June 11, 2009
4: 45 pm
Rm. 410
Recorder: Ofelia Duarte

National Science Foundation (NSF) Committee Meeting Notes

Present:
Daniel Gilison, Jim Fisher, Jane Higginson, Rick Castrapel, Patrick Pauley, Carol Lee, Frances Beope, Kristen Gomez, Dawn Chun, Lianna Zhao

L. Zhao welcomed and thanked everyone for attending the first meeting.

L. Zhao stated that grant preparation and/or writing during the summer are strictly voluntary and some meetings and works may be on Fridays and/or weekends. She informed the group that once the proposal is submitted and awarded that's when the faculty worked on the grant proposal will get paid by managing or participating in grant activities.

Handout was provided for group to review. NSF is responsible for promoting several programs that invest money in undergraduate research and education projects. L. Zhao went on to discuss handout. She gave a brief overview and deadlines for the following:

Advanced Technological Education (ATE)
- **ATE Projects**
- **ATE Centers**
- **Targeted Research on Technician Education**

NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM)
Course, Curriculum, and Laboratory Improvement (CCLI)
- **Type 1**
- **Type 2**
- **Type 3**

Science, Technology, Engineering and Mathematics Talent Expansion Program (STEP)
Math and Science Partnership (MSP)
Robert Noyce Teacher Scholarship

L. Zhao stated that there are more than one type of NSF undergraduate grants listed we can apply, such as ATE, S-STEM, CCLI, STEP. She opened floor for discussion on which one(s) of the above projects the members present feel that serve the local community, and we have capacity and are qualify to apply to.

D. Chun mentioned that Dr. Gould spoke with Eileen Lewis, lead ATE, when he was in Washington D.C. He told her about our Geothermal and also about how Algae is converted into energy. She was very interested and said this was something they never thought of but feels it's an innovative idea. C. Lee asked which one of the grants they would be using to gather information. D. Chun stated training workforce (ATE Project or ATE Center). K. Gomez said we can train people through educational programs that fit industry. F. Beope recommends partnering with Geothermal and asking Geothermal what kind of technical people they want. D. Chun suggests talking to Tim Kelley, President and CEO of IV

Economic Development Corp. He is responsible for bringing in industry. We need to match education with companies that are coming in. L. Zhao asked D. Chun to contact T. Kelley and invite him to the next meeting. K. Marty will ask the representative from Geothermal. P. Pauley invited Stephanie ? also from EDC.

L. Zhao would like the members to get a letter of intent eventually, from local business entities the members mentioned.

C. Lee asked what we are trying to do here. She mentioned that Kathy Berry has spoken about an engineering technology major. She feels that we already have courses that can be pulled together to form a major that will focus on engineering technology and then it can have outbreaks whether it be chemistry or agriculture or geothermal or solar. She needs clarification on a sentence from the handout that reads *"in particularly between two-year and four-year programs for prospective teachers"*. She stated that we are not trying to create teachers but we're trying to get fields to get technicians. Discussion followed. L. Zhao indicated that the ATE program also supports secondary school teacher program but we do not have to include that in our proposal. We do not have to limit ourselves to ATE grant nor just training the workers. We can develop the programs that lead to the certificate, associate's degree, and/or bachelor's degree with training component. If we decided to include the articulation, we could just focus on articulation between 2 or 4 year programs in STEM particularly disciplines with strong technological foundation. Or We could also considered S-STEM, CCLI, STEP grants if we feel those may fit better with our existing programs or transfer programs and the need for our students and community.

D. Chun has talks about Geothermal and Bio field when referring to a Green technology book. Jobs under bio field are ethanol plant system operator, plant technician, chemical plant operator, bio diesel etc. All these are under career technical area. P. Patrick informed the group that he will be going to an externship program. Company is focusing on protein substitute for fish meat as a protein source. There is the potential to get oil from algae. L. Zhao asked P. Pauley if the algae energy production company we have worked with has already got a NSF grant to fund student internships. P. Pauley said he was not aware of that. J. Higginson talked about Green Architecture firm which may not appear to be a high demand field in the Valley.

It was the consensus of the members that we do not want to write a grant to create ATE Center. If we decide to concentrate on ATE grant, we would get an ATE Project grant.

The group decided to focus on engineering technology program and branch it out to or with emphasis on AG, biology, chemistry, computer science, environmental science, or geology.

For next task L. Zhao asked each one in the different disciplines to research career job opportunities in the corresponding technology areas (i.e. cs technology, ENVS technology etc). It will be better if the research data can be tied to the professional shortage or needs in the Valley. She would like to incorporate outreach of K-12 into proposal and that might be easy to do because of our connection with local K-12 science departments. She has asked C. Lee, K. Gomez, F. Beope to look into the collaboration with 4 year colleges (what college to invite as partner) and search program course contents. For

example, engineering technology with emphasis in Biology may have ties to San Marcos, engineering technology with emphasis in chemistry may have ties to Riverside. She wants them emailed to her by Monday, June 22, 2009 by 5:00.

Next meeting will be Wednesday, June 24 at 5:30 room 410.

NFS Grant Proposal Task Force Meeting
Rm. 410, SME Division, IVC
June 24, 2009 - 5:30 pm

PRESENT

Dr. Lianna Zhao, IVC	Carol Lee, IVC	Frank Florenza, Imp Co Pub Works
Jane Higginson, IVC	Frances Beope, IVC	Mark Harmon, Cal Earth Institute
Daniel Gilison, IVC	Pat Pauley, IVC	Martin Gordon, Carbon Capture Corp
Dawn Chun, IVC	Carlos Villalon, IID	Alina Kulikowski-Tan,Carbon via phone
Jim Fischer, IVC	Mario H Martinez, Ormat	Joan Steincamp, IVC Recorder
Kevin Marty, IVC	Myles Crawford, Ormat	

Lianna Zhao called the meeting to order. She welcomed everyone and thanked them for coming. Zhao stated that IVC is trying to put a grant proposal together for the National Science Foundation in the science, technology, math, and engineering area. The purpose of this meeting is to find out how this grant proposal may serve the Imperial Valley businesses and in what degree the local businesses or agencies can partner with IVC in this grant. IVC could offer classes, programs, trainings, student internships, faculty externships, and professional development activities that would enable IVC to develop a partnership proposal with the local businesses and government agencies.

A. OLD BUSINESS – TRACK/REPORT THE COMPLETION OF THE TASKS
Jim Fisher has researched information in the chemistry area. Kevin Martin has researched the geology area and will prepare a document on findings. Pat Pauley said he had brought Mark Harmon from Cal Earth to the meeting and Jan Higginson had information regarding her experience with Cal Earth.

B. PRESENTATION BY OR DISCUSSION WITH LOCAL BUSINESS
Zhao asked the business and government representatives present to discuss the difficulties they encounter in hiring professionals, especially in the science, technology, math, and engineering areas, and how IVC can help. She asked the representatives to keep in mind IVC is an educational entity.

Carlos Villalon stated IID currently plans to develop the San Diego Water Conservation Program. The conservation will be mostly on the farm land and will be developed over the next four or five years. The improvements have already been fairly well designed and it is basically about automation so IID will need technology people such as electronic technicians, electronic engineers, and information system people. IID is currently working to identify the staffing plan to operate and maintain the system. Carlos stated that most of the technical positions would require a two year degree. The IID also has an in-house Journeyman's Program where there is both formal and informal on-the-job training for four years. A person with a 2 year technical degree would attain the journeyman status very quickly.

Zhao said that IVC has been offering engineering courses for a year and a half but the enrollment has been very low. She asked how we could get students interested if we offered for example an associate degree in electronic engineering.

Myles Crawford suggested a co-op program. He had participated in a really great co-op program when he was a student. There could be a contract between a company and a student that after the student completed the associate degree he/she would sign on for a certain period of time, two to five years or whatever period of time is decided the investment is worth. This way the student has a guaranteed job at a certain pay and can see if he/she likes the people and the work, and the company gets a guaranteed employee for a while.

