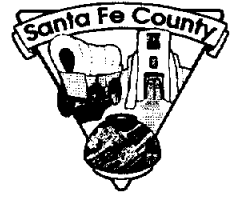




Agenda



Santa Fe City and County, Advisory Council on Food Policy
January 28, 2016, 9AM-11AM
Angel Depot Conference Room, 1222 Siler Road, Santa Fe, NM

A. CALL TO ORDER

B. ROLL CALL

C. APPROVAL OF AGENDA – January 28th, 2016
Prioritization and Agenda Order

D. APPROVAL OF MINUTES – December 17th, 2015

E. COMMUNICATIONS FROM THE FLOOR

F. PRESENTATIONS/TRAINING:
Presentation on Ecoponex
Benjamin Brant, President and CEO of Ecoponex

G. STAFF COMMUNICATIONS
1. Update on Follow Up from December 17, 2015 Meeting
a. Administrative tasks
b. Food Plan Tracking Document
c. 2016 SFFPC Planning "Retreat" – February 25th, 2016

H. INITIATIVES AND ACTIONS
1. Policy Committee
a. Food Plan Committee
i. Action on 2015 Annual Food Plan Update
ii. Discussion on Updates and/or Known Projects – Goal 1 of Getting Food in Food Plan
b. Food Production and Land Use Committee
i. Meeting updates.
ii. Urban agriculture update from John Alejandro.
c. Procurement
i. No meeting updates.
d. Education and Outreach
i. No meeting updates.
e. Governance Committee
i. Meeting Updates.
f. State & National Issues
2. Executive Committee
a. Ad Hoc Funding Committee
i. Update on Kresge grant (due January 15th, 2016).

I .ITEMS FROM THE CHAIR

J. .ITEMS FROM THE COUNCIL

K. ADJOURNMENT

CITY CLERK'S OFFICE

DATE 1/26/16 TIME 1:21 pm

SERVED BY Morgan Day

RECEIVED BY [Signature]
5 minutes

2 minutes/person

45 minutes

10 minutes

55 minutes

5 minutes

Persons with disabilities in need of accommodation contact the City Clerk's office at 955-6520, five (5) working days prior to meeting day.

**SANTA FE CITY AND COUNTY
ADVISORY COUNCIL ON FOOD POLICY**

THURSDAY, JANUARY 28, 2016

ITEM	ACTION TAKEN	PAGE(S)
A. CALL TO ORDER		
B. ROLL CALL	Quorum	1
C. APPROVAL OF AGENDA/Prioritization of Agenda	Approved	1
D. APPROVAL OF MINUTES – December 17, 2015	Approved	1
E. COMMUNICATIONS FROM THE FLOOR		2
F. PRESENTATION AND TRAINING Presentation on Ecoponex	Benjamin Brant	2-4
G. STAFF COMMUNICATIONS		
1. Update on Follow Up from December 17, 2015 Meeting		
a. Administrative tasks	Discussed	4
b. Food Plan Tracking Document	Discussed	4
c. 2016 SFFPC Planning "Retreat" – 2/25/2016	Discussed	5-6
H. INITIATIVES AND ACTIONS		
1. Policy Committee		
a. Food Plan Committee		
i. Action on 2015 Annual Food Plan Update	Discussed	6-7
ii. Discussion on Updates and/or Known Projects	Discussed	7
b. Food Production and Land Use Committee		
i. Meeting Update	Discussed	7-8
ii. Urban agriculture update	Discussed	8
c. Procurement	No Update	8
d. Education and Outreach	No Update	8
e. Governance Committee		
i. Meeting Updates	Discussed	8
f. State & National Issues	Discussed	9
2. Executive Committee		
a. Ad Hoc Funding Committee		
i. Update on Kresge grant (due 1/15/16)	Discussed	9
I. ITEMS FROM THE CHAIR	None	10
J. ITEMS FROM THE COUNCIL	Discussed	10
K. ADJOURNMENT	Adjourned at 11:10 a.m.	10

SANTA FE CITY AND COUNTY
ADVISORY COUNCIL ON FOOD POLICY

THURSDAY, JANUARY 28, 2016

A. CALL TO ORDER

A regular meeting of the Santa Fe City and County Advisory Council on Food Policy was called to order by Mark Winne on this date at approximately 9:00 a.m. at the Angel Depot Conference Room, 1222 Siler Road, Santa Fe, New Mexico.

