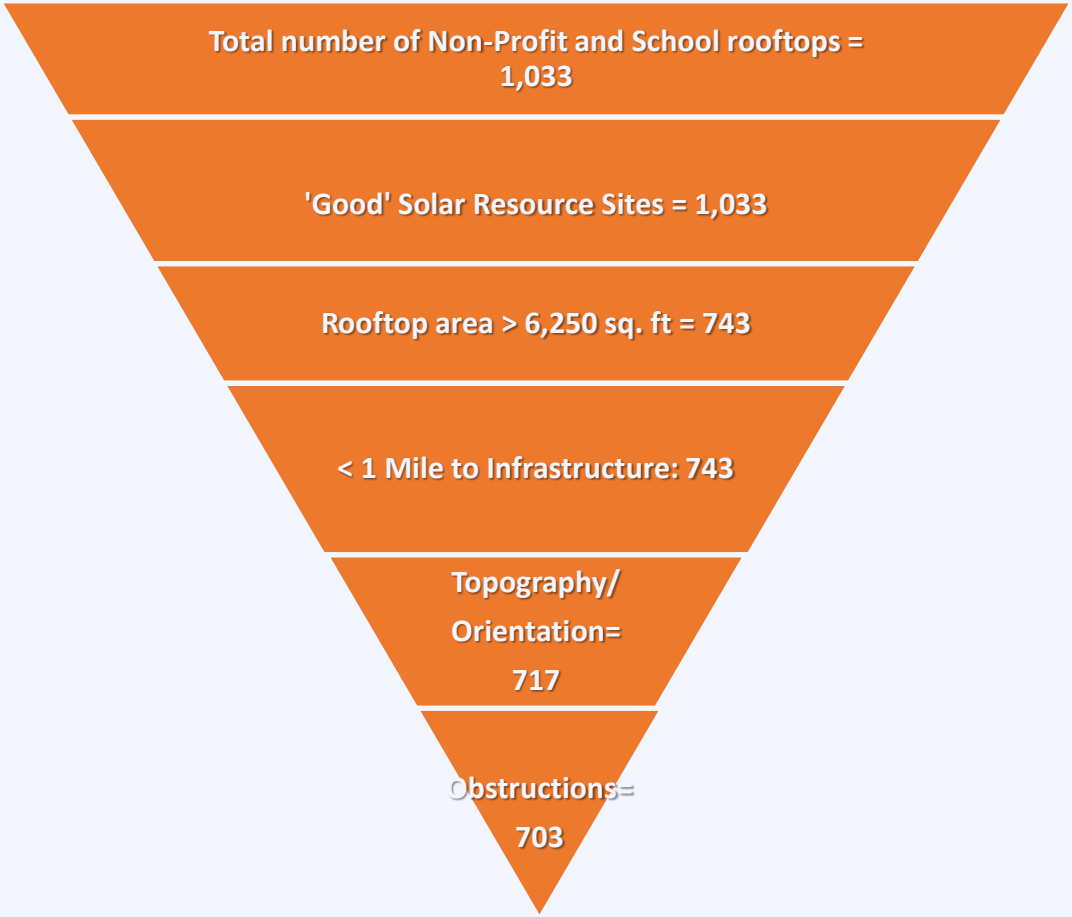
Source: Cook County Assessor, City of Chicago Data Portal, EPA Solar Decision Tree, Elevate Energy Analysis

Decision Variable 5: Obstructions

- **EPA Pre-screening Requirement**
  - Obstruction: Major visible obstructions that cannot be removed
- **Ex. Chicago Rooftops Non Profit and School Buildings**
  - HVAC Systems, Trees, Skylights
  - *In progress*

Sample Conclusion

- Applied screening criteria to aggregated data to find number of sites for PV systems ≤ 50 kW on nonprofits and schools in Chicago



Next Steps

- This morning: your input on overall approach (data, criteria, frequency of Advisory meetings, etc.), breakout groups on models, policy issues, and education / outreach
- Add to this Advisory group
- Form working groups
- www.cookcountyil.gov/environmental-control-2/solar-energy/

Q&A

- Questions?