Zhao asked if the IID would be willing to do a co-op program. Villion said the IID cannot guarantee a position for IVC students because they advertise their positions on the open market but they were open to different options. Villion stated that Rick Johnson basically organized IID's journeyman program for lineman and control staff and he would be a good resource to see what kind of options IID had.

Mark Harmon said Cal Earth Institute is a small non-profit organization. Their mission is to provide technology to build a home with the earth under your feet to resist all forms of elements—fire, pests, earthquakes—and at the same time drive down the cost of petroleum. Cal Earth is well known internationally as a humanitarian organization and go into places in the aftermath of natural disasters. He stated that possibly under the National Science Foundation Grant their company could use grant money and IVC students to conduct a shake table test with collaboration between the engineering department of Imperial Valley College and Cal Earth. It would help Cal Earth to achieve the tests through the grant money resources and at the same time create a tremendous hands on application to research and development.

Zhao pointed out that IVC is an educational entity and asked Harmon what IVC could do as a junior college to be partner with Cal Earth Institute. Harmon said they needed a faculty sponsor. There are three different areas they would need—construction technology, environmental science and engineering. He said they would be working very closely with at least four different types of engineers so it will be a very academic situation. It wouldn't require a lot of prerequisites as people come to them from musicians to licensed engineers. Harmon then showed a short segment of a DVD on dome homes. Harmon said that as far as what they would expect from Imperial Valley College would be that they would probably run it as a summer program--something where the students could immerse themselves in the work. The students would get two to three weeks of training at Hesperia and would then work at least two months probably in the San Diego area to build the dome house. Zhao asked what kind of academic requirements the students would need. Harmon advised that they would need whatever was necessary for them to enroll in IVC and after they were enrolled in this college to do co-operative education.

Jane Higginson said she had taken Cal Earth's training course. She and her students had built some of the little domes around campus and the students really liked it. The students see that they are creating something with their hands. They have to measure things in a different way which is a good way to get them interested in engineering and math.

Mario Martinez and Myles Crawford represented Ormat. Martinez said he understood that IVC had a pretty good pre engineering program. A couple of years ago he had met with IVC Applied Science Department and was trying to get IVC to offer a one or two semester course where a student could take industrial fundamentals or power plant fundamentals. A course that would cover an array of areas such as some physics dealing with transfers, pressures, temperatures, perhaps some pump theory. It would provide a baseline fundamental understanding and the students could put on their resume that they have had one or two semesters at IVC of power plant or industrial fundamentals. This would give the students a good foundation to what Ormat is trying to do. Ormat currently has an internship program at each of their plants where they hire three to four people. They pay them a straight salary and tell them they have a year to learn as much as they can and the best person will be hired for the first opening that comes up. It would be great if IVC could offer a curriculum that would cover fundamentals. Ormat could even help out with teaching some segments of the courses. There are also educational needs for the adult students. There are many people that are stuck in jobs and would like to take a course that would help them advance. At the present there are no courses at IVC that would help Ormat employees advance. Martinez advised not to limit the solar energy course that is starting in the Fall to just solar but go with all the alternative energies. Solar energy is great but it may not apply to geothermal or to wind. The main idea is to go after fundamentals because not everyone is going to be an engineer, not everyone is thinking of that higher education, but they do need a step in and a step in would be fundamentals.

Crawford said IVC might want to look into an associate degree in industrial engineering. Zhao has asked if it took a lot of equipment to train the employees and what it would cost to set up some type of a lab. Crawford said that Ormat had considered setting up a centralized training system for their employees but he had no idea what it would cost. Ormat wants to hire locally so the employee will stay and not be just one or two year employees but the valley doesn't offer a lot. They look for someone with some kind of background, the right aptitude, so a fundamentals course would be very helpful.

Martin Gordon said Carbon Capture is trying to grown spirulina cheaper than it is grown for the pharmaceutical market and *they see a lot of potential for growing it in this valley.* He agreed with what had been said regarding the need for industrial fundamentals. There used to be a water treatment certificate and although it is biology it is basically about automation and valves. *Carol Lee advised that we still have the water treatment course through agriculture.* Zhao asked if Carbon Capture is still considering offering the internship program to IVC students to work in the algae farm for some kind of an educational experience. Gordon said he would like to see a couple of students as interns. Alina Kulikowski-Tan stated by speaker phone that she had looked at all of the agenda

attachments and she would like to add to what Martin had said in terms of water management. She also said she didn't see the term biology or biology lab in the various attachments referring to curriculum and that would be one thing Carbon Capture would be looking for. The other thing was what Martin talked about in terms of automation. This really pays a key part in the growth of the algae based industry because it very costly to us right now. *Earthrise* has about fifty employees now so if there was a successful industry with the plants and companies already there you might have a population of three hundred people between all of them in terms of long-term potential growth. In regard to the comment of poor enrollment in engineering, she has participated in quite a few science committees and outreach committees for the minority communities in San Diego and one of the things they are focusing on in recruitment for college is that the recruitment begins much earlier than high school. There is one organization in San Diego that might be a really good model for recruiting in Imperial Valley and that is The Elementary Institute of Science. They interface with the colleges and universities and the companies to create a science program that starts in the elementary years. By the time the students are in high school they already know if they want a career in one of the sciences. In regards to the type of classes that IVC should provide, she felt that Dr. Pauley and other IVC professors would probably have more to say about that after they spent a number of hours with Carbon Capture Corporation.

Zhao said that several years ago our science department has participated in one of the science grants that was awarded to the El Centro Elementary School District. She said perhaps we should revisit that and this time add a company as one of the partners. Alina said she would talk to Zhao about this at a later date.

Frank Fiorenza from the Imperial County Public Works said he thought IVC's pre engineering program was really good for those that wanted to go into a four year degree. Imperial County Public Works only has three registered engineers and he is one of them and he has about six or seven technical persons or civil engineer technicians. He said that normally Imperial County Public Works would hire about eight college students for the summer; most of the students are out in the field doing road work but public works try to keep one or two students in the office to introduce them to engineering and design parts. Due to the budget they were not able to hire any students this summer. The IID probably hires the largest number of engineers. Besides the IID and the County, the cities hire engineers and technical engineering, also the utility districts, the Coachella Valley Water District, the local construction companies, the architectural firms, and there is a private sector of engineering survey firms. He said they get a lot of engineers from Mexicali but one of the issues is their poor English communication skills either writing or orally. The Public Works encourages all of their staff to go to IVC and take a class to increase their professional skills. He has taken several classes at IVC--Spanish, the Water Treatment Plant Operation 1 and 2, excel and power point--and this really helped him. Other courses that are very important are computer drafting and geographic information systems. Fiorenza said in the 90's the County worked something out with IVC to offer a Concepts and Supervision course. It was held at the IVC off site campus at El Centro and all of the students were from the County. He stated that possibly some similar type of partnership

or contract could be made with Ormat and other companies for courses in the evenings for their employees.

Lianna Zhao said she appreciated everyone coming. There were a lot of ideas presented and stimulated discussion and we need to take the time to digest them and discuss them among ourselves to see which directions can be taken.

The next meeting will be in two weeks, Wednesday, July 8, 2009, at 5:15 pm.