B. ROLL CALL

Roll call indicated a quorum as follows:

Members Present

Mark Winne, chair
Susan Perry, vice chair
Patricia Boies (arrived later)
Maria De Anda Hay
Tony McCarty
Susan Odiseos
Erin Ortigoza (arrived later)
Pamela Roy
David Sundberg

Members Excused

John Alejandro
Emigdio Ballon
Cydney Martin
Lynn Walters

Members Absent

Staff Present

Morgan Day, Coordinator

Others Present

Benjamin Brant, EcoPONEX
Amanda Hatherly, Sustainable Santa Fe Commission
Luke Spangenburg, Director of Bio Fuels Center of Excellence, Santa Fe Community College
Tejinder Ciano, Director, Reunity Resources
Charmaine Clair, Stenographer
Others as identified under Communications from the Floor

C. APPROVAL OF AGENDA/Prioritization

Mr. Sundberg moved to approve the agenda as presented. Ms. De Anda Hay seconded the motion which passed by unanimous voice vote.

D. APPROVAL OF MINUTES – December 17, 2015

Ms. Odiseos moved to approve the minutes of December 17, 2016 as presented. Ms. De Anda Hay seconded the motion which passed by unanimous voice vote.

E. COMMUNICATIONS FROM THE FLOOR

The Council members introduced themselves followed by the visitors.

Amanda Hatherly said she works with the Santa Fe Community College, is on the Sustainable Santa Fe Commission and chairs three working groups. She is also the co-organizer of a group in Santa Fe with over 90 members that do free educational events on health and nutrition. She came to listen and see if there are overlaps and connections.

Luke Spangenburg said he is the Director of the Bio Fuels Center of Excellence at the Santa Fe Community College (SFCC). He said the college is deep into the food, water and energy nexus and they have pilot programs in algae and bio energy.

Mary Schruben was present from the Rancho Siringo Neighborhood Association.

Benjamin Brant with Ecoponex said he is excited to share the program and honored to speak with the Food Council.

Pam Caldwell said she moved to Santa Fe 13 months ago and volunteers at the Farmers Market working for the Institute. She wants to better understand food sustainability in the Santa Fe area and thought FPC a great place to come.

Tejinder Ciano, the Executive Director of Reunity Resources also runs a nonprofit in Santa Fe. They do waste recycling of cooking oil and turn it into biodiesel that is redistributed to the community. He also has contracted with the city to do food waste collection and in 20 months has diverted 1.3 million pounds of food waste and turned it into compost. Reunity Resources partners with the Santa Fe Community Farm and provides food waste compost that can grow more nutritious food.

Ms. Ortigoza entered the meeting at this time.

Chair Winne said the council was honored to have a presentation from Benjamin Brant with Ecoponex. He said he set up a commercial greenhouse when younger that was modestly successful and he is interested in the presentation and excited to hear what advances have been made in technology and what the opportunities are for the future.

Ms. Boies entered the meeting at this time.

F. PRESENTATIONS AND TRAINING

Presentation on Ecoponex-Benjamin Brant, President and CEO of Ecoponex (Exhibit 1)

Mr. Brant thanked the FPC for the invitation to speak. He said the council is a remarkable group and should be proud of their work; it goes beyond what is expected of a volunteer organization.

Mr. Brant said worked in the early 90s with Santa Fe and the State of New Mexico to pioneer the first water conservation program. He also worked with PNM and did the first military utility financed energy performance contract at White Sands Missile Range.

Mr. Brant said he would present EcoPONEX's plans to develop a renewable energy farm with the Santa Fe Community College (SFCC). They will demonstrate the integration of technologies that will efficiently and profitably produce local food using renewable energy. The growing platform is based on recycled water and nutrients and goes beyond hydro and aqua-ponics. He said he brings a global perspective because EcoPONEX is currently active in Europe and the Netherlands and he has worked in Europe for the last 12 years.

He said there are four main pillars as the key goals; to efficiently, profitably produce fresh, healthy food year round with the least impact and in the most affordable way. He said behind that is the closing of the food/waste energy loop. As much as 40% of food resources are thrown away.

