

CITY OF NEWTON

IN BOARD OF ALDERMEN

PUBLIC FACILITIES COMMITTEE REPORT

WEDNESDAY, SEPTEMBER 5, 2012

Present: Ald. Salvucci (Chairman), Lennon, Albright, Gentile, Crossley, Danberg, Laredo, and Lappin

Also present: Fred Russell (Director of Utilities), Lou Taverna (City Engineer), David Turocy (Commissioner of Public Works), Robert Rooney (Chief Operating Officer), and Alan Mandl (Assistant City Solicitor)

REFERRED TO PUBLIC FACILITIES AND FINANCE COMMITTEES

#255-12 **HIS HONOR THE MAYOR** requesting authorization to appropriate the sum of two million seven hundred thousand dollars (\$2,700,000) from bonded indebtedness for the purpose of funding the design and construction of 9,500 linear feet of hydraulically deficient water main pipe in Washington Street from Church Street to Chestnut Street. [08/06/12 @ 3:25 PM]

ACTION: **APPROVED 7-0-1 (Gentile abstaining)**

NOTE: Director of Utilities Fred Russell presented the request for funds to clean and line 9,500 linear feet of water main pipeline in Washington Street from Court Street in Newton Corner to Chestnut Street in West Newton. The recent assessment of the City's water main system identified this project as the number one priority to improve the water system. This project is part of the 10-year Capital Improvement Plan to improve the City's water main system. The unlined pipe is hydraulically deficient and does not meet the current International Organization for Standardization (ISO) fire flow standards. The cleaning and lining of the cast iron pipe will improve the fire flow to meet the standards and improve water quality. The estimated cost for design and construction of the project is \$2.7 million, which would be funded through bonded indebtedness.

The project does not require fully opening Washington Street but approximately five 10' x 6' pits would be dug in Washington Street to provide access to the pipe. The contractor will be evaluating the pipe to ensure that it is suitable for cleaning and lining and does not need to be replaced. If the pipe is not suitable, the Administration will return to the Board of Aldermen but historically pipes similar to the one in Washington Street have been suitable.

There was a question regarding why the City is spending this money on the water system instead of the sewer system, as repairs to the sewer system generate savings for the City. The City has a 10-year plan to address capital needs in both the water and sewer system infrastructure. Although, there are no savings to the City because of the water system improvements, the improvements enhance water quality and reduce insurance rates for property owners because fire flow is improved.

Mr. Russell gave an update on the sewer system capital improvements. The assessment of the sewers in Project Area 1 is in process and expected to be complete this December or January. The Project Area 1 improvements are expected to go out to bid in February and the assessment of Project Area 2 will begin at that time in order to be completed and work ready to begin next fiscal year.

Ald. Crossley moved approval of the item, which carried by a vote of seven in favor and one abstention. Ald. Gentile has further questions regarding the item, which he will raise during the Finance Committee discussion.

#241-12 NATIONAL GRID petitioning for a grant of location to install and maintain 450' ± of 4" gas main in MARCELLUS ROAD from the existing 4" gas main at 40 Marcellus Road to Boulder Road for a new gas service to 36 Boulder Road. (Ward 8) [07-31-12 @3:03 PM]

ACTION: **APPROVED 8-0**

NOTE: Dennis Regan, National Grid Permit Representative, presented the petition for a grant of location to install 450' of gas main Marcellus Road to provide gas service to 36 Boulder Road. The Department of Public Works has recommended approval of the petition with the standard street opening permit conditions. The Chairman opened the public hearing and no one spoke for or against the petition. The Committee members had no questions regarding the petition, as it is a standard grant of location to provide gas service. Therefore, Ald. Albright moved approval, which carried unanimously.

#242-12 COMCAST petitioning for a grant of location to install 240' ± of 3" conduit in NEWTONVILLE AVENUE from Pole #35/12 at the intersection of Bowers Street and Newtonville Avenue in a westerly direction to 458-462 Newtonville Avenue. (Ward 2) [07-31-12 @1:41 PM]

ACTION: **APPROVED 7-0 (Laredo excused)**

NOTE: Neal Carroll, Comcast Project Coordinator, presented the petition to the Committee. Comcast is requesting a grant of location to install 240' of conduit underground in Newtonville Avenue from Bowers Street towards the intersection of Walnut Street. The work is necessary to provide service to customers located at 458-462 Newtonville Avenue. The Public Works Department reviewed the petition and recommended approval of the petition.

The public hearing was opened and no one spoke for or against the petition. One Committee member questioned why the conduit was being installed underground. Mr. Carroll responded that there are no utilities poles available to attach the conduit to from Bowers Street to Walnut Street on Newtonville Avenue. With that, a motion to approve the petition was made and carried by a vote of seven in favor and none opposed. Ald. Laredo excused himself from the vote due to concern that he may have a conflict of interest due to a connection through his law practice.

#243-12 COMCAST petitioning for a grant of location to install conduit and vaults in WELLS AVENUE as follows:

A) 1,666'+ of conduit from 75-95 Wells Avenue to 177 Wells Avenue.

B) Nine 2' x 3' vaults in Wells Avenue at the following locations: 75-95 Wells Avenue, 100 Wells Avenue, 120 Wells Avenue, 125 Wells Avenue, 145 Wells Avenue, 154 Wells Avenue, 160 Wells Avenue, 177 Wells Avenue and 180 Wells Avenue. (Ward 8) 08/03/12 @ 11:30 AM]

ACTION: **APPROVED 8-0**

NOTE: Mark Carter, Comcast Project Coordinator, presented the request to install 1,666' of conduit and nine vaults in Wells Avenue. Mr. Carter explained that this request for a grant of location is an extension of a grant of location that the Board of Aldermen approved in July 2012. During the process of obtaining the previous grant of location, Comcast received additional requests for services beyond the scope of the original petition.

The work is being done at the request of several of the tenants between 75-95 Wells Avenue and 180 Wells Avenue. The Department of Public Works has approved the grant of location with the standard street-opening permit conditions including a police detail. The public hearing was opened and no one spoke for or against the project. The Committee questioned where the vaults would be installed. Mr. Carter explained that the vaults are installed in the sidewalk berm and are flush with the earth. Ald. Lappin asked if there was any way to camouflage the steel vault openings. Mr. Carter explained that the vault covers are not very noticeable once installed. With that, Ald. Lappin moved approval of the petition, which carried by a vote of eight in favor and none opposed.

