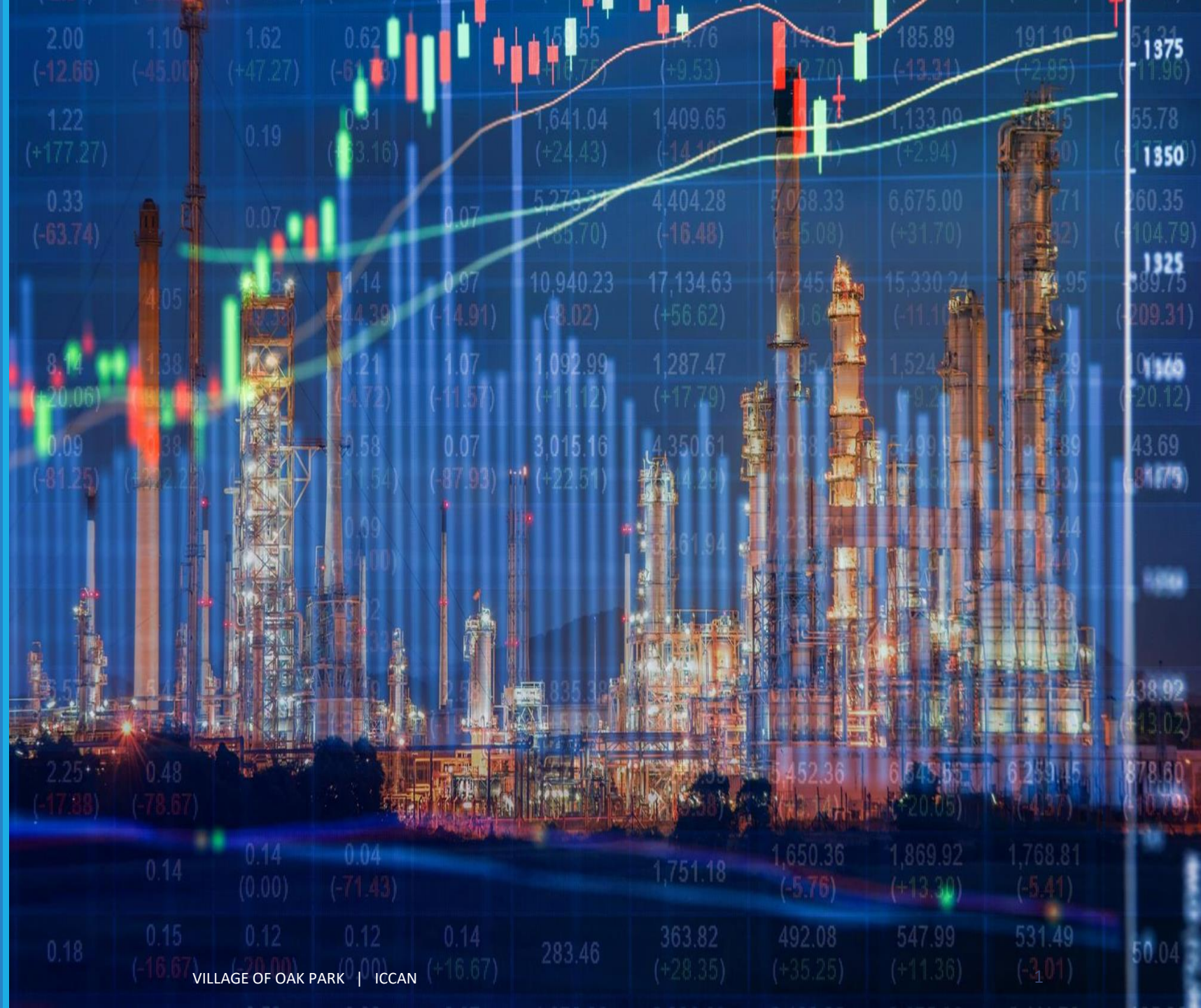
Village of Oak Park

Board Study Session: Energy Options

ICCAN

May 22, 2023



AGENDA

INTRODUCTIONS	
CLIMATE READY OAK PARK	▪ Vision ▪ Metrics ▪ Approaches
RENEWABLE ENERGY OPTIONS	▪ Basics ▪ Approaches ▪ Resources ▪ Outlook
DISCUSSION	▪ Open

INTRODUCTIONS

Mark Pruitt
Principal | Illinois Community Choice Aggregation Network
markjpruitt@gmail.com
C – (219) 921-3828

Current Work	**ICCAN.** Advisor on energy policy, planning, and procurement for municipalities and energy buyers. Current and past clients include: municipalities, Metropolitan Mayors Caucus, Building Owners and Managers Association of Chicago, Illinois Municipal Electric Agency, Association of Illinois Electric Cooperatives
Past Work	**Illinois Power Agency.** Director of state utility regulatory agency responsible for wholesale electricity planning and purchasing for investor-owned utilities, Renewable Portfolio Standard, Clean Coal Portfolio Standard. **University of Illinois.** Managed electricity and natural gas purchasing, hedging, billing for state executive agencies. **Nicor Solutions.** Cogeneration and energy efficiency project developer for federal facilities.
Other Activities	**Teaching.** Northwestern University, University of Illinois **Argonne National Laboratory.** Energy Transition Consultant for Net Zero World (Indonesia)

CLIMATE READY OAK PARK

- Resolution Adopting Climate Ready Oak Park and Declaring a Climate Emergency
- Climate Ready Oak Park Plan
- Existing Conditions & Vulnerability Assessment
- Climate Ready Oak Park Implementation Plan

