

Community Advisory Council
January 14, 2010
Action Items/Notes

Final

These notes are in the following order:

1. Attendance
2. Correspondence and Handouts
3. Administrative Items
4. Impacts of Research at the BGRR
5. Update on the BP Solar Project
6. Community Comment
7. Agenda Setting
8. Bioenergy Research at BNL

1. Attendance

Members/Alternates Present:
See Attached Sheets.

Others Present:

S. Aronson, L. Bates, M. Bebon, P. Bond, H. Carrano, J. Carter, J. D'Ascoli, N. Detweiler, L. Garber, D. Gibbs, G. Goode, T. Green, M. Holland, M. Israel, S. Johnson, R. McKay, L. Newman, C. Wirick

2. Correspondence and Handouts

Items numbered one and two were mailed with a cover letter dated January 7, 2010. Items three through five were available as handouts.

1. Draft notes for December 10, 2009
2. Draft agenda for January 14, 2010
3. Some Long Range Impacts of Research at the BGRR, Peter Bond, Sr. Advisor to the Director
4. Update on the BP Solar Project, Mark Toscano, Manager, Energy Management
5. Energy Conservation and Sustainability Efforts at BNL, Mark Toscano

3. Administrative Items

The meeting began at 6:34 p.m. Reed Hodgkin reviewed the ground rules and the agenda. Those in attendance introduced themselves.

Dr. Sam Aronson, Lab Director, announced that former Lab Director, Praveen Chaudhari passed away and expressed his sympathy.

Jeanne D'Ascoli, liaison to the CAC, reported that CAC member Bob Conklin passed away in December and will be greatly missed. She said that, according to his wishes, Bill Gunther is organizing a memorial service in the spring during bass season. She then announced that CAC member Anthony Graves' wife had a baby on New Year's Day and expressed her

congratulations to him. D'Ascoli acknowledged the work done by the CAC during the previous year and thanked Sherry Johnson for all of her work. She then said that Jeanne Mannhaupt is not here this evening because her father just passed away.

The CAC paused for a moment of silence for Bob Conklin.

John Carter, Department of Energy (DOE) Brookhaven Site Office (BHSO), spoke briefly about an article on a class-action lawsuit that appeared in Newsday. He explained that there is a procedural court case in which community members living south of the Laboratory claim to have suffered health problems and reduced property values because of contamination from the Lab. A court decision has granted the residents within a defined area the right to sue as a class for property damages.

Member Heil thanked the staff of the BGRR for the tour that was recently given. Member Birben also expressed her appreciation for a great tour.

Reed explained that there were some changes made to the draft agenda for the evening. He said the BP Solar presentation is being moved to the beginning of the evening and the presentation on Bioenergy Research will be given at the end. The presentation on Energy Conservation will be given at another time.

Mike Holland, DOE, BHSO Manager, gave an update on the Prime Contract competition. He said during the past year it was recognized that Brookhaven Science Associates (BSA) has been performing well and since there has not been much outside interest in the competition, the Department of Energy has extended its contract with BSA for five years.

Member Garber said this is good for paperwork reduction.

Member Sprintzen announced that the 31st Anniversary Celebration of the Progressive Coalition will be held on Saturday, March 27 and if anyone is interested in attending, invitations are available.

Approval of Minutes

Reed asked for corrections, additions, or deletions to the December 10, 2009 draft notes. The notes were approved as written with two abstentions.

4. Some Long Range Impacts of Research at the BGRR, Peter Bond, Senior Scientist

Dr. Peter Bond gave the CAC some background information on the Brookhaven Graphite Removal Reactor (BGRR) and the impacts it has had on research. He explained that it was the first reactor to be devoted to basic research and operated from 1950-1968. Over 50 experiments could be done at the same time. A major activity was the measurement of neutron capture cross sections of nuclei. The original purpose of these studies was to determine what nuclei look like. Many isotopes were produced either from fission or neutron capture and studied in detail to determine decay schemes, half lives, etc.

In the late 1950's, one of the first satellites to be sent into orbit (where radiation is a hazard) was irradiated at the BGRR and the electronics failed; the electronics were redesigned before being launched. The BGRR was used to aid the development of multi-grade motor oil that is used today in cars. Trace elements in a variety of art and archeological objects were measured at the BGRR to determine their authenticity and origin.