Mr. Brant explained REEF (Renewable Energy Efficient Farm) technology where the school district and college provide food waste and nutrients to be extracted and used to grow fresh food. Ten percent of EcoPONEX's yield is committed to food banks and other charitable groups. Key stakeholders from the city and county are helping to organize a broader food coalition in the name of economic development and sustainability. The SFCC program is planned in two phases; the development of a micro-REEF that demonstrates a full suite of technologies. And a plan to build a full scale urban REEF facility to serve portions of the community. Either model could be a template for other communities. This will create jobs and also has an environmental footprint; water reduction and converting the amount of energy from carbon in the waste stream into energy.

He said there is a mix of solutions under the policy framework having to do with the existing agricultural economy and they cannot do it all. Soil based production and local farming is an integral part and major urban areas in the country are starting to develop bio intensity vertical urban farms. He said FPC has a chance to get in the forefront and EcoPONEX can help provide leadership.

Mr. Brant said their mission hits the critical global problems and at home too with 97% of the nation's food imported. He said what can be locally produced is a matter of creativity and having the tools and training. He noted there are disturbing facts, such as New Mexico is the first in the nation in child hunger. He said the need is there. They need to find a way to reduce preventative care and show caloric, protein and nutrient values that can be applied to the biomass people consume. How they connect the dots will be a valuable piece of driving the economic development.

He said EcoPONEX is about the food, water, energy nexus and developing the technology solutions that help meet future populations and serve people today. He explained the Agro Park at the University in the Netherlands. He said his long-term vision is for Santa Fe to help train the other small producers and make them profitable and organize access to markets.

Ms. De Anda Hay asked the status of the micro-REEF and the source of funding.

Mr. Spangenburg said Mr. Brant has access to private funding, but they are looking at a community project. SFCC will partner with EcoPONEX to provide the location which will provide a reduction in costs.

Mr. Brant said also they hope to find a way to partner with Reunity Resources and how they could benefit each other. He said they have a unique Australian sea bass grown in New Mexico and an off take with Sysco and have had serious discussion with the school district. He said with the off takes, preliminary engineering, sites and agreements, the financing would take about 3 to 6 months. He would expect to break ground by the end of the year.

Chair Winne asked Mr. Brant what the annual revenue and expenses would look like once up and running.

Mr. Brant said a \$6.5 million investment has a 4 year pay back after operating expenses of \$1.5 million EBIDA (earnings before interest, depreciation and amortization). Mr. Spangenburg added to keep in mind that the micro-REEF production is minimal with a small footprint but has a high value product. He said some funding is the food production of the vegetables, but they are not attempting that.

Chair Winne asked who will be the stockholders.

Mr. Brant replied it is a private enterprise and they have a New Mexico LLC and have offered the SFCC board a 2% ownership. They also offered a smaller partnership to Reunity Resources because they feel it important to have a nonprofit in their structure.

Ms. Roy said she would like to see other reports regarding the return on investments. She said New Mexico is the 50th in the nation in job growth and the state budget is predicated on oil and gas. She said she would suggest that Mr. Brant give presentations to the Economic and Rural Development Committee.

Mr. Spangenburg said New Mexico may be last in many things but was nominated second in the world for their educational program at SFCC, which is a pilot. The college is working closely with the Department of Energy and the University of California and Arizona State. He added they also won third best technical growing system in the world and is number three for a spirulina micro farm they are building.

Mr. Sundberg asked regarding the spirulina and algae, if they process the raw fish or is it distributed directly; or do they have other systems capture the food sources and get them to the community.

Mr. Brant said the produce is processed there and is USDA certified and organic, etc. He said if they go into fish processing there is a level of USDA and they can do some processing. Ideally the fish can be packed on ice; and Sysco can also process the fish in their plant in Albuquerque.

Chair Winne asked for that the council continue to be apprised of Ecoconex's developments and to let them know how they can help.

G. STAFF COMMUNICATIONS

1. Update on Follow Up from December 17, 2015 Meeting
 - a. Administrative tasks

Ms. Day said all of the administrative tasks have been completed except for updating the website content and making links to the Food Plan more visible. She also wants to speak with Councilor Dominguez about collaboration and building a coalition on the south side. She said they have a group of people on the south side who are committed, but having Councilor Dominguez help them move forward would be valuable.

- b. Food Plan Tracking Document

Ms. Day apologized for the late hour that members received the document. She thanked them for their comments and said they are incorporated in the draft.

c. 2016 SFFPC Planning "Retreat" – February 25, 2016

Ms. Day said she wanted to review general topics to make sure nothing had been missed.

