

# **Saving With Solar: Understanding Retail Solar Power Purchase Agreements**



**March 15, 2012**



# ICLEI's Mission

Our mission is to build, serve, and drive a movement of local governments to advance deep ***reductions in greenhouse gas emissions*** and achieve tangible ***improvements in local sustainability***.





# SunShot Solar Outreach Partnership

In 2010, the International City/County Management Association (ICMA) and ICLEI-Local Governments for Sustainability were competitively selected by DOE to conduct outreach to local governments across the United States, enabling them to replicate successful solar practices and quickly expand local adoption of solar energy.

For more information visit [icma.org/solar](http://icma.org/solar).

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## PARTICIPATING ORGANIZATIONS



[WWW.ICLEIUSA.ORG](http://WWW.ICLEIUSA.ORG)



# Online Information Sources

## DOE SunShot Resource Center

- [http://www4.eere.energy.gov/solar/sunshot/resource\\_center/](http://www4.eere.energy.gov/solar/sunshot/resource_center/)

## Database of State Incentives for Renewables and Efficiency (DSIRE)

- [www.dsireusa.org](http://www.dsireusa.org)



# Natick Massachusetts Case Study



# Natick Case Study

## Results

- Signed two PPAs and one amendment within one year
- ESCo installed 1072 kW solar array system on 6 building roofs (417,000 sq.ft.) at no cost to the town (\$6.05 million)
- Town set a very favorable electricity rate for 20 years (\$75,000/yr)
- Generated electricity meets 40% of demand (1.3 million kWh/yr)
- Lower GHG 1.16 million pounds per year
- Education Benefits (curriculum, DAS web-page, TV)



# Natick Case Study

## Challenges

- Bureaucracy – Understanding how town government works and how decisions are made
- Technology – Explaining “Rocket” science to managers, volunteers and elected officials
- “Grumpy” People – Preventing one or two “Grumpy” people from scuttling the project



# Natick Case Study

## Getting Started

### Who's on your team?

- Town Administrator's Energy Task Force -  
Department Heads
- Technical Assistance – Owners Agent





# Natick Case Study

## Getting Started

### Where is your Solar Potential?

- Preliminary Solar Roof and on Ground Study – Energy Service Company
- Select Short List of Sites for Further Study – Task Force/ Owners Agent



# Natick Case Study

## Implementation Strategy

### How to Navigate Local Boards and Committees to Get to Yes

- Start small and End Big – Three Phase Approach
- Identify Key Players in Review/Approval Process
  - Procurement
  - Legal
  - Two Building Committees
  - School Committee
  - Board of Selectmen
- Work the group and keep your fingers crossed



# Natick Case Study

## Construction of Solar System

### You're Almost There

- Local Permits – Building, Fire inspectional services; ESCo
- Construction Oversight – ESCo and Owners Agent



# Morris County, NJ Case Study



# Solar Power Purchase Agreement (PPA)

- Advantages:
  - Turnkey, private solar developer
  - Includes Financing and O&M
  - Developer tax incentives embedded in PPA Price.
- Disadvantages:
  - PPA pricing sub-optimal (most financing benefits to developer)
  - Potential Risks in PPA (due to gov't action / inaction)
  - FMV purchase at end of term, if term < useful life (not nominal, due to tax law)