July 8, 2009
5:15 pm
Rm. 410
Recorder: Ofelia Duarte

National Science Foundation (NSF) Committee Meeting Notes

Present:
Jim Fisher, Jane Higginson via phone, Kevin Marty, Carol Lee, Dawn Chun, Lianna Zhao

Guests:
Dr. Gould, Timothy E. Kelley-IVEDC President/CEO

Lianna Zhao – Dawn invited a guest but he's not here yet. We need to concentrate on and decide soon what our project would be. First meeting we discussed the Engineering Technology Program and research related information. Also we discussed the possibility of providing trainings. Second meeting we invited business or government agencies. They shared with us what they'd like us to do, and we shared with them what we are capable of doing. Those discussions and ideas are ideas put together and emailed to you. Pretty soon we need to nail down which project or activities need to be included in the grant proposal. Also a couple factors need to be thought about, such as who's doing what, how much money we need. Dawn has recommended and been talking to the grant writer, and Dr. Gould agreed to fund the grant writer this will saves us some time since we do have to write like we did before. ***Dr. Gould*** emphasized you don't write grants on part time basis. The group has discussed the amount NSF awards. The grant writer provided some data on amount and years awarded for each type of grant, $150,000 per year for two years for a start up grant, ATE Centers for millions, ATE project range from $25,000 to $300,000 a year for 4 years. We also need to keep in mind the National impact of the project not just the regional or local impact. The program needs to be in high tech areas. Those would be the awarding points.

Engineering Technology or Industrial Technology Program

Carol - Before we can do that we need to look at what we already have. It's what we already have that we can put into the creativity. Last meeting the gentlemen from industry and science (Ormat group) and Frank Fiorenza (Engr. Inst.), mentioned that engineering, geology and chemistry will always be involved. I got the impression that we were looking for something where IVC can grow its own work population. We can put them to work. Then if we set the program up right, they can go on for a higher degree. We can gear them for transfer or gear them into alternative energy. I did a rough draft of what I saw that we already have. *She passed out handout.* I had pulled all of the engineering technology programs that are offered in the community college. They have two types: Engineering Tech and Engineering Tech with Civil Engineering as a gear. I got a sense of what we needed to offer and what we already have. I thought the gentleman from Ormat was right on target. What are the basics to get our population employed in any of the industries here in the valley? We have existing courses ....math, chemistry, welding, but we have an awful lot of others.....an introduction to engineering design. I'm not quite sure what that course is. I don't think it's quite strictly the CAD. We need definitely a CAD class

and I saw a CAD 2D, CAD 3D, intro to auto CAD, there's tons of CAD courses. There's some type of automated design that needs to be taken. They offer other courses .....trig based physics not a hard core calculus because it takes our kids a lot to get into our calculus. The engineering gentleman talked about drafting, circuits, showing up for work on time, maybe an internship program. The GIS (Geographic Information system) which I think might be more along the lines of Geology. Kevin said it's more on the lines of Geography. ***Carol:*** I don't know about the Mechanics course. We offer electronics, electronic circuit, semi conductors, Statics, Dynamics and Electrical Circuit Analysis. We've got some good courses but right now we need to kind of focus on which ones. I see this as engineering technology but I also see it as industrial technology.

Student Internship Project

Lianna: She asked," *besides developing new courses what else can we do?* " We already have most of the courses mentioned. ***Carol:*** Suggest getting industry involved with internships. The algae guys have two, Imperial County has three or four interns per year. ***Lianna:*** I've had some discussions with Carbon Capture and they want IVC students to have an internship. Lianna asked if students were going to get paid by District or by grant? ***Dr. Gould:*** Many times the answer's yes. There might be some action required by the placement. ***Tim:*** Offered his thoughts on internship. The cost is very low but it's out of reach for many people. I look at internships as an investment. One of the things we're seeing that's very different from what we saw in the past is companies coming into the Imperial Valley consider bringing their own employees. They're not even looking at the workforce in Imperial County. I sit on the workforce development board and always begin by asking the question "what are your workforce needs?" They will tell us and with the assumption that there was no community college here and there was no trained workforce and there was no workforce training program here. And so I always begin by explaining what the opportunities are and in some cases even using workforce training as an opportunity to attract industry, and that even if there isn't a trained workforce that we can train them. First time I met with Stirling Energy I said we need to start working on workforce. Talking about it doesn't matter where you go in the United States no one's going to be ready for your project. It's very unique and you need to develop a workforce around your project. And we need to start now. They are seriously considering a project here in Imperial Valley College and others throughout the Imperial County. One way of looking at internships is that you're providing training. I've had several interns from IVC that I've considered hiring or at least recommend for jobs. I would also like to consider internships that are paying tuition. There's an opportunity for companies to invest into the foundation as an example. For internships through organization such as carbon capture and others that they make a donation to the university and in turn tuition is paid for. The other thing to consider is programs that could be summer programs for the youth. Youth is 25 years old. Program where students can begin an internship right out of High School. IVC internship program that can be paid for by workforce development board and they continue on the rest of the year. So the internship in the summer would really weed out those that really aren't interested and then throughout the year those that are very committed you might say *"by the way if you can make it through the summer working outdoors you're pretty committed to the program"* and it just gets better from there.

Renewable Energy Company Info

Tim: Imperial County began marketing to renewal energy companies about three years ago. There are probably about 35 companies that are seriously looking into Imperial Valley.Thousands of employees are going to be needed. ***Lianna*** mentioned that she met with Carbon Capture Company a couple of times already. They had discussions regarding internships and they've worked out detailed plans, but in the end it all boiled down to who's going to be paying the student interns? They are also willing to partner with us in terms of providing funding for the student internship in the Biofuel production area. ***Tim:*** He stated that Carbon capture is a company that's not hurting for money but at the same time their resources are limited. Carbon Capture is in a sense a facility that provides infrastructure for research and development. One of the companies that's operating out of there now is Bio lite harvesting. Tim stated that they have been working on a grant with them where they'll be doing a lot of testing which will require hiring interns. The other organization San Diego Cad is a co-op that's developed through UCSD and NASA and Scripps Institute and a couple other organizations so they're down here doing research now. For years we have been trying to meet with these bio tech companies in San Diego knocking on their doors and saying *"how can we meet with you?"* Well, in the last nine months with algae taking off and through _____initiative we're having meetings with a group from UCSD and clean tech institute and others where we have the opportunity to talk about renewal energy. Much of what they propose we're already doing here. They didn't know we were growing algae. Well we've been doing it for 30 years. The largest algae plant in the world is in Imperial County. They are now inviting me to come to presentations about algae in the Imperial Valley. The Imperial Valley College can be successful writing grants for these types of activities but there's also the opportunity for partnering with universities such as UCSD and participating in the grants. ***Dawn:*** Stated that she spoke to Rebecca Morales and was awaiting an email back from her. ***Tim:*** Mentioned that he's currently working on a grant with them and when he met with them about two weeks ago he said that Imperial Valley College needed to be included in it. He said *"the dialogue is there and I think that success is going to dictate the future and those that are willing to partner and participate are going to be successful."* Dawn wanted to know if they were going to partner with Sun Eco too. They are based in Niland and they will be expanding to 400 acres of land just to grow algae. She spoke with Ray and they will need some 30 workers. ***Tim:*** He answered yes. He also shared with the group that no one wanted to talk and no one wanted to communicate and then all of a sudden it's like Department of Labor says *by the way in order to get this grant you have to partner with a rural community.* He also said that the best group to talk to right now is Earthrise because they have an operating laboratory at their facility and so if you go in there everybody in there is basically a scientist. All algae farms he's seen share the same concept. You've got the production, the growing of the algae, and then you got the harvesting of the algae and then you've got the processing of the algae and throughout that whole process there's got to be a lot of laboratory work you've got to make sure especially when you're talking about algae for human consumption that's very well protected. That's all the first phase at Sun Eco because the second phase all they're doing now is producing bio crude. He said that in the future what they want to do is build a refinery here in Imperial County. Tim had the opportunity of meeting the ex president of the Philippines a couple of weeks ago so he invited Sun Eco because he had read an article regarding the near collapse in their fish industry. One reason is due to the volcanic activity. It filled a lot of the fish farm so the

