

# Climate Quest Concept Paper

## Jefferson County Biomass Energy Project

August 25, 2014

Greg David, Timothy Baye, Walt Christensen, Beth Gehred, Mike Kelly, Mark Knaebe

### Executive Summary

*"Total global emissions of greenhouse gases in 2012 were about 52 GtCO<sub>2</sub>e. These emissions must soon drop to a net of 41 GtCO<sub>2</sub>e if we are to have a feasible chance of limiting warming to 1.5°C, above which point we dare not pass."* - Rodale Press, 2014

The world's people are facing a technological challenge to reduce net greenhouse gas emissions to limit atmospheric warming. Compounding this challenge are political and economic systems that have not yet proven flexible enough to stave off pending suffering and destruction as it gathers around us. Leadership is mired in reductionist thinking. Widespread controversy and paralysis are causing denial and delay.

The Biomass Energy Project (BEP) addresses climate change by attacking both critical objectives. Our team includes elected supervisors from the County Board of Jefferson County, Wisconsin. By championing the creation of a regenerative energy system that first uses waste streams and then locally grown biomass to heat and power some or all of the Jefferson County campus of buildings, we will serve as an exemplar that political and financial leaders can communicate effectively about climate change, and take prudent steps to act.

The BEP is a public/private fuel-switch partnership. An installation will be built in a public setting that will convert use of fossil to renewable fuels, and by so doing create a model regenerative enterprise replicated by other counties in the state and nation. Care will be taken to document the effort as a case study for others to follow.

Switching fuel from natural gas -- a source of CO<sub>2</sub> pollution -- to a perennial, polyculture of woody biomass that is designed to sequester carbon, decrease greenhouse gas emissions, retain water and phosphorus, allow biodiversity and resilience of ecosystem services is in everyone's best interest.

BEP and the BEP Team have received a resolution of support from the Jefferson County Board of Supervisors on July 10, 2014.<sup>1</sup>

## **2. Challenge Statement Biomass Energy Project**

*“Sustainability, as currently practiced, is primarily an exercise in efficiency. We must do better. Instead of doing less damage to the environment, it is necessary to learn how we can participate with the environment. Changing the way we interact with the earth’s systems is difficult and is likely the greatest challenge we face. The shift from a fragmented worldview to a whole systems mental model is the significant leap our culture must make - framing and understanding living system interrelationships in an integrated way. Our role, as designers and stakeholders, is to shift our relationship to one that creates a whole system of mutually beneficial relationships. By doing so, the potential for green design moves us beyond sustaining the environment to one that can regenerate its health – as well as our own.” - Bill Reed, Architect*

**The principle issue that led our team to propose this particular solution** is a desire to recalibrate society’s perceptions to accept that it either exists in harmony with the biosphere or not at all.

As members of the Board of Supervisors in Jefferson County, Wisconsin, we see where these misperceptions lead. They allow the current unsound state that has economics, not science, drive our energy policies. This explains how we now:

- rely on fossil fuel, specifically natural gas, as the exclusive heating fuel for our county;
- accept the skewed accounting of Energy Return on Investment (EROI) which excludes all externalized environmental costs;
- tolerate the loss of ecological services in exploited areas where these practices have taken place – e.g. fracking, oil-sands, mountain-top removal, deep water and arctic drilling)

The challenge to our team is to take action that directly addresses climate change and serves as a model for other county governments. Our proposal is to build a biomass energy system that outperforms a conventionally-fueled system, has high impact on reducing target emissions, and is within our ability to accomplish. It will be environmentally regenerative, economically sustainable and demonstrate acceptance of ecological realities.

The **difficulties in addressing climate change** within Jefferson County, like most other counties, are several, including: competition with financially- and environmentally-subsidized fossil fuel industries and lack of political or financial incentives for alternative energy development. As with many rural counties, there is a momentum of conventional thought. Policy discussions rarely progress beyond financial concerns, jobs and taxes. This project, in order to be successful, must acknowledge these priorities, satisfy them, and move beyond them.

**Our proposal affects an unusually large number of stakeholders.** In order for this to be of higher impact on climate change than a boiler upgrade, we need to frame the project as one that signifies a shift in priorities for our county’s public energy policy.

Therefore, we will need our fellow county supervisors, and the citizens of the county that elect them, to be part of the process. They are stakeholders. We will need those who can create the business case for the project. We will need to satisfy financial concerns, jobs and taxes, but not end the story there.

