

**Community Advisory Council
September 10, 2009
Action Items/Notes**

Final

These notes are in the following order:

1. Attendance
2. Correspondence and Handouts
3. Administrative Items
 - Marshall Islands
4. Part II – 2008 Annual Peconic River Sampling Report, Skip Medeiros, Environmental Protection Division
5. Agenda Setting
6. Community Comment
7. BP Solar Project, Mark Toscano, Energy Manager, Facilities and Operations, Tim Green, Environmental Protection Division, BNL, Richard Chandler, BP

1. Attendance

Members/Alternates Present:
See Attached Sheets.

Others Present:

S. Aronson, M. Bebon, P. Bond, M. Brechter, H. Carrano, J. Carter, R. Chandler, M. Cowell, J. D'Ascoli, M. Davis, N. Detweiler, B. Dorsch, L. Garber, K. Geiger, D. Gibbs, T. Green, M. Holland, B. Howe, S. Johnson, A. Juchatz, T. Kneitel, R. Lee, M. Lynch, M. Madigan, M. Marx, R. McKay, W. Miller, A. Rapiejko, D. Shea

2. Correspondence and Handouts

Items numbered one through five were mailed with a cover letter dated September 1, 2009. Items six and seven were in the member's folders and items eight and nine were available as handouts at the meeting.

1. September 10, 2009 draft agenda
2. Final notes for April 15, 2009
3. Final notes for May 14, 2009
4. Draft notes for June 11, 2009
5. Copies of correspondence from Member Birben and Colonial Woods/Whispering Pines
6. Revised Agenda
7. Copy of the April 15, 2009 LIPA Solar RFP and Proposed BP Project presentation
8. 2008 Peconic River Monitoring Report Highlights, Skip Medeiros
9. BP Solar Project Presentation, Tim Green, Environmental Protection Division

3. Administrative Items

The meeting began at 6:35 p.m. Reed Hodgkin reviewed the ground rules and the revised agenda. Those in attendance introduced themselves. He acknowledged Dr. Maria Castro as

Barbara Henigin's replacement and welcomed Christine Birben along with her alternate, Joan Milner, since this is their first official meeting.

Dr. Aronson, Lab Director, spoke briefly about active construction projects onsite. He said there is quite a lot of progress going on at the Lab.

Jeanne D'Ascoli acknowledged the accomplishments of Graham Campbell, who passed away over the summer and asked Member Peskin to say a few words. Member Peskin, Member Campbell's replacement, said he had been a good friend of Graham's for many years and he will surely be missed.

D'Ascoli said there will be a presentation next month on the Master Plan, which will encompass a lot of the new construction plans. Steve Dierker, NSLS II Project Director, is arranging tours of the construction site of the new NSLS II building and if the CAC is interested, that could be added to a future agenda.

Marshall Islands

Dr. Aronson reported on a recent Newsday article on the Lab's involvement at the Marshall Islands. The article reminded us all about the days when atomic bombs were being tested and the consequences that can come from that. He explained that Brookhaven Lab was not involved in the weapons work, but was involved in treating the islanders that were exposed to radiation during the tests. He said the article cast BNL in a bad light and he said that what we knew back then about radiation exposure is not what we know today. Many people at the Lab are concerned about the implications of the Newsday article for the families of Brookhaven scientists of that day.

Member Blumer said she felt there are a lot of questions and would like time to formulate them and possibly have this as a future agenda item. She asked if information was suppressed, were other Labs involved, and could something like this happen again. She asked for clarification of what was correct in the article and what wasn't. Did BNL have access to the secret documents? She asked if perhaps Member Kaplan could shed some light on some of our questions.

Dr. Aronson said if the CAC composed a set of questions; the Lab could respond to them with a presentation.

Member Shea said she has a lot of moral questions. Why were these people allowed to stay on the island? Is it right to study people? Who was responsible for the decision to keep those people there? She said the community needs to know.

Reed suggested CAC members e-mail Jeanne D'Ascoli with their questions and she will gather them together and they will then become part of a briefing.

Member Schwartz said Member Kaplan was involved in the later years and could possibly put together a presentation for the CAC. He said the Lab should make a public statement.

Member Conklin said sometimes when you stir the pot it gets worse, but there should be clarification for the CAC.

Dr. Aronson said he doesn't want to prolong the media attention, but will answer any questions the CAC has.

Member Schwartz said there is a book about this topic.

Peter Bond responded that the book is available now, the author is Dr. Conard.

Bob Howe, LTRA group, gave the CAC a brief update on the Bldg. 96 groundwater contamination. This is a former truck wash and drum storage area. In 2008 high levels of tetrachloroethene were identified above the water table during soil characterization sampling. It was found to be a source of contamination for the groundwater. The Lab covered the area with plastic to keep rainwater out. The Lab continued to maintain hydraulic control of the groundwater in that area with the groundwater treatment system that is still operational today. The wells in the area and the performance of the treatment system continue to be monitored. An ESD (Explanation of Significant Differences) was drafted and has been approved. The change to the ROD (Record of Decision) calls for excavation of the contaminated soil.

