



## **ENERGY EFFICIENCY AND CONSERVATION STRATEGY**

This project has been funded through a grant from:  
United States Department of Energy - American Recovery and Reinvestment Act

Submitted to the Department of Energy December 4, 2009

Original Draft Completed By:  
11/25/2009

**URS**

3950 Sparks Drive SE  
Grand Rapids, MI 49546  
(616) 574-8500

Revised By: Kent County Energy Steering Committee 12/3/2009



## TABLE OF CONTENTS

- Executive Summary
- I. Purpose
- II. Methodology
- III. Baseline Energy Use
- IV. Green House Gas (GHG) Inventory
- V. Recommendations for GHG Credits
- VI. Energy Usage GHG Forecast
- VII. General Recommendations
- VIII. Timeline for Implementation
- IX. Leveraging/Coordination of Funds
- X. Monitoring and Evaluation
- XI. Recommendations for Unfunded Activities
- XII. Energy Efficiency Block Grant Reporting
- XIII. Sustaining Energy Efficiency Projects in Kent County
- XIV. Recycling and Disposal
- XV. Conclusion
- XVI. Attachments:
  - A: Kent County Facility List
  - B. Project Prioritization Matrix
  - C. Baseline Energy Use Summary
  - E. Baseline GHG Emissions Summary
  - F. Consumers Energy Rebate Program Guidelines
  - G. Non-Funded EECS Projects
  - H. Terms and Conversion Factors
  - I. Kent County Energy Tracking Form
  - J. EECS Activity Work Sheets

## I. Executive Summary

In 2009, Kent County received a \$2,796,700 formula grant through the Department of Energy - Energy Efficiency and Conservation Block Grant (EECBG). To plan for the implementation of these funds and to meet the Department of Energy (DOE) Funding requirements, Kent County developed this Energy Efficiency and Conservation Strategy to guide the short-term use of these funds as well as a longer-term strategy for energy conservation and cost avoidance.

Prior to the award of funds from the DOE, Kent County had been actively working on initiatives aimed at energy efficiency. This document builds upon those activities and through this grant the County has identified projects that will result in long-term benefits to the County. Funding for these initiatives combined with the educational components is estimated to yield the County an energy savings of at least \$131,390 in 2010, \$390,733 in 2011, \$399,407 in 2012, and \$416,753 in 2013. In addition, the City of Grand Rapids will also benefit from the County funded projects to the tune of \$27,555 in 2010 and \$130,954 each year thereafter assuming that all projects proposed are implemented and fully funded. The County will also benefit from the projects that are funded by the City through their EECBG as a result of shared infrastructure and mechanical systems.

This strategy reviewed 13 Kent County Facilities and completed a baseline study of energy use and greenhouse gas emissions in each of these facilities. In addition, the study also reviewed the greenhouse gas emissions from the County's fleet of vehicles. The study concluded that four of ten County facilities are currently operating within energy use standards as calculated by the Energy Star Portfolio Manager tool, while the remaining six facilities will benefit from the projects identified to be funded through the EECBG.

Overall, this Strategy is recommending the funding of 24 energy projects at a total cost of \$2,307,692 which is projected to annually save 7,194,073 kwh and result in annual cost savings/avoidance of \$547,707 for both the City and the County when all projects are fully implemented in 2013. Ten percent of the total project EECBG costs have been set-aside as a contingency. If these funds remain unused, they will be reallocated to fund additional energy efficiency projects. The Strategy also provides funding for the County to consider hiring an energy manager and also provides a nominal amount of funding to cover the costs associated with the federal reporting process and administration of the grant.

The Strategy recommends the following for Kent County:

- Implement the 24 Energy Efficiency Projects funded through the EECBG.
- Consider establishing an Energy Manager to oversee and administer the implementation of this Strategy.
- Monitor technical advancements and building performance.
- Continue to develop the work of the Energy Steering Committee.
- Install sub-metering in the Administration Building.
- Conduct a review of energy use at the Sheriff's Department Community Reentry Center.
- Join Energy Star as a governmental entity.

- Continue to implement Kent County's Employee Information and Awareness Initiatives.

Through the implementation of the EECBG funded project and the longer-term strategies for energy conservation and reduction, Kent County stands to significantly benefit by developing an effective program that will monitor, report, and evaluate the efficacy of the DOE grant.



## ENERGY EFFICIENCY AND CONSERVATION STRATEGY

### I. Purpose

In 2009 Kent County was awarded a \$2,796,700 formula grant through the Department of Energy – Energy Efficiency Block Grant (EECBG). This grant became possible as a result of the American Recovery and Reinvestment Act which has been developed to assist in both stimulating the economy as well as providing local governmental units with opportunities to implement projects related to energy that will result in multiple benefits, which include:

- Reduction in energy use
- Job creation
- Reducing and/or improving the environmental impact of local government operations
- Cost avoidance and cost containment

Together these elements build upon the findings defined by the Kent County Energy Use Reduction Workgroup Report on Energy Use<sup>1</sup>. The following EECBG Strategy was designed to provide Kent County with the following:

- Baseline analysis of energy use as greenhouse gas emissions.
- Development of Goals and Objectives for the following metrics:
  - Jobs created/retained
  - Energy use reduction
  - Renewable energy capacity
  - GHG emissions reduced
  - Cost savings
  - Energy saved
  - Funds leveraged
- Framework for evaluation, monitoring, and verification of the Strategy.
- Recommendations on the activities to be funded by the EECBG.
- Recommendations on the activities not funded by the EECBG but important to sustaining the longer-term strategy of energy savings and cost avoidance.
- Recommendations on trading GHG credits.
- Process for quarterly and annual reports.
- Strategies to leverage other funds.

---

<sup>1</sup> County of Kent. Kent County Energy Use Reduction Workgroup – Report and Recommendations. December 12, 2008.

- Plan for how activities will be sustained beyond the grant period.

This Strategy, when combined with the work of the Energy Steering Committee, identifies opportunities for the County to implement improvements in existing and sometimes aged infrastructure.

## II. Methodology

To meet the 120-day requirement of the Department of Energy to complete an Energy Efficiency and Conservation Strategy, Kent issued an RFP to retain a consultant to assist in the development of the Strategy.

This Strategy reviews infrastructure improvements in 13 Kent County facilities which include:

- Kent County Administration Building
- Kent/MSU Cooperative Extension
- 17th Circuit Court
- Fleet Services
- Kent County Health Department
- Information Technology (IT) Building
- Juvenile Detention Center
- 82 Ionia
- KCH Boiler Plant
- Sheriff's Department, Administration Building
- Sheriff's Department, Community Reentry Center
- Sheriff's Department, Honor Camp
- Sheriff's Department, Kent County Correctional Facility

Although the American Recovery and Reinvestment Act prohibited the use of funds at Zoo facilities, this Strategy did review information and projects related to the John Ball Zoological Park; however, there are no recommendations related to the funding of projects at the Zoo.

In recent years, Kent County has constructed several buildings including the 63rd District Court, Kent County Animal Shelter, and Kent County Human Services Complex with energy efficiency strategies in mind. Currently, the County is planning and designing a new correctional facility that will combine energy savings strategies funded through the EECBG with energy saving strategies in the design and construction phases that will jointly work to reduce energy consumption, improve energy utilization, and result in cost containment and cost avoidance for the County.

To complete this Strategy the consultants reviewed existing County work products such as recent energy audits, energy (electricity, natural gas, purchased steam) and fleet fuel usage spreadsheets, and energy plans/programs, etc. Facilities Management staff were also interviewed to determine what energy conservation projects cited in the recent

energy audits have been implemented and any programmed changes and/or growth that is anticipated.

A GHG inventory and baseline indicator of energy consumption and greenhouse gas emission inventories was developed for the County buildings.