We will need facilitators of the conversation that will help overcome objections. We will need documentarians to carry the story to other counties to multiply the model.

We will need a leadership team (which we foresee as a private-public partnership) to secure the financing, and oversee project management. Other stakeholders, whether private or publicly-appointed, will include:

- o grower-producers of the biomass and their attendant suppliers;
- o aggregators and transporters of the fuel stocks;
- o materials processors;
- o system installers and operators;
- o Regulators, legal advisors, insurers, licensing bodies.

A challenge we will take seriously is to recruit talent and partners who possess skills and knowledge to accomplish the project. The Biomass Energy Project, with its new approach, will be attractive to people who share a regenerative design vision.

Let us **consider some of the social, political, economic or institutional assumptions or contexts that can help convey our understanding of the principle issues.** As stated earlier, we consider a principal issue to be a need to recalibrate society's perceptions to accept that it either exists in harmony with the biosphere or not at all.

In Jefferson County, as in most counties, the leadership across our social, political and economic institutions have not challenged the simplistic, reductionist assumptions underpinning energy policies. As a county board, we have pursued the opportunity to exploit the artificially depressed prices of fossil fuels, especially natural gas. We do this without factoring in the effects to climate, or the loss of jobs and money outside of Wisconsin. Our board, like the other institutional leaders, accepts exposure to market speculation and boom and bust production cycles, despite lessons from history that this is unsound.

Our institutions behave as if nature is open for business and can heal itself regardless of scale and intensity of disruptions. We act as if the laws of diminishing returns do not apply to us. We accept the idea that growth should continue unchecked and that resources are unlimited. For our team, these beliefs and actions are incorrect and irresponsible. We seek to recalibrate mental models while demonstrating a new way toward energy security and biospheric healing.

### **3. Solution and Impact**

*Honesty: We will assess cost and value accurately, holistically, and honestly.*

*Responsibility: We have equal and binding responsibility for our many rights. We are responsible for ourselves, our nation, our world, and future generations.*

*Jefferson County: Responsible government advancing quality of life.*

-Values Statements and Motto, from 2010 Jefferson County Government Strategic Plan

Our team approached the Climate Quest Challenge in a holistic manner. Our solution, therefore, addresses the fundamental and philosophic underpinnings of the problem while operating a real-world demonstration of a better way. Our core team is trained in The Natural Step<sup>ii</sup> and Permaculture principles<sup>iii</sup> and have made our lives' work the promotion and practice of resource conservation and regenerative development.

#### **Proposed Solution**

The Biomass Energy Project addresses climate change by effectively designing, planning, implementing, and operating a regenerative energy system that uses first waste streams, and then dedicated locally grown crops, for energy production. This wood-powered unit will heat and/or power some or all of the Jefferson County, Wisconsin campus of buildings, displacing the fossil fuel powered system now used. The BEP will create an opening for dialog about climate change in our county. The BEP will serve as an exemplar that citizens, politicians and financial leaders can communicate effectively about climate change, and take prudent steps to act.

The BEP is a public/private fuel-switch partnership. Partnerships will be forged between private industry and the County to create a model of ownership that melds the best aspects of both. The BEP would create local jobs and bring Jefferson County some security from fossil fuel price fluctuations and disruptions.

A crucial part of the BEP's ability to address climate change is the way the biomass plantings are designed and maintained. Perennial polycultures of woody and herbaceous plants are planted using alley cropping methods, keyline water management techniques and harvested in short term cycles (3-5 years). The plantings are managed to provide fuel and ecological services, including but not limited to: sequestration of carbon, phosphorus and other nutrients; building of soil organic matter and its associated symbiotic relationships; creation of water infiltration and retention zones; creation of habitat and wildlife food sources; creation of wildlife corridors and buffer strips; and remediation of toxins.

Because living plants have the ability to capture carbon from the atmosphere and create a fuel that can be gasified to produce energy and charcoal, the BEP has the potential to be a carbon negative energy system.

Education and outreach must be an integral part of the effort. From tours to forums to fence post conversations the climate impact significance of the BEP will be relayed along with details of its technological and biological components. A web-based toolkit with template policies, MOUs, timelines, lessons learned, etc. will be created and provided open-source to expedite reproduction.