Some of the isotopes that were produced at the BGRR were shipped to hospitals, industries, and universities for a variety of medical applications. BNL played a major role in the

development of Tc-99, which is used millions of times a year as a diagnostic tool in heart and bone scans. It is the most used medical radionuclide in the world today. In 1967, the AEC decided Brookhaven should not compete with industry, so shipments of Mo-99 (from which Tc-99 was "milked" with a BNL invented generator) were terminated. Today, almost all Mo-99 producing reactors have been shut down. To avert a crisis the medical community and Congress are looking into restarting US production.

Member Jordan-Sweet asked if this could be made at a facility like BLIP.

Bond said BLIP doesn't do fission, which is necessary for production.

Member Sprintzen asked if industry has made money, and if so, has any profit come back to BNL.

Bond said yes, industry has made money, but no profit has returned to BNL.

Member Giacomaro asked if any awards have been given out.

Bond said there are none that he is aware of.

5. Update on the BP Solar Project, Mark Toscano, Manager, Energy Management

Mark Toscano gave a brief update on the BP Solar project. He said the draft Environmental Assessment (EA) was issued in August 2009. All comments that were received were addressed and the final EA was issued on 12/4/09 with a Finding of No Significant Impact (FONSI). He said the project footprint has been modified. The northernmost parcel of higher quality habitat (~14 acres) was removed. All of the area is within the Compatible Growth Area. Very little of the land is considered prime Pine Barrens habitat because virtually all of it has previously been farmed or otherwise disturbed.

Toscano reported that DOE will be protecting 51 acres of tiger salamander habitat, BP Solar is providing \$75,000 to improve/restore Pine Barrens habitat, and LIPA will provide \$2 million to acquire and preserve land in the Pine Barrens. The LIPA Board approved this project on December 17, 2009 and it is now going to the NY Attorney General and Comptroller's Office for final approval.

The design phase is half completed and BP plans to solicit construction bids this winter/spring 2010. Toscano said there is growing global concern regarding climate change and GHG generation. It's estimated that the removal of ~160 acres of trees will cause a loss of ability to sequester 842 metric tons CO₂/year. Using this 32 MW solar power will cause an avoidance of 30,950 metric tons of CO₂ that would have been released into the atmosphere from conventional generating means.

Member Jordan-Sweet asked if it will be specified that a US contractor be used for the solar panels.

Toscano said they've been told by BP that all the panels will be made here and mostly local labor will be used.

Member Giacomaro asked if replanting any of the 160 acres of trees elsewhere on Lab property was considered.

Toscano said it was discussed; however, the intention of the \$2 million from BP is to preserve some land to make up for the 160 acres.

Member Garber asked if the light level under the solar panels will allow for vegetation to grow and animal-life to survive.

Toscano said the panels are spaced out and slanted so sunlight will reach the ground giving the opportunity for native grasses to grow. This will be a deer-free habitat and a good opportunity for several species of small animals to flourish.

Tim Green, BNL Cultural and Natural Resources Manager, said long term monitoring and research will be looking to see what plants and animals thrive in this area.

Member Jordan-Sweet expressed concern about solar panel theft. She asked if there were any precautions being taken.

Toscano said the area will be fenced and patrolled by BNL security. This will not require any additional work for the security officers because they already patrol the site on a regular basis.

Green said the fence will be eight feet tall with tip outs.

Member Giacomaro asked about southerly exposure for the panels to get the greatest exposure to sunlight.

Aronson said the panels will all face south.

Toscano said there will be 167,000 panels.

Member Heil said the carbon avoidance is 31,000 tons per year. What is the probability that LIPA will not produce 32MW of fossil fuel when this goes online?

Toscano said this will generate power.

Member Esposito said the carbon dioxide offset is based on an assumption that the trees will be there for the next 20 years. This is a generous assumption; another project could come up that would use up this space. As more renewables come online the objective is to crank down fossil fuel power plants. We have seen a reduction as demand has diminished.

Member Amper said the Pine Barrens Society has asked for more information. He asked permission to show some slides to the CAC explaining their position.

Reed asked the group if that was ok.

No members objected and copies of the slides were handed out.

Amper said the Pine Barrens Society supports solar energy and does not oppose this project. However, he said he feels the project is flawed. He said the Lab is the largest landholder in the Pine Barrens. The BP Solar array will cover a combined total of 200 acres; 150 acres of which will need to be cleared. The concern is what will be next. We don't want to trade ecological protection for energy sustainability or undermine public support for the preservation of the Pine Barrens. However, BNL is hesitant to forego development in the 3,000 acre core, so we must begin thinking about the future of this sensitive area.