Throughout this process, there were specific projects identified that were subsequently compiled into a prioritization matrix as reflected in Attachment B. Each project was evaluated and assessed an estimate for the amount of energy savings (kwh), greenhouse gas savings, jobs created, and a variety of other factors. To prioritize these projects, County staff identified five variables that were weighted and scored to subsequently determine the order of priority. Each project had a possible score of 900. The variables evaluated included:

- Amount of Energy Savings (MMBTU's): Projects were compared against one another based upon the average of all projects. If below average, the project scored a 1; if near average the project scored a 5; if above average the project scored a 9.
- Annual Greenhouse Gas Savings (Ton CO<sub>2</sub>): Projects were compared against one another based upon the average of all projects. If below average, the project scored a 1; if near average the project scored a 5; if above average the project scored a 9.
- Annual amount of General Fund (\$\$) savings as a result of energy efficiencies: Due to the large range in projects savings, those projects saving less than \$40,000 scored a 1; \$40,000-\$80,000 were scored a 5; above \$80,000 in annual savings projects were scored a 9.
- Payback: Each project was assessed a score based upon the length of the payback. For those projects with a payback period of 0-3 years scored a 9; 4-7 years a 5; 8-10 years a 1; 10+ years = 0
- County staff off-set: For those projects where the County employs staff qualified to perform the labor for the projects identified, the County intends to bill these costs as a part of the project cost. This scoring was determined with facility managers and was assessed based upon the availability of staff to perform the labor as well as having the appropriate qualifications to perform the labor. These funds will assist in retaining current Kent County employees.

Following the completion of the prioritization matrix, the County was able to identify the appropriate projects to be implemented through this DOE grant. To meet DOE requirements, this Strategy also contains specific project activity worksheets outlining each project, goals, objectives, and estimated savings.

### **III. Baseline Energy Use**

Kent County maintains an energy database which provides energy use information and provides for tracking of electricity, natural gas, steam and gasoline usage. This database,

together with additional energy usage information supplied by Kent County, provided the basis for the energy analysis. The database and this analysis have established the calendar year 2007 as the Baseline for tracking the energy use and GHG inventories and forecasts.

This database converts all energy recorded to a British Thermal Unit (BTU) basis and calculates the change in overall BTU usage for the buildings being tracked on a Degree Day basis. A heating degree day is a quantitative index designed to reflect the demand for energy needed to heat a building. A cooling degree day reflects the amount of energy used to cool a building. These indices are derived from daily temperature observations.

Tracking energy usage on a Degree Day basis can be useful in normalizing energy usage data for weather conditions making it possible to compare data from one year with data from another year. However, it is also important to track absolute energy usage, as is being done in the individual worksheets to compare the energy efficiency of buildings during the same month of the year, as well as to understand energy usage patterns and trends. Energy efficiency improvements should be tracked by considering the trends in energy usage over time as projects are implemented.

The US EPA Energy Star program Portfolio Manager tool was utilized to determine the energy intensity for the buildings. Energy intensity is a measure of the energy used in a particular building per square foot. It can be used to compare building energy performance against other similar buildings and against national averages. The Boiler Plant building was not entered into the tool, since the building type is not represented in the Portfolio Manager database. The data for the Zoo also was not entered into the tool, since the Zoo data represent numerous small buildings.

The following table shows the energy intensity for ten of the County buildings, along with the corresponding national average energy intensity for similar buildings, as calculated by the Energy Star Portfolio Manager tool. Note that the County's energy use database tracks the Correctional Facility, Sheriff's Administration, and Fleet Services together resulting in data reflecting ten facilities. The data below indicates that some buildings are performing better/lower than the national average, while other facilities are performing at a rate worse/higher than national averages.

Kent County Energy Intensity – Baseline Data

<b>Building Name</b>	<b>Energy Period Ending Date</b>	<b>Site Energy Intensity (kBtu/Sq. Ft.)</b>	<b>National Average Site EUI (kBtu/Sq. Ft.)</b>
Sheriff's Dept. Community Reentry Center	12/31/2007	243.2	87
IT Building	12/31/2007	193.3	104
Juvenile Detention Center	12/31/2007	148.9	138.2
Sheriff's Dept. Correctional Facility/Fleet Services	12/31/2007	137.1	168.8
Administration Building	12/31/2007	133.6	89.8
Health Department*	12/31/2008	100.1	93.9
Sheriff's Dept Honor Camp	12/31/2007	97.6	96.9
Courthouse	12/31/2007	96.9	109.9
82 Ionia Building	12/31/2007	67.4	96.6
Cooperative Extension	11/30/2007	63.3	67

\*Based on 2008 data (11 months Electric prorated to 12-months and 12-months Nat. Gas) as 2007 data was not available.



As seen in the table on the prior page, the Administration Building, IT Building, Honor Camp, Juvenile Detention Center, Community Reentry Center, and Health Department are operating at a rate above the national average for buildings of comparable use and size. As it relates to the County Administration building, the County and City have their own facilities but the facilities share some of the mechanical systems. As a result, the City and County share energy costs based upon the square footage of each facility. Under this agreement the County is assessed 37.1% of the total energy used by the City-County building complex versus the amount actually expended within that portion of the complex. As for the high energy intensity of the IT Building, a current energy-related project is underway in the facility and estimated to bring that facility back in alignment with the national average for this type of facility. The excessive energy intensity for the Community Reentry Center requires a more in-depth facility evaluation to determine whether it is a construction issue, inefficient use of energy issue, or merely a matter of inaccurate data recording.

During the development of the GHG inventory and energy use baseline, it appeared that a portion of the utility data for the Health Department may not be tracked correctly. In fact, it was later determined that prior to 2008, the facility's utilities were part of the total campus metering, not metered separately as would be required to be properly tracked. For that reason, 2008 utility information was used at the baseline usages rather 2007 data as used for all other buildings.

It is recommended that Kent County prioritize energy efficiency and conservation projects based on energy intensity performance, giving higher priority to the buildings which perform below average. Energy costs per square foot were not determined, but will follow the same trend as energy intensity.

#### **IV. Green House Gas (GHG) Inventory**

A spreadsheet was created to show both GHG emissions (Scope 1 and 2) for the buildings in the scope of this project which included emissions from the county-owned vehicle fleet.

Scope 1 GHG emissions are direct emissions from the combustion of fuel at County buildings or in County equipment. Scope 2 GHG emissions are indirect emissions that occur at power plants not owned by the County, and are caused by the usage of steam and electricity in the County buildings. The summation of these Scope 1 and Scope 2 emissions represents the GHG Inventory, also called the Carbon Footprint, for the eleven facilities being addressed as well as the associated vehicle fleets.

The following table shows the ranking of the Scope 1 and 2 GHG emission intensities for all buildings except for the KCH Boiler Plant. It is not appropriate to rank the KCH Boiler Plant on a GHG emission intensity basis, since the energy output from this facility is used to provide heat to buildings that are out of the scope of this study. A completed spreadsheet output is attached as attachments entitled "Energy Use Baseline" and "GHG Summary Inventory."

Kent County Scope 1 and 2 GHG Emission Intensity – Baseline Data<sup>2</sup>

Facility	CO2e Emissions per sq ft
Sheriff's Dept. CRC/Work Release Information Technology Building	0.0481
Zoo (all buildings combined)	0.0354
Administration Building	0.0339
Juvenile Detention Center	0.0215
Correctional Facility/Sheriff's Dept./Fleet Svcs	0.0187
Health Department	0.0166
Courthouse - 180 Ottawa NW	0.0137
82 Ionia	0.0135
Cooperative Extension	0.0110
Sheriff's Dept. Honor Camp	0.0102
Vehicle Fleet (2,276 metric tonnes)	0.0092
<b>Grand Total: (metric tonnes)</b>	<b>0.0249</b>
<b>Total Less Zoo: (metric tonnes)</b>	<b>0.0253</b>

\*Based on 2008 data (11 months Electric prorated to 12-months and 12-months Nat. Gas) as 2007 data was not available.

The ranking of the buildings for GHG emissions intensity is similar to the ranking of energy intensity. If Kent County prioritizes energy efficiency and conservation projects based on energy intensity performance, the County will also be prioritizing the worst performing buildings in terms of GHG emission intensity.

**V. Recommendations on GHG Credits**

The concept of GHG, or carbon credits, has been developed as part of international attempts to mitigate the growth in concentrations of GHGs. One carbon credit is equal to one ton of carbon emissions. Carbon credits are typically generated in order to sell or trade them through market mechanisms. Voluntary markets exist in the United States for buying and selling carbon credits. Mandatory programs exist in some states and internationally, and these programs are called “cap and trade” programs. In cap and trade programs, GHG emissions are capped at a certain level and markets are used to allocate the emissions among the group of regulated sources.

The concept of the cap and trade program is to allow market mechanisms to drive industrial and commercial processes in the direction of low emissions or less "carbon intensive" approaches than are used when there is no cost to emitting carbon dioxide and other GHGs into the atmosphere. Since GHG mitigation projects generate credits, this approach can be used to finance carbon reduction efforts between trading partners and around the world.