The BEP is a multi-dimensional approach to creating an ultra-local energy system that replaces exploitative industrial models, and brings together interdependent stakeholders to develop policies, innovations, and assets that are good for the environment and our communities.

**Ability to address issues described in Challenge Statement**

Our identified issues from the Challenge Statement were twofold: a need for a mental model shift to holistic and restorative habits of thought, leading to better energy policies and operations in Jefferson County.

**We bring value to stakeholders in multiple ways.**

Every stakeholder group mentioned in section two, and those not yet mentioned, benefit in improved odds for better climate outcomes when processes go from C positive to C negative. The more projects that get built and inspire others, the more chance we have to minimize wide-scale human tragedy.

There is a long list of values to the investors and to those directly or indirectly employed by the BEP. An easy one to identify is the financial returns or wages earned while demonstrating climate change leadership. When a similar project inspired by the BEP is fledged elsewhere, this economic activity will compound that generated in Jefferson County, not diminish or compete with it.

Taxpayers receive value in the form of decreased financial risk exposure due to a diversified energy portfolio, and in less tax money leaving the county for energy expenses. Jobs and wages that were once exports can return to within our state.

County board and staff members will have the value of working on a project that demonstrates the true nature of leadership. This project sets a course, and will be a fitting legacy for many on the board.

Utility and other private energy firms may be able to satisfy alternate energy production quotas and garner federal incentives by partnering on this project.

Further, the BEP, being designed to be a regenerative enterprise, will strive to produce capital in all eight recognized forms as outlined in *Regenerative Enterprise: Optimizing for Multi-Capital Abundance*<sup>iv</sup>: living, material, financial, social, cultural, experiential, intellectual and spiritual for returns to investors that run more deeply than financial returns alone can.

**Appeals to human stakeholders in ways that are:**

**Novel:** Our holistic approach challenges basic assumptions and honors human abilities to adapt their thinking. We are not discounting the destructive power of reductionist mental models but addressing it.

**Creative:** Our proposed solution to work through the policies and the ownership models to build a local, vertically integrated, regenerative biomass energy/food/park system that is scalable and replicable, is bold enough to inspire; basic enough to be inclusive of widely available skill sets and to be feasible.

**Innovative:** by taking a problem-solving, leadership position as elected officials in a typical middle American setting, we are asserting the true nature of elected authority. We are ideally suited to create a private/public partnership to finance change, institute meaningful dialogs, and reassert values along all eight capital forms.

**We anticipate improvements in environmental, social and organizational conditions related to climate change by:**

Reorganizing how institutions, like county governments, evaluate energy acquisition and use;  
Creating opportunities for discussing climate change among all stakeholders as part of a practicable project;

Creating a carbon negative energy system;

Eliminating long distance transportation of feedstocks, whether by road, rail or pipeline;

Creating a new energy option that optimizes community assets and resources, an alternative to fossil fuel addiction, and,

Internalizing costs of production.

**These improvements may be demonstrated or qualified by:**

How much carbon (and other nutrients) are sequestered;

How many transport miles saved;

Btus of energy substituted;

Number of jobs created;

Amount of tax revenue generated;

Number and size of facilities created;

Number of tours and presentations given;

Number of folks touring parks;

Acres of biomass/food planted; and

Acres of new habitat created for all biological life forms.

**Our solution demonstrates social innovation by** using the best traditional and multimedia tools of social outreach we will attempt an open process that will garner public and other stakeholder input as we design the BEP. We will attempt to give information about true cost accounting, holistic thinking and a true assessment of climate change impacts. We will also be bold in our outreach to private partners in helping to finance and operate the BEP. We will attempt a simple business model that is easily replicated in order to increase the likelihood for the BEP to scale larger and inspire duplication.

**Our solution demonstrates policy development** by working within county governments to mobilize local control of our energy future, as well as to create a new model of restorative biomass fuel production.

**Our solution demonstrates technical innovation** by exploring the use of the best of old and new technologies like: Permaculture, gasification, closed loop refrigerant micro-turbines, and thermal energy use, management and distribution.

**We will measure outcomes, by measuring baselines and then conditional changes of the amount of:**

Carbon sequestered;  
Acres planted;  
Therms/watts produced;  
Facilities built; and  
Projects replicated.