Public Hearing continued from July 18, 2012:

#197-12 HIS HONOR THE MAYOR requesting the Board of Aldermen authorize a long-term lease with the solar photovoltaic firm, Ameresco Solar Inc., to allow for the installation of solar panels on the rooftops of five (5) public schools: Newton North High School, Brown Middle School, Memorial-Spaulding Elementary School, Countryside Elementary School and Bowen Elementary School.
[07/02/12 @ 5:03 PM]

ACTION: **APPROVED 7-0-1 (Gentile abstaining)**

NOTE: A public hearing was opened on July 18, 2012 and continued in order to allow for future input from property owners and for further information including a copy of the draft lease and Power Purchase Agreement. The July 18, 2012 report is attached. The Administration provided the draft lease, the Power Purchase Agreement and additional information to the Board of Aldermen in this past Friday's packet.

Chief Operating Officer Robert Rooney reviewed the request for authorization to enter into a twenty-year lease with Ameresco Solar, Inc. for the installation of solar panels on portions of the rooftops of five schools. The attached PowerPoint presentation highlights the major financial aspects of the project and construction details. Ameresco Solar, Inc. would install, operate, and maintain the solar panels over the lease period and the City would pay for 100% of

the energy produced by Ameresco Solar, Inc. through a Power Purchase Agreement.

Chief Administrative Officer Robert Rooney pointed out that the City could expect the solar panels to generate over 80,000 kilowatt-hours (kWh) per year. There is an international movement towards solar power and clean energy. This proposal would increase solar energy generation eightfold in the City of Newton. In addition, the installation of solar panels is in keeping with the City's Energy Smart Initiative to reduce energy consumption, generate or allow the generation of clean energy and pay less for energy. The price of the energy produced by the solar panels is less than NStar's current rates. The energy generated by the solar panels would be at a fixed cost providing stability, as compared to open market volatility. In addition, the City will receive net metering credits from NStar. Attached is information on net metering from the Massachusetts Department of Energy Resources and NStar.

Since the July 18 Public Facilities meeting, the Administration, with input from the City's independent solar expert, Cadmus, has determined that it is not economically feasible to put solar panels on the roof of Bowen Elementary School. Therefore, the number of buildings involved in the project has been reduced to four. The Administration and Ameresco have reached an agreement on the guaranteed maximum energy production, which is 702 kW OR 818,931 kWh per year. The School Department and School Committee were informed and are supportive of the proposed project. The Administration has also provided information to the Ward Aldermen where the schools are located and notice to individual abutters with a direct sight line to the proposed solar panels.

Jim Walker of Ameresco reviewed the financials with the Committee. Although the various rates are subject to change, Mr. Walker provided approximate energy savings. NStar still charges the City a fee or supply rate of \$0.96 for electricity and Ameresco will charge the City \$0.106 cents per kWh for electricity generated from the solar panels for the first three years, for a total rate payment of \$0.202 per kWh. After the three years of the contract, the annual fee escalator for Ameresco is 2.5%. The City receives a net metering credit from NStar of approximately \$0.175 for kWh generating a net electricity rate of \$0.027, which results in approximately \$0.069 in electricity rate savings. Mr. Walker reviewed three utility rate escalator scenarios with the Committee. If the utility rates remain flat over the next 20 years, the City stands to save \$1.2 million, if the rates increase by 2.5% the City will save a little over \$1.9 million, and if it increases at 3.5%, the City will save \$2,288,065.

Further negotiations with Ameresco have resulted in Ameresco agreeing to share equally the solar renewable energy certificates (SRECs) after year 10 of the power purchase agreement. One SREC represents the solar system's production of 1,000 kWh of electricity, which is then eligible to be sold. In order for a solar facility to be credited with that SREC, the system must be certified and registered. The SRECs generated by these solar panels would be purchased by NSTAR. NStar needs SRECs to meet solar production mandates placed upon them by the State. In Massachusetts SRECs are currently worth \$500 a piece but that price can fluctuate depending on the supply and demand.

Ameresco also agreed to reduce the cost per kilowatt-hour from 11 cents to 10.6 cents and reduce escalation from 3% for 20 years to 0% for the first 3 years and 2.5% thereafter. In addition, an early buy-out schedule would begin after year six of the lease. The executive summary of the draft lease and power purchase agreement is attached.

The City has worked with David Beavers from The Cadmus Group, who has functioned as an owner's representative. Mr. Beavers has worked with the City over the past 1 ½ years to help understand and negotiate the lease and power purchase agreement. Mr. Beaver reviewed all of the financial aspects of the contract including the 2.5% escalation of the rate for the solar generated power. It is his expectation that overall, the project will generate savings for the City and Mr. Beavers does not see the project as a large risk for the City. The objective to complete the installation and bring the solar arrays online by the end of the year remains. Ameresco has taken a risk and moved forward with the longest lead-time approvals for the arrays such as the utility approvals. The structural engineer has proceeded with further review of the roofs.

Questions

Q. What if the state regulations change and net metering credits are no longer offered?

A. Net metering credits are taken as they are generated. The state legislature adopted new language requiring investor-owned utilities offer net metering in 2009. In order for the net metering credit program to be cancelled, it would take a change to the state law. Even if the credit is not offered, the City could feed the solar power directly into the school and pay Ameresco directly.

Q. If the project is not economically feasible in 15 years what is the plan?

A. The generated energy would be fed back into the school buildings.

Q. What happens at the end of the lease?

A. The City can choose to have Ameresco remove the solar panels or purchase the panels.

Q. What is the life expectancy of a panel?

A. The panels have a life expectancy of 25 to 30 years.

Q. At what angle will the panels be set at?

A. The panels on the high school will be set at 5° and the panels on the elementary schools will be set at 15°. None of the panels will reflect into surrounding properties. The City did contact direct abutters and there were no objections to the panels.

Q. Is the City required to remove snow from the panels.

A. The City would not be responsible for snow removal. The heat generated from the solar panels usually melts snow in their area. The independent structural engineer has to certify that snow removal is not required.