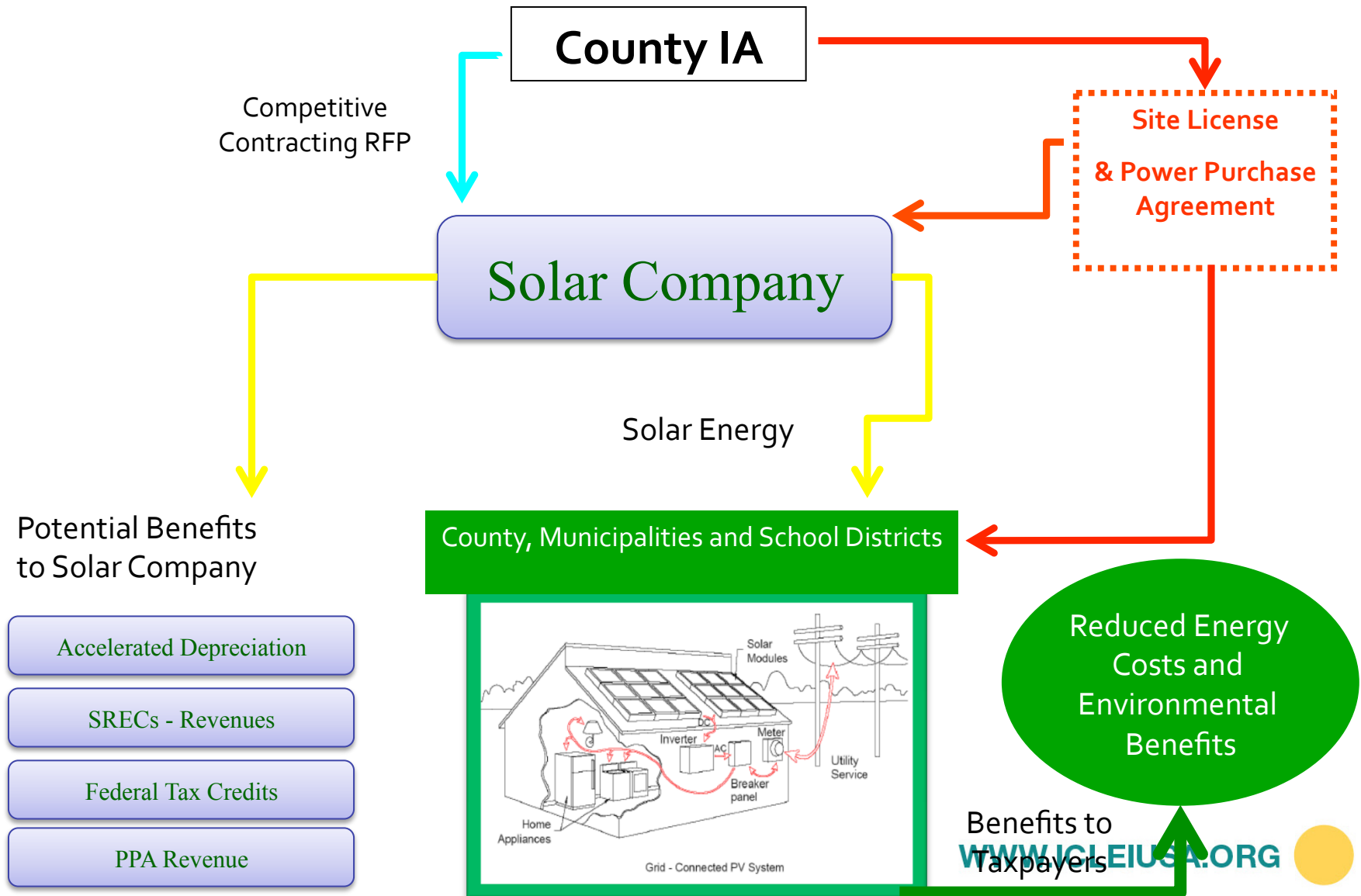
# PPA Risks

- Downtime (*lost PPA price + SRECs + Profit, regardless of fault*)
- Security obligation on Government
- Performance Guaranty from Solar Developer?
- Higher Rated Government Payment Guaranty?
- Limitation on Real Property Options (*mortgaging, lease, disposition*)
- Early Termination Penalties (*benefit of bargain*)