#### **4. Ability to Scale-up Solution**

**The BEP has an ability to scale quickly and across the region and world.**

In creating the BEP, Jefferson County will be providing a case study of an operating and successful fuel switch, which is a key to lowering the obstacles for reproduction by other counties. Case studies provide clarity through the fog of fear and uncertainty that stymy innovation.

Our project is already making impact in Jefferson County, as we have garnered board support for an initial pilot project in a county facility, and received a resolution of support for our project and participation in the Climate Quest Challenge. Our County administrator is a proponent of the concepts, and encouraging us to follow through. A pilot biomass project is being discussed for implementation at a highway satellite shop.

There are 72 counties in the state, and some 3000 nationwide. There are such potential sites for BEPS as incorporated municipalities, universities, and in the private sector.

As stated throughout this paper, **challenges to start up** include the momentum of conventional thought that is more forgiving of the “devils we know” than those we don’t. Higher initial start-up costs and competition with subsidized and artificially low natural gas prices will need to be addressed. The cost and unknowns of establishing polyculture plantings and processing will have technical and financial challenges we must expect and address.

### **5. Readiness of Solution**

*Here's a story to chill your bones. It is the year 2393, almost 400 years from now. And a Chinese historian is looking back on our century, the 21st century, and trying to explain how the world saw climate change coming and did nothing. How we denied and delayed as an unbelievable price tag of suffering and destruction gathered around us. How that suffering finally came – with flood and heat and mass migration and chaos. How Western civilization collapsed.*

-Tom Ashbrook, introducing public radio show "On Point" with guest Naomi Oreskes, professor of the history of science at Harvard University

**How long the proposed solution will take to build, create or implement. This can include the time for initial designed solution and how long you predict it will take to scale up dissemination of solutions.**

**An initial biomass pilot project is already being explored in Jefferson County.** These activities are in clearer focus than the full-scale project being proposed for the Climate Quest Challenge. Therefore close term predictions are more detailed than longer term predictions.

Q4, 2014: Mining the resources – technical, financial, advisory – of Climate Quest organizers to create Full Proposal for Climate Quest Challenge. Continue salesmanship to infrastructure committee, and County Board of Supervisors.

Q1, 2015: Creation of leadership team. Begin local public outreach program. Selection of site and facilities to heat/power of pilot project. Design and planning of pilot project. Inventorying and baselining of biomass resources and technologies.

Q2, 2015: Development of ownership models, financing options. Development of proposal for bidding out equipment and facility of pilot project. Begin development of full-scale project. Continue outreach to community and board. Assess biomass waste streams and availability. Documentation for sharing. Begin planting of biomass nursery.

Q3, 2015: Begin work on pilot project. Decide scope and location of full-scale project. Feedstock systems for procurement, processing, transport and storage addressed. Documentation continues. Outreach continues. Determine and acquire locations for biomass plantings.

Q4, 2015: Finish pilot project and begin waste stream acquisition. On-going assessments with operators with eye toward continual improvements and efficiencies. Outreach. Finish and let Proposal for full-scale project.

2016: Assess and tune pilot project. Work on full-scale project continues. Continue documentation and outreach. More biomass planted.

2017: Work on full-scale project continues, perhaps completed. Continue documentation and outreach. Continue biomass plantings. Work to change regulatory environment.

2018: Full-scale project becomes operational. More biomass planted. Plantings become adapted for park-like use. Documentation continues. Outreach continues.

2019: Full-scale assessed and tuned. Biomass plantings continue. First biomass harvested.

Because of the complex nature of this local vertically integrated biomass energy system, long range projections are difficult and subject to change.



**RESOLUTION NO. 2014-22**

**Resolution to support exploring biomass energy in Jefferson County**

Executive Summary

The purpose of this resolution is to elicit Board support for our Climate Quest Challenge proposal to study the feasibility of a biomass energy system that is local, restorative, precautionary and cost effective over time. The idea is to use locally grown biomass to heat and/or power some or all of the Jefferson County-owned buildings. In the Climate Quest Challenge we are addressing the issues of climate change by designing an energy system that sequesters carbon, phosphorus and energy and provides useful ecological services.