Q. Will the City be charged if it is necessary to take some or all the solar panels offline to repair a roof?

A. The City would not be charged for panel removal for up to three days. The City would not be considered negligent for panel removal for roof repair. Ameresco has never had to remove roof panels and for added roof protection, Ameresco will be providing an additional rubber membrane on the roofs under the panels.

Q. What insurance costs does the City incur due to the installation of solar panels?

A. The City cannot purchase insurance for the panels, as the City is self-insured.

Q. What are the buyout costs?

A. At 10 years, the buyout cost would be \$1.4 million and at 20 years, it would be \$114,000

Q. Who would be the structural engineering firm used for the project.

A. Ameresco would use CBI or BMC Construction.

Q. What is the load bearing capacity of the Newton North High School roof, as there is concern that the weight of the solar panels may be an issue?

A. Ameresco will provide the information on the load bearing capacity at the Finance Committee discussion. The solar panels are less than five pounds per square foot. Ameresco has reduced the number of proposed panels in some areas of the Newton North High School due to concern about the weight. Ameresco asks the structural engineer to run a number of tests to ensure that the roofs will continue to be structurally sound.

Q. Who will provide a review of the structural engineer's report for the City?

A. Ameresco and the Administration had not planned to do a peer review as the structural engineer would stamp and sign the structural report. Ameresco agreed to supply the structural engineer's data.

Q. Are the open items in the power purchase agreement going to be resolved before the Board of Aldermen's vote?

A. The Administration will attempt to address all open items before the vote.

Comments

The City should be aware that is taking a risk, but the project would only generate 5% of the City's energy use; therefore, the risk is minimal. If the project is not successful, the City is unlikely to suffer a significant monetary loss.

There need to be clear guidelines on snow removal and defined areas of the roofs the City should not attempt to remove snow. It is part of the detailed agreement and includes the license areas.

There should be further negotiation on the 2.5% escalator implemented after year three of the contract.

Public Hearing

The Chairman opened the continued public hearing for comment.

Eric Olsen, Chair of the Energy Commission, stated that people are working to put a disincentive on the use of carbon fuels. The Green Decade Coalition and the Energy Commission work to save the City money through green energy opportunities and this proposal appears to be a modest risk with likely financial savings.

Jim Purdy, Chestnut Street, added that the Energy Commission depends on qualified, certified experts to reach decisions and in this case, the Energy Commission was satisfied that both the City and Ameresco had done their due diligence to ensure that the risk to the City is limited. The project also reduces the City's reliance on carbon fuels.

Ed Craddock, Crafts Street, is in favor of the project and pointed out that the Town of Natick is paying a 3% escalation rate to Ameresco. He believes that the 2.5% escalator is reasonable, as the project must be viable for Ameresco.

At this point, the public hearing closed.

Conclusion

Ald. Crossley moved approval of the item as she feels that this is a small risk in terms of money and investment but a large step in terms of commitment to building a greener community. There was a sentiment that at some point the Board must trust that the negotiators to get the best deal for the City and that the risk for this project appeared minimal. Ald. Gentile abstained in order to hear the responses to the question on the load bearing capacity of the high school roof.

Respectfully submitted,

Anthony J. Salvucci, Chairman

intersection. Ms. Pollack will provide statistics on the use of roundabouts. She also pointed out that roundabouts need to be installed in the right place to be effective. The last tool overviewed was a road diet, which is used to describe the narrowing of vehicle travel lanes to build in accommodations for other users such as cyclists and pedestrians. A road diet has minimal impact on drivers.

There was concern regarding the addition of bicycle lanes to some streets. There are streets that are unsafe for bicyclists even with the addition of bike lanes. Ms. Pollack explained that not every road needs bike lanes but there do need to be good options for cyclists to traverse the City. The City needs to work to identify and find the best walking and biking routes to village centers and schools. The new Transportation Advisory Group (TAG) is working on a framework of principles and plans for a bike network plan and sidewalk plan. Committee members expressed some apprehension regarding loss of parking because of new bike lanes. Ms. Pollack explained that people like the idea of parking in front of their home but do not necessarily utilize it. The City needs to provide realistic alternative parking nearby to properties with bike lanes in front of the property. Residents are supportive when their visitors have a place to park.

It was pointed out that goals and recommendations of the TAC would be sellable to residents and commuters if people's driving experience were improved. Ms. Pollack stated that she believes that the City can achieve a win/win situation that improves safety for everyone that uses the streets and sidewalks. With that, the Committee thanked Ms. Pollack for her presentation.

Public Hearing

#197-12 HIS HONOR THE MAYOR requesting the Board of Aldermen authorize a long-term lease with the solar photovoltaic firm, Ameresco Solar Inc., to allow for the installation of solar panels on the rooftops of five (5) public schools: Newton North High School, Brown Middle School, Memorial-Spaulding Elementary School, Countryside Elementary School and Bowen Elementary School.
[07/02/12 @ 5:03 PM]

ACTION: **HEARING CONTINUED AND ITEM REFERRED TO FINANCE 8-0**

NOTE: Chief Operating Officer Robert Rooney presented the request for authorization to enter into a twenty-year lease with Ameresco Solar, Inc. for the installation of solar panels on portions of the rooftops of five schools. Ameresco Solar, Inc. would install, operate, and maintain the solar panels over the lease period and the City would pay for the energy produced by Ameresco Solar, Inc. through a Power Purchase Agreement. The City would also receive net metering credits from NStar for the metered energy produced by the solar panels.

Net metering credits would be generated when the solar panels were installed and operational. Each of the schools would be connected to a meter that measures the amount of electricity generated and sent to the electric grid. NStar would credit the City the calculated value of the electricity sent to the electric grid.

The Administration began looking at the possibility of installing solar panels eighteen months ago by advertising for Requests for Qualifications, as stated in Chapter 25A of the Massachusetts General Laws. The City received responses and interviewed three prospective firms. The City entered into a memorandum of understanding with Ameresco Solar, Inc. in February 2012, as they demonstrated the ability to reach an agreement with the City and meet the City's goals. At this point, Ameresco conducted evaluations of the rooftops of the City buildings and selected five school buildings based on the amount of sunlight on the rooftops, the condition of the rooftop, and the structural capacity of the rooftops. The solar panels on the five rooftops are expected to generate a total of 879,121-kilowatt hours per year or 4% of the City's annual energy consumption. The installation of the solar panels are in keeping with the City's Energy Smart Initiative to reduce energy consumption, generate or allow generation of clean energy and pay less for energy.