---

<sup>2</sup> Local Government Operations Protocol for the Quantification of and Reporting of Greenhouse Gas Inventories. September 25, 2008. Version 1. Developed in partnership by: California Air Resources Board, California Climate Action Registry, ICLEI - Local Governments for Sustainability, The Climate Registry. Accessed via: [www.project2degrees.org/Pages/final\\_lgo\\_protocol\\_2008-09-25.pdf](http://www.project2degrees.org/Pages/final_lgo_protocol_2008-09-25.pdf)

One key consideration in evaluating whether a carbon credit can be created through a GHG mitigation project is the concept of “additionality.” In order to generate a carbon credit, the GHG mitigation project must meet an additionality test: would the GHG mitigation have happened anyway in the absence of the carbon credit transaction? In other words, would or should the GHG mitigation activity have happened in a business-as-usual case.

As applied to energy efficiency and conservation projects, the fact that the projects result in a desirable economic payback from energy savings is used as a basis to determine that the resulting GHG reductions are not additional and therefore are not “creditable” reductions. There are exceptions, particularly when the energy efficiency or conservation project is large and would not have been undertaken without the additional revenue made available by the generation and sale of carbon credits.

Four of the most prominent voluntary offset programs in the United States are the Chicago Climate Exchange (CCX), The Gold Standard (GS), the Climate Action Reserve (CAR), and the Voluntary Carbon Standard (VCS).

The CCX does not list energy efficiency and conservation projects as being eligible for the generation of carbon offset credits in their listing of prescriptive projects. An entity can submit a proposal for generating carbon credits from projects not on the prescriptive list, but it is unlikely that energy efficiency and conservation projects such as those being considered by Kent County would qualify under the CCX protocol for the generation of marketable carbon credits based on the concept of additionality.

The Gold Standard only includes lighting projects that involve replacing incandescent lights with compact fluorescent lamps (CFLs) in the Gold Standard project eligibility list. The Gold Standard adheres to the Clean Development Mechanism (CDM) additionality definition. Based on this definition, the GHG emission reductions from the energy efficiency and conservation projects being considered by Kent County would not be considered additional.

The Climate Action Reserve was the program used by Kent County to create the carbon credits in the South Kent Landfill Gas-to-Energy Project. However, no protocol exists under the CAR for the creation of carbon credits from energy efficiency and conservation projects. A review of the approved project list shows that there are no energy efficiency and conservation projects listed as having created carbon credits under the CAR program.

The Voluntary Carbon Standard is unique in that it allows the use and development of carbon credit protocols that can be tailored to specific projects, including energy efficiency projects. However, protocols must be approved by the VCS, and the protocols are screened against the CDM definition of additionality. A review of the approved project listing shows that there is one approved energy efficiency project that has successfully generated carbon credits under the VCS program. However, this project, located in Israel, involved the replacement of an entire manufacturing process at an industrial facility with a more efficient process. This project was able to meet the test of additionality because it would not have been implemented without the generation and sale of carbon credits in order to help finance the project.

Greater financial incentive may be provided by state and/or utility rebate and incentive programs for energy efficiency.

Kent County should monitor cap and trade legislation that is currently pending before the United States Congress. It is possible that mechanisms for the development of carbon credits will be included in the legislation.

## VI. Energy Usage and GHG Emissions Forecast

In order to forecast energy usage and GHG emissions for an entire County, City or other organization, growth and other parameters are factored into the assessment which lead to a forecast of energy usage and GHG emissions increases over time at an estimated percentage. In this case the scope is limited to buildings identified earlier.

Factors such as employee/occupancy changes, building use changes, or new building projects, impact the forecasts for energy usage and GHG emission patterns in the future for buildings. However, given the economic climate and the expectation for governmental agencies to increase energy efficiency, as well as operating efficiencies in general, this analysis has assumed that County operations, energy usage, and GHG emissions will remain static or may even decrease over time. Therefore, the forecast for energy usage and GHG emissions among County facilities is the sum of the amount of energy and emissions saved by all the EECBG projects actually implemented by the County. If County operations grow or shrink from today's level in the future, these forecasts will need to be updated.

The following table summarized those forecast savings as well as project costs and is detailed in Attachment B.

Kent County Summary of Forecast Energy Saving and Project Costs

Facility	COUNTY Annual Energy Savings (kWH)	CITY Annual Energy Savings (kWH)	TOTAL ENERGY SAVINGS (KWH)	COUNTY Annual Energy Savings (\$\$\$)	CITY Annual Energy Savings (\$\$\$)	TOTAL SAVINGS	EECBG/ARRA Grant	Total Project Cost
82 IONIA	900,421	-	900,421	\$ 85,073	\$ -	\$ 85,073	\$ 570,135	\$ 575,300
Administration Bldg.	1,017,609	1,725,272	2,742,880	\$ 76,654	\$ 129,960	\$ 206,614	\$ 1,027,755	\$ 1,031,605
Courthouse	21,764	9,940	31,704	\$ 2,176	\$ 994	\$ 3,170	\$ 11,925	\$ 13,480
Health Dept.	616,850	-	616,850	\$ 25,556	\$ -	\$ 25,556	\$ 84,315	\$ 90,555
IT Bldg	214,111	-	214,111	\$ 17,600	\$ -	\$ 17,600	\$ 43,120	\$ 43,585
KCCF- Replacement Facility	620,435	-	620,435	\$ 26,020	\$ -	\$ 26,020	\$ 128,112	\$ 128,112
MSU/E Project totals	6,720	-	6,720	\$ 672	\$ -	\$ 672	\$ 895	\$ 1,200
Sheriff's Dept / Corrections/Fleet	2,060,952	-	2,060,952	\$ 183,001	\$ -	\$ 183,001	\$ 378,245	\$ 423,855
<b>Total</b>	<b>5,458,862</b>	<b>1,735,212</b>	<b>7,194,073</b>	<b>\$ 416,752</b>	<b>\$ 130,954</b>	<b>\$ 547,706</b>	<b>\$ 2,244,502</b>	<b>\$ 2,307,692</b>

As seen from this table, the largest annual savings in energy use and energy cost can be realized by implementing projects related to the County Administration Building and the Sheriff's Department. Projects implemented at 82 Ionia also provide a significant amount of annual energy and cost savings. There are also two projects that will be incorporated

into the design of the new correctional facility. These two projects will provide significant savings over the life of the facility.

Through the implementation of the recommended projects in Attachment B, it is estimated that the County will reduce energy use by 24,553 MMBTUs annually<sup>3</sup>, a 9% t reduction, which is projected to result in an estimated annual savings/cost avoidance of \$416,752 for the County and \$130,954 for the City of Grand Rapids. These forecasts will vary somewhat with actual energy usage and actual construction bids/quotes, but are based on information provided by Kent County, Means Construction Estimator and other sources available throughout the development of this Strategy.

**VII. General Recommendations**

The following recommendations are made to assist in achieving the goals and objectives of the energy reduction plan, several of which are also included in the County’s Strategy and Plan for Resource Conservation and Energy Cost Mitigation.

**1. Implement the projects identified below and further detailed in Attachment**

**A.** These projects support the reduction of energy, greenhouse gas, and improved energy. It should be noted, that the boiler project is not fully funded but is included as it has a potential to save the County nearly \$45,000 annually and nearly \$80,000 for the City. The City has chosen not to fund this project from their EECBG and the City and County should continue conversations regarding this project. In general, these projects provide the quickest payback on the money invested, and therefore provide for the most cost-effective use of the EECBG funding.

Facility	Project Description	TOTAL ENERGY SAVINGS	TOTAL SAVINGS	Total Project Cost
Sheriff/Corrections	Upgrade (5,000) T12 ballasts to T8 ballasts and 2-lamps. Includes Correctional Facility, Sheriff's Department CRC, Sheriff's Department Honor Camp.	1,314,000	\$ 105,120	\$ 260,000
Administration Building -	Replace Wall glass in the County Building	780,158	\$ 48,800	\$ 457,500
82 Ionia	VAV box, reheat, and DDC replacement for SE quadrant and basement.	551,556	\$ 46,346	\$ 291,200
KCCF - replacement facility	Increase wall/roof insulation	547,418	\$ 21,896	\$ 91,212
Health Department	DDC	520,615	\$ 17,492	\$ 55,555
Sheriff/Corrections	Upgrade (212) 250 watt HID's to 97 Fluorescent F-bays.	394,000	\$ 31,520	\$ 26,800
Sheriff/Corrections Admin	Add DDC Control System Source: County	200,412	\$ 16,000	\$ 50,000
IT Building	DDC only County	195,046	\$ 15,695	\$ 40,000
Administration Building	Upgrade lighting with T8 lamps and electronic ballasts + additional savings from 25 watts	368,140	\$ 36,814	\$ 106,105

<sup>3</sup> See Attachment C for a baseline summary of MMBTU for each facility.

