



2018 NEW JERSEY SUSTAINABILITY SUMMIT



WHOLE COMMUNITY APPROACHES TO SUSTAINABLE ENERGY

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Session Presenters



Nancy Quirk, Energy Program Manager
Sustainable Jersey

Jennifer Gonzalez, Chief Sustainability Officer
City of Hoboken

Mayor David DelVecchio
City of Lambertville

Bob McCoy, Environmental Advisory Committee
Township of Maplewood

Arati Kreibich, Council Member
Borough of Glen Rock



Municipal Program Energy Actions



Municipal Operations

Community Energy Use

	Climate Planning and Energy Efficiency	Renewable Energy	Alternative Fuel Vehicles
Municipal Operations	<ul style="list-style-type: none"> • Municipal Carbon Footprint • Energy Tracking and Management • Energy Efficiency for Municipal Facilities 	<ul style="list-style-type: none"> • On-Site Solar Energy • On-Site Geothermal • On-Site Wind Energy • Purchase Renewable Energy 	<ul style="list-style-type: none"> • Fleet Inventory • Purchase Alternative Fuel Vehicles (AFV) • Vehicle Conversion (to AFV)
Community Energy Use	<ul style="list-style-type: none"> • Community Carbon Footprint • Climate Action Plan • Residential Energy Efficiency Outreach • Commercial Energy Efficiency Outreach 	<ul style="list-style-type: none"> • Wind Ordinance • Renewable GEA • Make Your Town Solar Friendly • Community-Led Solar Initiatives 	<ul style="list-style-type: none"> • Make Your Town EV Friendly • Public EV Chargers



Gold Star Standard in Energy



- Municipal Operations

- Municipal buildings
- Fleet management
- Operations (landscaping, energy/water conservation, etc.)
- Driver training
- Route optimization
- Green building training

- Community Wide

- Make Your Town EV Friendly
- Public Electric Vehicle Charging Infrastructure
- Make Your Town Solar Friendly
- Community Led Solar Initiatives
- Residential Energy Efficiency
- Commercial Energy Efficiency



H O B O K E N

City of

HOBOKEN MASTER PLAN

GREEN BUILDING AND ENVIRONMENTAL SUSTAINABILITY ELEMENT

New Jersey Sustainability Summit

Whole Community Approaches to Sustainable Energy

June 21, 2018

CLIMATE MITIGATION

A Sustainable Hoboken provides an environmentally, socially, and economically healthy community today, without compromising the ability of future generations to experience the same.



CLIMATE ADAPTATION

A Resilient Hoboken can adapt to and absorb future shocks and stresses to its built and natural systems



Capital Projects

- Partnerships
- Multiple benefits

Policy

- Redevelopment Plans / Zoning
- Ordinances
- Standards / Guidelines

Planning

- Green Building & Environmental Sustainability Master Plan Element



Coastal Flooding



Rainfall Flooding



Drinking Water



Energy and Communications



Land Use and Green Building Design



Transportation and Parking



Natural Resources



Waste Management



Energy and Communications

GOALS

- 1. Become a Net Zero City by consuming energy from alternative and renewable energy sources by 2022.**
- 2. Exceed carbon reduction goals established by the Paris Climate Agreement to achieve carbon neutrality by 2027.**
- 3. Reduce greenhouse gas emissions from municipal, residential, and commercial energy consumption.**
- 4. Ensure energy security, especially for critical facilities, to avoid interruption of service during severe weather events.**
- 5. Ensure readiness to communicate and respond to future disaster events.**





Energy and Communications

STRATEGIES

**Reduce
Municipal
Carbon
Footprint**

**Reduce
Community
Carbon
Footprint**

**Integrate
GHG
emissions
reduction
planning**

**Innovative energy
and
communications
systems**

**Maintain reliable
energy and
communications
infrastructure**

**Expand
communications
networks**

**Form smart and
connected
municipal buildings
and infrastructure**



Energy and Communications

Reduce Municipal Carbon Footprint

1. Greenhouse Gas Inventory and Climate Action Plan
SJ Municipal Carbon Footprint Action
2. Direct Install
3. Renewable Government Energy Aggregation (R-GEA)

12 Municipal Facilities:	Total Project Cost	Annual Cost Savings	Capital Cost Savings	Return on Investment
City Hall DPW Garage 4 Parking Garages 4 Fire Houses Museum Ambulance Corps	\$105,319	\$100,057	\$204,568	Average 1.13 Years



Energy and Communications

Reduce Community Carbon Footprint

1. Greenhouse Gas Inventory and Climate Action Plan *SJ Community Carbon Footprint Action*
2. Renewable Government Energy Aggregation (R-GEA)
3. Solar Challenge



Join the Hoboken
Solar Challenge!