Mr. Rooney pointed out the benefits of entering into a lease and Power Purchase Agreement (PPA) with Ameresco. The addition of the solar panels provides the City with a stable electric rate and should generate approximately \$40,000 in savings in year one of the contract. The savings are generated through NStar's net metering credits for energy generated by the solar panels and the impact of those credits on the net electricity rate for those units of electricity. However, there is no guarantee that the electricity rate and net metering credit rate will remain the same in the outlying years of the lease and PPA; therefore, the savings could fluctuate from year to year. There is no upfront cost to the City and a small risk going forward, as all the equipment would be owned, operated and maintained by Ameresco. In addition, it is unlikely that the solar panels and associated equipment, with the possible exception of the connection to the electrical system, would require roof penetration.

Assistant City Solicitor Alan Mandl reviewed the recently adopted ordinance related to the lease of city-owned property for solar panels, which is attached. The new ordinance establishes procedures for the lease of the property to be used for the installation of solar panels. Per the ordinance, the Docket Item is a request for the Board to authorize the Mayor to enter into long-term site leases for solar panels, as part of an agreement in which the City would use or receive net metering credits for energy produced by the solar panels.

Mr. Mandl provided an overview of a Power Purchase Agreement (PPA), which would essentially be the contract between Ameresco and the City. It defines the terms related to the City's purchase of the electricity and the supplier's obligation to supply the agreed upon amount of electricity. The PPA includes guarantees and protections for the City that include protection of the City's roof warranties and provisions that allow the City to repair rooftops without penalty. In addition, there is a buyout option if the City wishes to purchase the solar panels at the end of the agreement and language that states that it is the Ameresco's responsibility to remove the solar panels at the end of the lease if the City chooses not to buy them.

The public hearing was opened and no one spoke for or against the petition. There was concern among Committee members that no one was present for the public hearing. Notice was sent to the abutters, as required by ordinance. It was pointed out that the Administration had

neglected to consult with Ward Aldermen and abutting property owners during the development of the proposal, as called for in the ordinance.

Jim Walker of Ameresco provided the attached PowerPoint presentation. He gave a brief overview of the company. Ameresco has a number of PPAs and leases with different cities in towns in Massachusetts for solar panels. The presentation continued with the construction steps for solar panel installation. The process begins with design and permitting, which includes a review by an independent structural engineer, who provides Ameresco with the appropriate locations for the solar panels on each rooftop. In addition, Ameresco contacts the roof manufacturer for each rooftop and requests a roof audit. The manufacturer provides Ameresco with list of conditions that must be met in order to continue with the roof warranty. Ameresco also does testing on wind and snow load and the location of the panels is determined by the newest structural codes related to both wind and snow. Ameresco involves the appropriate City departments like Inspectional Services and Planning in the construction process.

The presentation also included sketches of the likely locations of the solar panels on the five rooftops. Ameresco would work around each school's schedule to install the solar panels. The solar panels would not be visible from street level. The only piece of equipment at street level would be an inverter, which is used to convert of the solar panel into power that can be fed into the electrical grid. The inverters are noiseless. Ameresco would work with the schools to determine the best location for the inverter. The inverters could be screened and fenced.

Mr. Walker informed the Committee that Ameresco provides the schools with an educational program on the solar panels and power generated by the solar panels. The program has different topics, which have been developed for each grade level. The materials include online data and teacher topic summaries. The topics of the program follow the Massachusetts Learning Standards for Science and Technology/Engineering Frameworks. It was suggested that the business aspects of the solar project be added to the educational materials.

Several Aldermen felt that they needed further information including a copy of the draft lease and PPA before voting on the item. Committee members would like to know that the City has protections against early termination and bankruptcy. In addition, Committee members felt that although there was no request for funding, there were financial implications to leasing the rooftops. It was suggested that the item be referred to the Finance Committee for discussion of the financial aspects. Therefore Ald. Lappin moved to continue the public hearing and refer the item to the Finance Committee, which carried by a vote of eight in favor and none opposed.

Public Hearing

#198-12 NATIONAL GRID petitioning for a grant of location for a utility control box, regulator station and to install and maintain 128' \pm of 12" and 8" gas main in AUSTIN STREET from the existing 8" gas main in Chestnut Street easterly to the proposed regulator station and from the proposed regulator station to the existing 8" gas main. (Ward 3) [06/19/12 @ 1:44 PM]

ACTION: **APPROVED 8-0**

#197-12



Current solar array on NNHS

Ameresco

Solar PV's for the
City of Newton, MA
702 kW

Topics (Reviewed)

1. About Ameresco
2. Construction Steps
3. Solar PV Projects for Newton
4. Project Financials
5. Discussion



770 kW, Waltham HS,
Massachusetts



884 kW, Arizona Garage



210 kW, Hill AFB, Utah



2 MW, Arizona State University



Newburyport, MA: 502 kW
2 Schools and DPW Bldg.



Waltham, MA: 1,931 kW
6 Schools and Muni Center.



Fall River, MA: 576 kW
3 Schools and Water Treatment



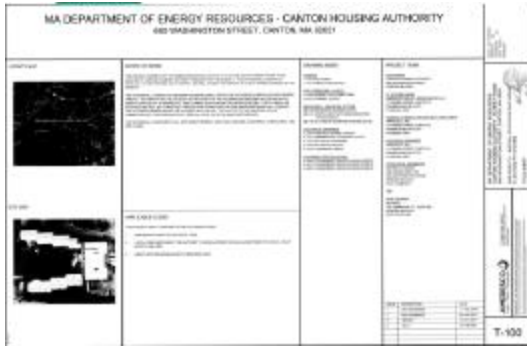
Lowell, MA: 348 kW
4 Schools and LMA



Natick, MA: 1,058 kW
5 Schools and Senior Center.