water wasn't as deep as it used to be also it created a lot of nutrients which then led to the growth of algae. So the algae is the negative part of the fish farm. But if you can actually do something with the algae you've got a win-win situation and that's what Sun Eco has developed, almost by accident. They developed growing the algae in the fish ponds and then remove the algae out and at the end of the stay they're actually feeding back to the fish and the fish are feeding the algae. So it's a close knit system. The other by product is the animal feed that they can feed to cattle and others, so there's a lot going on in the algae industries. Pharmaceuticals is going to be next one. What's interesting is the market's already there for all these products and the federal government is willing to pay it and like the train companies are willing to purchase diesel to replace petroleum products because it's cleaner burning so it meets their standards. The other thing that the US Gov't , military, is looking at replacing all petroleum products with products that are grown here in the United States. Anywhere from tanks to planes and like I said the market's already there if they can produce It they can sell it. ***Dawn*** feels the connection between the university and the industry and the research can be used to apply for grant. ***Tim:*** The other thing is in the algae production has real potential here in Imperial County, I really believe. Everything that's going on with Geothermal and Solar Energy I think that Algae is going to probably be top industry and the reason why is because we're about the only area that is level and it has water and has land and has sun. So you have a combination of everything you need. So you can grow algae anywhere but if you talk to Earthrise this is the most productive area that they have and it's not affected by hurricanes. The difference between Sun Eco and Carbon Capture is Sun Eco is using native species of algae so basically things that grow well here. Carbon Capture what they're looking at is algae that is being introduced or being developed at UCSD as an example. And the reason NASA is interested is NASA has this whole algae to the environment type of program and I think NOA the other group that is involved. One of the grants requires that Dept. of Energy and USDA partner with a rural community so it's a perfect opportunity to create a situation where San Diego is looking to come down. And the other thing we need to provide here, and I think I talked to Ed about this morning, is if you're a scientist at UCSD or NASA you're not a developer, you're not a builder you're doing research on a little tiny microbes and trying to figure out how to make it better and then you got to take it to the next level. And part of the project is going to be next to impossible in San Diego. So we can create incubator type situation that can go to full production and that's really what Carbon Capture is. They can do a pilot project and take it to full production. Now if you're in San Diego you're not going to do a pilot project you're going to do projects in your garage and then you got to go to Poway and pay tens of thousands of dollars a month to rent space and work years to get permit and then you're going to have to move that to some place like New Mexico or Texas to go to full production. Here with partnership they can be doing the study in San Diego bring it down here and we can do an incubator facility and pilot project and go straight into full production right in one location within 100 miles of each other. And I think that's the other opportunity that really doesn't exist with the exception of maybe between Los Angeles and San Joaquin Valley but we're a much better area. And with the research facility like UCSD nearby and Scripps we can really create that opportunity. With the incentives that we have here we can be competitive with those other areas and that's kind of the concept about mega region, you don't have to leave San Diego. You can stay in San Diego partner with the Imperial Valley and take things to the next level. We need to make people aware that Imperial Valley College exists. ***Tim:*** I can't tell you how many times I sat through a meeting or presentation with Silicon Border Project where they say and the

great thing about Mexicali is there's these universities right there. Well how about San Diego State, that's *in San Diego*, well how about Imperial Valley College, *where's that*, so finally I said why don't you just let me do the presentation. There are people that are willing to partner and I think Rebecca and Lina are really the key to that because they are the ones that are going to be doing the work. It's not going to be professors. The other person I didn't tell you about is Rick Halperin. Rick started a group called Regional Algae initiative and what he put together is looking at the Coachella Valley, Imperial Valley and Mexicali Valley as one large region for growing algae. The one thing that all of us need is how to communicate and when somebody says I've got an idea then I need to be able to get that information and who the contact people are to get that done. The science building is a perfect opportunity to be able to start attracting these. We've got the building, we've got the infrastructure so let's utilize that and I think people will be amazed that this is in the Imperial Valley.

Start-Up Grant and ATE Center

Dr. Gould: The following is the story of how Marine Technology Center in Monterey became a center. We happened to hire a young, very dynamic new marine biologist because we didn't have one and she decided that she was going to do something unique and so she happened to have contacts with NOA and some of the others. She came in my office one day and said *would you mind supporting me if I went after an NSF demo grants, startup grants.* I said no problems and I'll be glad to support you. She wrote the grant. She had a series of one year meetings of bringing together people to talk about the partnership for marine tech in that case it was NOA and Monterey Bay Aquarium and other industries that related to marine technology and a lot of the businesses in particularly farming industries that grew out of the marine technology business and out of those meetings came the design of the center. The second year was to design that center and we got the full grant and now it's in its 12th year as an NSF center. What Tim is saying to you is it relates to not only to Algae but really what do we have in the valley that is very unique and could make a center. We do have that constant sun, we do have the flat land, we do have the water that's available. We also have geothermal which is very- very unique we can put it in the scope of the world. It seems to me that if with the vision of bringing people together it wouldn't be hard to create a center of alternative energy technology and look at all these things together particularly in this area of algae. The first thing that people think of algae is I've got clean the swimming pool before I dive in. There's a big industry being developed around algae but it's only one part of it of the whole for this valley. If we look at alternative energy technology and just think of technology and all the things that go along with it what I've heard when I talk to number of people is they hire engineers and biologist because there are bio technicians there are no engineering technicians available so they end up hiring up in order to get the workforce they need with the skills. I think if you looked at it from a building blocks, whether you're looking at a demonstration or start up grant, we already have things going on with WIB that might we look at how do we melt these things together into the whole package where we can do some demonstration, example, we'll be going probably with WIB for some internships in the alternative energy fields and the green fields. They'll be coming to us first then we'll be going back looking at what can we do that will allow this mindset of creating concepts of green jobs in the Imperial Valley to our workforce. They don't know what the jobs are. Who has been exposed to an engineering Technology program or an engineering technologist or even what an

engineer is in this valley, there's not much of that going on. Who's been exposed to the algae industry? We talked about farming but who talked about algae farming. I'm not quite sure if anyone's ever talked to them about algae farming as a possibility. So I would suggest that even though you might want to stop and think about how we can, what would be the vision and how we could we put the building blocks together to do....what I would do is focus at this point with NSF as on that startup grant and what you would like in a big vision because worse that can happen is you don't get your big vision but you get a start up grant. In that start up grant look at what you want to accomplish if you could dream of what would be the big vision of what would work in this valley at this point in time and its history to create jobs and excitement about new industries, what would it be and I think we all know it's in your fields. It's coming out of the ideas of how do we melt science with technology at this point in life. And it's not just here it's everywhere. Math, Science, Engineering are going to become the keys to employment in this area over time. So what would it look like if we say we're going to design a center that does that? You've got research in the area you've got both UCSD and UC Davis in the area you've got an experimental program going on right here in the valley. You have people who are already working separately and not together on a lot of experimentation. I wouldn't shoot for a small NSF other than start up at this point. I'd shoot at startup then bring those potential partners together in the way that you have had. This valley can attract a lot of people to forums regarding possibilities in terms of employment. If we can extend it from what he does in alternative energy to alternative energy technician, educational and training forums we can add that one step to what he's already doing to create excitement in the area. Then all of a sudden IVC doesn't have to go out and say we're here because they'll come. And that's how I think we need to envision this, to take it above the, we only have so many resources because if we think we've got something we're going to find the resources on the start up grant to get the people we need to bring people together and coordinate those activities. We have lots of partners in this. NSF is only one of the places to go. I would shoot the high grants with NSF not the little ones other than the start up. They'll come out and help you as well. They're very supportive people when it comes to developing their centers.