hobokensolar.org

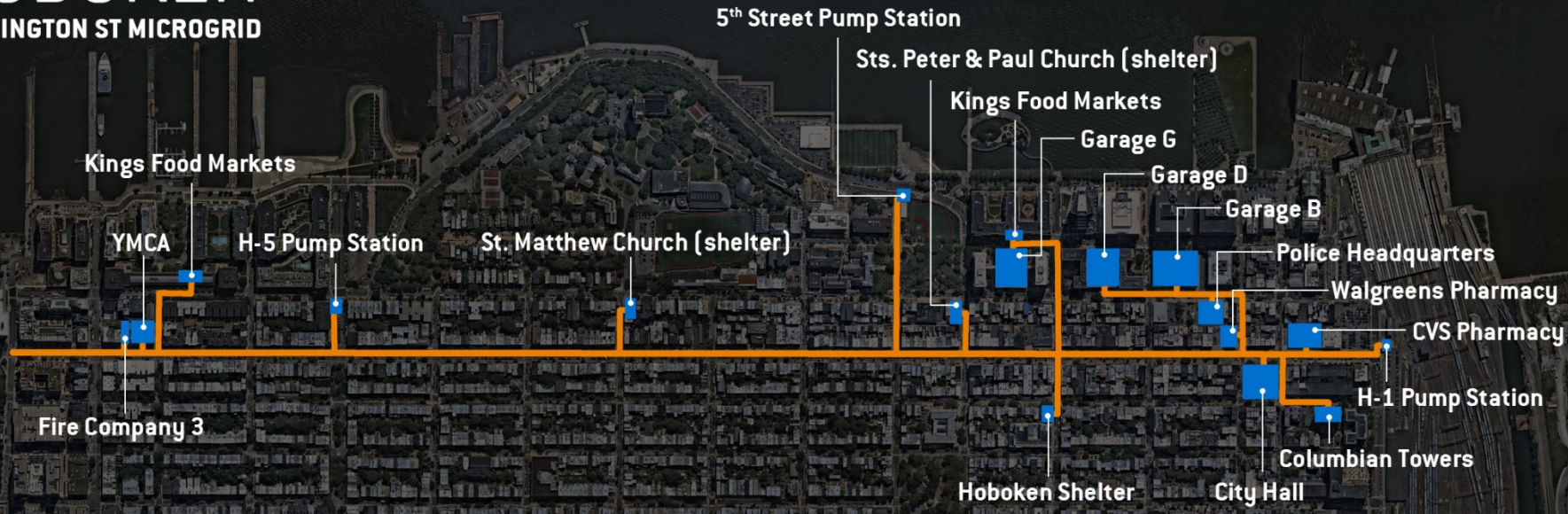




Energy and Communications

Maintain reliable energy and communications infrastructure

HOBOKEN WASHINGTON ST MICROGRID





Land Use and Green Building Design

Reduce GHG emissions from buildings





Transportation and Parking

Reduce GHG emissions from transportation





Waste Management

Reduce GHG emissions from waste operations



www.hobokennj.gov/sustainability



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HOBOKEN



Lambertville

Mayor David DelVecchio
City of Lambertville



Local Experiences Implementing Cleaner Energy

Bob McCoy

Maplewood Environmental Advisory Committee

2018 New Jersey Sustainability Summit

June 21, 2018

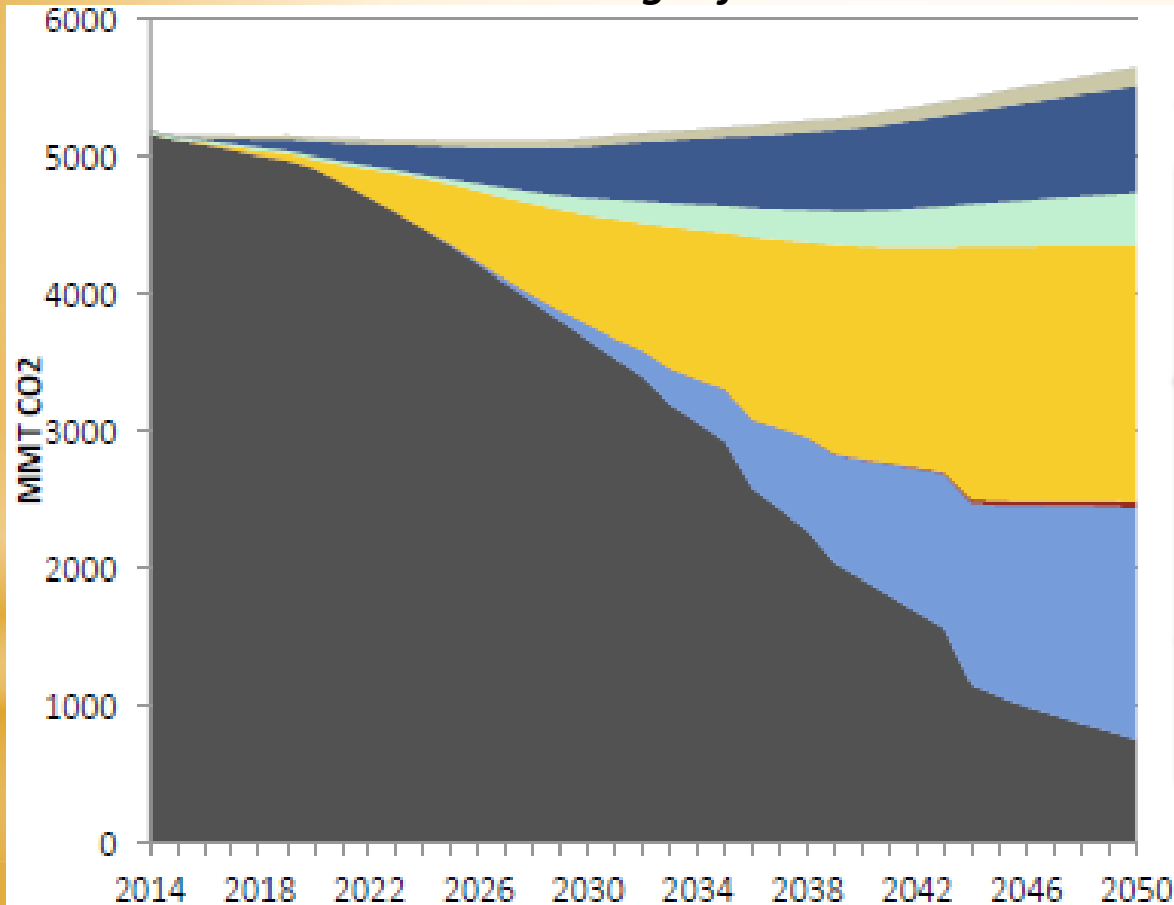
Outline of presentation

1. Range of local options: solar, energy efficiency, other source conversions
2. Brief description of two solar campaigns in Maplewood: Barriers encountered and Surprising area of growth
3. Energy efficiency: Low fruit but challenging to harvest
4. Fuel changing: EV's and heating



Where local efforts fit into the bigger carbon reduction picture

Decarbonization Wedges for the U.S.



← **Energy Efficiency**

← **Electricity Decarbonization**

← **Fuel Switching**

Maplewood Solar and Energy Efficiency Campaigns



Purpose of local campaigns:

- Directly lower greenhouse gas impact through reduced energy use and solar
- Get residents to pay more attention to their energy and its impact

Anticipated challenges:

- Getting the word out
- Convincing residents that energy efficiency and solar can pay for themselves
- Matching suitable residents with contractors they trust

Two campaigns:

➤ Solarize SOMA 2014

- Organized by community volunteers
- Chose single contractor based on price and quality

➤ Sustainable Jersey Solar Challenge: last 12 months

- Full endorsement of the township government
- Select contractors offering competing proposals



Results: Modest success within the campaigns-
-considerable interest but disappointing follow
through