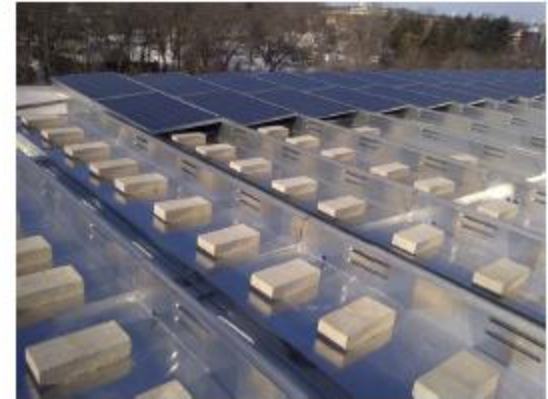
Milton Academy: 192 kW
Student Activity Center



Design & Permitting



Mobilization & Crane Ops



Ballast Layout



Panel Assembly & Wiring

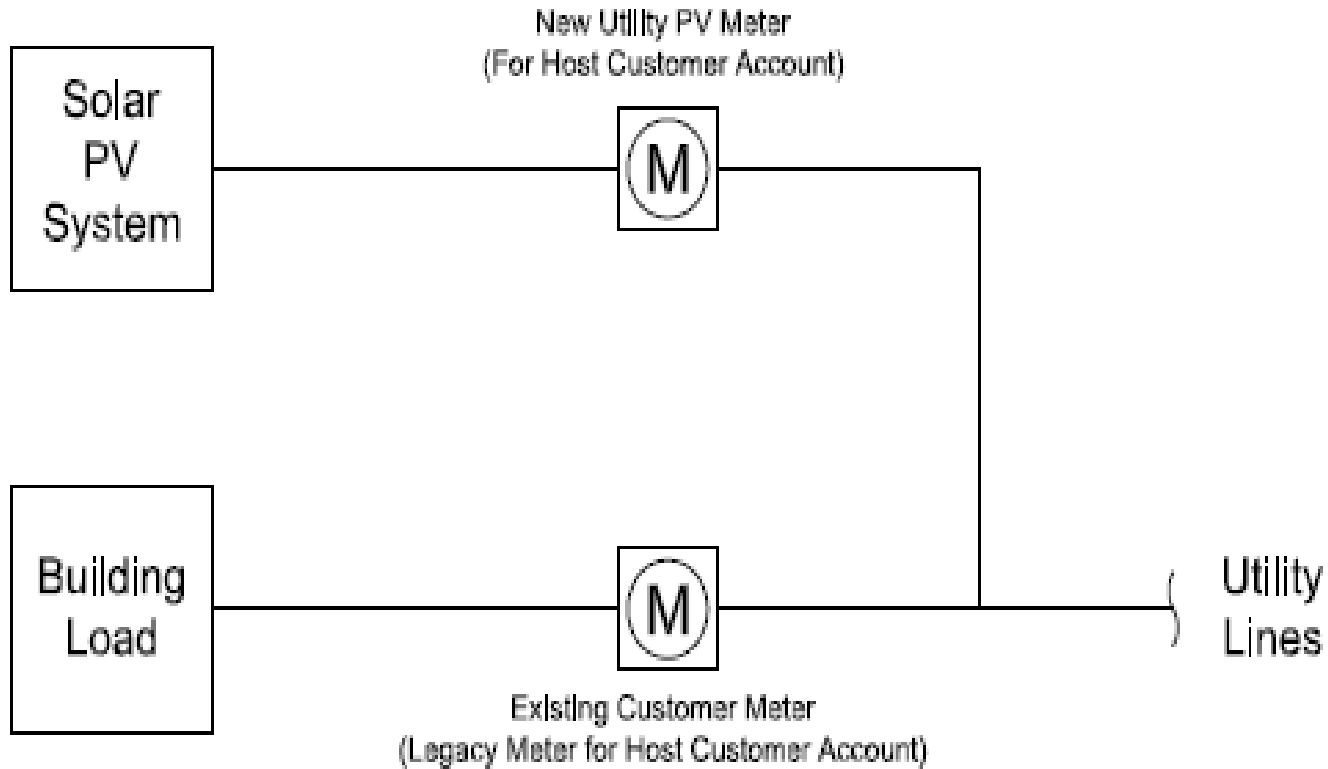


Inverter Installation



Commissioning & Witness Test

Site	kW	kWh (Year 1)
Newton North High School	262	300,600
Brown Middle School	262	309,250
Memorial Spaulding Elementary School	112	132,425
Countryside Elementary School	66	78,300
TOTAL	702	820,575



Connecting Solar PV Behind New Customer Meter

NSTAR Plus Supply Rate	\$	0.101
Plus Ameresco PPA Price (Year 1)*	\$	0.110
Total Rate Payments	\$	0.211
Less: Net Metering Credit	\$	0.153
Net Electricity Rate (\$/kWh)	\$	0.058
Electricity Rate Savings	\$	0.043

* 2.5% annual price escalator

Solar PV 20-Year Electricity Cost Savings

Utility Rate Escalator Scenarios	High School	Elementary and Middle Schools	Total
3.5%	\$ 858,964	\$ 1,429,101	\$ 2,288,065
2.5%	\$ 724,289	\$ 1,204,663	\$ 1,928,952
0.0%	\$ 450,809	\$ 748,904	\$ 1,199,713

- 15 Solar PV Topics for K-12:
 - Renewable energy fundamentals
 - Solar PV design considerations
 - Data analysis
- Teacher topic summaries
- Topics matched with MA Learning Standards for Science and Technology/Engineering Frameworks
- Curricula accessible online



Middle school students showing solar panel to Mayor William A. Flanagan of Fall River