Vision	*"Oak Park's buildings are powered by locally-generated renewable energy. New developments are built sustainably, and most older buildings are preserved and renovated to be carbon neutral. Renewable energy is accessible and affordable to all within the community."*
Metrics	▪ Decrease greenhouse gas (GHG) emissions by ***60% by 2030*** ▪ Achieve community-wide ***net zero GHG emissions by 2050***
Approaches	▪ Improve ***energy efficiency*** of existing and new buildings ▪ Enhance access to ***locally-generated renewable energy*** - *Meet Village facility energy needs with 100% renewable electricity by 2030*

100% RENEWABLE ELECTRICITY OF VILLAGE FACILITIES

Portfolio	▪ 27 Primary Accounts with ComEd ▪ 9.3 million kilowatt hours of annual electricity consumption
Renewable Energy Equivalents	▪ 5.5 MW solar farm (~30-40 acres of space required) ▪ 3.5 MW wind farm (~10 acres of space required)
Cost, Timeline, Phasing	▪ Solar: $5-6 million capital cost; 2-4 years to construction; could be several small projects ▪ Wind: $4-5 million capital cost; 4-6 years to construction; likely part of a larger project

RENEWABLE ENERGY OPTIONS

Basics

Approaches

Resources

Outlook

Technologies	▪ Solar and Wind (Primary) ▪ Hydro, biomass, landfill gas, geothermal (Secondary)
Limited Availability	▪ Relatively low levels of renewables in Illinois (8% of total generation comes from renewable energy resources) ▪ Achieving higher levels of renewables requires direct action by consumers
Constraints	▪ Renewables rarely generate at 100% of their maximum output capability (Solar 20-25%, Wind 30-35%) ▪ Generation from renewables rarely matches energy demand - Hourly, seasonally
Key Take Aways	Getting to 100% renewables for Village facilities will require: ▪ Continued reliance on the ComEd system ▪ One or more renewable energy resources ▪ New renewable energy resources ▪ Financial commitment from Village to support financing of new resources

RENEWABLE ENERGY OPTIONS

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Behind the Meter

- Rooftop and parking lot awning applications at Village facilities where possible
- Acquisition Options
  - Direct Purchase. Village purchases solar arrays for Village facilities for cash and either maintains them with internal staff or through an external provider
  - Power Purchase Agreement (PPA). Village purchases the energy generated by solar arrays located at Village facilities from a third-party owner under a 15 to 20-year agreement

Grid Connected

- Large utility scale wind or solar projects located in Illinois
- Acquisition Options
  - Virtual Power Purchase Agreement (VPPA). Village purchases the energy generated by large renewable resources and sells the energy back to the market for 10 to 20-year agreement
  - Embedded Renewable Power Supply (PPA). Village enters long term energy purchasing agreement with retail energy supplier which blends renewable energy supply with grid supply for Village accounts over a minimum 10-year period

RENEWABLE ENERGY OPTIONS

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Federal	▪ Investment Tax Credit (Direct Grant Option) ▪ Production Tax Credit (Direct Grant Option) ▪ Accelerated Depreciation ▪ Qualified Opportunity Zones
State	▪ Sales Tax Abatement (Empowerment Zones) ▪ Self-Direct Program (Rebate of some utility charges)
Local	▪ Smart Inverter Rebate: $250/kW of installed rooftop solar from ComEd ▪ Renewable Energy Credits: $0.030-$0.40/kWh of installed rooftop solar from ComEd ▪ Net Metering Credits: Excess electricity from rooftop solar is purchased by ComEd

Applying all available incentives can offset 50-80% of the cost of new renewable energy resources

RENEWABLE ENERGY OPTIONS

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Optimize	▪ Validate historical and projected energy consumption at Village facilities ▪ Implement energy efficiency / reduce consumption at all Village facilities ▪ Site assessments (roofs, interconnectivity)
On-Site Project Track	▪ Preliminary layout and economics ▪ Draft RFQ/RFP
Off-site Project Track	▪ Preliminary availability assessment and economics ▪ Draft RFQ/RFP
Select and Fund	▪ Build portfolio to optimize volume, timing and budget ▪ Options selection by Board ▪ Determine funding mechanisms ▪ Undertake acquisition

RENEWABLE ENERGY OPTIONS

Economics

- Business as Usual: $447,000/Year

Benefits	▪ Policy fulfillment ▪ Long term energy cost stability ▪ Potential cost savings ▪ Operational flexibility/reliability/resiliency
Metrics	▪ Behind the Meter Projects - Simple Payback: 4-7 yeas - Return on Investment (direct purchase): 14% ▪ Off Site Projects - Simple Payback: 9-14 yeas - Return on Investment (direct purchase): 7-8%
Selection	▪ Each project will have it's own Profit and Loss ▪ Some projects present more economic opportunity ▪ The Village can establish minimum economic performance metrics to allow projects to proceed

DISCUSSION AND QUESTIONS

Key Points

- The Village seeks meet *100% of Village facility electricity consumption with renewable energy by 2030*
- ComEd's current renewable mix is only ~8%; *likely not more than 12% by 2030*
- The Village has multiple ways to access new renewable energy resources
  - On Site. Install small solar arrays on Village property to *replace a portion of electricity supplied through ComEd*
  - Off Site. Purchase the output from large wind and/or solar arrays elsewhere in Illinois to *offset the non-renewable energy supplied through ComEd*
- New renewable energy resources require:
  - Space. Locations that allow for generation and connection to the grid
  - Time. Multiple years to plan, finance and build new resources
  - Money. Commitment from the Village to pay for the new resources

THANK YOU

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