Ms. Perry added that anyone who felt strongly about doing more and having a longer meeting could brown bag it. She said they decided on four hours because of feedback received.

Chair Winne said the Executive Committee plans to meet in a week to finalize the agenda.

Ms. Day said the initial reason for the planning retreat is because it will be helpful for her to have focused goals and priorities and use her limited time more efficiently. She is hoping for a 1 to 3 year strategic plan of prioritized goals and above that for them to think about FPC's mission and vision. She is open to any ideas or input.

Ms. Roy agreed. She said the strategic plan gives an opportunity for FPC to show the city and county their focus the need for an investment for the coordinator. Ms. Perry added that the Mayor had made it clear he will look at what the FPC is doing and how that is measured.

Mr. Sundberg said he likes the key objectives but thought it is enough to do the strategic planning. The World Food Day could be discussed by the committee first and brought back. He liked the idea of the orientation, but thought everyone could benefit from the refocus and re orientation of the FPC goals. He said that could lead to more committee and group work. He suggested having two half days because that could allow members to use their strengths individually in a smaller group.

Ms. Day liked his idea. She said the orientation was the Governance Committee's idea to be sure everyone had a board orientation. She said that could be done before a meeting.

Ms. Perry said several members have been on the council for a long time and have never received an orientation, and the manual has been updated. She said it is a good idea to revisit not only the mission, but what members signed on to do and what that means.

Ms. De Anda Hay agreed. She said what she thought was critical and she has heard from community comments is regarding the Food Plan and what the short and long-term goals are. She said what are the three or four priorities in the Food Plan for the next year and the key priorities FPC wants to address to help direct their work and provide a basis to measure their goal.

Chair Winne said he would like time to focus on how the FPC operates as an organization. Their ability to do the work and meet their goals is dependent on how well they operate as an organization, and also means how they operate as a community organization and engage the community. He suggested it important to have a discussion about how they work with others, including their committees. He said without that they could not address the goals.

Ms. Roy said this will take them to the next generation of their work. She said the structure beyond that might be different. She sees the next generation as the three or four priorities that will become deeper and that Ms. Day will have much more to do.

Ms. Day said the Food Council is not able to be as proactive and they could have more impact with more focus as an organization and more easily build a collective impact.

Ms. Ortigoza said the Food Plan is not intended to be a step by step plan. She said now that it is widely disseminated and everyone is familiar with the concepts there is time to create an action plan for it. That will be a different process and an implementation matrix and tangible steps are needed. She said that is where the measurable will come from.

Ms. Day said a couple of facilitators have not contacted her. She said she is willing to step into that role if a facilitator is not confirmed. She will provide materials before the planning session so everyone comes to the meeting with formed thoughts. She said will also provide general recommendations from staff on how FPC might move forward.

H. INITIATIVES AND ACTIONS

a. Food Plan Committee

i. Action on 2015 Annual Food Plan Update

Chair Winne said Ms. Day has been working on the update and he would like the council's input. He recommended final action be done at the February meeting. He asked Ms. Day to provide an overview.

Ms. Day said the Food Plan Committee thought it would be useful to report on the progress of the goals of the Food Plan. She said they do not have a lot of hard data because they have not been able to put in the legwork to understand how to measure and get baselines. She said that will be a priority for her as well as those who fund the FPC at the city and county level. The document focus is on things in progress that have solid benchmarks and includes only the new initiatives. The report includes only goals in which there was some movement and not all of the sub goals are listed.

She said the document is a combination of what the Food Plan Committee put together and the members and community feedback submitted. The updates and new additions are in red. She said the initial goal is for the document to be brief to share with legislators and easy to communicate to the community.

Chair Winne asked in light of the concern about length, if possible to do a one page summary of highlights and then five to six pages. He thought the detail important and a small number would want to see that.

Ms. Perry asked members to keep in mind that they wanted an easy to read, communicable document. She said doing a quick list is fine, but adding something of length to the document is not helpful. She said many of those whose attention they want will not be looking at the details.

Ms. Odiseos thought the summary would help. She said with a summary if there is something people want to look at later, it is highlighted.

Ms. Perry said if there is a summary there should be references to the detailed document.

Ms. Day said a full page executive summary for a five page document might be overkill, but she agreed there should be some summarization.