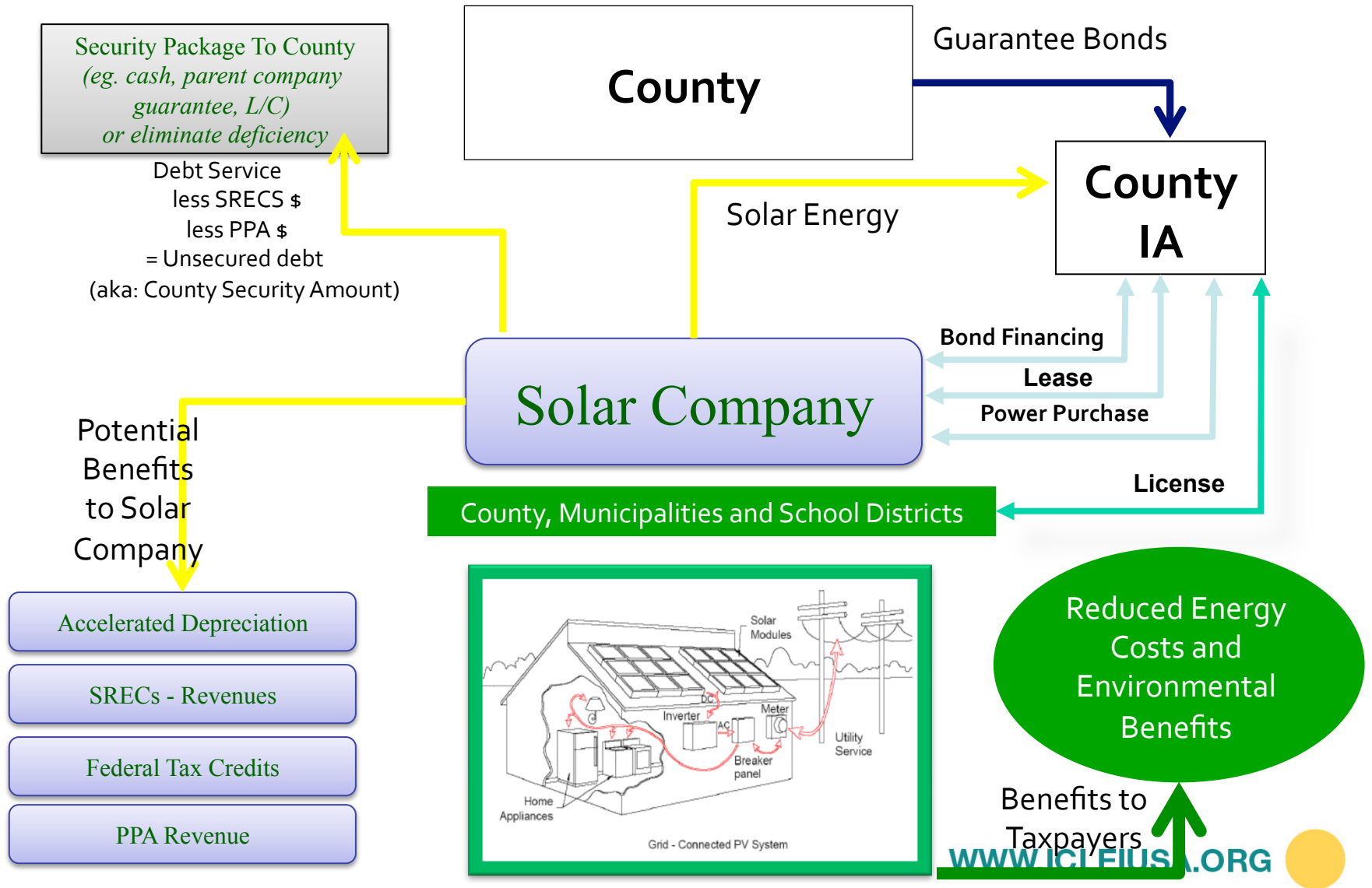
# How Does the Program Work ?

## Option 1 – PPA Model



# How Does the Program Work ?

## Options 2 Hybrid Structure





# Sample Solar Developer Procurement Criteria

- PPA Price – Economic Benefit
- Developer Approach to Comply with RFP Requirements, including Technical Specs
- Developer Ability to Deliver Turnkey Project, including O&M
- Experience – Contracts of Similar Size and Scope
- Management – Key Personnel and Knowledge of Applicable Laws/ Regs
- Logistics of Implementing Plan (1 year construction – multiple sites)
- Financial Strength (single purpose entity – guarantor)
- Construction Security (amount and strength)
- Funding of Deficiency (Developer default, left w/ PPA and SREC – amount and strength)
- Material Changes to Posted Documents Proposed?
- Other Economic Benefits Proposed?
- Restoration Security Included? (option to guaranty roofs restored at end)