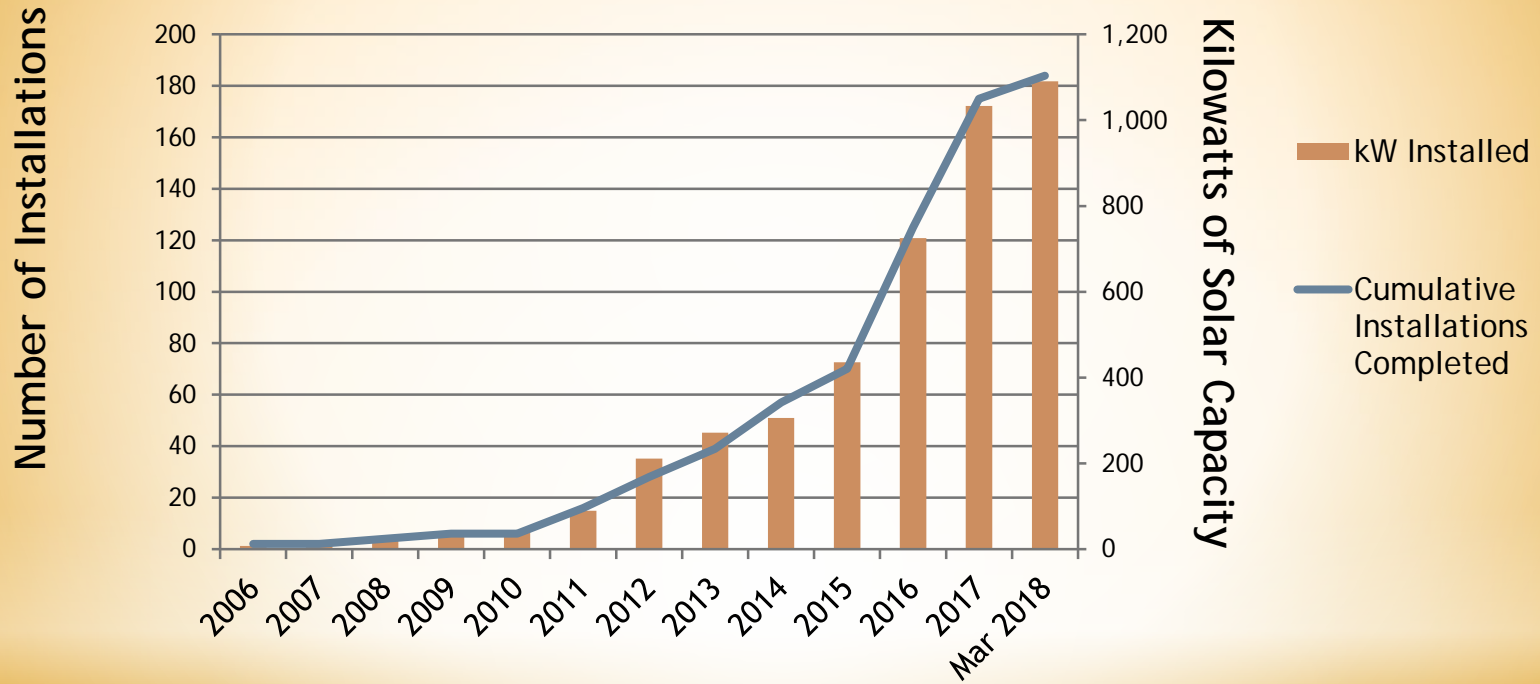
Unanticipated barriers:

- Mismatch between those with interest and those with suitable sites
- Financial decisions much more complicated than simple payback (competing expenditures & risk concerns)
- Process seems paralyzingly complicated

Unanticipated success: Increased activity
outside the programs



Maplewood Solar: Total Number and Capacity



183 installations (1091 kW) = 1%+ of electricity used

Growth of solar capacity

Why haven't all residents with suitable roofs installed solar?

Perhaps 1200 suitable sites--Disconnect between suitable sites and motivated residents and businesses

- Only about 20% of Maplewood houses are suitable
- 25% of homes and most businesses are rented
- Financial considerations lead to decision paralysis
 - Ability to invest in solar is typically inversely related to strength of motivation to save on electricity bill
 - SREC uncertainty means that the payback time is unclear
 - Concern that solar panels will lower the home value or make house hard to sell



Quick income demographic picture of Maplewood 24,000 people in Six Census Tracts

Wealthiest is Census Tract 194:

- ~3500 residents
- \$71,778 per capita (double state average)
- \$205,000 median household income (2.8 times state average)