Project List Continued....				
Facility	Project Description	TOTAL ENERGY SAVINGS	TOTAL SAVINGS	Total Project Cost
82 Ionia	Skylight Replacement (price per Dan Vos)	128,100	\$ 16,650	\$ 250,000
82 Ionia	Replace 32 watt lamps with 25 watt lamps in existing T8 fixtures throughout the facility reducing areas high foot-candles.	125,160	\$ 12,516	\$ 19,500
Sheriff/Corrections	Install occupancy sensors.	122,500	\$ 10,000	\$ 19,800
Health Department	Air Handling Unit Upgrade to VFD & premium motors.	96,235	\$ 8,064	\$ 35,000
82 Ionia	Add motion sensors to storage, conference, lobby, break, copy, file, waiting, hallways, and individual offices.	95,605	\$ 9,561	\$ 14,600
KCCF - replacement facility	Energy Recovery Chiller for domestic hot water.	73,017	\$ 4,124	\$ 36,900
Fleet Services	Upgrade (35) 8 foot T12's and (28) 4 foot T12's to T8 lamps (25watt) and ballasts in Fleet Services and adjacent radio room and boiler room.	30,040	\$ 2,405	\$ 10,255
IT Building	Update (520) T8 32 watt lamps in existing 3 lamp fixtures to (520) 25 watt lamps.	18,165	\$ 1,815	\$ 2,835
Courthouse	Replace (644) 32 watt lamps on floors 1 to 11 with (644) 25 watt lamps.	23,247	\$ 2,325	\$ 3,560
MSU Cooperative Extension	Motion Sensors	6,720	\$ 672	\$ 1,200
Courthouse	Upgrade (41) 100 watt MH fixtures in the parking garage with (41) one lamp T5 enclosed lighting fixtures	8,457	\$ 846	\$ 9,920
IT Building	Upgrade (3) 100 watt MH fixtures in the parking garage with (3) one lamp T5 enclosed lighting fixtures.	900	\$ 90	\$ 750
Sheriff/Corrections	Sloan Valve retrofit to low water flow w/ labor.	-	\$ 17,956	\$ 57,000
Administration Building - TOTAL PROJECT COST = 798,600	Install Modular Boiler System County Total funding is yet to be determined amount here is for partial funding; accounts for 100% of savings.	1,594,582	\$ 121,000	\$ 443,000
Administration Building	Install sub metering in County Administration Building			\$ 25,000
<b>TOTAL</b>		<b>7,194,073</b>	<b>\$ 547,706</b>	<b>\$ 2,307,692</b>

2. **Consider Establishing an Energy Manager** position to oversee and administer the implementation of the EECBG and to support countywide efforts to identify and implement energy savings practices. Some functions of this position may include:
  - o Monitor energy use and consumption trends.

- Create monthly, quarterly and annual reports showing energy use, estimated savings, and other energy information for all the county buildings and circulate to key managers.
- Research and present potential projects for consideration during the budget or capital improvement process.
- Participate in design process of new County facilities to ensure that the design and construction process incorporate energy efficiency strategies.
- Coordinate with human resources staff to implement education/awareness programs for staff.
- Conduct facility evaluations with facility managers to identify energy saving projects or initiatives.
- Work with utility companies to identify opportunities for funding and incentives.
- Use Energy Star tools and DOE tools to drive energy efficiency and conservation in all county operations and equipment/vehicles.
- Manage data in the Energy Star Portfolio Manager tool.
- Direct the purchase and provision of utilities such as steam, water and sewer services.
- Serve as County's energy analyst and make appropriate recommendations.
- Assist in programs of scheduled preventive maintenance.
- Review utility services budget, ensuring that appropriate consumption levels are identified for all utilities.
- Represent the County on various committees to promote awareness of County efforts.
- Monitor current and pending federal and state energy management incentives.

Adequate administrative staff may also be necessary to assist with the reporting, monitoring and other activities required by the DOE and County policies.

3. **Install sub-metering** on the utilities at the points of service to the Administration Building. Currently the County, through an agreement with the City, pays 37.1% of all utility costs which may or may not accurately reflect the energy utilized by the County. To ensure accurate measurements of energy use and energy savings, it is recommended that the County install sub-metering at an estimated cost to be in the range of \$15,000 - \$25,000 depending on the depth of metering required. The electrical service is likely the easiest to initiate, but gas and steam service sub-metering should also be considered.

As an alternative to the costs associated with the installation of sub-metering, the County should negotiate a new agreement with the City restructuring the utility payments to be based on approximated savings from these projects and/or changing the current percent rate being paid by the County to reflect 100% of the savings to be realized.

4. **Monitor technical advancements and building performance:** The County has been proactive in conducting energy audits on its facilities and has a good knowledge of the age, performance and condition of materials, equipment and building control systems within these facilities. As technological advancements

are made in materials, equipment, controls, etc., the County should continue to perform periodic energy audits or retro-commissioning studies of the facilities that are deemed to be outdated and/or rank the highest on the energy intensity table as noted on page 7 such as portions of the Correctional Facilities and the Juvenile Detention Center. This function can be completed by the Energy Manager.

5. **Continue to enable the Energy Steering Committee** to fund projects that are recommended by the periodic energy audits or retro-commissioning studies or at the request of County departments as defined by the Energy Use Reduction Policy.
6. **Continue to implement educational and awareness initiatives** to maximize savings by addressing both technical opportunities as well as appropriate behavior changes that will result in energy savings.
7. **Identify energy conservation strategies** such as occupancy sensors or automatic computer power-downs and develop the plan to implement these strategies.

#### VIII. **Timeline for Implementation**

The DOE grant guidelines provide for three years to implement and spend down the DOE grant. The County should plan to spend down all of the DOE funds no later than July 2012 to meet this requirement.

One of the priorities when determining the appropriate timeline for implementation is the opportunity to capture as much of the savings as possible as well as to leverage additional resources including the Consumers Energy and City of Grand Rapids partnership. Other factors involved in the timeline for implementation will depend upon the DOE award/approval date, the process and timing for the bidding of projects to be consistent with Kent County Policies and Procedures as well as the DOE requirement. Further consideration will have to be given to the ability of existing facilities management staff to implement these projects within their existing workload. Located on the following pages is a proposed timeline that includes projected project completion dates as well as estimated savings.

See table on following page.