Member Esposito asked how deep the excavation will be.

Howe said it will be about 15 feet deep and about 25 feet laterally.

Member Blumer asked how old the source is, if there is a plume attached to it, and if so, how large is it.

Howe said the source has been there for a few years, but the area has just recently been identified. There is a plume associated with it, which is managed by pumping and treating the water. If this area hadn't been located, we would be pumping and treating for a long time. Excavation of the area will lessen the amount of pumping and treating. In some areas, the plume has migrated outside of the site boundary. We are addressing the localized area near the source.

Member Esposito asked if there is a plume associated with this, why is the excavation only going down 15 feet and not going all the way down to groundwater level.

Howe said the plume is at the water table, but the soil borings showed that the levels tailed off at 15 feet. There were also some interbedded silt layers, which tend to hold it up. Over the years, rainwater has pushed it down into the groundwater.

Reed asked if Howe could return next month to give a more detailed explanation because there seems to be a lot of interest in this topic.

Member Blumer wondered since this was coordinated with the State and County, if the County had exchanged any information with the Lab regarding the groundwater watershed.

Howe said the Lab works closely with the Health Department on all the work that is being done.

Member Esposito said that Suffolk County Health Department is one of the reviewing agencies that has to sign off on any alterations to the ROD.

Howe said this ESD will be going out into the Administrative Record and will also be on the BNL website next week. A Notice of Availability will be going into Newsday next week.

Member Talbot asked how the Lab realized that this was a contaminated area.

Howe said detailed soil borings were done and we were able to fine tune the area.

Member Esposito asked if the changes to the ROD will be available online for them to read.

Howe said it will be on the BNL website on Wednesday.

Reed asked the CAC if they would like to see this topic as an agenda item.

Member Esposito said she was surprised that a significant change to the ROD was made and the CAC was not notified until now.

Bill Dorsch, Manager, Groundwater Protection Group, reminded the CAC that he had given a presentation in November 2008 and this was one of the topics that we said we would come back with more information on.

Member Esposito said she wished the CAC had been told before the changes to the ROD were made.

Reed asked Howe if next month he could come back with a presentation on what is happening with the ESD.

Howe said yes.

Approval of Minutes

Reed asked for corrections, additions or deletions to the June 11, 2009 draft notes. Member Blumer stated that on page two when she stated a correction to the May 14, 2008 notes, she asked for a group of scientists instead of one scientist that had previously gone with them to join them again when they go out to see the Peconic River. Member Birben said that on page six it says she knows at least 30 people with Lyme and she intended to say that she knows at least 30 people who have had treatment for, or who have had Lyme disease. She also said that on page seven; Member Giacomaro stated that Member Birben is not a member of any civic organization and as a note of clarification she wanted it stated that she is a member of Yaphank Civic Association. Member Henagan said that on page six, Bob Selvey said he has heard of chiggers, but he himself has not seen them. Upon review of the tape recording, it was found that Selvey did say he has seen chiggers and definitely believes they are present. Member Garber said that on page ten, he said that pollutants are concentrated near the perimeter. The notes were approved as corrected with five abstentions.

4. Part II – 2008 Annual Peconic River Sampling Report, Skip Medeiros, Environmental Protection Division

Skip Medeiros continued his presentation on the 2008 Annual Peconic River Sampling Report. He briefly reviewed the sediment and surface water presentation that was given in June. He explained that 29 of 30 routine sediment stations had less than 2.0 mg/kg mercury. The onsite average was .48 mg/kg mercury and the offsite average was .37 mg/kg. 2008 sediment samples confirmed elevated mercury in PR-SS-15 area so BNL and DOE have initiated planning with regulators for sediment remediation in that area. Surface water total mercury concentrations decline with distance downstream of STP. Surface water methylmercury concentrations decline with distance downstream of BNL border.

Medeiros said 2008 was the first year for age data for the fish sampled. This information was collected in two ways. One was for fish without scales. The bones were removed from the inner ear, they were sectioned, mounted on a slide and examined to count the rings and determine the age of the fish. For fish with scales, the scales were put under a microscope and examined to determine age. The EPA mercury criterion is .3 mg/kg and the average bullhead tissue mercury was .21 mg/kg of mercury. There were a total of 200 fish collected this year with about 180 analytical samples. Four samples were found that were above the .3mg/kg mark. Each of the high concentrations were from area A, which is directly downstream of the Sewage Treatment Plant. The most downstream station, which is Donahue's Pond, has the lowest concentrations.

Member Esposito asked what the SR stood for.

Medeiros said that is Schultz Road, also known as area P. He said bass are top predators, so it is anticipated that they will have higher concentrations of mercury. The average concentration is .41, which is about twice that of the brown bullhead.