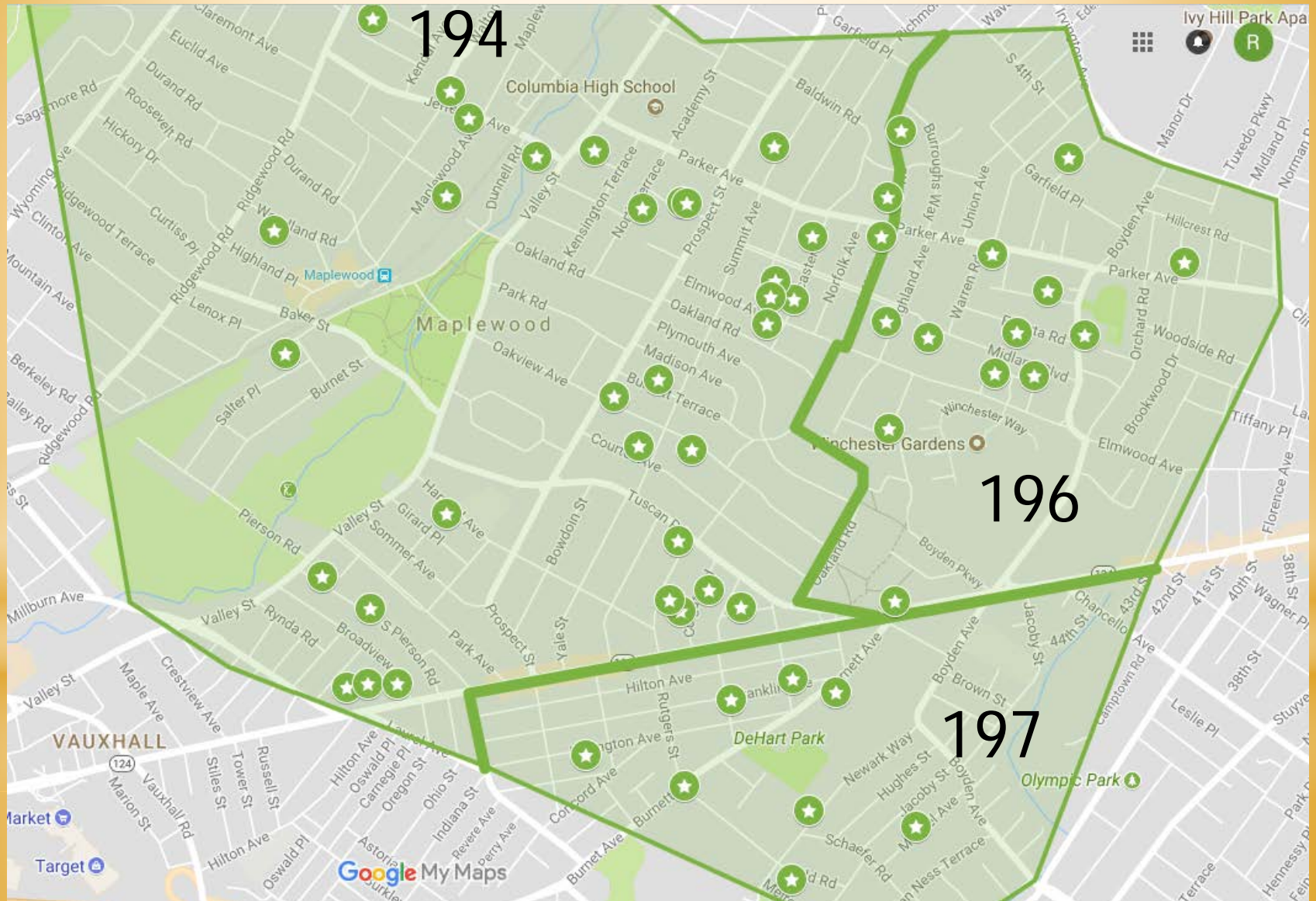


Least wealthy is Census Tract 197:

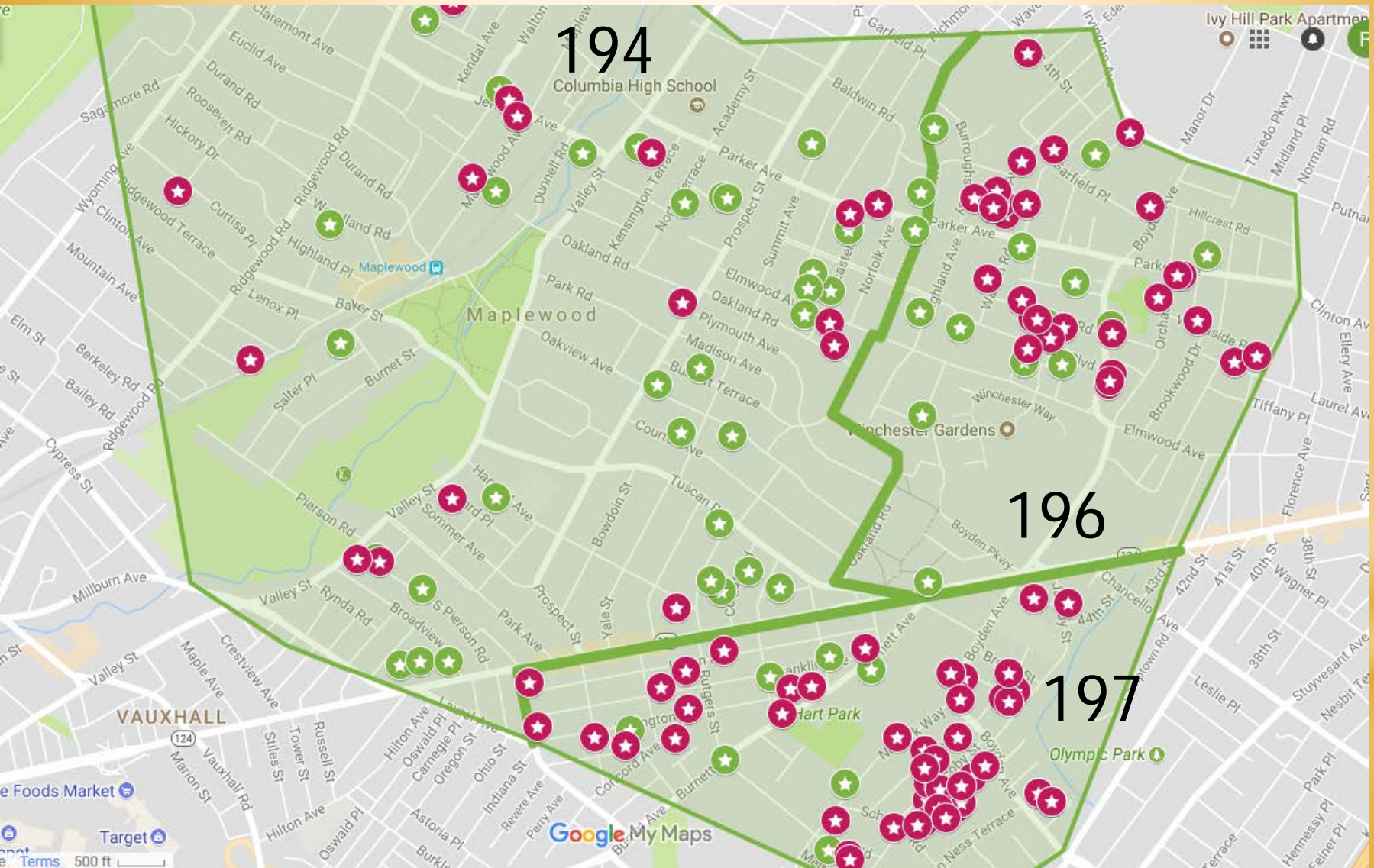
- ~6000 residents
- \$29,973 per capita (\$6,600 (18%) less than NJ as a whole)
- \$71,022 median household income (similar to state average)



Census Tracts and solar installations completed before the end of 2014



80% of recent installations have been in the two lowest income Census Tracts



Installations since early 2015 in are in red



Energy Efficiency Efforts

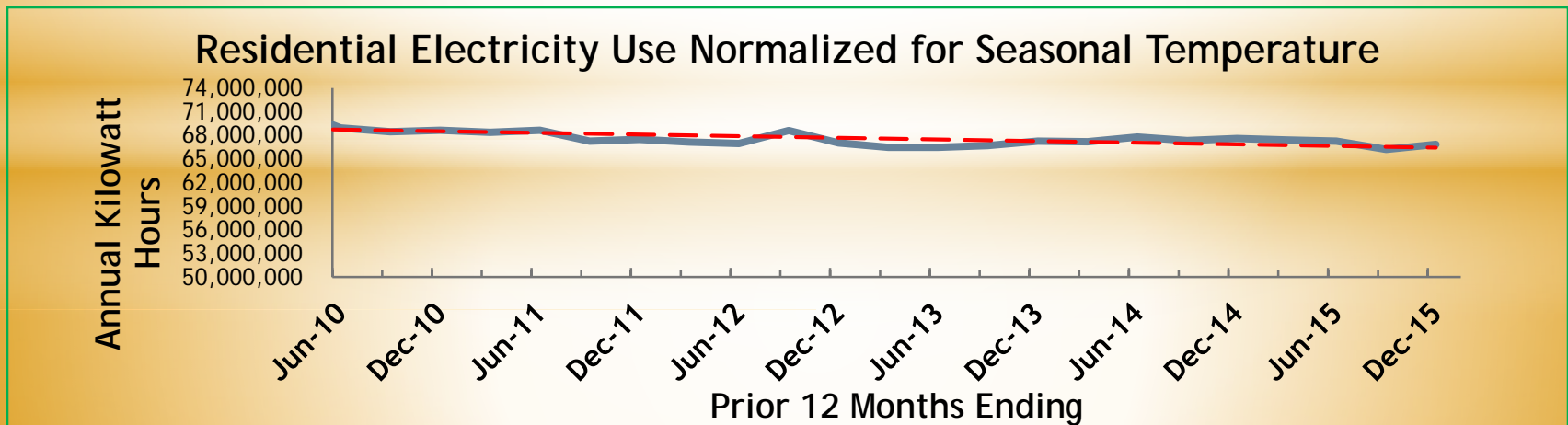
Numerous Campaigns:

- Started with Clean Power Choice and Change-a-Light
- Education Campaign for Comfort Partners
- Online clearinghouse for Home Performance with Energy Star
- Comprehensive energy audits of municipal operations and follow up



How Effective Have These Efforts Been?

- Overall little discernable improvement
- ½ of 1% per year decline in residential electricity use
- little change in heating energy use
- fewer than 75 per year comprehensive upgrades
- 10% increase in municipal utilities (lighting improvements offset by new buildings)



Fuel Switching:

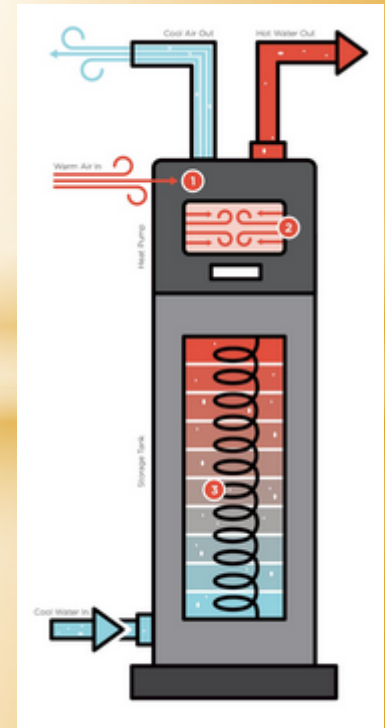
No low carbon future without major transition



Electric Vehicles: Cannot switch to EVs without investing in charging infrastructure

Electric heating: Possible to clean up electricity supply but no fossil fuels burn cleanly enough to use for heating

- Major advances in heat pump technology make this possible but will require building-by-building conversion
- Massive investment in long-term future fuel savings

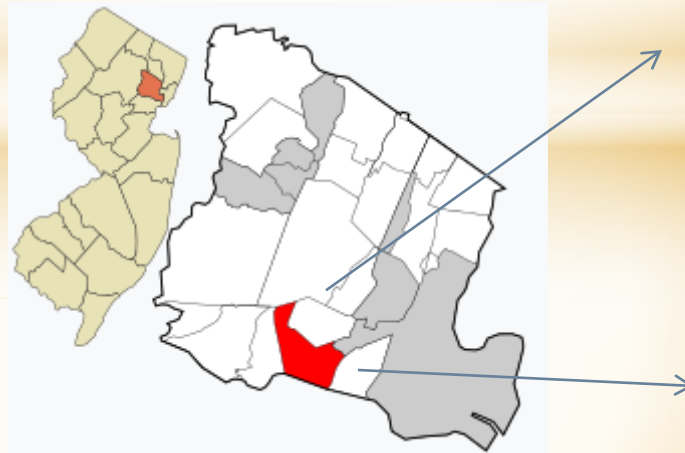


Community-based programs for a clean energy future:

- Locally tailored energy efficiency programs—save money and reduce capacity requirements
- Community solar—build out locally available solar capacity
- Financial mechanisms to capture the value of investments

Tools: government energy aggregation, cooperatives, utility programs

The Local Angle:





How can we learn from each other?
Communities leading New Jersey to
a sustainable energy future.

Contact me:
Bob McCoy
rfmccoy@verizon.net

Renewable Energy Aggregation for Glen Rock

Arati Sadalge Kreibich

Glen Rock Councilmember

Liaison to Glen Rock Environmental Commission

Ken Jones ♦ Noelle Siong ♦ Sylvia Rabacchi ♦ Ben Meyer

Glen Rock Environmental Commission



What is “DEAL”

Discounted Energy Aggregation pLan – a.k.a.

**Government Energy Aggregation (GEA) program with a
renewable energy component**



Renewable Government Energy Aggregation

5 Points 15 Points 35 Points 50 Points

Updated March 2015

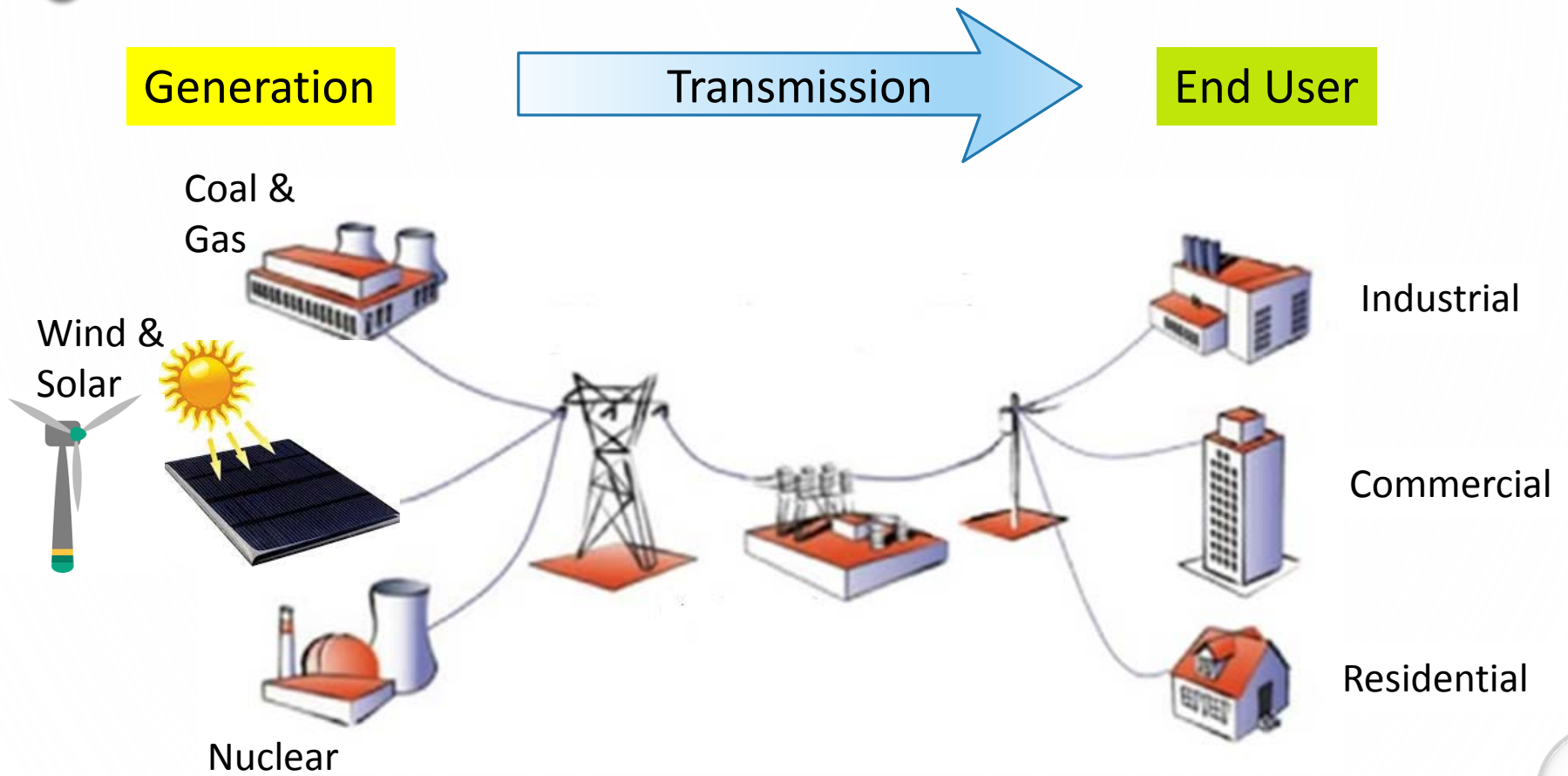
Energy aggregation program that includes a 20% or greater renewable component