Estimated Completion Date (Month YEAR)	Facility	Project Description	Annual Energy Savings (kWH)	2010 Energy Savings		2011 Energy Savings		2012 Energy Savings		2013 Energy Savings		Cumulative Energy \$\$ 2010-2013
				TOTAL	County	City	County	City	County	City	County	
Jun-10	Administration Building	Install sub metering for evaluation/monitoring	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Jun-10	82 Ionia	VAV box, reheat, and DDC replacement	551,556	\$ 23,173	\$ -	\$ 46,346	\$ -	\$ 46,346	\$ -	\$ 46,346	\$ -	\$ 162,211
Jun-10	Administration Building*	Upgrade lighting with T8 lamps and electronic ballasts + additional savings from 25 watts	368,140	\$ 6,829	\$ 11,578	\$ 13,658	\$ 23,156	\$ 13,658	\$ 23,156	\$ 13,658	\$ 23,156	\$ 128,849
Jun-10	Health Department	DDC	520,615	\$ 8,746	\$ -	\$ 17,492	\$ -	\$ 17,492	\$ -	\$ 17,492	\$ -	\$ 61,222
Jun-10	IT Building	DDC only	195,046	\$ 7,848	\$ -	\$ 15,695	\$ -	\$ 15,695	\$ -	\$ 15,695	\$ -	\$ 54,933
Jun-10	82 Ionia	Replace 32 watt lamps with 25 watt lamps in existing T8 fixtures	125,160	\$ 6,258	\$ -	\$ 12,516	\$ -	\$ 12,516	\$ -	\$ 12,516	\$ -	\$ 43,806
Aug-10	IT Building	Update (520) T8 32 watt lamps in existing 3 lamp fixtures to (520) 25 watt lamps &	18,165	\$ 605	\$ -	\$ 1,815	\$ -	\$ 1,815	\$ -	\$ 1,815	\$ -	\$ 6,050
Aug-10	Courthouse	Replace (600) 32 watt Fluorescent lamps; Replace (44) 32 watt lamps	23,247	\$ 532	\$ 365	\$ 1,596	\$ 729	\$ 1,596	\$ 729	\$ 1,596	\$ 729	\$ 7,872
Aug-10	Courthouse	Upgrade (41) 100 watt MH fixtures	8,457	\$ 194	\$ 265	\$ 581	\$ 265	\$ 581	\$ 265	\$ 581	\$ 265	\$ 2,997
Aug-10	82 Ionia	Occupancy Sensors	95,605	\$ 3,187	\$ -	\$ 9,561	\$ -	\$ 9,561	\$ -	\$ 9,561	\$ -	\$ 31,870
Aug-10	Health Department	Air Handling Unit Upgrade to VFD & premium motors.	96,235	\$ 2,688	\$ -	\$ 8,064	\$ -	\$ 8,064	\$ -	\$ 8,064	\$ -	\$ 26,880
Aug-10	Sheriff/Corrections	Sloan Valve retrofit to low water flow w/ labor.	-	\$ 5,985	\$ -	\$ 17,956	\$ -	\$ 17,956	\$ -	\$ 17,956	\$ -	\$ 59,853
Aug-10	Sheriff/Corrections	Upgrade (212) 250 watt HID's to 97 Fluorescent F-bays.	394,000	\$ 10,507	\$ -	\$ 31,520	\$ -	\$ 31,520	\$ -	\$ 31,520	\$ -	\$ 31,520
Aug-10	Sheriff/Corrections Admin	Add DDC Control System	200,412	\$ 5,333	\$ -	\$ 16,000	\$ -	\$ 16,000	\$ -	\$ 16,000	\$ -	\$ 53,333
Aug-10	Sheriff/Corrections	Install occupancy sensors.	122,500	\$ 3,333	\$ -	\$ 10,000	\$ -	\$ 10,000	\$ -	\$ 10,000	\$ -	\$ 33,333
Aug-10	Fleet Services	Upgrade (35) 8 foot T12's and (28) 4 foot T12's to T8 lamps (25watt) and ballasts	30,040	\$ 802	\$ -	\$ 2,405	\$ -	\$ 2,405	\$ -	\$ 2,405	\$ -	\$ 8,017
Aug-10	Sheriff/Corrections	Upgrade (5,000) T12 ballasts to T8 ballasts and 2-lamps	1,314,000	\$ 35,040	\$ -	\$ 105,120	\$ -	\$ 105,120	\$ -	\$ 105,120	\$ -	\$ 350,400
Aug-10	82 Ionia	Skylight Replacement	128,100	\$ 5,550	\$ -	\$ 16,650	\$ -	\$ 16,650	\$ -	\$ 16,650	\$ -	\$ 55,500
Aug-10	MSU Cooperative Extension	Motion Sensors	6,720	\$ 224	\$ -	\$ 672	\$ -	\$ 672	\$ -	\$ 672	\$ -	\$ 2,240
Aug-10	IT Building	Upgrade (3) 100 watt MH fixtures	900	\$ 30	\$ -	\$ 90	\$ -	\$ 90	\$ -	\$ 90	\$ -	\$ 300
Sep-10	Administration Building*	Replace Wall Glass	780,158	\$ 4,526	\$ 15,348	\$ 18,105	\$ 30,695	\$ 18,105	\$ 30,695	\$ 18,105	\$ 30,695	\$ 166,274
Aug-12	KCCF – New	Increase wall/roof insulation	547,418	\$ -	\$ -	\$ -	\$ -	\$ 7,299	\$ -	\$ 21,896	\$ -	\$ 29,195
Aug-12	KCCF – New	Energy Recovery Chiller for domestic hot water.	73,017	\$ -	\$ -	\$ -	\$ -	\$ 1,375	\$ -	\$ 4,124	\$ -	\$ 5,499
		<b>Subtotal</b>	<b>5,599,491</b>	<b>\$ 131,390</b>	<b>\$ 27,555</b>	<b>\$ 345,842</b>	<b>\$ 54,845</b>	<b>\$ 354,516</b>	<b>\$ 54,845</b>	<b>\$ 371,862</b>	<b>\$ 54,845</b>	<b>\$ 1,322,153</b>
Dec-10	Administration Building**	Install Modular Boiler System	1,594,582			\$ 44,891	\$ 76,109	\$ 44,891	\$ 76,109	\$ 44,891	\$ 76,109	\$ 363,000
		<b>Total</b>	<b>7,194,073</b>	<b>\$ 131,390</b>	<b>\$ 27,555</b>	<b>\$ 390,733</b>	<b>\$ 130,954</b>	<b>\$ 399,407</b>	<b>\$ 130,954</b>	<b>\$ 416,753</b>	<b>\$ 130,954</b>	<b>\$ 1,685,153</b>
		Annual \$\$ increase based upon total				<b>\$ 259,343</b>	<b>\$ 103,399</b>	<b>\$ 8,674</b>	<b>\$ -</b>	<b>\$ 17,346</b>	<b>\$ -</b>	<b>\$ 1,758,700</b>

\*These two projects are contingent upon approval and funding of similar projects in the City portion of the City/County complex.

\*\*This project is pending determination regarding funding.

## IX. **Leveraging/Coordination of Funds**

There are at least two initial opportunities for the County to leverage funding and/or rebates to help off-set and/or coordinate the spending of EECBG funds to maximize energy savings/cost avoidance. These opportunities include:

- Coordinating with the City of Grand Rapids to complete energy improvements that will result in energy savings to both entities.
- Utilize the rebate program offered by Consumers Energy Commercial Energy Efficiency Program.

The City of Grand Rapids and the County Administration building are co-located in one complex, whereby the City and County share energy costs based upon the square footage of the facility. The County owns the County building but shares the mechanical systems which operate the City and County buildings. The City and County, by jointly making similar improvements to their facilities can generate energy savings for both entities. The City also received an ARRA grant and is working to complete an Energy Strategy to meet DOE requirements. At the time of writing this document, the City intends to pursue a window-glass upgrade and lighting upgrades similar to the County projects which will yield both entities more savings as a result of the coordination of these projects.

In addition, the City currently leases a portion of the Kent County Courthouse to operate the 61<sup>st</sup> District Court. This lease provides that the City pays a percentage of the utilities based upon the percentage of the building which the City occupies. At this time, the County has identified several projects in the Courthouse that will yield the City and County energy savings. Discussions with the City should be ongoing in order to coordinate funds and maximize the potential savings from coordinating energy saving projects.

The Consumers Energy Company Commercial Energy Efficiency Program provides incentives based on prescriptive energy efficiency measures, such as replacement of low-efficiency light fixtures with CFLs or T5/T8 high efficiency lights, and custom energy efficiency measures (i.e., engineered site or project-specific measures).

Consumers Energy Incentives are limited to \$100,000 per facility and \$500,000 per customer. Further, incentive funds become available on January 1 each year in a first-come-first-served basis until the program is exhausted of funds. Therefore, it is an extremely important part of the County's strategy to proceed as quickly as possible with the projects being leveraged with Consumers Energy rebates in the first few months after being awarded the EECBG funds. It is recommended that the County set up a meeting with their Consumers Energy representative to review all rebates and determine if any might not be funded.

Pre-notification is required by Consumers Energy for proposed activities. A Consumers Energy team will review project eligibility and reserve program funds for 90-days. The amount of these incentives is not guaranteed and will be calculated based on the Final Application. Thus, the project is limited to a 90-day completion timeframe. An appeal process is in place for possible project extensions, but a successful approval of the projects extension date is likewise not guaranteed.

As may be inferred from the above discussion, the opportunity to receive Consumers Energy rebates is extremely time-sensitive. In order to increase the County's ability to obtain the rebates, the County should consider prioritizing projects based upon the projects where a rebate is available.