WHEREAS, Jefferson County's public facilities are almost exclusively heated by natural gas, and

WHEREAS, exploring the diversification of investment in Jefferson County's energy budget is prudent and fiscally responsible, and

WHEREAS, biomass energy can be produced within Jefferson County, create jobs within Jefferson County, regenerate the environment and provide diversification of energy sources, and

WHEREAS, biomass energy production is a precautionary measure against natural gas shortages and price fluctuations with the costs of implementation ultimately being off-set by reduced energy costs to Jefferson County.

NOW, THEREFORE, BE IT RESOLVED that the Jefferson County Board of Supervisors supports the idea of investigating the potential benefits, costs and funding sources for a biomass energy facility in Jefferson County, and

BE IT FURTHER RESOLVED that the Jefferson County Board of Supervisors supports the submission of Supervisors Christensen, David and Kelly to the UW-Madison Climate Quest Challenge to explore the potential of biomass energy use in Jefferson County facilities.

*Fiscal Note: The Climate Quest Challenge has no fiscal impact on the county budget, except for staff time supplying input for the project. If the Climate Quest submission is successful in the next round for consideration, to be determined in September 2014, biomass team members will receive a planning grant to continue to develop the project. Should the team be successful in the final round of elimination in December 2014, funds will be made available to implement the project. The Jefferson County Board would not be subject to any cash outlays at this time. If the Board deems biomass energy a good investment, the Jefferson County Board of Supervisors must authorize funding before any future costs are incurred by Jefferson County.*

Ayes: \_\_\_\_\_ Noes: \_\_\_\_\_ Abstain: \_\_\_\_\_ Absent: \_\_\_\_\_ Vacant: \_\_\_\_\_

Requested by  
Infrastructure Committee

07-08-14

J. Blair Ward: 06-25-14, 06-30-14  
Supervisors Christensen, David & Kelly: 06-30-14; 07-01-14

<sup>ii</sup> *The Natural Step*, Retrieved August 24, 2014, [thenaturalstep.org](http://thenaturalstep.org)

<sup>iii</sup> *Permaculture Principles*, Retrieved August 24, 2014, <http://www.permaculture.org.uk/knowledge-base/principles>

<sup>iv</sup> Roland E. and Landua, G., (2013) *Regenerative Enterprise: Optimizing for Multi-Capital Abundance*, [Ver 1.0 ebook] Montreal:Lulu

**PROJECT STATUS UPDATE  
NEW HIGHWAY FACILITY PROJECT  
JEFFERSON, WI  
9-3-14**

1. Activities This Past Month (August)

- Ground breaking ceremony held 8/11/14
- Mass grading of site; approx 75% complete
- Continued with public utility installation in new access road
- County highway crews completed grading & paving of binder course CTH W
- Footing excavation, forming & pouring foundation concrete for main facility; approx 90% complete
- Started footing excavation, forming & pouring foundation concrete for cold storage building; approx 80% complete
- Started precast panel erection, approx 55% complete
- Started structural steel erection, approx 40% complete
- Started underground plumbing installation in main facility
- Submittals/Shop Drawings review & approval process continuing

2. Upcoming Construction Activities in September

- Continue mass grading activities northeast portion of site, pond liner construction, new access drive
- Continue public utility install in new access road into site (sanitary sewer, water main & storm sewer)
- Start site underground utilities
- CTH W roadway restoration; finish grading & surface paving TBD
- Continue footing excav, forming & pouring foundation conc for cold storage bldg
- Start footing excav, forming & pouring foundation concrete for salt brine bldg
- Continue setting structural steel frame, roof decking & precast wall panels
- Start masonry walls later this month
- Start installation of hollow metal doors & frames
- Start main bldg underground MEP
- Start erection cold storage metal building
- Start fuel island canopies & underground fuel tanks

3. Bidding & Award Activities

- Change Request #19 – reuse crushed stone from demo, deduct \$37,286.82
- Change Request #20 – site undercuts, add of \$23,004.37
- Change Request #21 – owner direct PO for slab insulation, deduct of \$1,409.04
- Change Request #22 – credit floor finish allow, conc slabs, deduct \$20,383.00
- Change Request #23 – change Smart Card to Prox Card reader for fueling system, add \$1,092.01
- Total Net changes this month was a deduct of \$34,982.48
- Results in total contingency remaining = \$213,839.59

4. Construction Draw Request Status

- 4th Maas Payment Application pro
- Total amount completed: \$1,926,379.63
- Percent complete: 23%
- County PO payments: \$1,137,161.67
- Percent complete: 20%