Note: PSEG basic service is now 18% renewable

What is energy aggregation?

- NJ laws passed in 2003 permit towns to establish a customized energy supply for all residents (requires an ordinance)
- Brings energy choice (electricity portion) and lower costs to all residents through bulk purchase and competitive bidding
- PSE&G continues to handle the billing (including for the new supplier) and maintain the “pipes” and “wires”
- Opt-out program
- Over 50 towns in NJ have already done this

How Electricity Gets to Your Home

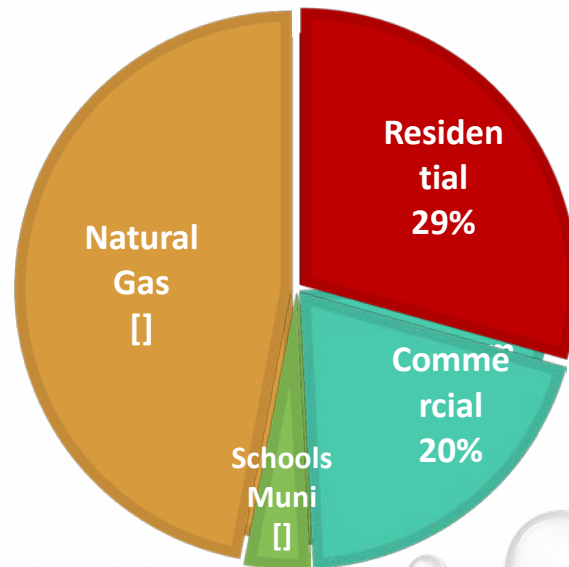


Why Glen Rock wants to create an R-GEA?

- Reduce energy costs and our carbon footprint with no effort on the part of residents – a Win-Win!
- No up-front cost to the town. Bids are placed by an energy consultant of our choosing who is paid by the supplier.
- Details of the contract are under *our* control (safe and customizable for our resident's needs) – avoiding 3rd party scams
- Many residents are concerned about the environment but worry about costs
- Residents can opt-out at any time

Why use clean energy?

1. Less reliance on fossil fuels improves our air quality
2. Greenhouse gas reductions are vital for the planet and our children's future
3. Demand for renewables is good for the NJ economy
4. DEAL will reduce our "carbon footprint"



Going **Green** in NJ

- Purchasing locally generated renewable energy leads to
 - Development of additional renewable energy resources
 - More types of renewable energy
 - More jobs
- Not all renewable energy is created equally
 - NJ Class 1 Renewable Energy Certificate (REC)
 - NJ Class 2 REC
 - PJM REC
 - Green-e Certified, e.g., TX wind

DEAL Timeline 2017

Part 1: Education



DEAL Timeline 2017

Part 1: Education



Boro buy-in

Testing the water

Outreach

Public forum

Mar 2017 Apr – May

Jun - Jul

Sep - Oct

Nov - Dec

Council mtgs

Individual conferences

Social media

Info at Farmer's Market

Council mtg

Letters to Editor

Borough letter every household

Updated FAQs on Borough website

Consultant selection

Common Objections

"I like
PSE&G"

"It's a
burden to
opt-out"

"What
happens when
the wind
stops?"

"Not the role
of the town"

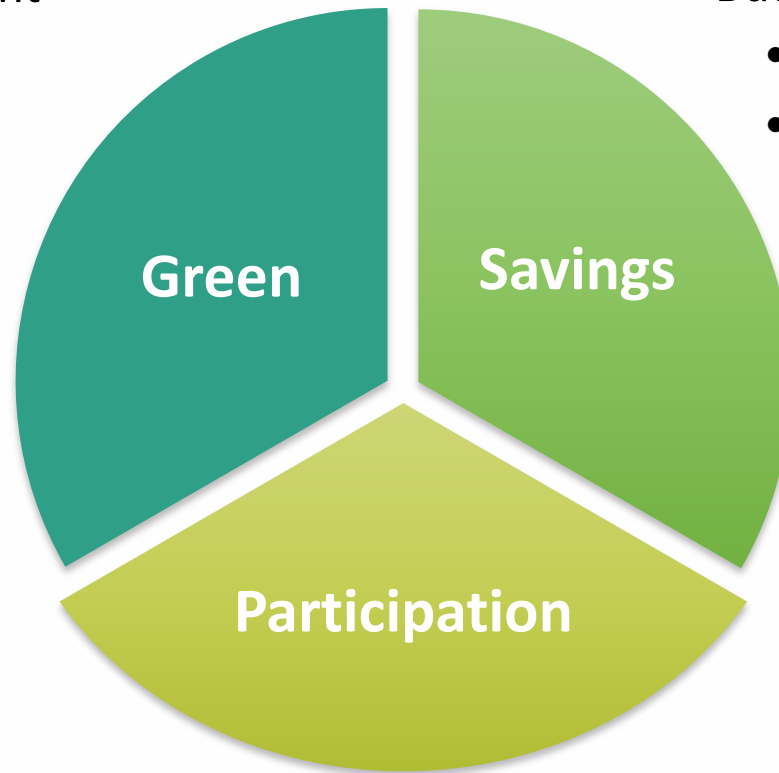
"Who's
making the
\$\$?"