Local Renewable Energy Plan

Tim: He stated that if you took everything that Imperial Valley has to offered you'd be amazed. Problem it's all spread out, you have algae way up there, Geothermal over there. He stated that we produce over 500 megawatts of renewal energy in Imperial County. He was Monterey and he heard someone say that their program was going to be the most green energy and that they were going to be zero importer of energy in their community and that they were going to be the first and I thought to myself...we're already the first but I didn't want to tell them that. 350 megawatts is what we export out of the Imperial County. He said they looked at number of projects in the next three years and the reason in the next three years is there's a in 2010 there's a 20% renewal portfolio that the utilities have to have. The following is a quick look at what we will be looking at:

Geothermal five projects are being planned right now, 3 for cal energy 2 for Ormat, actually there's more now as a few months ago. Each one of those is 50 Megawatts. 250 total megawatts- 800 construction jobs – 162 operation and maintenance jobs.

Stirling energy alone is two projects because they have two phases one's 300 one's 450 megawatts-750 total megawatts. 300 construction jobs, 150 operational maintenance, in addition to that there's going to be yearly maintenance to the engines and then every three years rebuild. ***Dr. Gould:*** We will know Monday whether we are the international training site for Sterling. Their CEO is proposing tomorrow night to their board that Imperial Valley College becomes a training center.

Photovoltaic Approximately seven projects. They're already in planning process. They are quite a different range of megawatts but most projects, small projects would be 160, large would probably be 2000 acres. 800 total megawatts about 24,000 construction jobs 200 operation and maintenance. The reason that construction jobs are so high is because it requires that certain amount of people work certain amount of times during this job then they move to another project so they're counting these people every time they move to the next phase and so they only work for three months on project and move to another. ***Dr. Gould:*** Keep in mind that these construction people will need to be retrained.

Concentrated Solar Trough.. two projects, 300-600 megawatt range, 900 total megawatts, 3,645 construction jobs, 342 operational. One of the things going on with concentrated solar is they're using a fluid, they're heating up the fluid and then it generates energy many times using steam engine to do that. And one of the things many of these companies is looking at how they can generate energy at night time. Many are looking to storing heat and they can operate one or two hours past sundown and many are looking at alternative types of energy. The reason why is they have to pay for 24 hours use of power line. They're looking at other ways that they can bring in other types of energy.

Wind two projects 50-100 megawatts could be a lot more, 150 megawatts total 150 construction jobs, 75 operations and maintenance jobs. By the way some of the companies I talk to I say we need to get a training facility at IVC we're talking at a company that's looking at blades another company is looking at turbines and having donating those to universities so they can start training there. And then with

Biomass minimum two projects 25 megawatts apiece 50 megawatts total for 425 construction jobs 25 operational.

Ethanol two projects 50 million gallons output total 100 million total 425 construction, 25 operations and keep in mind with ethanol the whole process—what we're looking at is sugar cane and bamboo. There's also the growing of the crop, the harvesting of the crop, the trucking of the crop and then the processing and with almost all of the projects there's also ethanol and then with the leftover you have the gas to produce electricity and so there's also additional about 20-25 megawatts.

Algae potential here it could be 150,000 acres they're really concerned in the algae field about sustainability 1) you don't want to take food off the plate that's the same thing with ethanol right now..you don't have to do that there's currently about 40,000 acres in addition to that the Salton Sea when it recedes they'll be 10's of thousands over 100,000 will become available for other uses. Algae will be perfect. We are also looking at a strain of bamboo that can be grounded salt, using salt water. The other thing that's going on, what's really interesting ...When I go to these meetings in San Diego I hear people talk and ask me questions like why don't you guys quit growing crops and start putting solar power everywhere? Solar power for who and they're like well for us of course. I guess food is not

important to you right and then the other thing is why don't you give us your water. First of all it's not your water and it's not ours to sell. What the IID is doing right now, and it really frustrates me, the greatest resource we have in the Imperial Valley is Water. We cannot market it. We have to be really careful when we are doing the marketing and we have to have private conversation with people about water, we can't just we've got water come here. Because guess what Metropolitan Water District will be here in a second and say you got it we'll buy it. So anyway, what the IID is doing is putting together an integrated water plant, and that will protect agriculture and be able to look at ways that they can use water or re use and so everything from looking at tail water ....we can use agriculture water one to two, three times where we have to be really careful is with vegetables. If you have a disease in one field it's going to go straight to the next one. But if you have a vegetable field here and a bamboo field, guess what you can reuse that water and it's also tolerant to salt. The water that comes out of the field is almost the same as the salinity as water going in the field. Now if you don't remove it then the field is going to get saltier. And so anyway that water can be used one-two-three times for agriculture it can also be used for industry, it can definitely be used for algae and what's really interesting in Imperial Valley, no one planned this, but the worse part of the valley is the north, it's also the tail end of all the drainage in Imperial Valley it's where the best area for algae is and so these algae farmers can actually be taking water from the drainage ditches up against their facilities and never have to take water of the river...so it's not taking water away from the farmers and it's not competing with agriculture it's a good use of water-- they just have to make sure that there's a certain amount of water going to the Salton Sea. And then the other thing the land that will become available is also in the same area. Just happens to be the same area that the greatest geothermal is it also is the same area where the greatest source of transmission in Imperial County. Everything is right there. And so everything that I mentioned, all the different technologies we have and the presence of Imperial Valley College,& you guys already have a center you just have to name it.

More on ATE Center

Tim: In writing the grants the reason for the center being here is this is where the jobs are going to be. And so if you can prove the job creation and we can prove the change in technology how this is going to be good for our environment and good for the environment of the nation because we can produce biofuel clean renewal energy and it's all happening here and our concept is it's all here, because this is the only place that you can do all that in one location. This is the only place where we have land geothermal, biomass, algae and etc. all in one location and the natural resources without having to disturb an existing energy industry which is agriculture and this is the only place that agriculture is grown in the United States and that's because we've become more and more efficient an our problem is we're too efficient. I think the doors are already open in San Diego. It's just a matter of us continuing the dialogue and making sure that Imperial Valley College is ready to receive the request when people want to partner. ***Dr. Gould:*** Earlier Carol had asked *who gets the partners?* ***Dr. Gould:*** Well, we can do it but we have partners that will help us. The grant will give us the personnel to do something when we bring them together but most import thing is to come out with a project plan of what we would do by bringing all those partners together to talk about how we are going to make this a center. That's what I would do at this stage. I wouldn't go in anymore than.....have the big vision in mind but go after the

small money to get the start up that we need to get the people together that's going to be our partners and create the center concept that we are talking about. ***Lianna*** wanted to know for start-up grant, what do you think we need to prepare? ***Dr. Gould:*** I think you need to come up with is first of all is the vision. What is the vision? And then what you would do with a start-up grant to get to that vision. And I would call....first of all you need a director. You need to get a director bring them together, you need to bring the people together, both locally and the research folks locally but also I wouldn't hesitate to invite international companies that's here to talk about what it is that they would like in an alternative energy technology center. They will design it for you. They'll tell you what they need and what type of personnel they want. They'll tell you what type of training they'll need. I think what you'll find is your chemistry science particularly your biology classes are going to grow very rapidly as well as completing the engineering tech program and construction will probably have to be redesigned from what it is today, but, it'll have to have that opportunity to look at new construction concepts and ideas. There's a lot. We're only limited by our vision right now. We tend to think that the valley doesn't attract, that we're in a position where the valley is going to attract something very new and needed by this century. ***Tim*** mentioned that people who left the valley for better opportunity would be willing to come back to the Imperial Valley if we can create the jobs here. They would be more loyal and better workers than people that we partner with. And that's one of the concepts...and that's one of the reasons that Carbon Capture is really interested in internships because they know that people may come down to the Imperial Valley work a summer and they're done, but people from Imperial Valley will work here they're used to the heat. ***Carol*** wanted to know if Carbon Capture's main product was research and development. ***Tim:*** They're actually almost like an incubator is what they've become. Bio Lite harvesting was formed through a venture capital firm said here's some venture capital go put up a company that has to do with algae. And that's why they got Bio Lite harvesting. Anybody can grow algae but harvesting is the key and then San Diego Cad was structured as a way to go after these grants. Remember global warming is leading this whole agenda and so reducing carbon...by the way CO2, this is the other thing that's really interesting that I had to bring up Cal Energy only has two bi products ; one is CO2 and the other is inmorphus silica which there is a use for. But in the case of Ormat they actually capture the carbon and pump it back in the ground and in the case of Cal Energy I think it is released and so there's a certain amount of CO2 to release, they can capture that carbon pump it adjacent to an algae farm because what you need for algae is CO2. And when you're producing Ethanol bi product is CO2 and so a lot of people throughout the United States are doing is capturing the CO2 and pumping it into the ground and capturing it. ***Tim:*** The Salton Sea is already receding and what's happening because of the water transfer the amount of water that we use will be reduced. If we don't use the water in Imperial Valley it automatically goes to Metropolitan Water District. The whole plan under the quantification settlement agreement, remember the last part of the QSA in order to sign that was we need to protect the Salton Sea. How much water is going to go in there and so there's a couple issues. Imperial Valley being the most efficient water system in the world, is going to be forced to be more efficient. It's kind of interesting. What will happen is we'll continually use less water till we get down to about 5.3 acre feet of water and when that happens then the flow into the Salton Sea will recede not to mention that Mexicali is going to figure out a way to clean up that water and use it and when they do that that's going to be decrease of water going into the Salton Sea. So I think it's the number 750,000 acre feet of water is the level of the amount of flow that will go into the Salton Sea when that happens

