UPPER HUDSON
LIBRARY SYSTEM
Together. For Better Libraries.

Administration Committee
November 13, 2012

PRESENT: Jim Reilly, Phil Erlich, Julie Zelman, Jeremy Martelle, Tim Burke, Heidi Fuge
EXCUSED: Rosemary Armao
Visitor: David Verner, Sales Consultant from NY Light Energy

4:00 PM – Meeting called to order by J. Reilly, Chair

I. ROOF PROJECT UPDATE

T. Burke noted that the roof is substantially complete. There are a few items that need to be addressed by the roofers but they have agreed to return and do a walk-through. H. Fuge noted that they did a very good job cleaning up around the outside of the building.

II. SOLAR PROJECT

David Verner explained that the UHLS building is located in a low to moderate income zone and is therefore eligible for community reinvestment funds for solar projects. He explained that a Power Purchase Agreement (PPA) is a situation in which a bank (in this case, M&T Bank) and other investors will put up the funds to install a solar array and will get the tax credits that accompany that investment. NYSERDA also offers a $75,000 incentive toward the installation of the solar array. UHLS will not need to invest any funds - just make a 20-year commitment to purchase electricity from the array on the roof.

D. Verner handed out a summary of the PPA (attached at back of document) including projected annual cost savings over the 20-year period. The solar array as currently proposed, and allowed by law, can produce up to 25% of the electricity required by our building. He noted that the cost of the electricity produced by the solar array will always be less than the cost of electricity through National Grid. There has been a 5-7% average rate increase over the last 5-10 years in the cost of electricity from National Grid. They conservatively estimate a 2.25% increase in the future.

J. Reilly asked what would happen if NY Light Energy, who would own the system on the roof, went out of business. D. Verner said that since the system would have been paid for, it would belong to UHLS but that his company was very sound and debt-free.

H. Fuge asked if the array had the ability to be upgraded if the legal restrictions on its size were modified or if technology changed/improved. D. Verner noted that adding sections to the array was easy and that it did have the potential to zero-out energy use through National Grid in the future.

H. Fuge noted that she contacted several companies that have undertaken similar projects with NY Light Energy and she handed out a summary of those conversations. (At end of this document).

J. Martelle noted that the Bethlehem Library was currently looking into a similar project with a company called Monolith. He recommended that Monolith should be contacted for a proposal.

J. Reilly noted that there was also a proposal from a company called Atlantech but that was not for a solar array but instead for an Energy Retrofit project. H. Fuge noted that UHLS has undertaken several energy audits and has made all of the recommended improvements. J. Martelle noted that the lighting fixtures should be checked again since there have been significant improvements in fluorescent bulbs and ballasts in the last couple of years.

Discussion regarding the timing of acceptance of any proposal. Committee members thought that there was a time limit on the tax credits/incentives that were outlined in the PPA from NY Light Energy. They questioned at what point do the tax incentives kick in: on signing of the PPA by UHLS or on installation of the system? They also thought that any PPA should be reviewed by the UHLS legal counsel before signing.

MOTION: J. Reilly moved to recommend Board approval of the NY Light Energy or a similar proposal subject to review by counsel. Any new proposal should be reviewed by the UHLS Management, Board President and members of the Administration Committee and they would be empowered to make a decision. P. Erlich seconded. Unanimous.

Discussion that review by the Administration Committee of any other proposals could take place via email.

5:15 PM Meeting adjourned.

Heidi A. Fuge
11/14/12

REFERENCES FOR NEW YORK LIGHT ENERGY

Questions I asked:
1. Are they happy with the installation?
2. Are they seeing energy bill savings? Approximately how much? Does this match what was projected for their system?
3. What term of commitment did they choose?
4. How responsive is NYLE to their calls/concerns/questions?

NY Light Energy Customers

- **CT Male Associates - Chris Shaver, Engineer**
  Does the engineering work for NYLE on all of their installations. Has had a solar system on their roof for 1 ½ years. Got the system through a 20-year PPA. Has seen about an 11% savings on their electric costs due to a lower rate than National Grid. NYLE uses very good quality equipment and they have been very happy with both their system and their relationship with NYLE.