5. Other Misc

-

**Jefferson County Highway Department - Construction Budget Spreadsheet**

**Construction Related Hard Costs**

Item	Description	Base Bid	Alternate #1	Base Bid w/Alternate #1	Value Engineering	Base Bid/Alt. #1/VE	County PO's
1.01	BP#01 - Sitework (Veit)	\$2,459,025.00	\$2,600.00	\$2,461,625.00	-\$18,200.00	\$2,443,425.00	\$821,400.00
1.02	BP#02 - Asphalt (Rock Road)	\$1,178,429.10	-\$2,830.43	\$1,175,598.67		\$1,175,598.67	\$346,722.65
1.03	BP#03 - Site Utilities (Veit)	Costs in 1.01				\$0.00	
1.04	BP#04 - Fencing (American Fence Co.)	\$70,525.00		\$70,525.00		\$70,525.00	\$23,859.15
1.05	BP#05 - Landscaping (All-Ways Contractors)	\$86,132.00		\$86,132.00		\$86,132.00	
1.06	BP#06 - Cast-In-Place Concrete (Maas Brothers)	\$1,138,000.00	\$22,000.00	\$1,160,000.00		\$1,160,000.00	\$294,238.00
1.07	BP#07 - Precast Concrete (Miron Construction)	\$1,193,482.00	\$27,208.00	\$1,220,690.00	-\$40,648.00	\$1,180,042.00	\$867,013.00
1.08	BP#08 - Masonry (Walsh Masonry)	\$351,095.00		\$351,095.00	-\$20,630.00	\$330,465.00	\$72,818.00
1.09	BP#09 - Structural Steel Materials (Skyline Steel)	\$579,000.00	\$19,500.00	\$598,500.00		\$598,500.00	\$567,299.00
1.10	BP#10 - Structural Steel Erection (Red Cedar)	\$178,990.00	\$1,750.00	\$180,740.00		\$180,740.00	
1.11	BP#11 - Pre-Engineered Building (Maas Brothers)	\$438,392.00		\$438,392.00	-\$31,774.00	\$406,618.00	\$221,978.00
1.12	BP#12 - General Construction (Maas Brothers)	\$1,575,000.00	\$30,500.00	\$1,605,500.00	-\$26,090.00	\$1,579,410.00	\$687,913.42
1.13	BP#13 - Roofing & Sheet Metal (Northern Roofing)	\$776,100.00	\$10,950.00	\$787,050.00	-\$48,500.00	\$738,550.00	\$228,000.00
1.14	BP#14 - Fire Protection (Grunau)	\$95,000.00	\$5,000.00	\$100,000.00		\$100,000.00	
1.15	BP#15 - Plumbing (Zimmerman Plumbing)	\$514,900.00	\$3,500.00	\$518,400.00		\$518,400.00	\$248,865.00
1.16	BP#16 - HVAC (Tri-Cor Mechanical)	\$642,000.00	\$9,300.00	\$651,300.00		\$651,300.00	\$275,436.00
1.17	BP#17 - Electrical (Next Electric)	\$913,889.00	\$4,800.00	\$918,689.00		\$918,689.00	\$313,023.00
1.18	BP#18 - Automatic Truck Wash (Interclean)	\$275,972.18		\$275,972.18	-\$15,000.00	\$260,972.18	\$174,085.00
1.19	BP #19 - Salt Brine Equipment	\$146,245.16		\$146,245.16	-\$146,245.16	\$0.00	
1.20	BP#20 - Bulk Fluids - TARGET #	\$155,000.00		\$155,000.00		\$155,000.00	\$234,300.00
1.21	BP#21 - Fuel Islands -TARGET #	\$349,500.00		\$349,500.00		\$349,500.00	
1.22	General Conditions	\$178,000.00		\$178,000.00		\$178,000.00	
1.23	Supervision	\$165,000.00		\$165,000.00		\$165,000.00	
1.24	CM Fee 2%	\$269,193.53	\$2,685.55	\$271,879.08		\$264,937.34	
1.25	Estimated Sales Tax Savings	-\$228,000.00		-\$228,000.00		-\$228,000.00	
	<b>Sub Total</b>	<b>\$13,500,869.97</b>	<b>\$136,963.12</b>	<b>\$13,637,833.09</b>	<b>-\$347,087.16</b>	<b>\$13,283,804.19</b>	<b>\$5,376,950.22</b>