the Salton Sea will recede. Might only be three feet, it might be six, I can't remember. But anyway, on the north of the Salton Sea it's not that big of an issue it's very steep but on this side of the Salton Sea it's very flat so even if one foot reduction is going to create thousands of acres that are going to be exposed. So, like I said, one foot reduction which around basin would only be a few thousand acres is going to be 10's of thousands of acres. So at the end of the program when we get down to the level where there will be...in the flows at a steady rate then there will probably about 150,000 acres of land that will become available. But here's the key...you know who owns all that land....Imperial Irrigation District. There used to be individual owners that bought and the IID them to settle a lawsuit. Well now that land's become very valuable. The other thing that's going to occur..the challenge there's a lot this huge salt....anyways all the salt is piled up and so as the Salton Sea goes down you have all this salt that's going to create a real issue in Imperial Valley so we've got to be able to cover up. What we can do here is actually take that create algae ponds and now we have another use and that's why we're looking at bamboo because we found this strain can actually be grown in salty areas, so we're going to start testing that pretty soon. So now we cover that area we actually have another use. The other thing we can do is have exposed land we do more geothermal exploration and produce more geothermal energy. Once again the benefit and the other benefit for the algae and for these other concepts is that the smallest parcel in the north end of the county is 80-160 acres, so there's no place that you can amass all this land together with the resources that we have except Imperial Valley and so _____owns about 200,000 acres and that's the IID so they can partner and that's part of your match, is how you can match for this grant is partner with the IID and they're going to be looking for solutions for some of the challenges that will come about. One hold up is going to be probably with the ...in order to do this we're going to have to trade land with the Fish and Game because of the wild life refuge. So and of course the endangered species it's going to be a real challenge. ***Kevin:*** So if that goes down places like Sono Bono won't really exist anymore? Be traded to a different area. ***Tim:*** Yeah. Probably just moved. The ....if you look at red hill now a lot of the land is already exposed. So there's a lot of solutions. And then there's also the situation with the new river and if you look at all that land along the new river that's 10's of thousands of acres. There's one company called Eco Dynamics which is looking into planting trees and then the trees actually clean the soil and then they harvest the trees and create biomass and produce energy so that's another concept and you can do the same with algae ponds in the new river because guess what....in the new river is nutrients and the algae would eat the nutrients and the water would come out pure on the other end . So we're actually living in a laboratory. We're living in a green house in a laboratory. And with bio tech I always make this comment....well I say you know bio tech are never to create in Imperial County why are you going after it. We've been doing bio tech for 100 years. What do you think bio technology is. They've been working for 100 years trying to improve crops. We're the ones doing plant bio tech which is taking those studies and putting them to practical use. The same thing can be done with algae...doing the studies in San Diego and do the projects here. So anyway. ***Dawn:*** You're right. All we need is to name the ATE..the Center. ***Tim:*** There's a couple....a study that was done called the Summit Blue and it's on the website and a study on opportunities for renewal energy in Imperial County and so there was another study that was done recently on wind and another study that was done recently in San Diego with clean tech. The other thing I want to mention because when you're in San Diego and you talk about renewable energy with clean tech it's completely different than what I just explained today. See they're not talking about a generation of energy. They're talking

about roof top solar, they're talking about weatherization, they're talking about all these technologies...green building which we can do also. We can do everything they do in San Diego plus all the projects I just talked about. In order for solar the optimum land is 1 – 3 degrees of elevation. The entire Imperial Valley is 1-3 degrees. So 500,000 acres not wanting to take out agriculture but just outside the valley it's 3-5 and that's a real plus. ***Kevin:*** So it's like the Mojave is pretty bad then. ***Tim:*** Well, Mojave's big there's not a lot of flat area. Actually what's going on in the Mojave is with the BLM they don't want to disturb the Mojave desert so now a lot of those companies are now saying.....they're looking to Imperial County, they're looking at Riverside, they're looking everywhere, we're just one piece. It really gets back to transmission. We can produce 40,000 megawatts but what do we do when we produce, well we can use it for industry but really the key is we're in a unique situation because if you think about San Diego energy only goes in and Los Angeles in some cases a little bit goes through. Imperial County we produce energy....we have energy that comes from Arizona, and we can move energy to Los Angeles, Orange County, San Diego, Mexico even back to Arizona and even up to Nevada we have a very unique situation here for renewal energy it's just we can't build transmissions lines fast enough. The reason that stirling is two phases is because there's enough transmission available on the swiffle line for 300 megawatts so their first would take up to that entire amount, then they're dependent on the sunrise power to be build for the next 450 megawatts which that power line will be in the thousands but the IID they're saying they have about 1500 megawatts that are available on their lines. They have to be upgrades, they have to be connections but 1500 + 1500 to the south is 3000 megawatts, so that's 3000 megawatts more than anyone else. ***Dawn:*** So basically use the transmission lines to transport. ***Tim:*** Yeah. Transmission wise you have some challenges but we're in better shape than most. ***Dawn:*** Tim, if we were going to just apply for this start-up grant and then do the center later on will we miss some opportunity because the industry coming in they'll be hiring from outside or you think we can catch the wave. ***Tim:*** I think you can catch the wave. ***Carol:*** But aren't you also looking at that start-up grant to really only be for only a year. You know just to focus on what's needed here and for getting the experts and then....well I'm almost going to say... the grant's due when? ***Lianna:*** The proposal is due middle of October. We haven't even narrowed down what we want to do yet, so start-up grant might be a good idea. ***Carol:*** So when does the funding.... If you're awarded the grant, when does the funding start. Does it start a year from now or does it...if you submit in October and they say you're okay you start in January. ***Lianna:*** I think National Science Foundation Grant may go government year which is July 1st. But we need to find out for sure. ***Tim:*** By the way you've got to ask yourself why are we interested in this? Economic Development standpoint we have to have educated workforce and we have to have this type of facility that we're thinking about is going to attract companies to come to the Imperial Valley and so it all fits together. My philosophy has always been that you have three parts to economic development. You have economic development, education and workforce and so we're all partners in this whether you know it or not and so I'm very interested in participating.....we've developed a really good network of people and at our energy conference we had 425 attend, over 300 were from outside the Imperial County. In May. So there's a real interest to keep...this whole situation is not going to change. More money is going to be put into these types of activities. ***Carol:*** So let me ask you this bold question...is there someone here in the valley that depending upon whatever we focus the grant on that you could recommend as director if not yourself. ***Tim:*** Well, I don't know. You know there's people who have some experience such as Maureen Barret