- **Mooradian Furniture - Bill Mooradian, President**
  Have NYLE-installed systems on both of their stores - Albany and Clifton Park. The systems were installed four years ago under a 15-year PPA. Have seen a savings over time and the numbers match up pretty good with the spreadsheet produced by NYLE - their numbers tend to be conservative so that this accounted for a heavy snowstorm when their panels were covered with snow and not producing any energy. Have to be aware of fluctuations in the weather and account for that. They had a new roof just prior to the solar installation. The panels were installed and there was a leak in the roof. NYLE came immediately and disassembled the solar panels so that the roofers could repair the leak (not caused by the solar installation). Also, there was a slight mark on the side of the building and NYLE came back and repainted immediately (he didn't think it was a big deal, but NYLE wanted to leave it just as they found it). Excellent followup. Very easily understood and well-tried technology, nothing cutting edge or experimental. Very reliable. NYLE monitors the system via the Internet and are aware if there are any problems - even before he is. NYLE performs periodic inspections and always brings along a potential customer or NYSERDA person to see the installation.

- **Saratoga Honda - Tim Higgins, General Manager**
  Had the system installed in 2009. Don't even know that it is up there. He put together a spreadsheet on their energy costs and have seen a 37% decrease in cost. NYLE is conservative in their figures when projecting a cost savings. The system has been flawless. They had it installed under a PPA with a 20-year commitment. It was installed in three days. He highly recommends NYLE. Have not had to contact NYLE for any problems.

Upper Hudson Library System
28 Essex Street
Albany, NY 12206
October 1, 2012

The following proposal is being submitted by New York Light Energy (NYLE) for the implementation of a solar solution at the Essex Street location of the Upper Hudson Library System. The specific National Grid account number referenced is as follows:

Company	Address	National Grid Account Number	Average Peak Demand	Annual Meter Electricity Usage	Solar Array Size (kW DC)
Upper Hudson Library System	**28 Essex Street Albany, NY 12206**	**41062-71107**	**71.2**	**231,088**	**50 kW**

Please note there are no upfront costs to the Upper Hudson Library System other than providing NYLE with dedicated cable Internet port at each location. Additionally, NYLE typically installs systems that are oversized by 10%. Therefore, the actual output of each solar array is generally greater than the committed output. NYLE also has extremely efficient solar arrays due to unique system design. As a result of oversizing each system and having extreme efficiencies, the estimated savings are expected to be greater than reflected in this proposal. Please note that NYLE is not committing to higher savings, but stating that this is usually the case.

The following information is based on data the Upper Hudson Library System provided detailing electricity usage for three months during 2012. Since NYLE cannot control the weather and as a result the amount of sun light during a given year, the following quotation is an estimate only.

NYLE Rate per kWh = $0.0450

ACCOUNT #	ANNUAL ENERGY USE (kWh)	SOLAR ARRAY SIZE kW (DC)	TOTAL SOLAR PRODUCTION (kWh)	SOLAR PRODUCTION %
41062-71107	**231,088**	**50 kW**	**57,392**	**24.84%**

The solar solution will produce an estimated 57,392 kWh of AC electricity, or 24.84% of the total electricity used annually by the Upper Hudson Library System.

CURRENT ANNUAL COST OF UTILITY ONLY ELECTRICITY	ADJUSTED COST OF UTILITY ELECTRICTY	COST OF SOLAR ELECTRICTY (Inc. NY Sales Tax)	NEW ANNUAL COST COMBINED SOLAR & UTILITY ELECTRICITY	FIRST YEAR SAVINGS	
				$ 4,064	12.72%
				CONTRACT SAVINGS	
$ 31,953	$ 25,100	$ 2,789	$ 27,890	$ 104,610	13.14%

Upper Hudson Library System is currently paying an estimated $31,953 annually for this account to the Utility. With the benefits of a solar array, the new Utility/Solar combined cost of electricity is estimated to be $27,890 resulting in $4,064 total savings in the first year.

Please note that this calculation allows for the inclusion of factors such as delivery and supply charges. For example, there are no delivery charges for any energy produced by the solar solution.

The following estimated conclusions are based on location and system size. They are as follows:

CARBON DIOXIDE EMMISSION REDUCTION (lbs.)	SULFUR DIOXIDE EMMISION REDUCTION (lbs.)	NITROUS OXIDE EMMISSION REDUCTION (lbs.)	Equivalent Acreage of Trees

52,083	**168**	**58**	**4.8**

In order to take advantage of the proposed savings, Upper Hudson Library System will be asked to sign Power Purchasing Agreements (PPA) with NYLE. The PPA's will have a term of twenty years and associated payment terms to be mutually agreed upon by NYLE and Upper Hudson Library System. However, the number of years monthly payments will be made to NYLE can vary. For example:

Savings with twenty years of annual payments to NYLE is estimated to be $104,610 or 13.14% (see schedule 1).