Ms. Ortigoza thought this was something more at-a-glance. She said there is an example of that already in the Food Plan; a two page at a glance with key phrases and highlight points for each goal area. She said the details are very important to know what the FPC has done, even for them to reflect and write down.

Ms. Ortigoza asked about goal seven missing from the update.

Ms. Day explained there were some goals as mentioned that had no updates because of lack of progress. She offered to look at goal seven again.

Ms. De Anda Hay suggested eliminating numbering the goals and also would not list individual names under each goal. She said an acknowledgment section could include everyone who assisted.

Mr. Sundberg offered to assist Ms. Day in editing the document.

Chair Winne requested that members receive the document a week before the February meeting.

ii. Discussion on Updates and/or Known Projects – Goal 1 of Getting Food in Food Plan

b. Food Production and Land Use Committee

i. Meeting Update

Ms. Roy said the Committee is a great integration of people from both the public and private sector working together around the needs of land use. She said the committee's work has been focused on supporting and bringing to fruition the Farm and Ranch Resolution to BCC (Board of County Commissioners).

Ms. Ortigoza said the BCC passed the resolution and got it into the form that now fuels the implementation plan. She said the status of the implementation plan is that they have looked at many of the policy documents of the county and out of that came the deliverables of five key areas of focus. That includes a Transfer of Development Rights program (TDR) and that program has been codified and is now being developed.

She said the clearing house to connect farmers and ranchers with agricultural land and resources is like a land link program and community input is needed on what would be helpful. They will talk with MRCOG (Mid Regional Council of Governments) to understand the iterations of the program and whether to piggy back on that or have their own.

She said third is to create a program for the agricultural use for open space and identify open space appropriate for agriculture. Also they will create a lease or a community stewardship program and develop best practices for those properties. Two areas of focus are rooted in public information and outreach; the local food and healthy eating outreach. She said Commissioner Anaya has requested what the opportunities and potential is.

Ms. Ortigoza said last is the public information about all of the programs being developed and stakeholder meetings for those. A plan will be done by May or June that will inform their activity for the next 3 to 5 years and there will be stake holder meetings to develop the plan followed by the implementation, which could include the budget, county contracts, etc. She said there will be an idea of the budget around March.

Ms. Ortigoza said in a second phase a TDR bank has been discussed, where the county would seed a bank to purchase development rights. They are taking one step at time. It will likely be a market driven clearinghouse.

Ms. Roy said she has been working with the New Mexico Land Conservancy. She suggested also looking at the state and federal match funds as another way for farmers to mitigate the financial risks and maintain long term agriculture in the community. She said also important is to work with the other groups working on land link programs. She said they are looking at Picton County, Colorado as an example of long term leases for next generation farmers. She thought those recommendations might also benefit private farm owners.

Ms. Ortigoza said there is a contract relationship with the county Open Space Division and support for a structured way for members to access that land.

ii. Urban Agriculture Update from John Alejandro

Ms. Day said the ordinances were read into record at the December City Council meeting and triggered the move through the committees/boards for approval. She said Mr. Alejandro mentioned a couple of weeks ago that they are trying to make sure there is no conflict with the current ordinance. He hopes for a final vote in March or April and will continue to update the Food Council and wants the council to review the final edition of the ordinances before it goes to City Council.

Ms. Roy asked if Mr. Alejandro shared when the programmatic part of the plan would go to the community; how the ordinances could be used and what they mean.

Ms. Day said a) Mr. Alejandro would be best to answer that question, and b) she did not think the national package has that in the way FPC had hoped. She said there is not a programmatic document that goes with that as an appendix, but she knows Mr. Alejandro does take that seriously.

c. Procurement- No update

Chair Winne asked Ms. Day to confirm the Procurement Committee was folded into another subcommittee.

d. Education and Outreach- No Update

e. Governance Committee

i. Meeting Update

Ms. Perry reminded everyone that visitors can attend planning meetings and are welcome, but they can inform visitors that they are not allowed to be involved (speak) in the meeting(s).

Ms. Day said she is finalizing the committee missions and has everyone's except Land Use.

Ms. Ortigoza asked if printing additional copies of the Food Plan had been discussed.