Amper said 51 acres of tiger salamander habitat will be protected, the relocation of the north array will save another 14 acres, and the \$2 million pledged by LIPA Board will save another 20 acres. This is a total of 85 acres. The Pine Barrens Advisory Committee has adopted a

resolution to seek enhanced mitigation measures from LIPA, BP Solar, and BNL which will include 1-for-1 mitigation. For every acre cleared, one acre must be permanently preserved. This would require a commitment from BNL to include a long term preservation strategy in its master plan. He said he doesn't see how preserving 150 acres will harm this project. This will only require preserving another 65 acres. In the past, the Lab has deliberately gone out of its way to conform to the Pine Barrens Act, even though it was not a requirement, and that is commendable. He wants to send the right message to the public.

Member Henagan asked why the negative letter was written to *Newsday*.

Member Amper said the project is flawed and there is a conflict between two environmental issues.

Member Anker said it's great that there's an economic value that this project is providing to the community, what about science and research? Will different types of solar panels be used? Will there be different projects in different areas? What other ideas are being considered?

Toscano said DOE put forth a requirement to have a research aspect to the array, we hope there will be other opportunities for research such as higher efficiency, storage technology, etc. BNL hopes there will be a number of research proposals that will lead to BNL becoming a regional leader in energy research and will result in better and more efficient design.

Member Anker asked if the public will have the opportunity to comment on the projects.

Toscano said the concepts are small-scale; NYSERTA and IBM have expressed interest. If there is a process the public will hear about it.

Member Sprintzen said he applauds the Lab for the way this project is being presented and their efforts at land preservation.

Member Garber said the comments presented tonight by Member Amper are far different than the letter that was sent to *Newsday* and elected officials. The statements made tonight are more balanced.

Member Amper said their position has been presented the same way at every meeting they've attended in the past four or five months. We are not opposing anything that the advocates of energy are supporting and we would ask the environment and civic members and members of this CAC to take the same position and not oppose a mitigation plan that provides the kind of Pine Barrens preservation that we're looking for. That's all; it seems like a fair and balanced thing.

Member Graves said that since BP Solar is placing this array on publicly-owned land, the public has a right to know the economics of the project. Does BP Solar stand to make a lot of money on this? He said that the habitat value of the land within the array is not zero. One of the purposes of the Pine Barrens Act was to provide clean drinking water; there are no emissions or spills associated with the project so some credit could be given for that. You may have lost 75% of the habitat value, but not 100%. Some wildlife such as ground-nesting birds may do better within the array area where they are protected from deer.

Reed said Member Amper has given us information on where the Pine Barrens Society stands on this issue. They are seeking 1-to-1 mitigation for land preservation.

Member Amper said he is open to other suggestions.

Reed asked if Member Amper was looking for the opinion of the CAC.

Member Amper said he is not pitting the CAC against the Lab.

Reed asked if there are any other recommendations from the CAC.

Member Esposito said the Citizen's Campaign for the Environment supports this project. The energy issue is critical on Long Island. This has to go somewhere and this is a good place. We could save the trees and lose the Island. Long Island is clearly behind the rest of the country in energy conservation. Large energy infrastructures are not eye pleasing to the public. This seems to have the least impact and the smallest footprint.

Member Giacomaro said there is a vacant area that this could go on. The Long Island Expressway is about 60 miles long with southerly exposure.

Member Graves asked about the economics for BP on this project.

Toscano said there is a 20-year purchase power agreement, which is \$298 million over the next twenty years.

Member Amper said this does have to go somewhere. He said we should have done the off-shore wind project. We can do this project and still preserve the ecosystem.

Member Esposito said CCE feels the ecosystem is being protected by doing this project, so there is a difference in philosophy.

6. Community Comment

There were no comments from the community.

7. Agenda Setting

Jeanne D'Ascoli said next month there will be a report on groundwater and an update on the Peconic River.

Member Sprintzen said he would love to hear the presentation on energy conservation, but he is unable to attend the March meeting. Would it be possible to have it next month?

D'Ascoli said it will be scheduled next month or it will wait until April.

8. Bioenergy Research at BNL: Increasing Productivity using Biological Interactions, Lee Newman, Associate Biochemist at BNL

Lee Newman began by describing her education and research experiences prior to coming to BNL and mentioned many other researchers she was working with. She explained that biofuels are any type of fuel that comes from a biological source. They can come from sugars, starch, vegetable oil, animal fat, wood, charcoal, even dried excrement. In order for the fuel to be considered a biofuel it must contain at least 80% renewable material. Biofuels have been used for years. Originally, the automobile was designed to run on ethanol produced by plants. In the 1920s oil was discovered and we became dependent on fossil fuel. Most of our fuel comes from other countries. We have to stop putting CO₂ into the atmosphere and reduce our dependence on fossil fuels.