Savings with ten years of annual payments to NYLE is estimated to be $116,369 or 14.62% (see schedule 2).

Once the PPA has been signed, NYLE will complete a structural analysis in conjunction with C.T. Male Associates, P.C. to insure the structural integrity of the roof and that sufficient roof space exists to mount the solar solution. Additionally, an electrical system analysis in conjunction with CT Male shall be completed. Once both analyses are successfully completed, NYLE will install the solar arrays.

NYLE will assume the insurance responsibilities for the roof during the solar solution installation, and for the solar solution throughout the term of the PPA.

NYLE will maintain ownership of the solar solution and as a result there will be no maintenance charges.

NYLE assumes only a 2.25% annual increase in the cost of utility generated power and a 1.75% annual increase in the cost of solar generated power. This information is supported by the Department of Energy.

The mounting systems used to hold the solar panels in place are ballasted systems and as a result no roof penetrations are required. For more information please visit the Panel Claw website (www.panelclaw.com) and view the information for the Panel Claw and FR-IB products (http://www.panelclaw.com/frib). Additionally I would like to extend an invitation to visit a customer site where this system is used.

In order to generate electricity using the energy from the sun there are two key components required. These components are the solar panel and the inverter. NYLE only installs Kyocera solar panels. Kyocera has been producing solar panels since 1984. As a result they can provide 27 year actual performance data that is based on real world usage and not statistically calculated performance expectations. The performance data generated by independent testing laboratories indicate that Kyocera panels are the most efficient in converting sunlight to DC electricity: (http://www.kyocerasolar.com/pdf/specsheets/KD210GX_Web.pdf).

An inverter is then required to convert the DC electricity to AC electricity which is used to power most commercial applications. For the purposes of this estimate, NYLE proposes to use an Advanced Energy PV Powered™ inverter. Advanced Energy is the leading provider of utility scale power solutions for the worldwide renewable energy market, enabling the industry's most advanced reliable and proven clean energy alternatives. Advanced Energy designs and delivers the next generation of efficient energy systems for solar photovoltaic, stationary fuel cells, wind-turbines, and energy storage systems.

It must be mentioned that neither the solar panels, nor the inverters require any moving parts to perform their jobs. This means that once installed, a solar solution is virtually maintenance free. NYLE will be able to monitor the system via the internet to insure that the system is functioning as required.

I look forward to discussing this proposal with you at your convenience.

Thank You,

Alexander S. Lieb
Vice President Business Development

Schedule 1

Upper Hudson Library System:Account # 41062-71107

20 / 20 Year Solar Power Purchase Plan

	Utility		Mixed Utility / Solar					
	Utility Annual	Utility Charge	Solar Annual	Solar Charge	Utility Charge	Electricity Charge	Savings Total	
Year	Increase	Total	Increase	Inc Sales Tax	Total	Total	$	%
1		$ 31,953		$ 2,789	$ 25,100	$ 27,890	$ 4,064	12.72%
2	2.25%	$ 32,672	1.75%	$ 2,838	$ 25,665	$ 28,503	$ 4,169	12.76%
3	2.25%	$ 33,407	1.75%	$ 2,888	$ 26,242	$ 29,130	$ 4,277	12.80%
4	2.25%	$ 34,159	1.75%	$ 2,938	$ 26,833	$ 29,771	$ 4,388	12.85%
5	2.25%	$ 34,928	1.75%	$ 2,990	$ 27,437	$ 30,426	$ 4,501	12.89%
6	2.25%	$ 35,713	1.75%	$ 3,042	$ 28,054	$ 31,096	$ 4,617	12.93%
7	2.25%	$ 36,517	1.75%	$ 3,095	$ 28,685	$ 31,780	$ 4,737	12.97%
8	2.25%	$ 37,339	1.75%	$ 3,149	$ 29,331	$ 32,480	$ 4,859	13.01%
9	2.25%	$ 38,179	1.75%	$ 3,205	$ 29,991	$ 33,195	$ 4,984	13.05%
10	2.25%	$ 39,038	1.75%	$ 3,261	$ 30,665	$ 33,926	$ 5,112	13.09%
11	2.25%	$ 39,916	1.75%	$ 3,318	$ 31,355	$ 34,673	$ 5,243	13.14%
12	2.25%	$ 40,814	1.75%	$ 3,376	$ 32,061	$ 35,437	$ 5,378	13.18%
13	2.25%	$ 41,733	1.75%	$ 3,435	$ 32,782	$ 36,217	$ 5,516	13.22%
14	2.25%	$ 42,672	1.75%	$ 3,495	$ 33,520	$ 37,015	$ 5,657	13.26%
15	2.25%	$ 43,632	1.75%	$ 3,556	$ 34,274	$ 37,830	$ 5,802	13.30%
16	2.25%	$ 44,613	1.75%	$ 3,618	$ 35,045	$ 38,663	$ 5,950	13.34%
17	2.25%	$ 45,617	1.75%	$ 3,682	$ 35,834	$ 39,515	$ 6,102	13.38%
18	2.25%	$ 46,644	1.75%	$ 3,746	$ 36,640	$ 40,386	$ 6,258	13.42%
19	2.25%	$ 47,693	1.75%	$ 3,812	$ 37,464	$ 41,276	$ 6,417	13.46%
20	2.25%	$ 48,766	1.75%	$ 3,878	$ 38,307	$ 42,186	$ 6,581	13.49%
		$ 796,005		$ 66,110	$ 625,286	$ 691,396	$ 104,610	13.14%