Member Conklin asked when this sampling took place.

Medeiros said April and May of 2008.

Member Schwartz asked for clarification of the .3 mg/kg standard. He asked if there were controls from other rivers like Connetquot that are not impacted by industrial activity.

Medeiros said the .3 mg/kg limit is the water standard translated into a fish standard. EPA did not have a water standard for methylmercury, so they made some calculations and determined how the water standard might be associated with mercury concentrations in fish. When cleanup limits were established, one of the first things considered was setting a goal for concentration of mercury in fish to measure cleanup success. EPA strongly discouraged that because there were other potential sources of mercury besides the STP so it may not be just the sediment in the river that is contaminated. Tim Green measures mercury that comes down from the atmosphere and there is input from that. So that was to protect us from attaching a goal to something that could be unachievable based on our own cleanup. We don't take measurements of atmospheric deposition at the Connetquot River.

Medeiros said thousands of samples from various agencies that collect data and analyze it for mercury have been collected and grouped together by species. He referred to a chart showing the range of concentrations for the species that are present in the Peconic River compared to the EPA data for national levels. The results show that for bluegill, brown bullhead, and pumpkinseed fish, the levels at the Peconic River were higher than the national average, while the mercury levels in chain pickerel and largemouth bass were lower than the national average. The only fish with mercury levels over the EPA standard of .3 was the largemouth bass with levels at .41. He then showed a chart detailing average fish tissue mercury levels by area. This showed that the areas nearest the STP had the highest levels. The areas downstream had the lowest concentrations of mercury. He explained that ageing of fish will continue through 2010. There is a five year review in 2011, so continuing to age fish past 2010 will be based on the usefulness of the 2008, 2009, and 2010 age data.

Member Esposito asked for an explanation of ageing fish.

Medeiros said that means determining the age of the fish. He said prior to 2002 – 2003 there was talk about cleaning up the river because of its potential impact on wildlife. There was a detailed risk assessment and it was determined that health risk to humans should also be considered and that is when samples began to be collected. The 2006-2008 data is based on edible filets. The 1997 data, which was before cleanup, was based on whole body concentrations. Since mercury is primarily concentrated in the edible tissue in the filets, the concentrations that are in the whole fish are diluted. Therefore it would appear to be lower than what it really is. Concentrations in whole body analysis would be less concentrated than in just the filets. The average pre-cleanup data is .43, which is statistically higher than the post cleanup data. There would be an even larger difference if we were able to see the mercury level in the edible filets of the pre-cleanup fish samples.

Medeiros said cleanup of the wetlands was completed in 2005. New York State wetland permit requirements, including invasive species, were met in 2006 and approved in 2007. Federal

invasive species monitoring and control requirements were met in 2008. The ROD requires that the sediment trap be removed because it is an impediment to fish migration. BNL and DOE have requested and received DEC approval in 2009 to remove the trap during low water conditions to minimize operational costs and potential dispersion of contaminated sediment. BNL and DOE are developing a draft removal plan, which recommends removal during low water conditions. Approximately 40 cubic yards of stone rip-rap will be removed followed by characterization of un-remediated sediment.

Member Esposito asked if the area was sampled before the sediment trap was put in.

Medeiros said no. Sampling was done near the area, but not under it. Planning and scheduling will be discussed with the regulators. The Lab is doing everything possibility to prevent potential downstream migration of contamination. The ideal time is when the water table is extremely low so it will not be flowing through the area.

Member Talbot asked if this is the only sediment trap in this area.

Medeiros said yes it is.

Member Shea asked what stone rip-rap is.

Medeiros said it is graded stone that is 6" or smaller. The way the sediment trap functioned was to slow down the flow of the water in the area that is a depositional area and when it was slowed down, it caused the river to drop suspended sediment.

Member Schwartz said there needs to be controls.

Medeiros said he was speaking about his own program when he said there were no controls, however, Tim Green collects the type of samples that you are referring to.

Member Schwartz said he would encourage putting the corresponding results from other locations on the charts for comparison.

Medeiros said the advantage of that would be to have an ability to relate trends in the river with temporal trends in other locations not related to the river.

Member Conklin said the depth of the water has a huge effect on the location and condition of the fish. Ideally the best time frame for sampling is when the water table is high.

Medeiros said springtime is when the river flow is the highest.

Tim Green said areas C and D are now a couple feet deeper and therefore better habitat. We now have bigger fish because they have a better habitat.

Member Garber asked what type of geographical area the fish live in during their lifetime. Is this where they are spending their lives?

Member Krsnak asked how many fish samples were taken. You said that now you are sampling filets only, wouldn't most of the concentrations be in the organs?

Medeiros said across the program for all sampling stations there were about 200 fish. More were taken from the center and less from the most downstream and upstream locations. Most of the mercury concentration would actually be located in the muscle.