Ms. Day said there are copies of the Food Plan available. She offered to arrange to drop those off. She noted there were minor updates in the printing, but no significant additions like the adoption of the Plan by the city and county, etc. She said she will need help in editing the final draft.

f. State and National Issues

Ms. Roy said on the state level both city and county Policy Councils have food as a priority and the New Mexico Grown as a state initiative (HB189, Representatives Hall/ Tripp). The Legislative Finance Committee budget recommendation was \$400k (up from \$364,300). The budget is being looked at seriously with oil and gas prices down.

Legislators approved \$400k last year for the Double Up Food Bucks, but the Legislative Finance Committee recommended that be cut to \$100k. She is working with the New Mexico Farmers Market Association and policy makers to reinstate the \$400k. She said the New Mexico Farmers Marketing Association submitted a federal grant of the Food Insecurity Nutrition Initiative requesting \$2 million (paid over four years) and that will need a state match.

Ms. Day added that the Food and Farms Day is February 3, 2016 and members will receive an email with the schedule. She hoped they would join them. She said she will provide language and letters that could be sent in support of the bills the Food Policy Council agreed to support, especially for Double Up Bucks and the New Mexico Grown bills.

Ms. Roy said also February 3 they are partnering with New Mexico School Nutrition Day and Cooking with Kids Day and will have a press conference in the Rotunda at 9 a.m. There will be an awards ceremony for Farm to Schools statewide and Lynn Walters will be recognized for her work with the Cooking with Kids program.

On the federal level the Senate Agriculture Committee approved doubling the budget for the Farm to School Act. The Act includes the national and USDA Farm to School Grant Program, all a part of the Child Nutrition Authorization. The FPC website link has the information and compromises Ms. Obama made.

Chair Winne said it is important to make links in the update reports. He said Ms. Roy mentioned the \$400k for Double Up Bucks being cut to \$100k, but she did not mention how much of that was going to Santa Fe. He said everyone should know the impact the cut might have on the program and a link gives the opportunity to leverage that information against that kind of reduction.

Ms. Roy said the NMFMA reports that \$200k of the Double Up Food Bucks funding went through Santa Fe in the last 6 months; \$100k SNAP dollars and \$100k Santa Fe Farmer's Market.

Ms. Day explained that Ms. Roy had added the information they had at the time because the numbers were not available. She said the numbers for Santa Fe County New Mexico Grown was added into the Food Plan.

2. Executive Committee

a. Ad Hoc Funding Committee

i. Update on Kresge grant (due January 15, 2016)

Ms. Day said on the horizon is a potential grant opportunity through the city that she will discuss with Chris Sanchez. She will report on the status tomorrow.

Chair Winne suggested it would be beneficial for FPC to discuss other funding opportunities.

I. ITEMS FROM THE CHAIR

Ms. Day said the Executive Committee had requested members look at a resolution passed last year through the city. The resolution ensures all children have access to one healthy meal per day above what is provided in the schools.

Chair Winne said he has heard there are problems in the concept and not a lot of thought about how to implement. He said it is the responsibility of FPC to provide oversight on issues like this and to gather facts and possibly make recommendations.

Ms. De Anda Hay confirmed that the chair wanted to schedule another meeting of the Ad Hoc Committee.

Ms. Day said she would send out an email on the Doodle Poll.

J. ITEMS FROM THE COUNCIL- There were none

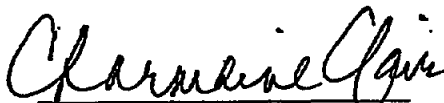
K. ADJOURNMENT

Having no further business to discuss the meeting adjourned at 11: 10 a.m.