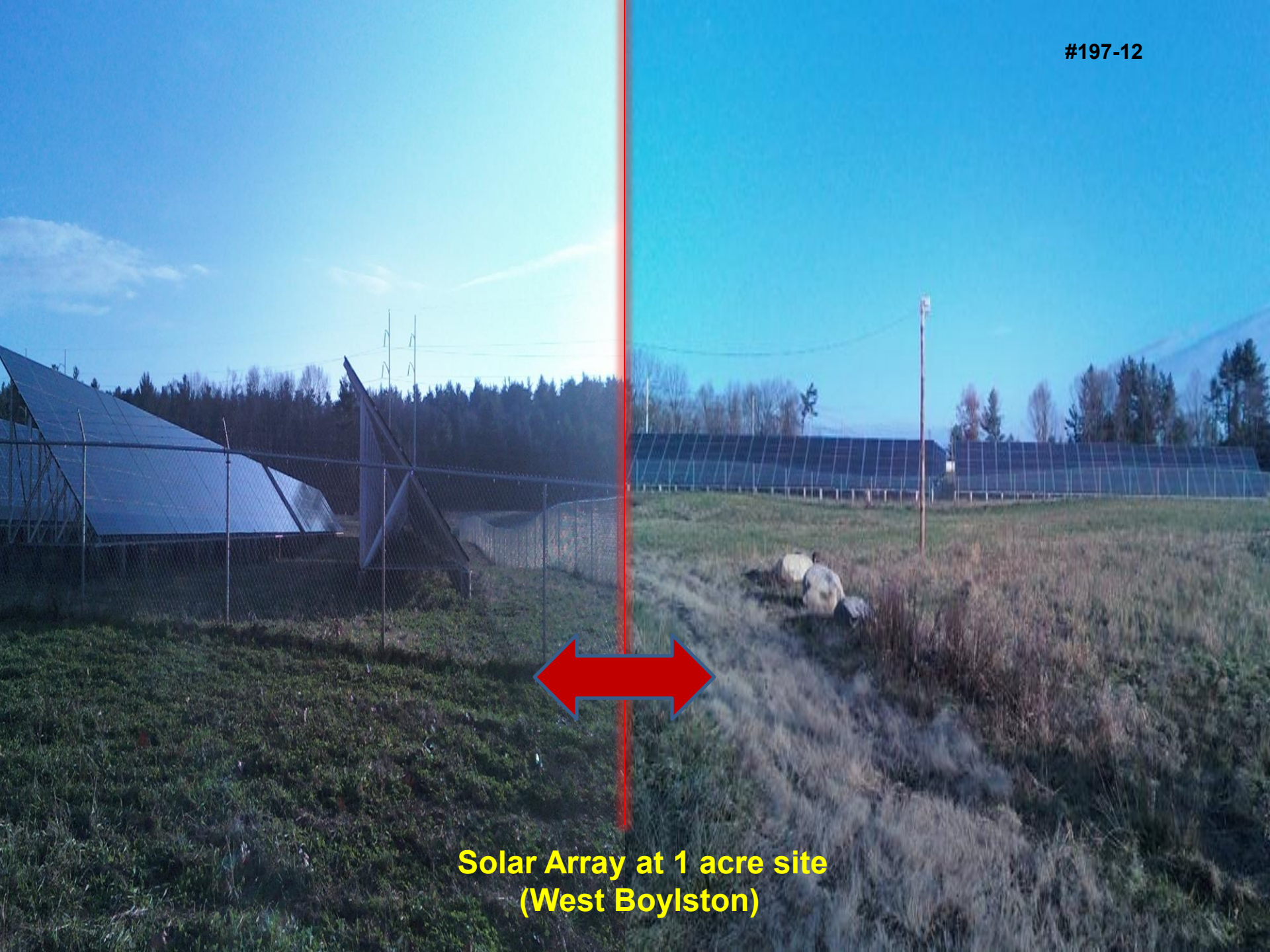
Discussion



#197-12



**REI Parking Lot
(Framingham)**



**Solar Array at 1 acre site
(West Boylston)**

#197-12

Current ballast system on NNHS



#197-12



NNHS view to immediate abutter

#197-12

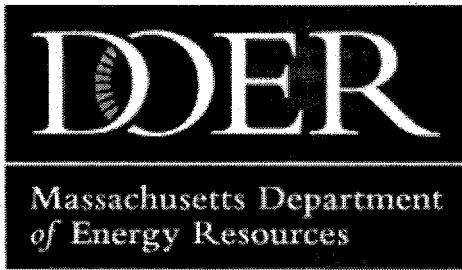


NNHS view to immediate abutter

#197-12



Memorial-Spaulding view to immediate abutter



Navigation

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- Net Metering

What is Net Metering?

Net metering is a state regulation allowing customers to receive value during periods when their eligible on-site distributed generation (such as a wind turbine or solar array) generates more electricity than they use. That is, the electric meter runs backward whenever a customer's net metered facility is producing more power than is being consumed and their account gets net metering credits for net excess generation at the end of the customer's monthly billing period.

Summary of Net Metering in MA

The state's new net metering policy (effective December 1, 2009) includes eligibility for all customers installing wind or solar PV up to 2 MW and for agricultural customers for any renewable energy technologies up to 2 MW. The value of a net metering credit (for any excess generation at the end of each monthly billing period) for the renewable facilities has been increased from the wholesale rate in the former policy to amounts closer to a retail rate, and determined by the Class of net metering facility and customer type (see below). Credits can also be carried forward month after month.

The state's investor-owned utilities must offer net metering. Municipal utilities are not obligated to offer net metering, but they may do so voluntarily.

The Massachusetts Department of Public Utilities (DPU) adopted amended net metering rules in July 2009 (see [final order](#) and the [resulting net metering regulations](#)). These DPU rules were ordered in accordance with the [MA Green Communities Act](#) passed in July 2008. In August 2009, the DPU issued its model net metering tariff and directed the utilities to file compliance tariffs, which are now approved and became effective December 1, 2009).

The Department of Public Utilities (DPU) opened a docket on February 14, 2011 to make changes to Massachusetts net metering provisions pursuant to [state legislation](#) and to address issues related to interconnection. Materials for the proceeding can be found at the [DPU File Room](#) (Search Docket #: "11-11").

On July 22, 2011, the DPU opened a rulemaking (DPU 11-10) to revise the regulations pertaining to net metering. On February 12, 2012, DPU issued the Order and final regulations in response to legislation, adjusting the 1% cap to 1% for private projects and 2% for governmental entities, as well as, making other revisions and clarifications. The DPU has now directed the utilities to issue an RFP for a Net Metering Queue Administrator. Materials for the rulemaking can be found at the [DPU File Room](#) (Search Docket #: "11-10" and/or "11-11"). In DPU 12-01, DPU directed the companies to file new revised tariffs in compliance with a model tariff that embodies the changes in the DPU 11-10 Rulemaking.