Member Esposito asked if there are additional samples being taken that are not being spoken about now. That is something of interest to us to see if this area is still slightly above the target goals. She also asked what the range is of the two-year old fish that are still above the target goal.

Medeiros said the potential range is the whole river. Donahue's Pond is the first real barrier. We know that fish are spawning in areas A and C because there has not been a dry-out in that period of time when there was no place in the river where they could seek refuge.

Member Esposito asked if they were surprised by the results.

Medeiros said the results are expected to fluctuate. He said we know that the two-year old fish are getting an exposure to mercury in that area. He also said the levels in the one-year old fish are higher than he would like to see. One potential source is sediment that has not yet been found in that area. Another potential source is that the exposure is coming from mercury in the water column that is being released from the STP.

Member Graves asked about the size, age and correlation of methyl-mercury. He asked if methyl-mercury has a tendency to bio-accumulate or flush through the system of the fish.

Medeiros said the older fish don't have the highest mercury concentrations. For the most part, the older fish are located in the Donahue's Pond area, which is not an area in need of cleanup. So even though they are older and have been exposed longer, the area they are located in is not as contaminated. Age matters, the fish would have to be out of exposure for a long time in order for it to be flushed out.

Member Conklin asked if all the fish listed on the chart are from after dredging took place, or are some from before.

Medeiros said the cleanup occurred in 2004-2005, so fish younger than 3 years old were born after clean up.

Member Blumer asked if there is any reason why the largemouth bass have higher concentrations. It appears that area C has higher concentrations. Is this a mixture of filet and whole fish?

Medeiros said these are all filets. Largemouth bass are more common in area C because it is slower moving water and bass like the deeper, slower water. We have not identified an area in area C as a potential source yet. Largemouth bass are one of the top carnivores, so they would be the fish that would most reflect biomagnifications.

Member Schwartz said using historical data; you can make a ratio of whole fish concentration to the filet concentration in order to make the comparison.

Medeiros said that is a good suggestion.

Member Garber said that you are taking a lot of fish for sampling, so the ratio of old fish to new fish will be modified in later years.

Medeiros said it is important to track the way mercury is accumulating in fish that are being born in the current time and the next couple of years. We are expecting to have more two- and three-year old fish next year. If we weren't seeing spawning onsite then I would say we should be more moderate in our sampling, but that isn't the case.

Member Blumer asked about setting up a time for a field visit.

Medeiros said late October or November is the best time to go out because of the tick problem in the summer months. The vegetation won't be green, but you will be able to see it.

5. Agenda Setting

Jeanne D'Ascoli, liaison to the CAC, said Bldg. 96 and the ESD have already been identified as future agenda topics. Other topics include; Marshall Islands, the Master Plan, and Dr. Aronson has agreed to give a presentation on the Blueprint. How the CAC's input was used for the HFBR ROD would be another item. We will have to find out the availability of Ed Kaplan for the Marshall Islands presentation.

Reed asked for a show of hands to help prioritize these items.

Member Conklin said the Marshall Islands presentation is dependent on Ed Kaplan.

Member Blumer said depending on the questions, it may be necessary to have another presenter along with Member Kaplan.

Member Peskin said the Marshall Islands topic seems to be a hot topic right now.

Member Esposito asked if there were timelines associated with any of these topics.

Member Sprintzen said he does not see the urgency in the Marshall Islands topic. He is more interested in topics of interest today.

D'Ascoli suggested that the CAC wait until she has an opportunity to see the availability of presenters. She will then put them on the agenda according to their availability.

The CAC agreed.

Reed said there are a lot of new topics coming up. The last list of strategic agenda topics is two years old. He suggested setting aside sometime this fall to revise the list.

6. Community Comment

There was no community comment.

7. BP Solar Project, Tim Green, Environmental Protection Division, BNL

Tim Green reminded the CAC that they were given a presentation in April 2009 on the LIPA Solar RFP and Proposed BP Project by Robert Gordon, DOE and Mark Toscano, BNL. The Lab has released a draft EA (Environmental Assessment) and is now working on the resulting comments from the various agencies. He introduced Monique Brechner from LIPA to explain why this project is important to Long Island.

Ms. Brechner said some of the goals of the RFP are to diversify our energy resources and thereby reduce dependency on fossil fuels. We hope to improve the environment, strengthen the local economy and encourage economic development. Lastly, we hope to transform the solar photovoltaic marketplace. We have achieved success with our residential solar and we want to go into utility-scale solar installations. Some of the benefits of this project are to help LIPA meet its commitment to provide green energy to its Long Island customers and to avoid

greenhouse gas emissions and other air pollutants. We hope to create local, clean energy jobs and contribute to the U.S. energy diversity and security. We also hope we will be able to advance solar photovoltaic technologies and increase awareness about solar power and its benefits.