Newman explained that she and her colleagues are working on ways to create biomass that can be used for biofuels. They are trying to increase alternative feedstock production without competition for food production or endangering our natural heritage. Using crops for more than one purpose and finding ways to use soils that have been previously degraded or are contaminated are also being researched. We are looking for multi-use plants: growing plants on really poor soil, using bio-solids from the site sewage treatment system for fertilization, and growing plants for seed production and biomass production. We found that poplar trees are a prime choice for biomass production and for contaminated soil cleanup. She described work with being done with plant endophytes, which are a type of bacteria that live inside the plant and help it to grow. Short term effects of these endophytes are enhanced root development and faster initial growth. The long term effects are improved plant growth, leading to sustainable feedstock production, and protection against diseases and environmental stress. Some bacteria are able to produce chemicals that plants use as growth compounds because the healthier the tree is, the more nutrients that the bacteria is exposed to while living inside the plant. The bacteria respond to the presence of the plant to make it grow faster and healthier. There are dozens of different poplar trees that grow in different areas of the country. Other types of trees are also being looked at.

There are a lot of other departments involved at BNL. Collaborations with local/state schools and universities to train students in these areas and to use this technology are being developed. We are hoping to do an energy garden onsite and to do a pilot field site where we can grow a variety of plants onsite with different growing conditions. We hope to be able to determine which plants/conditions are of optimal productivity here on LI and develop a strategy for full scale production of biofuel at BNL. This can be a learning tool for students and also a community outreach to educate people about the research.

Member Anker said she heard that sunflower plants release a toxin.

Newman said the shells of the sunflower seeds contain the toxin, not the seed itself.

Member Esposito said the CAC was given a presentation on algae by a scientist here at BNL. She wondered if that had anything to do with Newman's research.

Newman said the study of algae is not the same as her work, but it is complimentary. She said algae are a lot more sensitive.

Member Feinman asked if the characteristic of the poplar wood was changed.

Newman said that is something we are working with NSLS to find out. We have had some of the wood made into paper that was then tested for strength, durability, and the presence of contaminants. It was found to be perfectly usable. There are other things the wood could be used for but they are working on biofuels production.

Member Jordan-Sweet asked if the pathway of the contaminants is a concern.

Newman said the plants that are used to take up heavy metal contamination are the ones you have to worry about. With organic contaminants, which are what we are working with, the plants actually degrade them so they are no longer toxic. One of our concerns was what would happen if insects feed on these plants that have taken up contaminants. However, we found it had no effect.

Member Esposito asked about radioactivity.

Newman said if there is radioactivity, it is taken up and kept in the plant. If there is a metal contaminant that has a commercial value, it could be recycled. If there is a metal that no one wants or a radionuclide, the only thing that can be done is ash the plant down to reduce the mass and bury it in a secure landfill.

Member Talbot asked about using bamboo.

Newman said bamboo is not a plant that is being considered for use because it is so invasive. Grass plants are good.

Member Talbot asked if there is a danger from the chemicals being put into plants to make them grow faster.

Newman said we are working with bacteria, which is a totally natural compound that the plant would make normally itself, just in higher levels.

Member Garber commented that there is a lot of energy consumed in productivity. Does any of your research address this?

Newman said that is not being done here, but we are collaborating with others that are.

Member Henagan asked about using kudzu.

Newman said she proposed using it as a remediation plant on a project in Chicago because she didn't think it would survive in that climate; the suggestion was not well received.

Member Heil said when the landfill in Holtsville was closed; it was stuffed with poplar. He wondered if there were any root systems still there.

Newman said she would like to take a look at it.

Reed asked, what are some other topics that Newman can bring for a future presentation to the CAC?

Newman said any of the topics she talked about, perhaps phytoremediation or plant nanoparticle interactions.

Member Henagan asked if the work on genome with the poplar is still going on.

Newman said a lot of that work is being done by the Japanese. A lot of this is being funded by the paper industry.

Member Anker asked if Newman is planning on doing more educational programs.

Newman said yes, many. She has graduate, undergraduate, and high school students working with her now. She expects to have three or four more students working with her over the summer.

Reed asked if the CAC would like to have Newman back.

The CAC all said they would.