"It's not
really
green"

R-GEAs are “Opt-out” Programs

During the enrollment period everyone is automatically in.

We do this as a community



But for those who want to...

- opting out is easy
- can be done at any time

Discounted Energy Aggregation proposal



That's DEAL for short!

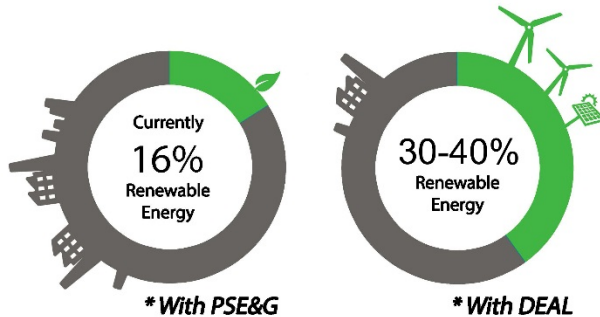
DEAL is a program that allows Glen Rock to purchase energy for its residents (*if they choose*) at a discounted price.

Well, what's so good about it?

Well, we've broken it down for you into a long list!

- For the average household, there will be a 5 - 10% **reduction** in energy costs (*\$50 - 100 per year*)
- For the town, this means savings of up to *\$500,000 per year!*
- Not only will it save money, but it will also help keep the town clean and green!

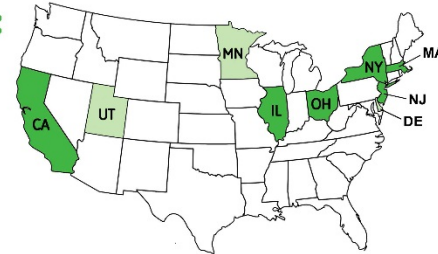
* Our new energy source will include up-to 40% renewable energy, which means the town as a whole will contribute much less to toxic air pollution! This means cleaner air for our children.



We can double our renewable energy usage and pay less than we do now!

Available in:

- California
- Illinois
- Massachusetts
- New Jersey
- Ohio
- Rhode Island
- New York



* Light green indicates under consideration.

What if I don't want to change?

You don't have to! Once the program is started, you will have the ability to **opt-out** at **any time** and for **any reason**. Instructions to do so will be on your monthly PSE&G bill and posted on the Borough Hall website.



Is there anything I need to do?

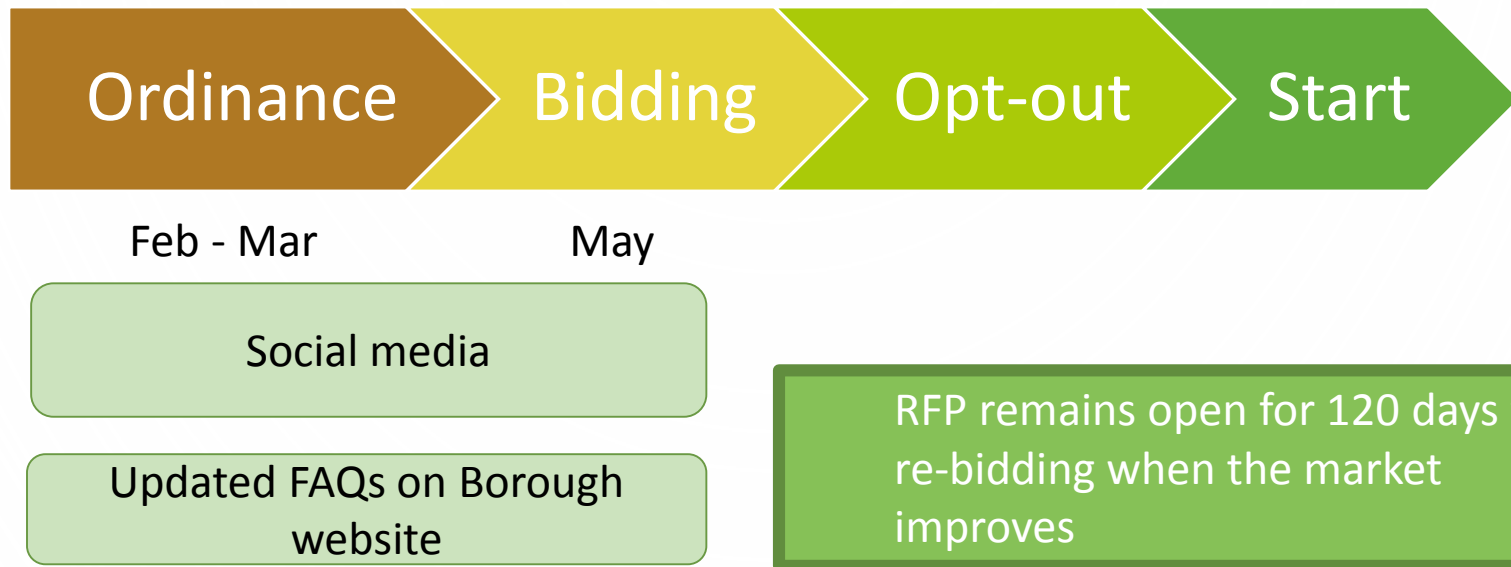
Nope! The town will switch over to the cheaper, greener energy, and that's it! PSE&G will continue to handle service calls as usual, and they will continue to handle the distribution and any maintenance for the town.