Green then introduced Richard Chandler, Commercial Development Manager, BP Solar to describe the project itself.

Chandler told the CAC that BP Solar sells their residential solar panels through Home Depot. A proposal was presented to the Lab in August 2008 for a large scale array with about 37 MW of power. In February 2009, LIPA selected BP Solar to enter into negotiations for a power purchase agreement to sell the power to LIPA. The project will use high efficient crystalline solar photovoltaic modules, which is a proven, understood technology. This array will cover about 200 acres of land. We are using an energy dense design to be as respectful of the land as possible. We plan on concluding discussions with LIPA on the power purchase agreement this fall, construction is scheduled to begin early next year and be completed by May 2011. We envision this project creating 200 full time jobs at the peak during construction and after that there would be one or two operations and maintenance positions. Solar is a labor intensive construction project.

Member Blumer asked how many modules were being put in.

Chandler said more than 150,000. He showed the CAC an artist rendering of the site. He said the row to row spacing between the arrays is equal all around.

Member Garber asked if someone will be going into more detail regarding the modules. He asked if they are flat panel.

Chandler said they are flat panel. The other type would not work as well here in the northeast.

Member Talbot said if other areas are using 10 acres of land per MW, how is it that you are able to use only 5 acres of land per MW.

Chandler said they are using fixed tilt rather than tracking technology.

Tim Green said an environmental assessment was done and the various alternatives were looked at. There were four other potential areas that were looked at ahead of time and ruled out. The first one was the area on the west side of the Laboratory, near William Floyd Pkwy. This was quite a distance from the LIPA substation, so there is the potential for a lot of degradation of power. Secondly, this area was ruled out because the Laboratory itself may have use for the area in the future.

Member Blumer asked for some clarification whether this is proposed for the core or the compatible growth area (CGA) of the Pine Barrens.

Green said this project is not proposed for the core, it is intended for the CGA.

The second area looked at was an undeveloped area with some groundwater treatment systems located in the southern portions of the Lab. It could be used for photovoltaics, however, the Lab made a decision not to place this project in the core pine barrens. The third option was for a dispersed system, because there are a lot of open areas which are very spread out. Because the project needs to tie in together and get to the substation, this option would interfere with other systems. The last option was to put the panels on the rooftops of the buildings. This was ruled out because the roofs would need to be upgraded to sustain the added weight of the

photovoltaics and the energy would have to run through the power lines of the buildings. The purpose of this project is to provide energy to LIPA customers.

The proposed action is for the development of an easement between DOE and BP Solar for the construction of a 37MW photovoltaic electric system. This will be divided into two sets of arrays. The north array will cover the area of the biology fields, and the south array will go from the core pine barrens boundary down to the east central portion of the Lab.

There is also the potential for a one to two MW research array for the Lab to be included in this proposal. We are looking into the southern area, near the former landfill. The other potential area is the current Waste Management Facility. We need to be able to get utilities to the area of research.

The topics that are addressed in the environmental assessment on this project are mainly ecological and what will happen at the end of the 40-year lifespan of this system. A photovoltaic system avoids greenhouse gases, mainly carbon dioxide. It is estimated that after the 40-year life of this project, the carbon avoidance will be 1.2 million metric tons of CO₂ compared to gas and oil power generation. There are figures provided by USDA Forest Service on the ability of trees to sequester carbon. Based on the age of our forest (about 75 years old), after 40 years it will sequester 22 thousand metric tons of CO₂. There will be minimal impact on the global climate, but it is a small piece in the large equation.

Of the 200 acres, about 35 are the biology fields which have been previously cleared and are currently growing non-native grasses. There are another 5 acres of planted trees that are from a nursery of experiments back in the 60s and 70s located there. These consist of white pines, large spruce, and other tall trees that are densely planted with a very poor understory.

The tiger salamander habitat area is deliberately being avoided. We try to preserve 50 percent of the habitat within 1,000 feet of tiger salamander habitat. There are old farm fields dating back to the early 1900s. The overstory is typical Pine Barrens and the understory is very old, in some areas it is good, other areas, not so good. The best example of Pine Barrens habitat in this project that would come out is about 14 acres to the north. Most of this area is old forest. All the areas have extensive invasive species. As this project goes through, these would be removed.

Member Blumer said, if 35 acres are the biology fields and 5 acres are planted, then are the other 160 acres trees that are going to be destroyed?

Green said yes, about 160 acres are scheduled to be cleared. We are assessing a 30 percent design of the BP Solar project, so we can have some idea how it is going to be built, how they are clearing the land, and what the requirements are for protecting the solar panels. There will be a fence around each array. Because most of the land is level, they won't have to do a lot of bulldozing and land manipulation, so a lot of the understory will be left intact. In areas that are not level, the topsoil will be stripped off, the land graded, and the topsoil will then be put back and native grasses will be planted after the solar panels are installed. The trees will either be removed from the site or they will be chipped.