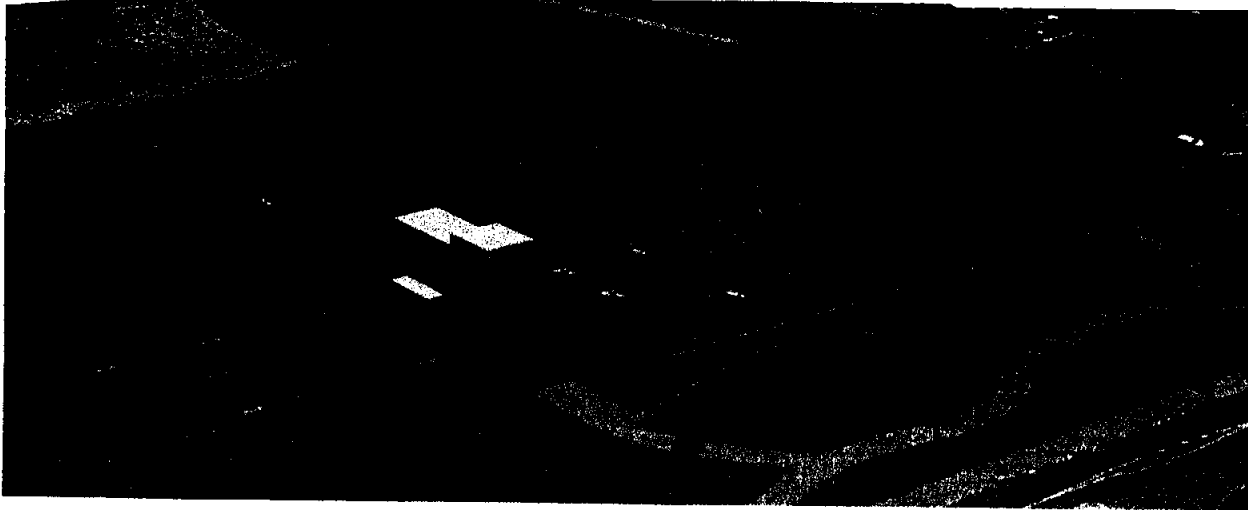
Approved by:


Mark Winne, Chair

Submitted by:


Charmaine Clair, Stenographer

Full-Scale 1.5 to 3.0 Acre Community REEF™



Collaboration with Santa Fe Community College

SFCC and Ecoponex are closely aligned in their vision and mission for making application of sustainable technologies and intelligent design. The School of Trades, Technology, Sustainability and Professional Studies at SFCC offers degrees and certificates in Sustainable Technologies, Algae, Aquaculture and Greenhouse Management, as well as certificates in Biofuels, HVAC, Solar Energy, Water Treatment Operations and other related fields. SFCC's Sustainable Technologies Center and Economic and Workforce Development Program will collaborate with Ecoponex to develop custom designed curriculum and specialized job training which will provide the range of specific skills needed to operate all facets of a REEF facility, while providing an excellent source of employees for future full scale REEFs (described below) planned to be built by Ecoponex. Furthermore, developing the Micro-REEF™ on the SFCC campus provides the college access to a "Living Learning Laboratory" with direct educational benefits for both students and faculty.

International Trade, Technology Transfer and Educational Exchange Program

An important part of the Micro-REEF™ project at SFCC involves partnerships with a Dutch technology provider, Algae Food and Food (AF&F), and Wageningen University Research's (WUR) Applied Center for Renewable Resources (ACRRES) in the Netherlands. Utilizing an advanced photo-bioreactor technology developed by AF&F, Ecoponex will cultivate and harvest micro-algae to produce EPA rich Omega-3 oils that is a valuable nutraceutical product in high demand. The micro-algae project will also be the centerpiece of an International Trade, Technology Transfer and Educational Exchange Program between AF&F and Ecoponex that includes a forum for a formal training and education exchange program between SFCC and WUR.

Benefits of Vertical Urban Farming using Controlled Environment Agriculture

Our integrated closed-loop process is really a "living machine" designed as multi-level vertical farm allowing for bio-intensive food production in urban locations and the inner city where traditional farming methods are not possible. REEFs also take advantage of the latest in controlled environment agriculture techniques utilizing advanced automated process controls to optimize system operations and maximize resource efficiency. With this approach, full scale REEFs represent a quantum leap in productivity, providing 50 to 100 times or more higher crop yield per acre than conventional agriculture while using 90% less water, 50% less energy, and 30% less fertilizer, and conserving farmland. REEFs also significantly reduce air and water pollution and the overall carbon footprint. REEFs that raise fish also reduce the seafood print impact of over-harvesting our oceans' fisheries.

When developed and commercialized at full-scale, REEFs could revolutionize how healthy fresh food and clean renewable energy is locally produced with the recycling of food and green wastes, CO₂ and water. REEFs also offer many other significant benefits to local communities in the form of food safety and security, energy independence, improved public health and well-being, resiliency and local self-reliance. Thus the REEF projects at SFCC, in cooperation with Santa Fe Public Schools, and the City and County of Santa Fe and our Dutch partners, will serve as an "international showcase" and model of sustainable economic development for communities in New Mexico, nationally in the U.S., Europe and the world.