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Net Metering Frequently Asked Questions

Below you will find answers and information pertaining to common questions about net metering and the safe interconnection of generators to the NSTAR electric power system.

Such interconnections include photovoltaic arrays (solar panels), mini-turbines, wind turbines, cogeneration units and micro turbines, to name a few.

All regulations and fees have been filed and approved by the Massachusetts Department of Public Utilities (DPU).

Who qualifies for Net Metering?

	Class I	Class II	Class III
Customer Class	Solar, Wind or Agricultural	Solar, Wind or Agricultural	Solar, Wind or Agricultural
kW	60 kW or less	Greater than 60 kW up to 1,000 kW	Greater than 1,000 kW up to 2,000 kW
Net Metering Credit Calculation	Credit excess generation, by TOU period if applicable, for all kWh rate components including default service except DSM & renewables.	Credit excess generation, by TOU period if applicable, for all kWh rate components including default service except DSM & Renewables.	Credit excess generation, by TOU period if applicable, for all kWh rate components including default service except Distribution, DSM & Renewables.
Calculation Exceptions			If municipal then also credit distribution kWh rate.
Limits	Aggregate capacity shall not exceed 1 percent of NSTAR's distribution peak for private facilities and 2 percent for municipal facilities.		

When am I eligible to receive net metering credits?

You will be eligible to receive net metering credits only after your unit is authorized to be online and NSTAR has a signed Schedule Z form on file with designated accounts for allocation of credits.

I'm a Host Customer. Where would I find my net metering credits on my net metering bill?

Your net metering credits will appear under "Other Charges or Credits" on your current month's bill. The line item will state "Net Metering Credit." ([See example](#)).

I'm a Host Customer. Where on my net metering bill would I find the amount of net metering credits that were allocated (transferred)?

On the Host Customer bill, the section, "Other Charges or Credits," contains the detail for the individual "Transfer Amounts" of net metering credits that were transferred during the prior month to the Allocatee accounts as specified in the Host Customer's completed Schedule Z form. It also details any remaining Net Metering Credit. ([See example](#)).

How do I know the amount of excess generation for the current bill?

Finding the difference between the actual read on last month's bill and the actual read from the current bill would give you the number of kWh used to calculate the net metering credit for the current month. This information can be found under "Electricity Used" on your bill. ([See example](#)).

How is the total amount of the net metering credit calculated or determined?

In general, the net metering credit is calculated by multiplying excess generation (kWh) by the appropriate rate for each of the following charges:

- Default service fixed charge.
- Distribution charge.
- Transmission charge

- Transition charge

For a summary of the calculations, please see the table in question 1. More information is also available in the [Net Metering tariff](#).

How do I know how much of the net metering credit is available to be allocated each month?

The amount available to be allocated is equal to the current month's net metering credit less any Host Customer's charges. More information is also available in the [Net Metering tariff](#).

What percentage of the net metering credit is applied to delivery charges versus supplier charges?

The net metering credit is split between the delivery charges and the supplier charges 50/50 (or 35/65 for low-income customers) if there is a supplier balance.

I'm an Allocatee Customer. Where would I find my net metering credits on my net metering bill?

On the Allocatee Customer's bill, the section, "Other Charges or Credits," contains the amount of the net metering credit transferred from the Host Customer's account ("Transfer Amount"), and the amount of that credit that was applied towards the Allocatee's supplier balance ("Transfer to Supplier Bal"), and any associated sales tax and late payment charges as outlined in the example below. Depending on the billing date for the Host Customer's account, the allocated net metering credits may or may not appear on your current month's bill.

Why doesn't the "Other Charges and Credits" amount on the Host Customer's bill align with the credits appearing on the Allocatee's bill for the current month?

The credits will not always align for a given month because the Host account and Allocatee accounts may bill on different dates and the net metering credits are not allocated on the billing date itself. The net metering credit earned by a Host Customer during a billing cycle is applied to the electric bill of the Host Customer that same billing cycle.

The remaining credit is allocated 1 to 4 days from the posting of the original net metering credit according to the Schedule Z percentages indicated, and the debits appear on the Host Customer's bill the next billing cycle. The credit will appear on the Allocatee's bill in the bill cycle following the application of the net metering credit to the Allocatee's account. The debits do not show on the Host Customer's bill until the following cycle.

How much of the credit will each Allocatee receive?

NSTAR requires the Host Customer to have an approved Schedule Z on file. The Allocatees and allocation percentages are designated on the Schedule Z form by the Host Customer.

If I have a large credit balance due to net metering credits, can I receive a check?

All credits are either posted to a host customer's account or allocated to designated customers. Per the tariff, checks may be issued, at NSTAR's discretion, for Class III customers only. For a Class III Net Metering Facility, the Distribution Company may elect to purchase Net Metering Credits from the Host Customer, rather than allocating such Credits. The Distribution Company must provide written notice to the Host Customer of its election to either purchase or allocate Net Metering Credits within 30 days of the Host Customer's request for Net Metering Services.

For Net Metering Credits purchased under this provision, the Distribution Company will make payment by issuing a check to the Host Customer each Billing Period, unless otherwise agreed in writing with the Host Customer. In addition, the Distribution Company shall continue to purchase such credits for so long as the Host Customer takes service under this tariff or as mutually agreed in writing by the Distribution Company and the Host Customer.

Class I and Class II customers with large credit balances should complete a new Schedule Z form to allocate excess net metering credits to additional electric accounts. Per the tariff: For any Billing Period that a Host Customer earns Net Metering Credits, the Distribution Company shall allocate Net Metering Credits by applying them to a designated Customer's account. The Distribution Company shall carry forward, from Billing Period to Billing Period, any remaining Net Metering Credit balance.

How many times may I submit a new Schedule Z?

A new schedule Z may be submitted twice in a calendar year.

Who qualifies as a municipal customer?

NSTAR treats any government entity (federal, state, or town) as a municipal customer.

If I qualify, how soon would I get a check for the net metering credits? (Class III customers)

It usually takes about three weeks from the point Billing receives the meter reads to the processing of a check by Accounts Payable.

Can I allocate to an NSTAR Gas account?

No. Net metering credits can be allocated to other electric accounts within the service territory and ISO load zone of the Host Customer account consistent with [Section 1.07 of the Net Metering tariff](#).