One of the potential impacts is on nesting migratory birds, so we are working on the timing of the tree removal. They nest from mid-April to mid-July. The surrounding fence will be wildlife friendly, about eight feet tall with a tip-out to keep deer out. There will be openings on the bottom so small animals that need the understory can get through. The deer would do significant damage to the array if they were to get through. BP Solar is going to manage for invasive species. We are actually enhancing the understory by keeping the deer out. There will be about 100 deer that will be leaving the area and they will be relocating to other areas. We are currently working on a Deer Management Plan.

In 1995 a Land Use Plan was developed for the Pine Barrens, which has very tough restrictions for development in the core and a set of guidelines and standards for the CGA. The guidelines set a 65 percent clearing allowance within the CGA. Green explained that if you own land in the core, you have to account for all of your land mass. The Lab did the calculations and this project will increase the amount of land cleared at the Lab to 26 percent. If you just considered the CGA, the clearing would go from 40 to 47 percent, which is still within the standard. We are a very large land owner, with over 5,000 acres. Any development must comply with NYSDEC regulations. We have worked to stay far away from the wetlands; however, because we are at the 100-foot mark in some areas, we will have to get NYSDEC permits. We are within the Scenic River corridor in one section, so we will have to get a permit for that also. There is the potential that as construction develops, we may need a SPDES permit for storm-water discharge. When this is over, 40 years from now, it will be ready to be decommissioned. Hopefully, we will have better technology and we will be able to upgrade it. In the event that does not happen, BP Solar or whoever owns it at that time, will have to remove 100 percent of the facility and the areas will be restored.

Member Shea asked if it is possible to have a plan to upgrade the technology periodically. She said there could be tremendous changes in five or ten years.

Chandler said there is no plan currently. The plan is that this will operate for 20 years, which is the length of the power purchase agreement.

Member Blumer asked if the EA is the equivalent of NEPA.

Green said the EA is done under NEPA, so the first step was an environmental evaluation and notification form, which looked at the project to determine what level of NEPA review would be suitable. That evaluation determined an EA was needed first. We are now in the stage of the EA and we will be issuing a Finding of No Significant Impact at the end of the review. The EA on the Federal level is equivalent to an EIS on the State's SEQRA level.

Member Blumer asked if the EA was completed.

Green said it has been sent out for review by state agencies.

Member Blumer said she was hoping they would revise it. She said BP is great. They have provided Habitat for Humanity with many solar arrays, which are put on all their houses. She wondered why all developers don't have an agreement with BP to do the same. She asked if when the EA was done, an alternative cost comparison was done with providing residences with power.

Chandler said that analysis has not been run. Every residence differs, roofs are pitched at different angles and that impacts how much solar is absorbed. Also, how old the roof is needs to be considered to determine levelised cost of electricity.

Member Blumer said that is one alternative that she feels was not looked at.

Member Conklin asked if there are different types of photovoltaic cells (PVC), how would different amounts of sunlight affect their efficiency, and what happens if there is a gray summer without much sunlight?

Chandler said there are different types of PVCs. BP Solar has tried other types and has determined that crystalline silicon photovoltaic technology (CSP) is the best and that is what they will be using here. CSP technology will work in diffuse light, if there is cloud cover there will

be 60-70 percent output. Other technologies either work at 100 percent or 0 percent, they cannot work in diffuse light, they need concentrated light.

Member Graves asked what the benefits are to the taxpayer from this project.

Chandler said jobs created, local economic growth, solar research, and energy security. There is a great nexus here because BP is a company that conducts R & D every year and the Laboratory specializes in R & D. We are investing in R & D that will increase the efficiency and technology over time so that as more solar is rolled out, we need less and less space for land-based applications and we can start to make some of the rooftop applications more cost competitive.

Member Esposito said that in addition to price stability in the rate base this will also allow extra power during peak need, thereby reducing or replacing carbon emissions and the need for other power plants. She said these are real benefits that are particular to Long Island.

Member Birben asked if information regarding other types of solar power is available on BPs website. She said her watch is solar powered and works in the shade.

Chandler said that information is not readily available. He said BP works with pure silica based technology. The focus is on natural light. A photon is a photon.

Member Heil asked about the framework for the materials such as height, the type of foundation, and if wind is a factor?

Chandler said the distance from the ground to the bottom of the array is two feet. He said from the ground all the way to the top of the module is ten feet. The structure is pile driven, there will be steel I-beams driven down about 10-15 feet into the ground. This is a 120 mile per hour wind load area. There will be a steel pole that comes out of the I-beam that is in the ground and the structure will be affixed to the metal pole and will be about 4 modules high by 6 or 7 wide.

Member Garber asked about the light level, will there be part shade?

Green said they will be situated so that each panel has enough light. The structure is made up of low glare glass, so there won't be a lot of reflective light, but there will be some. There will be diffuse light going down to the understory. We envision it to be a lot like the existing forest canopy, with light filtering down to the understory, allowing it to survive.