**Construction Related Reimbursables/Allowances**

Item	Description	Budget Cost	Actual Cost	Difference
2.01	Builders Risk Insurance	\$5,000.00	\$0.00	
2.02	Materials Testing	\$50,000.00		
2.03	Construction Manager Bond	\$60,000.00		
2.04	Advertising Bid Packages	\$2,500.00		
2.05	Plan Printing	\$18,500.00		
2.06	Floor Finish Allowance	\$47,985.00	\$27,602.00	-\$20,383.00
2.07	CM Fee 2%	\$2,720.00	\$0.00	
	<b>Sub Total</b>	<b>\$186,705.00</b>	<b>\$27,602.00</b>	<b>-\$20,383.00</b>
	<b>Total Construction Contract</b>	<b>\$13,470,509.19</b>		

**Change Requests**

Item	Description	Cost	Changes to Owner PO
3.01	Credit Builders Risk	-\$5,100.00	
3.02A	Credit Materials for Owner Direct PO's	-\$5,142,650.22	
3.02B	Credit Additional Sales Tax Savings above Estimate in 1.25	-\$11,200.02	
3.03	Credit to Change ACT-1 to Certainteed SHM-154	-\$2,490.00	
3.04	PTI Credit for Security	-\$9,575.00	
3.05	Provide BAF Basic 6 Fan in Lieu of Power Foil X2.0	\$0.00	-\$10,600.00
3.06	Construction Bulletin #1	-\$6,958.71	-\$5,851.00
3.07	Add Additional Depth to the Footing at the Wash Bay	\$2,480.64	
3.08	Bulk Fluids & Fuel Islands (Changes from the Target #)	\$73,332.90	
3.09	Bulk Fluids & Fuel Islands (Owner Direct PO's & Sales Tax Savings)	-\$245,001.10	
3.10	Lime Stabilization "BUDGET" (Budget was \$504,307.62)	VOID	
3.11	Change to Plenum Rated Cable at Plenum Ceilings Only	\$6,194.59	
3.12	Construction Bulletin #2	\$55,107.00	\$10,574.00
3.13	Truck Wash Water Softener	\$42.59	
3.14	Convert Fire Alarm to Voice System	\$9,905.66	\$12,686.00
3.15	Lime Stabilization (Rock Solid)	\$259,832.36	
3.16	Lime Stabilization (Owner Direct PO)	\$4,405.76	\$145,886.29
3.17	Credit for Plumbing & Electrical Allowance for Truck Wash	-\$8,234.00	
3.18	Add Roof Frames @ Skylights	\$4,769.93	\$6,635.00
3.19	Reduce Owner Direct PO with Hausz for Owner Supplied Material	\$23,955.18	-\$61,242.00
3.2	Undercutting at Parking Lot (2 Areas)	\$23,004.37	
3.21	Owner Direct Purchase for Rigid Insulation (Owner Tax Savings)	-\$27,028.02	\$25,618.98
3.22	Credit to (2.06) Floor Finish Allowance	-\$20,383.00	
3.23	Remove Smart Cards & Include Prox Card Readers for Fuel Package	\$1,092.01	
	<b>Sub Total</b>	<b>-\$5,014,497.08</b>	<b>\$123,707.27</b>

<b>Total Construction Contract with Change Requests</b>	<b>\$8,456,012.11</b>	
<b>Total Owner Direct Purchases with Change Requests</b>		<b>\$5,500,657.49</b>
<b>Owner's Total Construction Related Project Cost To Date</b>	<b>\$13,956,669.60</b>	

**Owner Related Allowances & Contingency**

		Allocated Cost	Cost to Date
3.01	Contingency	\$700,000.00	\$486,160.41
	<b>Sub Total</b>	<b>\$700,000.00</b>	<b>\$486,160.41</b>
	<b>Total Remaining Owner Contingency</b>	<b>\$213,839.59</b>	
4.01	Salt Shed Allowance	\$800,000.00	
	<b>Sub Total</b>	<b>\$800,000.00</b>	
6.01	Owner FF&E/Technology	\$400,000.00	
6.02	<b>Sub Total</b>	<b>\$400,000.00</b>	
7.01	<b>Total Project Budget</b>	<b>\$15,370,509.19</b>	