Can a customer close their account to cash out the net metering credits?

No. If a customer closes their account, the residual net metering credit will be allocated to all NSTAR customers.

Can a customer partially cash out their credits?

Net Metering Credits will not be cashed out either in full or partially. The only exception to this is Class III customers who were approved by NSTAR to receive a check.

Are net metering credits transferred to basic service and/or alternate supplier charges?

Yes, if the net metering credit is large enough, it is used to pay off the Host Customer's distribution and supplier balances in full. If the net metering credit is not large enough to fully pay off the Host Customer's bill and there is a supplier balance, the credit is split 50/50 for non-low income customers and 35/65 for low income customers. If there is no supplier balance, e.g. the current supplier balance is zero, and the customer does not allocate the credit, it remains on the distribution portion of the account.

If the Host is allocating, we pay the Host account to zero and allocate credits based on the percentage listed in Schedule Z. If there is no supplier balance on the Allocatee's bill, the credit will remain on the distribution portion of the bill. If the customer received a bill with a distribution credit and a supplier debit, the company would transfer the credit to the supplier portion if requested by the customer.

NSTAR does not apply funds to a supplier balance without direction from the customer because the customer owns the relationship with the supplier. Please note, however, that NSTAR will only credit the supplier portion of the bill to the extent that supplier charges are owed. If there is no supplier balance to credit, NSTAR does not apply any type of credits, including net metering, to the supplier portion of the bill.

Where can I find general information about my NSTAR Electric bill?

More information, including a sample of a typical NSTAR bill, is available by viewing NSTAR's "[Understanding My Bill](#)" page.

Is more information available about interconnecting my generation system, so I can participate in the net metering program?

Visit the "[Interconnections](#)" section of NSTAR's web site and fill out the appropriate application for your generation. The section also includes other useful interconnection information including standards and requirements for interconnection, the net-metering tariff and the interconnection service agreement.

Related Links:

- [Business Rates](#)
- [Schedule of Rates](#)

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Executive Summary of Draft Lease and Power Purchase Agreement

(prepared by Alan Mandl, Assistant City Solicitor)

Legal Authority

The City is authorized to enter into renewable energy supply arrangements under Massachusetts General Laws Chapter 25A, Section 11I. This chapter authorizes such arrangements to include a twenty 20 year lease. This legislation is specifically for renewable energy supply and separate from 30B procurement regulations.

What makes an arrangement with a third party of interest, is the availability of investment tax credits and accelerated depreciation in the tax law that is otherwise not available to a municipality.

In accordance with City Reuse ordinances, the request is for authorization from the Board of Aldermen for the Mayor to enter into a 20 year lease agreement with Ameresco. The City's Reuse Ordinance allows for the leasing of school rooftops for solar panel installations.

Major Terms of Draft Site Lease -

**Complete lease document available at BoA website under "Friday Packets"*

- Party to Lease: A special purpose entity (LLC) to be created and owned by Ameresco
- Lease term: 20 years, running concurrently with the Power Purchase Agreement
- Sites: Newton North HS; Brown MS; Memorial-Spaulding ES; Countryside ES
- Site Access: Subject to City requirements during and after construction; CORI and SORI checks to be conducted by the City; procedures reviewed with Public Buildings and School Departments
- Rental: \$1.00 per year
- Ownership: Solar panels and related facilities (cabling, inverters, etc) up to NSTAR connection are owned by the LLC
- Maintenance: Each party maintains its own property and keeps it in good working condition
- Insurance: Ameresco provides insurance coverage
- Financing: First priority security interests granted to lenders
- Rooftops: Existing warranties protected; no rooftop penetrations in design and subject to City approval

Major Terms of the PPA

**Complete PPA document available at BoA website under "Friday Packets"*

- PPA Party/Term: Ameresco special purpose entity LLC for 20 years from date of commercial operation
- Sites: Newton North HS; Brown MS; Memorial-Spaulding ES; Countryside ES
- Permitting: By Ameresco at its expense
- Construction: By Ameresco at its expense; Ameresco owns the solar facilities
- Opns & Maint: By Ameresco
- Interconnection: City files application with NSTAR with assistance from Ameresco
- Purchase of kWh: City buys 100% of the solar output from Ameresco
- Purchase Price: 10.6 cents per kWh in years 1-3, with 2.5% annual escalator after Year 3
- Output Guaranty: Ameresco guarantees annual level of output declining 0.5% annually; Ameresco must make a payment/credit to the City if it does not produce the guaranteed output and the rate paid by the City to NSTAR is higher than the PPA rate capped at \$0.05/kWh on the rate differential; (the shortfall is calculated on multi-year averages)
- Damage to Panels: If caused by City negligence, City is responsible for property and revenue losses (based on kWh production)
- Educational Program: Ameresco provides custom educational program at no charge
- Solar REC sharing: After Year 10, if solar renewable energy credits value exceed \$0.10 per kWh will be shared 50-50 with the City; no benefit guaranteed.
- Operation: Commencement target date is on/before December 31, 2012 due to expiring tax benefits available to owner
- Training: City employees receive basic/emergency training at no charge
- Purchase Option: After year 6 the City has the option to purchase all or part of the solar facilities at higher of a fixed terminal value or fair market value determined by a neutral expert
- System testing: Meter testing, repairs and billing corrections

- Billing:** 30 day payment window; right for City to audit records to validate bills
- Connection to Grid:** Ameresco to move connection to grid (inside the meter) at City's request at no cost to the City
- Rooftop Repairs:** Without charge, the City will have 3 days per calendar year per building to take the solar system off-line to accomplish any roof maintenance or repairs; more than 3 days, the City bears the cost of lost kWh revenue, and lost Solar Renewable Energy Credits
- Snow Removal:** City may remove snow, while preserving safe operation of solar panels
- Property Taxes:** Any City property taxes imposed (under review by City Assessor) will be passed through as an additional expense of power.
- System Removal:** Ameresco LLC provides security for cost of system removal during the final 5 years of the 20 year term
- Financing Parties:** Financing party receives first lien position on Ameresco's solar assets
- Default:** In the event of Ameresco default, City can withhold payments and/or terminate agreement.
- Bankruptcy:** In the event of a bankruptcy, first lien holder has rights to solar panels and disposition.