Member Schwartz said he doesn't understand why LIPA wants to do this. This is equivalent to only one month of their annual growth.

Brechner agreed that fundamentally this is a small portion of LIPA's entire load, but they want to be on the leading edge. They feel this is a good start.

Member Blumer said she feels this is not leading edge technology and asked about looking into nanoscale.

Brechner said part of the RFP is that this must be proven technology. We want this to be a functioning utility scale operation.

Chandler said BP has tried and failed with other technologies. This needs to be reliable. We offer a 25-year modular warranty. In order for us to stand behind our product, it has to be proven.

Brechner said it also has to perform to the grid.

Green said part of this is the research array which will allow BNL scientists to look at new materials for development that will allow us to shrink down the size or increase the amount of generation on the same parcel of land in the future.

Member Esposito said there are compelling reasons to do large scale solar. There are state and federal mandates to reduce carbon dioxide emissions. This is part of the answer.

Brechner said LIPA has voluntarily complied with the Public Service Commission's requirement that a portion of LIPA's energy be renewable.

Member Martin asked if any studies have been done regarding the decommissioning and disposal of these units and if the carbon footprint of that has been factored in at all.

Chandler said there are no hazardous materials in our modules. There is no formal recycling program, but we hope to have one in the near future. The silicon is highly recyclable. Our longest asset has been in operation for 22 or 23 years, so we do not know what will happen in 40 years yet. The value of the electron is that it never gets old and there is a significant opportunity for secondary markets in off grade applications in third world countries.

Member Martin asked if heavy metals are a byproduct.

Chander said no.

Member Graves said he is happy that the Lab is respectful of the core area of the Pine Barrens. However, he feels that the Lab could request a hardship exemption and look at a more compact area. The Lab could make the argument that you are sacrificing lower ecological value habitat to maintain a larger block of high ecological habitat.

Green said all of this information will be presented to the Pine Barrens Commission next Wednesday at their meeting.

Member Blumer asked if there is a LIPA substation near Calabro Airport that could be an alternative rather than destroying the forest here at BNL. That area is already cleared. This should be considered as an alternative.

Chandler had not heard of the airport and has not considered it.

Member Henagan said Dowling College uses it for their aviation program.

Green said it hasn't been a consideration. This assessment is for the Lab.

Member Feinman said there is an advisory committee for the development and control of the airport.

The meeting adjourned at 9:50 p.m.

Agenda Topics	Votes
Global Warming, Stony Brook, Pine Barrens (1-10-08)	15
CAC as a conduit/resource to the community (11-08-07)	13
Emergency Operations Center tour and drill (6-12-08)	12
Nano technology (Colvin presentation 5-14-09)	11
CERN—problems and implications (4-10-08)	11
Site Environment Report—good and bad (11-8-07)(10-2-08)	11
Nano safety (3-13-08)	10
Regulator presentations on areas they oversee	10
Energy	9
Overview of programs	9
Deer Management (4-10-08)	8
Anti-terrorism update	7
NSLS-II briefing (12/11/08)	7
Nuclear power plant safety	6
Education Programs (10-2-08)	6
Energy efficiencies (9-13-07)	6
Sustainable transportation	4
Natural Resources management (11-13-08)	4
Nano ES & H (10-11-07)	3
Safety and Security	3
Experimental Review Process	3
Latest RHIC findings	2
How the Lab supports nuclear facilities in the N/E region	2
Status of P-2 road show	2
Heating plant and efficiency research (12-11-08)	2
Lyme Disease (6-11-09)	2
CAC process	2
Alternative fuels	2
Update on phyto/bacterial contamination remediation research	1
Deforestation	0
Work planning process	0

New Topics Added After September 2007 Vote

~~Global warming—BNL research (5-8-08)~~
~~Nano toxicology (5-14-09)~~
~~Nano ES&H issues at BNL and beyond (5-8-08)~~
 Nanotechnology/science at BNL
~~Nano management policy issues (5-14-09)~~
 Nano panel discussion with the DOE, EPA, and FDA
 Renewable energy research at the Lab
 BNL/CSHarbor/Stony Brook collaboration