Attached is the "Consumers Energy Savings Solutions" Program Guidelines to assist in determining eligible projects and process for obtaining the rebates. Additional information is available online via [http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=MI28F&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MI28F&re=1&ee=1).

Note, as mentioned above, that incentives are not guaranteed in the program due to the number of applications that have been received towards the utility's portfolio requirements. However, projects are still urged to apply. More information about these programs can be found at the following address:

[http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=MI24F&re=1&ee=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MI24F&re=1&ee=1)

It should be noted that EECBG funding can be used in conjunction with other state and federal public funds. However, EECBG funds (or any Federal funds) can not be used as required cost-share or matching funds for other Federal programs. Opportunities outside of EECBG funding should continue to be investigated on an on-going basis.

## **X. Monitoring and Evaluation**

Each project and recommendation in this Strategy should be considered an objective to achieve the goal of energy savings and cost avoidance.

The monitoring of the County's energy usage and GHG emissions will be accomplished through the monthly and quarterly updating of the County's Energy Use spreadsheets and comparison of this database to the GHG and Energy Use Baseline spreadsheet. These comparisons will enable the County to determine the extent to which County facilities are performing prior to and after the implementation of the energy projects and in relation to national averages.

The ongoing evaluation, monitoring, and verification of this type of information is often completed at the site level or managed by an outside consultant and may involve a position such as an Energy Manager. Energy use and GHG inventory data needs to be maintained on a regular basis; and building metering and sub-metering data as well as utility billing sheets need to be compiled and tracked.

With this information, operational inefficiencies, hardware and equipment inefficiencies, and energy optimization strategies all can be identified and evaluated. These are often referred to as energy conservation measures and typically involve changes to the mechanical, electrical, envelope and control systems for buildings.

The County must assess the status of each activity on a regular basis in order to meet DOE requirements. Further, status reports should be completed during the design and

planning phases, during construction and implementation, and one year after implementation. The information contained in these reports should include:

- Status of activity (e.g. in design, under construction, complete)
- Estimated annual energy savings per dollar invested
- Simple payback
- County-wide energy savings in MMBTU
- County-wide energy reduction as a percentage
- Greenhouse gas reduction
- Implementation method
- Job created / retained
- Funds leveraged

Performance must be evaluated and tracked according to the number of jobs created or retained (the default DOE job creation rate is 1 job per \$92,000 invested), cost effectiveness of energy savings (BTUs per \$1,000 invested) and GHG emissions reduction (CO<sub>2</sub> equivalents in metric tons). The standards to reference for these calculations are the EECBG Estimated Expected Benefits Calculator User's Guide<sup>4</sup> and Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009, May 2009<sup>5</sup>.

To facilitate the monitoring and measurement of energy savings and GHG emission reductions for initiated activities funded by EECBG a sample worksheet is included as an Attachment I entitled "Kent County Energy Tracking." This can be updated by keeping the appropriate energy use data for the period being compared to the Baseline 2007 period up to date in the individual facility worksheets. The change in energy use will appear on this worksheet.

#### XI. **Recommendations for Unfunded Activities**

A listing of projects not recommended to be funded by the grant at this time is included as Attachment G. In general, these projects are low-priority or have a long payback as compared to the recommended projects. These projects may be considered as potential future projects and should be re-evaluated at a later date.

#### XII. **DOE EECBG Reporting**

The DOE continues to develop the quarterly reporting process that will be necessary for the County to complete. At this time, the reporting is online through [www.federalreporting.gov](http://www.federalreporting.gov) and also on the DOE PAGE reporting system.

Each quarterly report should include information on the five EECBG metrics:

- Jobs created and/or retained
- Energy savings on a per dollar invested basis

---

<sup>4</sup> <http://www.eecbg.energy.gov/solutioncenter/applicationresources/default.html>

<sup>5</sup> [http://www.whitehouse.gov/assets/documents/Job-Years\\_Revised5-8.pdf](http://www.whitehouse.gov/assets/documents/Job-Years_Revised5-8.pdf)

- Renewable energy capacity installed (if applicable)
- Greenhouse gas emissions reduced
- Funds leveraged

### XIII. **Sustaining Energy Efficiency**

The County, through the efforts of the Energy Use Reduction Workgroup and in developing the EECS, has generated a substantial list of projects that were of a low enough priority not to be funded by the EECBG. These projects should be reviewed on an on-going basis. As technologies improve, several of these are likely to have better paybacks and be elevated to a higher priority. Thus, when County and/or leveraging outside funds become available, they may be more viable and result in additional long-term energy efficiency improvements.

The following items are recommended to assist the County in establishing an on-going sustainable energy program:

- Join the Energy Star program as a government entity to have access to Energy Star Energy Portfolio Manager, tracking programs, strategies, benchmarking software tools, product procurement guidelines, and lists of Energy Star qualified products. [www.energystar.gov](http://www.energystar.gov)
- Initiate computer monitor phase outs (replace all CRT monitors with LCD Energy Star monitors, saving energy, heat, and eye sight). It is estimated that an annual savings of between \$60 and \$80 per CRT change out could be realized giving rise to approximately a 5-year payback.
- Appliance phase out (replace all older/non-Energy star refrigerators, dishwashers, etc. with Energy Star appliances).
- When new construction or major renovation projects are being planned that involve roof replacement, consider green/cool roofs.
- Consider the use of on-site generated electricity through the use of solar PV and small wind projects or hot water through solar hot water collectors. Incentives for these types of projects are also available through the local utility.
- Increase use of non-vehicular transportation, by adopting measures (such as bike racks and other incentives) to make this form of travel more accessible.
- Increase use of electric vehicles, or alternative fuels vehicles.
- Establish a policy whereby the most efficient, “Right Sized” vehicle would be assigned to County personnel for the type of use.

- Establish procedures to optimize the pick up and delivery management system for supplies to reduce the amount of redundant trips, travel time and spent fuel. This may be applicable to the scheduling of staff meetings as well.
- Continue to implement Kent County’s Employee Information and Awareness Initiatives and the Vehicle and Fuel Use Initiatives which will have long lasting benefits in the form of reductions in energy use and GHG emissions.
- Complete a yearly energy performance report or full sustainability report. In order to make the program successful and improve the bottom line, energy use should be tracked and evaluated on a regular basis. This should be completed by a qualified individual, either the Kent County Energy Manager, identified Kent County employee, or an outside consultant.
- Enact policies within the County’s administrative structure to initiate and fund projects that are recommended by the periodic facility walk-through’s, energy audits, commissioning or retro-commissioning studies/projects.
- Create a separate “Energy Project” fund fed by a percentage of the savings realized from utility bills from energy-related projects by which Kent County internal entities (Departments) can obtain loans to support sustainability projects. The County entity would then pay back the loan based on annual savings and simple payback with a small amount of interest.
- Implementation of the County Energy Reduction Workgroup recommendations and plans of action will ensure the sustainability of the EECEBG program well beyond the EECEBG funding period.
- Strive to have the County’s buildings, new and existing alike, certified as Leadership in Energy and Environment Design (LEED) Bronze, Silver or Gold through the U. S. Green Building Council (USGBC) and Green Building Certification Institute (GBCI), or as a minimum select and implement several rating system points required for LEED certification in one or more of the following LEED areas:
  - Sustainable Sites
  - Water Efficiency
  - Materials and Resources
  - Indoor Environmental Quality
  - Innovation in Design

**XIV. Recycling and Disposal**

For each project listed in Attachment B, Kent County remains committed to ensuring that all materials that are able to be recycled are done so appropriately.

**XV. Conclusion**

For several years, Kent County has worked to develop and implement initiatives that will result in a reduction in energy use, cost savings, and cost avoidance. Through the DOE formula grant, the County can implement changes to the existing infrastructure that will further realize energy efficiency.