Schedule 2

Upper Hudson Library System:Account #41062-71107

20 / 10 Year Solar Power Purchase Plan

	Utility		Mixed Utility / Solar					
	Utility Annual	Utility Charge	Solar Annual	Solar Charge	Utility Charge	Electricity Charge	Savings Total	
Year	Increase	Total	Increase	Inc Sales Tax	Total	Total	$	%
1		$ 31,953		$ 5,021	$ 25,100	$ 30,121	$ 1,832	5.73%
2	2.25%	$ 32,672	1.75%	$ 5,109	$ 25,665	$ 30,774	$ 1,899	5.81%
3	2.25%	$ 33,407	1.75%	$ 5,198	$ 26,242	$ 31,440	$ 1,967	5.89%
4	2.25%	$ 34,159	1.75%	$ 5,289	$ 26,833	$ 32,122	$ 2,037	5.96%
5	2.25%	$ 34,928	1.75%	$ 5,381	$ 27,437	$ 32,818	$ 2,109	6.04%
6	2.25%	$ 35,713	1.75%	$ 5,476	$ 28,054	$ 33,530	$ 2,184	6.11%
7	2.25%	$ 36,517	1.75%	$ 5,571	$ 28,685	$ 34,257	$ 2,260	6.19%
8	2.25%	$ 37,339	1.75%	$ 5,669	$ 29,331	$ 35,000	$ 2,339	6.26%
9	2.25%	$ 38,179	1.75%	$ 5,768	$ 29,991	$ 35,759	$ 2,420	6.34%
10	2.25%	$ 39,038	1.75%	$ 5,869	$ 30,665	$ 36,534	$ 2,503	6.41%
11	2.25%	$ 39,916	1.75%	$ -	$ 31,355	$ 31,355	$ 8,561	21.45%
12	2.25%	$ 40,814	1.75%	$ -	$ 32,061	$ 32,061	$ 8,753	21.45%
13	2.25%	$ 41,733	1.75%	$ -	$ 32,782	$ 32,782	$ 8,950	21.45%
14	2.25%	$ 42,672	1.75%	$ -	$ 33,520	$ 33,520	$ 9,152	21.45%
15	2.25%	$ 43,632	1.75%	$ -	$ 34,274	$ 34,274	$ 9,358	21.45%
16	2.25%	$ 44,613	1.75%	$ -	$ 35,045	$ 35,045	$ 9,568	21.45%
17	2.25%	$ 45,617	1.75%	$ -	$ 35,834	$ 35,834	$ 9,784	21.45%
18	2.25%	$ 46,644	1.75%	$ -	$ 36,640	$ 36,640	$ 10,004	21.45%
19	2.25%	$ 47,693	1.75%	$ -	$ 37,464	$ 37,464	$ 10,229	21.45%
20	2.25%	$ 48,766	1.75%	$ -	$ 38,307	$ 38,307	$ 10,459	21.45%
		$ 796,005		$ 54,351	$ 625,286	$ 679,637	$ 116,369	14.62%

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