# Benefits of Hybrid – Regional Approach

## Benefits of these Solar Renewable Energy Programs

- No cost of solar feasibility study to local units
- Lower cost of project installation through aggregated county-wide RFP
- Better pricing of the PPA
- Ability for smaller facilities to take part in a PPA
- Budget certainty
- Compliance with DCA Notice 2008-20, December 2008 and 2009-10, June 2009



# Case Study

Morris County Improvement Authority

Pilot Solar Renewable Energy Program – closed on February 18, 2010

- 3.2 MW from 19 facilities for 7 local unit governments
- Bond Pricing with AAA County Guaranty, 4.46%
- PPA Pricing: \$0.106 / kWh the first year
- 3% escalation, PPA Price in year 15 = \$0.16 / kWh (approximately today's market price!)
- 15 year PPA
- Sharing of 35% of SRECs if value over \$200 / SREC in years 11-15
- Market Price of SRECs today over \$600 / SREC in spot market
- 35% Average Savings / Local Unit



# Case Study

Somerset County Improvement Authority

Pilot Solar Renewable Energy Program – closed November 2010

- 7.6 MW from 31 facilities for 15 local unit governments
- Low Cost Financing Bond Pricing with AAA County Guaranty,
- 3.9%, 15 year maturity
- PPA Price: \$0.048 cents/kWh
- 2.75% escalation, PPA Price in year 15 = ~ \$0.07(half of present rate)
- 15 year PPA
- 60% savings off of 15/16 cent/kWh utility rate



# Case Study

Somerset County Improvement Authority

Tranche II Solar Renewable Energy Program – closed August 25, 2011

- 7.056 MW from 35 facilities for 18 local unit governments
- Bond Pricing with AAA County Guaranty, 4.02%
- PPA Pricing: \$0.041/kWh the first year
- 3% escalation, PPA Price in year 15 = \$0.10/kWh (lower than today's market price!)
- 15 year PPA
- Estimated Savings Over 15 Years = \$12.5M
- 23% Average Electric Savings for those facilities that participated
- Par Amount of Bonds: \$23,980,000
- Equity contribution of roughly 1/3 of total project cost eliminates CDA



# Case Study

Morris County Improvement Authority

Tranche II Solar Renewable Energy Program – closed December 8, 2011

- 8.598 MW from 23 facilities for 11 local unit governments
- PPA Pricing: \$0.075 cents/kWh the first year
- 3% escalation, PPA Price in year 15 = \$0.113/kWh (lower than today's market PPA!)
- 15 year PPA
- Estimated Savings Over 15 Years = \$7.9M
- 35% Average Electric Savings for those facilities that participated
- Equity contribution of roughly 1/3 of total project cost eliminates CDA



# Case Study

Morris County Improvement Authority – Sussex County  
Solar Renewable Energy Program – closed December 2011

- 6.9 MW from 20 facilities for 12 local unit governments
- PPA Pricing: \$0.0935 cents/kWh the first year
- 3% escalation, PPA Price in year 15 = \$0.15/kWh (lower than today's market PPA!)
- 15 year PPA
- Estimated Savings Over 15 Years = \$5.5M
- 32% Average Electric Savings for those facilities that participated
- Equity contribution of roughly 1/3 of total project cost eliminates CDA



# Lessons Learned

- Local Unit Commitment at all Steps
- Potential Closing of Local Unit Facilities in the Future
- Roof Warranties
- System Size & Regionality
- Solar Developer Experience and Balance Sheet
- Balance Maximum Savings with Minimal County Risk
- Building Inspectors and DOE Long Range Plan Updates
- Monitor SREC benefits





# Hybrid Model – Other States?

- 4 Essential Laws Required
  - Energy Law (sufficient RPS – in NJ, SRECs can be 40% of subsidy)
  - Bond Law (streamlined approval v. voter requirement)
  - Local Public Contracts Law (multi-year contracting for 15 or more years of PPA)
  - Procurement Law (competitive process v. low bid v. negotiation)
- Regional Approach
  - State or County
  - Group purchasing power and amortize soft costs
- Deep Pocket Required
  - Conduit Issuer and General Obligation Guarantor
  - Dedicated Revenue Stream (e.g. sales tax)



# Contact Information

For any further questions, please contact:

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# Summary and Questions

**Thank You!**