who has done a lot of work with wetlands projects. ***Kevin:*** She's working on this now to get the bird festival we're just talking with Dr. Gould about getting the bird festival going on campus here. So she's actually involved. ***Tim:*** One of the things that occur, people will call me, I'll give you an example with bio lite harvesting they're calling me asking all this questions, I go you know we've already done all that research. There's people here that already have that. We just don't have it in one place and that's a big challenge. If you go to Cal Energy they've been around for so long that I'll ask a question they'll say we don't have that information so I talk to Larry Grogan and he'll say yeah we did that 20 years. So a lot of this research has already been done and there's really some good minds around, many of them are retired. ***Dawn:*** But I think you're the one that has everything together and you know what's going on, you're the only one. ***Tim:*** Well and that's part of my job I mean we have to kind of look at what the gaps are and that's part of my responsibility to the community identify gaps and try to fill those. **Can we hire you as a consultant?** Yeah, I'd be glad to help you out. I sit on the P16 council and I sit on the workforce development board and you know try to get those ....we've seen some improvements in education and now we're starting to see some improvements in the workforce development but we dedicated....one of the things we put together is the economic development strategic plan and even though it says economic development everybody's suppose to be following that plan from the Dept. of Labor, to EDA to Dept. of Commerce so even education is suppose to be looking at that plan and developing their plans around them. So anyway when we're doing workforce training guess what...we should be doing workforce training within the industries that are identified in that plan. And the interesting thing in Texas and in Michigan you can't deviate from that plan if you want money you've got to fall under that plan. But one thing that we did in the workforce development board is we took that plan and we said we're going to identify target industries that are in that are in that plan and we're going to dedicate a workforce training dollars to the starting industries and so renewal energy is one of them. And so there's emerging industries and then there's industries that are here in the Imperial Valley. We really haven't done a lot of workforce training for geothermal, basically they just imported all of their work. ***Carol:*** So what's this plan called again? ***Tim:*** It's the economic development strategic plan and it's on our website but there's a new plan that's been adopted last December and we're putting together an economic development district which is the southern part of San Diego County and Imperial County so we're in the middle of putting together the comprehensive economic development strategic plan for that district and what will happen in the future is that as we apply for grants we'll apply as a district. And so district is a pool of money and everybody can apply for certain amounts within that pool but for economic development districts there's money just set aside for the districts and there's only so many districts. And so we become competitive only with other districts and other people are left out. ***Dawn:*** Now this money that they talk about at the WIB they talk about a couple areas that community college can train. And I think it's going to apply to us too. Dr. Gould talked to Sam Couchman. It's going to be healthcare, green alternative energy, construction, and bio technology. Do you think it applies to us? ***Tim:*** As a matter of fact on mega region probably the one's that's left out that's included in mega region concept is international trade logistics. And that's something that probably southwestern college has a center for that and it's probably something Imperial Valley College be looking in the future. Because international trade we're one of the leaders in international trade but no one know that, even people here don't know that. ***Carol:*** And you said your website, what website is that? ***Tim:*** IVEDC.com. So we got a couple of reports on there but I think one of the things we need

to do is kind of get together and say what is available. I'll just leave the power point here. This is interesting because this is the IID service territory. What we did we looked at the service territory for IID that's where the ...that makes them happy. ***Dawn:*** Can you send us the electronic copy. ***Tim:*** Sure. I'll be glad to. But anything I can do to help and you know I think there's a couple unique things about our organization and one is we do follow a strategic plan and the other one is we're one of the few EDC in the state that actually promotes agriculture. And it's interesting because as we start an agriculture committee and I hired somebody I said I want to focus on agriculture and bio fuels. And he said are you crazy. Well yeah this thing is going to get big. And here we are a year later and guess what ....it's bigger than we imagined. But we do we have three industry cluster groups- so it's agribusiness, bio fuels, _____we put them together because guess what bio fuels is going to be agriculture. Renewal energy, international trade logistics and then manufacture and manufacture kind of fits into international trade and the reason being is just about everybody we deal with the reason they're interested in manufacturing is because they're dealing in taking that product and exporting it and we spend a lot of time in China looking and these companies are looking at having a presence in north America and manufacturing. We can't compete with china we're not going to but having made in the USA has a real appeal. ***Jim:*** They're going to export natural resource or export finished good. Are they looking to buy finished goods. ***Tim:*** Well one of the concepts is you can buy a pair of nikes in china for about $12 and made in the USA $120. Exports of our commodities we export a lot of_____ crops to South Korea, Japan and now China and Malaysia. Costs just pennies to ship. Once you get it to the port it's nothing. Anyway I hope I was some help and please remind me to get that information from Rick Helprin. Tell you what he's probably the guy to get in touch with to run project. He's with the regional alternate inititative. I would like to get him as a consultant. Here's my business card. ***Dawn:*** Sorry for the last minute. ***Tim:*** Oh no problem, sorry I was late. Have a good day.

Carol: You want comments. Personally I think we need to look at that plan he talked about, Economic Development Strategic Plan. ***Jim:*** So does he work for the city or for the state. ***Kevin:*** County ***Lianna:*** Okay, we have a lot of things we need to do since the direction has been changed. ***Carol:*** So I don't think you need to look a majors or programs or courses, not at all. You need to focus on the mission period. ***Lianna:*** We'll toss around ideas and we will stop discussing and looking into majors, certificates, courses, trainings, etc. About a month ago, I was told we are going to shoot for this grant with the proposal deadline of October 15th with no definite direction which way we should go at that time. So we have decided to look into majors, trainings , etc. Now we need to redirect our energy and start to discuss about this startup grant for an ATE Center. We need to look at that strategic plan that Kim mentioned. We probably don't have any experience or are experts in terms of establishing a center. *The task force members indicated that none has the experience at all.* ***Lianna:*** Okay. So we're totally strangers in this area but that doesn't mean we can't do it. Each one of us we can go online to look at abstract of those centers that are funded by National Science Foundation. If there is already alternative energy technology center in Arizona NSF may not want to fund one in Imperial. We need to look at funded centers to get some ideas there. ***Dawn:*** There's centers but they talk about solar energy we have a unique situation the algae, the geothermal it's a unique kind of alternative energy, green technology. When Dr. Gould went to Washington D.C, he brought up the point of algae and they were really impressed. ***Lianna:*** We have to come down to what we are going to and can do soon. Yes, every

body knows that the green energy, solar energy, or alternative energy is hot topic. But we need to come up the activities or what we can do to apply for this grant. We have to have a plan of what we want to do. The project needs to have a national impact also. ***Carol:*** I think if we have those two plans Kim mentioned and maybe bring in Rick Halperin , with the algae consortium, for overview I mean...if we're suppose to comply with those plans and I doubt since none of us have heard of them before you know the blind leading the deaf and dumb it's kind of like how many of you picked up Title V and know all our rules and reg's. It sounds like it's one of the rules and reg's that we need to be aware of. And they've already done all the reports it's just you kind of need to read it, and understand it and absorb it. And then algae, bio fuels, geothermal....I've got a lot of other things here. I see where the employment falls in but you have to look for that bigger vision what do we want here and if we know Monday that we also have that other group on board then that might be another focus too cuz I think we can have a center that looks at 2-3 different areas. They complement each other. ***Lianna:*** So it looks like we should explore more outside consultants to come here to talk to us. But I also think we do need to read those funded centers to see if we can.....***Dawn:*** I have the extra copy of the center book. ***Kevin:*** When we talk about a center, is that something we'll be running out of the new science building or is that another new physical building. ***Jim:*** Another physical building. ***Carol:*** Yeah, because other schools come to use the center. ***Dawn:*** You're the expert. Basically you're the expert and the other colleges in the nation will come here to train to look at your curriculum and look at your training program just like Dr. Gould talked about Monterey, and that they have the marine whatever, and then all the people that they want to train people will go there. ***Kevin:*** Is this something we want to have on campus? Would that be the plan? ***Lianna:*** Yeah, that would be the plan, a NSF Center on the campus. I don't think it will necessarily be a building or it won't be necessarily a grant that funds to build a building or build a center. I could be but not necessarily. The Center will provide services. ***Kevin:*** You can have a field of solar cells or solar panes. ***Lianna:*** Or we may use your geology lab as the center or we may convert that 126 seat auditorium as a center if we need to or if the District supports that, full of ideas and imagination. ***Dawn:*** See we can use IVC as a classroom and then this lab and all these places geothermal, algae farms and all that so the lab science is already there.