P = Present	2009	Affiliation		First Name	Last Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
		ABCO (Garber added on 4/10/02)	Member	Don	Garber	P	P	P	P	P	P			P			
		ABCO	Alternate														
		Brookhaven Retired Employees Association	Member	Graham	Campbell	P	P	P	P	P	P						
		Brookhaven Retired Employees Association (L. Jacobson new alternate as of 4/99)(A. Peskin 5/04)	Alternate	Arnie	Peskin	P				P				P			
		CHEC (Community Health & Environment Coalition (added 10/04)	Member	Sarah	Anker						P						
		(added 12/08)	Alternate	Robert	Andrejkovics	P		P	P								
		Citizens Campaign for the Environment	Member	Adrienne	Esposito	P	P	P	P					P			
		Citizens Campaign for the Environment (Ottney added 4/02-takenoff 1/05 Mahoney put on)(7/06 add Kasey Jacobs)(K. Jacobs off 1/08)	Alternate														
		Colonial Woods Whispering Pines (added 06/09)	Member	Christine	Birben						P			P			
		Colonial Woods Whispering Pines (added 09/09)	Alternate	Joan	Milner									P			
		E. Yaphank Civic Association	Member	Michael	Giacomaro			P	P	P	P						
		E. Yaphank Civic Association (J. Minasi new alternate as of 3/99) (M. Triber 11/05) (Munson 6/06) (Feinman 2/09)	Alternate	Bob	Feinman		P	P		P	P			P			
		Educator (changed 7/2006)	Member	Adam	Martin						P			P			
		Educator (B. Martin - 9/01)	Alternate	Bruce	Martin					P							
		Educator (A. Martin new alternate 2/00) (Adam to college 8/01)(add. alternate 9/02) (changed 7/2006)(Bush 5/09)	Alternate	Greg	Bush					P	P			P			
		Fire Rescue and Emergency Services	Member	Joe	Williams												
		Fire Rescue and Emergency Services	Alternate	Don	Lynch	P	P	P									
		Fire Rescue and Emergency Services	Alternate	James	McLoughlin												
		Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)	Member	Ed	Kaplan		P	P									
		Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)(Schwartz added 11/18/02)	Alternate	Steve	Schwartz	P			P	P	P			P			
		Health Care	Member	Jane	Corrarino			P	P								
		Health Care	Alternate														
		Huntington Breast Cancer Coalition	Member	Mary Joan	Shea	P	P	P	P	P				P			
		Huntington Breast Cancer Coalition	Alternate	Scott	Carlin			P									

P = Present	2009	Affiliation		First Name	Last Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
		Intl. Brotherhood of Electrical Workers/Local 2230 (S.Krsnak replaced M. Walker 1/11/07)	Member	Scott	Krsnak	P		P						P			
		IBEW/Local 2230	Alternate	Philip	Pizzo												
		L.I. Pine Barrens Society	Member	Richard	Amper	P			P		P						
		L.I. Pine Barrens Society (added P. Loris 6/05)(Alayeva off 6/08) (Itriyeva 02/09) (Motschenbacher 6/09)	Alternate	Beth	IMotschenbacher		P	P			P						
		L.I. Pine Barrens Society	Alternate	Susie	Husted												
		L.I. Progressive Coalition	Member	David	Sprintzen	P	P		P	(P - On speaker phone)	P			P			
		L.I. Progressive Coalition	Alternate	None	None												
		Lake Panamoka Civic Association (Biss as of 4/02)	Member	Rita	Biss	P		P		P							
		Lake Panamoka Civic Association (Rita Biss new alternate as of 3/99)	Alternate	Joe	Gibbons												
		Long Island Association (Groneman replace 10/05)	Member														
		Long Island Association	Alternate	William	Evanzia				P								
		Longwood Alliance	Member	Tom	Talbot	P	P			P	P			P			
		Longwood Alliance	Alternate	Kevin	Crowley												
		Longwood Central School Dist. (switched 11/02)(Castro replaced Henigin 6/09)	Member	Maria	Castro			P		P	P			P			
		Longwood Central School Dist.	Alternate	Allan	Gerstenlauer												
		NEAR	Member	Jean	Mannhaupt	P				P							
		NEAR (prospect taken off ¾) (Blumer added 10/04)	Alternate	Karen	Blumer			P		P	P			P			
		NSLS User	Member	Jean	Jordan-Sweet	P	P	P	P	P							
		NSLS User	Alternate	Peter	Stephens												
		Peconic River Sportsman's Club (added 4/8/04)	Member	John	Hall	P					P						
		Peconic River Sportsman's Club	Alternate	Jeff	Schneider												
		Ridge Civic Association	Member	Pat	Henagan			P			P			P			
		Science & Technology (added 1/13/05)	Member	Iqbal	Chaudhry		P	P	P	P	P			P			
		Town of Brookhaven (Graves made member 6/06)	Member	Anthony	Graves	P	P	P	P					P			
		Town of Brookhaven	Alternate	None	None												
		Town of Brookhaven, Senior Citizens	Member	James	Heil	P	P	P	P		P			P			
		Town of Brookhaven, Senior Citizens (open slot as of 4/99)	Alternate	None	None												
		Town of Riverhead	Member	Robert	Conklin						P			P			
		Town of Riverhead (K. Skinner alternate as of 4/99)	Alternate	Kim	Skinner												
		Wading River Civic Association	Member	Helga	Guthy		P	P	P		P						
		Wading River Civic Association	Alternate	Sid	Bail												