Let's **GREEN UP** GLEN ROCK

DEAL Timeline 2018

Part 2: Implementation



The Bidding

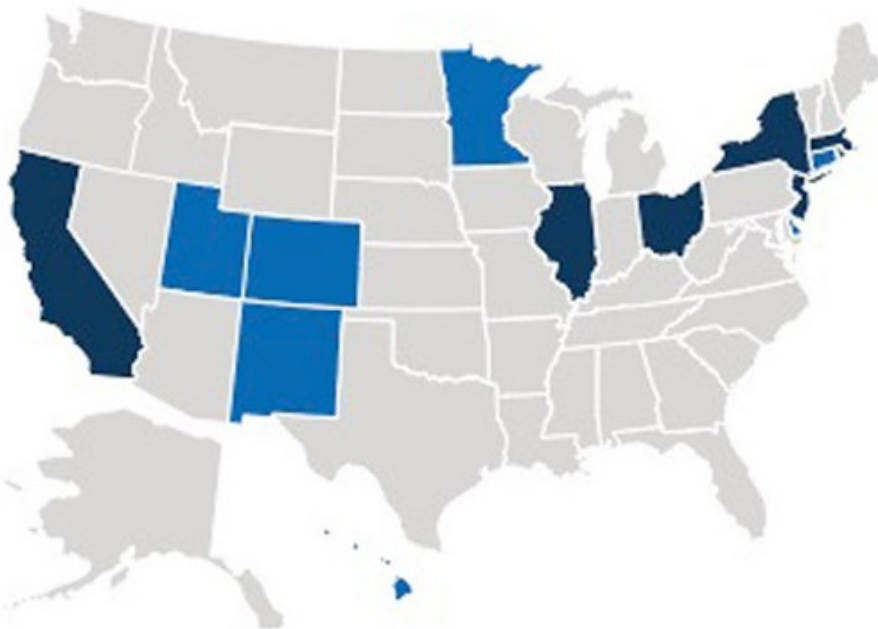
- Bid specification
 1. 40% Class 1 PJM RECs + 60% BSG
 2. 40% Class 1 PJM RECs + 60% Green-E RECs (wind)
 3. 3 different contract lengths
- Bid results – bids too expensive!
 - Market is uncertain now
 - RFP remains open for 120 days for re-bidding when the market improves

What's Happening Elsewhere

In NJ

- 2017 - Woodbridge establishes first R-GEA
- 2018 - Livingston R-GEA bids too high
- 2018 - Essex Hub forms multi-town R-GEA

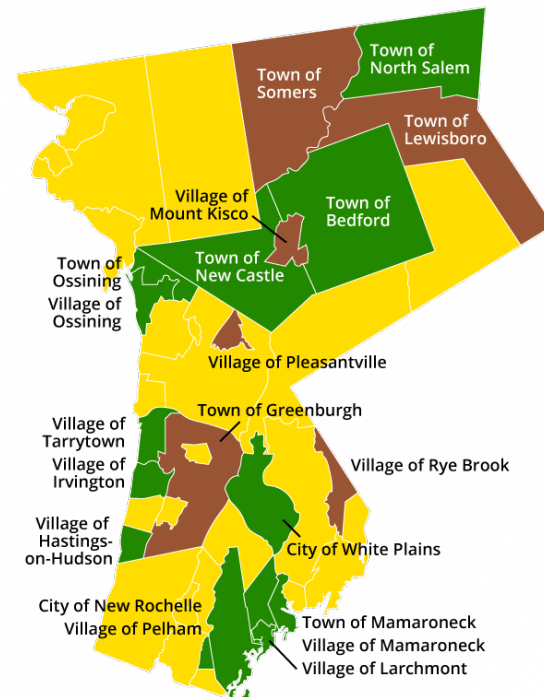
Across the US



■ CCA legislation in place ■ Exploring CCA Legislation

In NY

Community Choice Aggregation Westchester County NY

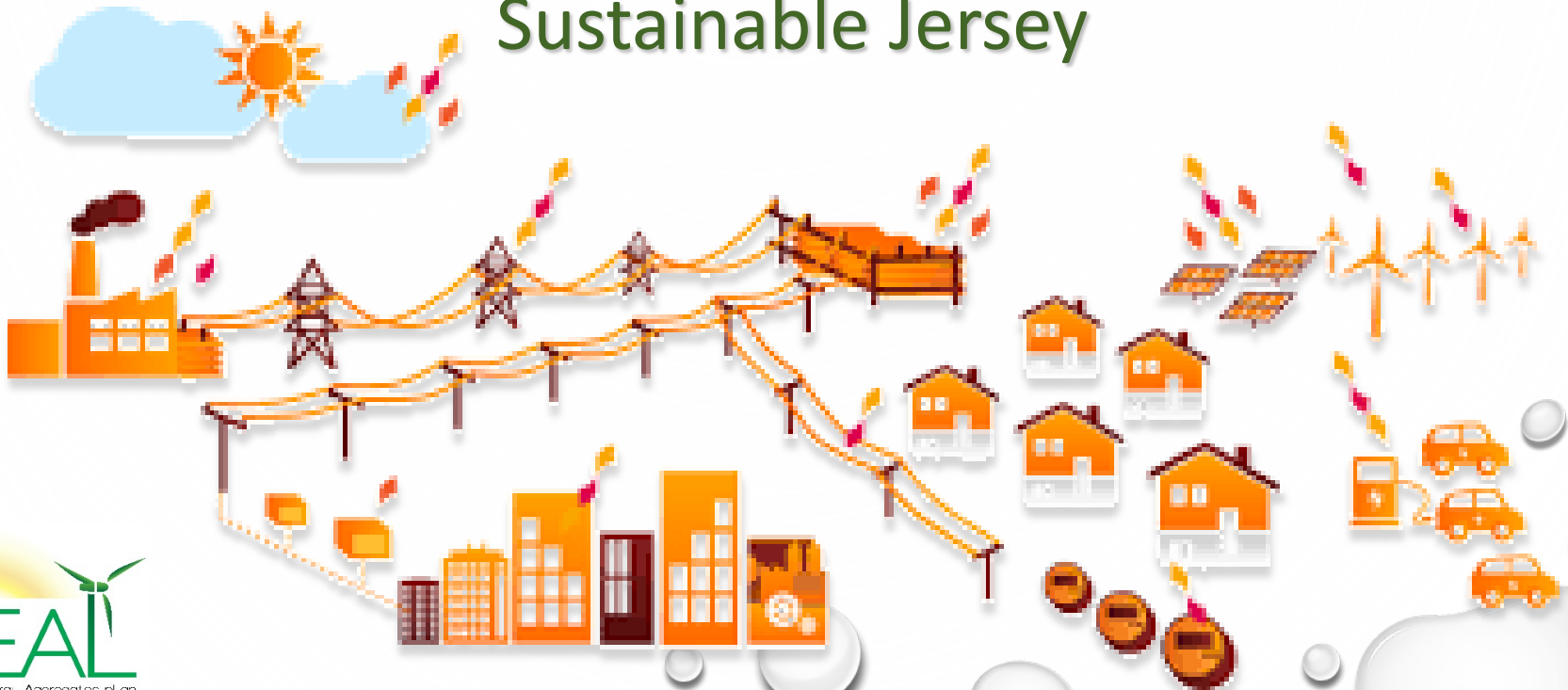


Questions?

THANK YOU

Ken Jones ♦ Noelle Siong ♦ Sylvia Rabacchi ♦ Ben Meyer
Glen Rock Environmental Commission

Sustainable Jersey



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Q&A

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