SUMMARY OF PLAN TO DEVELOP MICRO AND FULL-SCALE REEF™ FACILITIES AT SANTA FE COMMUNITY COLLEGE IN PARTNERSHIP WITH ECOPONEX SYSTEMS INT.

January 22, 2016

Overview of Project

The Training Center Corporation ("TCC") at Santa Fe Community College (SFCC) and EcoPONEX™ Systems International, LLC, a Colorado corporation and its wholly owned subsidiary EcoPONEX Systems of New Mexico, LLC (EcoPONEX™), have signed a Memorandum of Understanding to collaborate on the financing, development and operation of a small-scale "micro" Renewable Energy Efficient Farm (REEF™) on .75-acres of land owned by SFCC. Implementing the Micro-REEF project will set the stage for development of a full-scale Urban REEF to help meet the nutritional and energy needs of the Santa Fe community.

The Micro-REEF™ project will demonstrate an innovative closed-loop controlled-environment cultivation system developed by EcoPONEX. It will locally produce healthy fresh food including fish, herbs and vegetables along with a high value algae product for the nutraceutical market. The closed-loop system accomplishes this with an integrated platform of proven and emerging technologies that forms a biological refinery where the output of "upstream" processes become the input to "downstream" processes without loss, inefficiency or discharge to the environment.

Potential Capital Impacts of Full-Scale Community REEF

A full-scale community REEF, depending on size and capacity, could range in capital cost from \$25 to \$50 million with a 4-year or less simple payback. It would create 88 to 122 permanent (direct/indirect) jobs in the local community and potentially generate \$1.4 to \$2.0 million annually in local/state tax revenues with \$1.3 to \$1.8 million a year in payroll. It could produce enough fresh food (fish and vegetables) to feed 68,700 to 112,000 people and save approximately 100 to 180 acre feet of water and conserve 75 to 150 acres of farmland. An urban REEF facility could also generate .75 to 1.5 MW of firm renewable green power by converting 10,500 to 20,000 tons of municipal organic food and green waste annually into methane rich biogas while reducing 33,000 to 52,000 tons of CO₂ emissions. In addition the facility could produce 4,000 to 7,888 million BTUs of thermal energy from its concentrating solar system and reduce seafood print impact by 138,000 to 150,000 tons per year on our oceans fisheries from its recirculating aquaculture system.

Project Timeline and Budget of Micro-REEF Demonstration Project

The estimated timeline to design, permit, procure equipment and build the Micro-REEF™ facility is 15 months with 9 months of startup operations needed to achieve the full run rate of the entire process. The capital cost of the demonstration project is estimated to be \$6.5-million with annual operating expenses of \$2.1 and \$3.56 million in revenues based upon preliminary techno-economic analysis. The Micro-REEF™ will generate sufficient cash flow from the local sale of food and algae based health products to pay for itself in 4.6-years with a 22% ROI. The Micro-REEF™ is also expected to create 14 permanent and 25 indirect jobs including internships for students and job training for employees.

REEF Technology

The proposed Micro-REEF™ facility will consist of four main components:

1. Micro algae cultivation using LED-driven photo-bioreactors with smart-photon technology;
2. Vegetable and herb cultivation using a controlled environment greenhouse with LEDs;
3. Recirculating aquaculture system for fish cultivation (e.g. Australian sea bass, shrimp); and,
4. Renewable energy generation using digester biogas and solar thermal energy to run the REEF.

The micro-algae component will produce Omega-3 oils for the nutraceutical market and fish feed as a co-product for the aquaculture system. It will share heating, cooling, power and CO₂ with the other unit operations. The micro-algae, vegetable and fish production components are designed as a closed-loop aquaponics system, where nutrients (N-P-K) and CO₂ from the fish aquaculture and anaerobic digester are recovered and recycled to support and enhance the cultivation of vegetable food crops and micro-algae. The anaerobic digester will produce methane-rich biogas using an advanced bio-catalytic process to convert local food and green wastes collected from local schools and restaurants, including SFCC's kitchen. The biogas will be used as fuel to cogenerate electricity and heat for the facility and a concentrating solar thermal system will be used to produce cooling and refrigeration energy. The harvested fresh fish and vegetables crops will sold to the community, including public schools and restaurants participating in the organic waste recycling program, thus closing the local food waste and energy loop.