**KENT COUNTY FACILITIES**

<b>FACILITY</b>	<b>OWNER OPERATOR</b>	<b>BUILDING SQ FT</b>
<b>ADMINISTRATION BLDG</b> 300 MONROE NW	<b>KENT COUNTY</b> CITY OF G.R.	66,000
<b>COOPERATIVE EXTENSION</b> 775 Ball Ave NE	<b>KENT COUNTY</b> FACILITIES MGMT	11,029
<b>INFORMATION TECHNOLOGY</b> 320 OTTAWA NW	<b>KENT COUNTY</b> FACILITIES MGMT	17,107
<b>JUVENILE CENTER</b> 1501 CEDAR NE	<b>KENT COUNTY</b> FACILITIES MGMT	73,790
<b>HEALTH DEPARTMENT</b> 700 FULLER AVE NE	<b>KENT COUNTY</b> FACILITIES MGMT	78,184
<b>KCH BOILER PLANT</b> 750 FULLER AVE NE	<b>KENT COUNTY</b> FACILITIES MGMT	11,806
<b>COURTHOUSE</b> 180 OTTAWA NW	<b>KENT COUNTY</b> FACILITIES MGMT	341,049
<b>82 IONIA</b> 82 IONIA	<b>KENT COUNTY</b> FACILITIES MGMT	153,339
<b>CORRECTIONAL FAC.</b> 701 BALL AVE NE	<b>KENT COUNTY</b> CORRECTIONS	440,627
<b>SHERIFF'S DEPARTMENT</b> 701 BALL AVE NE	<b>KENT COUNTY</b> CORRECTIONS	73,133
<b>SHERIFF'S DEPT CRC</b> 1330 BRADFORD NE	<b>KENT COUNTY</b> CORRECTIONS	45,182
<b>SHERIFF'S DEPT HONOR CAMP</b> 14171 E 16 MI RD , GOWEN	<b>KENT COUNTY</b> CORRECTIONS	31,329
<b>FLEET SERVICES</b> 701 BALL AVE NE	<b>KENT COUNTY</b> CORRECTIONS	11,700
<b>TOTALS</b>		

## Kent County, MI - Energy Use Baseline

Updated: 12/2/2009

Calendar Year 2007 Data

Energy Usage (MMBTU)								
Facility	Scope 1			Scope 2		Total	Facility Analysis	
	#2 Fuel Oil	Gasoline	Nat. Gas	Steam	Electricity		Square Footage	MMBTU per sq ft
82 Ionia	12	-	-	3,138	6,696	9,847	153,339	0.0642
Administration Building	-	-	-	2,698	5,642	8,340	66,000	0.1264
Cooperative Extension	-	-	263	-	449	712	11,029	0.0646
Correctional Facility/Sheriff's Dept./Fleet Svcs	-	-	46,577	-	28,092	74,669	525,460	0.1421
Courthouse - 180 Ottawa NW	24	-	-	13,972	16,546	30,542	341,049	0.0896
Health Department	-	-	3,913	-	3,906	7,819	78,184	0.1000
Information Technology Building	-	-	-	695	2,553	3,248	17,107	0.1899
Juvenile Detention Center	33	-	6,868	-	4,553	11,454	73,790	0.1552
KCH Boiler Plant	55	-	60,210	-	24,103	84,368	11,806	7.1462
Sheriff's Dept. CRC/Work Release	95	-	1,482	-	9,539	11,117	45,182	0.2460
Sheriff's Dept. Honor Camp	-	-	2,441	-	694	3,135	31,329	0.1001
Zoo (all buildings combined)	-	-	12,916	-	10,161	23,077	86,767	0.2660
Vehicle Fleet	-	31,723	-	-	-	31,723		
<b>Grand Total: MMBTU</b>	<b>219</b>	<b>31,723</b>	<b>134,671</b>	<b>20,504</b>	<b>112,934</b>	<b>268,327</b>	<b>1,441,042</b>	<b>0.1862</b>



**Kent County, MI - GHG Emissions Summary**

Updated: 12/2/2009

Calendar Year 2007 Data

Carbon Dioxide Equivalents Emissions from Energy Usage (metric tonnes)								
Facility	Scope 1			Scope 2		Total	Facility Analysis	
	#2 Fuel Oil	Gasoline	Nat. Gas	Steam	Electricity		Square Footage	CO2e Emissions per sq ft
82 Ionia	1	-	-	222	1,461	1,684	153,339	0.0110
Administration Building	-	-	-	191	1,231	1,422	66,000	0.0215
Cooperative Extension	-	-	15	-	98	113	11,029	0.0102
Correctional Facility/Sheriff's Dept./Fleet Svcs	-	-	2,607	-	6,128	8,735	525,460	0.0166
Courthouse - 180 Ottawa NW	2	-	-	988	3,609	4,599	341,049	0.0135
Health Department	-	-	219	-	852	1,071	78,184	0.0137
Information Technology Building	-	-	-	49	557	606	17,107	0.0354
Juvenile Detention Center	3	-	384	-	993	1,380	73,790	0.0187
KCH Boiler Plant	4	-	3,371	-	5,258	8,633	11,806	0.7312
Sheriff's Dept. CRC/Work Release	8	-	83	-	2,081	2,172	45,182	0.0481
Sheriff's Dept. Honor Camp	-	-	137	-	151	288	31,329	0.0092
Zoo (all buildings combined)	-	-	723	-	2,216	2,939	86,767	0.0339
Vehicle Fleet	-	2,276	-	-	-	2,276		
<b>Grand Total: (metric tonnes)</b>	<b>18</b>	<b>2,276</b>	<b>7,539</b>	<b>1,450</b>	<b>24,635</b>	<b>35,918</b>	<b>1,441,042</b>	<b>0.0249</b>
<b>Grand Total Less Zoo: (metric tonnes)</b>	<b>18</b>	<b>2,276</b>	<b>6,816</b>	<b>1,450</b>	<b>22,419</b>	<b>32,979</b>	<b>1,354,275</b>	<b>0.0244</b>

Emissions	(All Bldg's)	(Less Zoo)
	Emissions in CO2e (metric tonnes)	Emissions in CO2e (metric tonnes)
Scope 1 - Direct Emissions	9,833	9,110
Scope 2 - Purchased Electricity and Steam	26,085	23,869
<b>Total GHGs</b>	<b>35,918</b>	<b>32,979</b>

Emission Sources	Emissions in CO2e (metric tonnes)	Emissions in CO2e (metric tonnes)
	Stationary Combustion	9,833
Mobile Combustion	2,276	2,276
Steam	1,450	1,450
Purchased Electricity	24,635	22,419
<b>Total GHGs</b>	<b>38,194</b>	<b>35,255</b>

## **PROGRAM GUIDELINES**

Consumers Energy is offering a comprehensive set of incentives under the Business Solutions Program to facilitate the implementation of cost-effective energy efficiency improvements for business customers.

The program incentive funds are limited. Final Applications for the current program year should be received by Dec 15, 2009 to qualify for payment in the 2009 program year.

### **Program and Project Eligibility**

The program offers business customers both prescriptive incentives for common energy efficiency measures and custom incentives for other eligible energy efficiency improvements.

The amount of incentives a facility or customer can receive is limited. A facility is defined as contiguous property for which a single customer is responsible for paying the Consumers Energy electricity and/or gas bill.

### **Program Year Incentive Limits**

Prescriptive Incentives	\$100,000 per facility
Custom Incentives	100 percent of the calculated incentive up to \$100,000 50 percent of the calculated incentive above \$100,000 Maximum \$200,000 custom incentive per facility
Customer Incentive Limit	\$500,000 across all facilities per customer

### **Pre-notification Application Process**

Pre-notification Applications are strongly encouraged for all projects. Pre-notification is required for permanent lamp removal, new T5/T8 fixtures, and all custom measures. The Consumers Energy team will review project eligibility and reserve program funds. A reservation does not guarantee an incentive. Incentives will be calculated based on the Final Application. Project funds will be reserved for 90 days. Notify us if your project will take longer than 90 days at Pre-notification submittal.

### **Final Application Review Process**

Final Applications must be submitted within 60 days of project completion.

Final Applications must include project documentation, such as copies of dated invoices for the purchase and installation of the measures and/or product specification sheets. The project invoice should provide sufficient detail to separate the project cost from the cost of other services such as repairs and building code compliance, as well as show the location where the measures were installed. Consumers Energy reserves the right to request additional supporting documentation as deemed necessary to ensure measure eligibility and verify the expected energy savings will occur. Requested information could include: equipment purchase dates, installation dates, proof that the equipment is operational, manufacturer specifications, warranty information, and proof of customer co-payment. Applicants are encouraged to call the program hotline if they have any questions about documentation requirements. All customer information will be held in confidence.

Once all project information is received, the team will confirm that the project meets the program requirements, perform necessary inspections and/or perform technical reviews. The program team will send incentive checks four to six weeks after project approval.