Next Meeting

Lianna: So again, first of all everybody's going to look at Kim's economic development strategic plan and the website is ivedc.com . The second item to look at is the sample centers. I think we might be able to scan for you. I lost my work study student and the next two weeks I'll be very busy. I go with Carol to the Curriculum Institute at Anaheim tomorrow, Friday and Saturday. Next week we have furniture tour to Torrance. I will at least give you probably the website for the centers funded by NSF. Do we need to invite more people, those you have just said? ***Carol:*** Like the gentleman that was just here he said that some of the people with some of the knowledge basis...***Lianna:*** What's his name again. ***Carol:*** Rick Halperin. ***Lianna:*** Who's going to invite him? ***Dawn:*** No.... ***Carol:*** I don't think it's time to invite him yet. I think probably your faculty and the other people here on campus ...I think if you can get those two reports and attach them to an email you need to send them out to all of your faculty. I think Daniel needs to read some of it. ***Dawn:*** I think also that this power point I'll get the electronic copy. Actually this is for economic side. But we need to decide you know the deadline we need to find out the

deadline for $150,000 we need to know what we are going to use the money for. ***Carol:*** Focus and figure out how we want to pull it together. ***Jim:*** We need to have the vision. ***Lianna:*** we can use the funds to pay our people to work on the project and conduct activities, and we can pay the consultants to come here to help us. ***Carol:*** That's what I was kind of looking for who's an expert in pulling some of this together and he said there's some retired people here and maybe Tim Kelley can focus a little bit more when he has a chance and isn't running – can you identify some people who can help us besides this Rick Halperin and then kind of say okay here's the bid would you take on this task if you'll help us. I know Maureen Barrett and she worked very hard on that environmental tech program and we had it going and Cal State Bakersfield I mean we had a one on one it was online project. But then the campus wouldn't hire her. She had all the contacts-OSHA, everything. She is still the person who qualifies OSHA. ***Dawn:*** Should we invite her. ***Carol:*** I hope she hasn't been burned. ***Dawn:*** Well this is different. ***Carol:*** Yeah. But it's another opportunity and I don't think we should shut anyone out I mean Maureen Barrett might be the perfect one. It would be nice for the faculty because again the faculty what are we going to look for here that we can support. ***Lianna:*** So what else will we be discussing in the next meeting? ***Kevin***: Look up centers. ***Jim:*** Look at the scope of what the centers encompass, like what they can actually perform and then take a look at what...how can we incorporate those ideas ***Lianna:*** So we'll exchange ideas. ***Lianna:*** To shoot for October 15 deadline when we have just known in the middle of June is tough if not impossible for those of us who teach the summer school. ***Dawn:*** We need to find out the deadline for $150,000. ***Lianna:*** Will you find out for us? ***Lianna:*** Let's see, Wednesday of the last week in July. That would be July 29 at 5:15. ***Carol:*** On the abstracts, you've got them in book form but can you read them on line. ***Dawn:*** Yes, but not as good. The book is really good. ***Carol:*** But it's the same. ***Lianna:*** The book is limited because only one person can read it at a time. Is that book online? ***Dawn:*** Not the whole book. I think the abstract. ***Carol:*** So we need to read these plans, read the abstracts and if you want more detail contact Dawn. She suggests having conversations via emails where they can compare notes on the abstracts what they liked or didn't like. So I think we don't really know what to do until you do some comparisons and if we meet on that July meeting then you guys.....maybe your division meeting that you have on the first that Friday maybe that's where you discuss this. ***Lianna:*** Discuss the centers in the division meeting? ***Carol:*** You have enough people here this summer that are involved with this whole thing. ***Lianna:*** Yeah. They think they're involved with the development of the curriculum and programs. I'm not saying they're going to say No but at least the reason they are here this summer is because we talk about developing the programs and courses where they are the experts. ***Dawn:*** But you know with the center I believe you can also develop curriculum too. Because you want to train people to teach this class to be engineers, etc. ***Lianna:*** That's 2-3 years down the road though. OK, let's look at abstracts and bring ideas back for discussion on the July 29th meeting.

July 29, 2009
5:15 pm
Rm. 410
Recorder: Ofelia Duarte

National Science Foundation (NSF) Committee Meeting Notes

Present:
Kevin Marty, Carol Lee, Dawn Chun, Lianna Zhao

Lianna welcomed those present. Lianna said she has will contact grant writer.

Abstracts of funded ATE Center
Lianna asked if anyone had visited websites suggested at the last meeting. Carol mentioned that she and Jim looked at NSF Resources and the Centers for Excellence. She looked at topics like sustainable environments and economics. There were a few that Jim felt didn't fit. They had conversations regarding the abstracts they were looking at. Carol felt that Northwest Center for Sustainable Resources (Chemeketa Community College in Oregon) might be one that fits. She feels it's something that we want all we need to do is fit it into workforce here. Others she looked at won't work here. They are located in areas with great accessibilities to a lot of things we don't have. Carol found three for IT and felt that Computer Science would be one that could go in. She also looked at Tim Kelley's power points and felt that "Defining Opportunities in need for Business" was a better power point because it gave stats and information that we can use.

Lianna stated she also looked at some of the websites for contents and ideas. Some offer faculty development activities, curriculum development activities, and resources. She found the information useful.

Principal Investigator
Carol was under the impression that the lead person/ principal investigator had to be someone from outside campus. Lianna stated that she believes that it is better that the principal investigator is an administrator, classified manager, or faculty from campus (school representative) which shows our commitment to the grant. The Center Director can be hired from outside campus. Carol suggests contacting Jim Pendley to see if he would be interested in being the principal investigator for the start-up grant. He has the time and the energy, is from the valley, and has the science background. Lianna will contact him. Lianna and Carol cannot be reassigned anymore (either 100% reassigned and/or overloaded). The possibility of Dawn being the principle investigator for this start-up grant to establish a center was also mentioned. The center is more of a business model mainly for the career and technical area. The SME division can provide the academic content assistance to the principle investigator. Many project directors or principle investigators, like Dawn for ACCESSO and Lianna for 2+2 are not the academic or specific discipline faculty.

Start-up grant activity

Lianna believes that the first year of the start-up grant will focus on inviting local businesses and government agencies to get ideas for establishing a Center. The second year will be to hire personnel such as the center director, develop policies and procedures for the center, develop courses and other materials and activities for the center, among many other items needed. Kevin and other faculty may play a role in the design of the Center related to their disciple areas. Once the principal investigator comes on board, he/she will probably need staff who will help to contact businesses in the following areas: Geothermal, Wind, Algae, and Solar.

The group asked about the grant writer or consultant. Lianna said that Dawn has been contacting her. Lianna has emailed Dawn and let her know that after this meeting we will probably need to discuss with

the grant writer some specifics, and also like to have the grant writer attend the future task force meeting via phone conference so we can work as a team.

Next Meeting

Faculty will be on vacation until Fall. The Task Force members will have to meet at the beginning of Fall (no date yet). If Lianna has some time before the beginning of the Fall, she will work on it with the help from Kristen.

Dawn came in at the end of the meeting and was briefed what had been discussed.