Reed said next month, ARRA, the movie, will be on the agenda.

The meeting adjourned at 9:11 p.m.

P = Present	2010	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											
		ABCO	Alternate														
		Brookhaven Retired Employees Association (Peskin replaced Campbell 09/09)	Member	Arnie	Peskin												
		Brookhaven Retired Employees Association (L. Jacobson new alternate as of 4/99)(A. Peskin 5/04)(Franz 12/09)	Alternate	Eena-Mai	Franz												
		CHEC (Community Health & Environment Coalition (added 10/04)	Member	Sarah	Anker	P											
		(added 12/08) (R. Andrejkovics removed 9/09)	Alternate														
		Citizens Campaign for the Environment	Member	Adrienne	Esposito	P											
		Citizens Campaign for the Environment (Ottney added 4/02-taken off 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											
		Colonial Woods Whispering Pines (added 09/09)	Alternate	Joan	Milner												
		E. Yaphank Civic Association	Member	Michael	Giacomaro	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											
		Educator (changed 7/2006)	Member	Adam	Martin												
		Educator (B. Martin - 9/01)	Alternate	Bruce	Martin												
		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												
		Fire Rescue and Emergency Services	Member	Joe	Williams												
		Fire Rescue and Emergency Services	Alternate	Don	Lynch												
		Fire Rescue and Emergency Services	Alternate	James	McLoughlin												
		Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)	Member	Ed	Kaplan												
		Friends of Brookhaven (E.Kaplan changed to become member 7/1/01)(Schwartz added 11/18/02)	Alternate	Steve	Schwartz												
		Health Care	Member	Jane	Corrarino												
		Health Care	Alternate														
		Huntington Breast Cancer Coalition	Member	Mary Joan	Shea												
		Huntington Breast Cancer Coalition	Alternate	Scott	Carlin												
		Intl. Brotherhood of Electrical Workers/Local 2230 (S.Krsnak replaced M. Walker 1/11/07)	Member	Scott	Krsnak												

P = Present	2010	Affiliation		First Name	Last Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
		IBEW/Local 2230	Alternate	Philip	Pizzo												
		L.I. Pine Barrens Society	Member	Richard	Amper	P											
		L.I. Pine Barrens Society (added P. Loris 6/05)(Alayeva off 6/08) (Itriyeva 02/09) (Motschenbacher 6/09)	Alternate	Beth	Motschenbacher												
		L.I. Pine Barrens Society	Alternate	Susie	Husted												
		L.I. Progressive Coalition	Member	David	Sprintzen	P											
		L.I. Progressive Coalition	Alternate	None	None												
		Lake Panamoka Civic Association (Biss as of 4/02)	Member	Rita	Biss	P											
		Lake Panamoka Civic Association (Rita Biss new alternate as of 3/99) (Gibbons off 1/10)	Alternate														
		Long Island Association (Groneman replace 10/05)	Member														
		Long Island Association	Alternate	William	Evanzia												
		Longwood Alliance	Member	Tom	Talbot	P											
		Longwood Alliance	Alternate	Kevin	Crowley												
		Longwood Central School Dist. (switched 11/02)(Castro replaced Henigin 6/09)	Member	Maria	Castro	P											
		Longwood Central School Dist.	Alternate	Allan	Gerstenlauer												
		NEAR	Member	Jean	Mannhaupt												
		NEAR (prospect taken off ¾) (Blumer added 10/04)	Alternate	Karen	Blumer												
		NSLS User	Member	Jean	Jordan-Sweet	P											
		NSLS User	Alternate	Peter	Stephens												
		Peconic River Sportsman's Club (added 4/8/04)(resigned 6/09)	Member	John	Hall												
		Peconic River Sportsman's Club (taken off 6/09)	Alternate	Jeff	Schneider												
		Ridge Civic Association	Member	Pat	Henagan	P											
		Science & Technology (added 1/13/05)	Member	Iqbal	Chaudhry												
		Town of Brookhaven (Graves made member 6/06)	Member	Anthony	Graves	P											
		Town of Brookhaven	Alternate	None	None												
		Town of Brookhaven, Senior Citizens	Member	James	Heil	P											
		Town of Brookhaven, Senior Citizens (open slot as of 4/99)	Alternate														
		Town of Riverhead	Member														
		Town of Riverhead (K. Skinner alternate as of 4/99)	Alternate	Kim	Skinner												
		Wading River Civic Association	Member	Helga	Guthy	P											
		Wading River Civic Association	Alternate	Sid	Bail												