### **Inspections**

Consumers Energy reserves the right to inspect all projects to verify compliance with the program rules and verify the accuracy of project documentation. This may include pre-installation and/or post-installation inspections, detailed lighting layout descriptions, metering, data collection, and interviews.

## TERMS & CONVERSION FACTORS

BTU	British Thermal Unit
MMBTU	1 Million BTU's
KWH	Kilo-watt-hour
C <sub>o</sub> 2e	Carbon Dioxide Emissions in metric tonnes
GHG	Greenhouse Gas
CCF	100 Cubic Feet
LB	Pound
GAL	Gallon

$$\text{BTU} = \text{KWH} \times 3413$$

$$\text{MMBTU} = \text{BTU} \times 1,000,000$$

$$\text{MMBTU} = \text{KWH} \times 3413 \times 1,000,000$$

$$1 \text{ GAL Gasoline} = 125,000 \text{ BTU}$$

$$1 \text{ GAL \#2 Fuel Oil} = 130,000 \text{ BTU}$$

$$1 \text{ CCF Natural Gas} = 102,000 \text{ BTU}$$

$$1 \text{ Metric Ton} = 2204.6 \text{ Pounds}$$

## Kent County, MI - Energy Use Summary Tracking / Comparison

Updated:

Calendar Year \_\_\_\_ Data (Comparing to 2007 base data only. Will change when actually entering comparison year data)

Energy Usage (MMBTU)								
Facility	Scope 1			Scope 2		Total	Facility Analysis	
	#2 Fuel Oil	Gasoline	Nat. Gas	Steam	Electricity		Square Footage	MMBTU per sq ft
82 Ionia	(0)	-	-	0	0	1	153,339	0.0000
Administration Building	-	-	-	0	(0)	0	66,000	0.0000
Cooperative Extension	-	-	(0)	-	0	0	11,029	0.0000
Correctional Facility/Sheriff's Dept./Fleet Svcs	-	-	-	-	(0)	(0)	525,460	(0.0000)
Courthouse - 180 Ottawa NW	(0)	-	-	0	0	0	341,049	0.0000
Health Department*	-	(0)	-	-	(0)	(1)	78,184	(0.0000)
Information Technology Building	-	-	-	0	0	0	17,107	0.0000
Juvenile Detention Center	(0)	-	-	-	0	0	73,790	0.0000
KCH Boiler Plant	(0)	-	-	-	(0)	(0)	11,806	(0.0000)
Sheriff's Dept. CRC/Work Release	(0)	-	-	-	0	0	45,182	0.0000
Sheriff's Dept. Honor Camp	-	-	-	-	(0)	(0)	31,329	(0.0000)
Zoo (all buildings combined)	-	-	-	-	-	-	86,767	-
Grand Total	(0)	(0)	(0)	1	(0)	(0)	1,441,042	(0.0000)

\* 2008 Nat. Gas and Electric Baseline Data

Kent County EECBG Project List

Facility	Project Description	TOTAL ENERGY SAVINGS	TOTAL Annual Energy Savings (MMBTU)	TOTAL Annual GHG Savings (Ton CO2)	COUNTY Annual Energy Savings (\$\$\$)	CITY Annual Energy Savings (\$\$\$)	TOTAL SAVINGS	Total Investment (EECBG/ARRA + Outside) = Total Project Cost	Number of Jobs Created or Retained	<avg =1; avg=5; >avg; 9	<avg =1; avg=5; >avg; 9	<40k=1; 40-80=5; 80+9	1-3=9; 4-7 = 5; 8-10 = 1; 10+=0	Total	
<b>In order to maximize savings, these project would need to be completed in partnership with the City of Grand Rapids. At this time, the City is not able to fund this project. These projects remain on the list as a long-term option for energy efficiencies and may be funded through EECBG funds, however they are not recommended at this time.</b>															
Administration Building	Retrofit AHU's with VFD's. County responsible for 37.1% project cost and 37.1% savings. Data Based on 2006 Facility Assessment Report.	477,499	1,630	356	\$ 21,240	\$ 36,011	\$ 57,251	\$ 252,125	2.7	5	5	9	5	0	530
Administration Building	Steam Isolation valve to separate Loop to Southeast Mechanical Room County responsible for 37.1% project cost and 37.1% savings. Data Based on 2006 Facility Assessment Report.	5,278	18	4	\$ 830	\$ 1,407	\$ 2,237	\$ 2,650	0.0	1	1	1	9	0	330
Administration Building	Replace Domestic Water Heaters with Aero-type instantaneous Steam to water heaters in lieu of existing storage tanks with bundles. County responsible for 37.1% project cost and 37% savings. Data Based on 2006 Facility Assessment Report.	39,429	135	29	\$ 3,052	\$ 5,174	\$ 8,226	\$ 19,800	0.2	1	1	1	9	0	330
Administration Building	Elevator Upgrades - Replace elevator control systems, reducing both energy consumption and maintenance costs. (County responsible for 100% cost and county could only get 37.1% savings.) Per Jen 11/06/09 no split on this project. Note that 2006 Facility	3,235	11	2	\$ 96	\$ 163	\$ 259	\$ 330,000	3.6	1	1	9	0	0	220
Administration Building	Replace Inoperative Revolving Doors w/ Air Lock (Source County 10-30-09 \$100,000 price).	50,994	174	38	\$ 1,336	\$ 2,266	\$ 3,602	\$ 100,000	1.1	1	1	9	0	0	220
Administration Building	Maintenance Transformers Replacement - (2) 500KVA & (2) 1000KVA - change-out the existing four KVA transformers with high efficiency transformers. (County responsible for 37.1% project cost and 37.1% savings).	406,375	1,387	303	\$ 15,076	\$ 25,560	\$ 40,636	\$ 264,500	2.9	1	1	1	5	0	210
Courthouse	Replace domestic hot water heat trace with return loop and condensate HX. (Values indicate 100% of total project cost with EECBG/ARRA Grant listed at County's 68.65%) County would be responsible for 68.65 of costs and 68.65 of savings. Source: County pri	59,279	202	44	\$ 4,270	\$ 1,950	\$ 6,220	\$ 64,650	0.7	1	1	5	0	0	140
82 Ionia	Upgrade (35) lower level secured and unsecured parking deck lighting 100 watt HID to (35) 54 watt fluorescent fixtures. (Source: Utilized Bazen Electric quote on Courthouse)	7,219	25	5	\$ 722	\$ -	\$ 722	\$ 8,500	0.1	1	1	1	0	0	60
TOTAL UNFUNDED PROJECTS		1,049,306	3,581	781	46,622	72,531	119,153	1,042,225							

Kent County EECBG Project List

Use the numbers 1, 5, 9 to score the strength of each criteria for each project/initiative, with  
 1 = low/no  
 5 = medium  
 9 = high

Facility	Project Description	TOTAL ENERGY SAVINGS	TOTAL Annual Energy Savings (MMBTU)	TOTAL Annual GHG Savings (Ton CO2)	COUNTY Annual Energy Savings (\$\$\$)	CITY Annual Energy Savings (\$\$\$)	TOTAL SAVINGS	Total Investment (EECBG/ARRA + Outside) = Total Project Cost	Number of Jobs Created or Retained	Energy Savings MMBTU's <avg =1; avg=5; >avg; 9	GHG Savings <avg =1; avg=5; >avg; 9	\$\$ CF Savings (inset to County CF for project cost) <40k-1; 40-80k=5; 80k+9	EECBG Payback Only 1-3=9; 4-7 = 5; 8-10 = 1; 10+=0	County Staff/Offset	Total
Sheriff/Corrections - revised QUOTE FROM \$400,000 TO \$260,000 per Hudenko 11/9/09	Upgrade (5,000) T12 ballasts to T8 ballasts and 2-lamps. Includes Correctional Facility, Sheriff's Department CRC, Sheriff's Department Honor Camp. (Source: URS calc.)	1,314,000	4,485	978	\$ 105,120	\$ -	\$ 105,120	\$ 260,000	2.8	9	9	9	9	9	900
Administration Building -This project is contingent upon approval and funding of similar projects in the City portion of the City/County complex.	Replace Wall glass in the County Building per item 4(a) option 1 of Building Assessment Report,(100%) \$381250 -2006 number. Data Based on 2006 Facility Assessment Report and URS calcs.	780,158	2,663	581	\$ 18,105	\$ 30,695	\$ 48,800	\$ 457,500	5.0	9	9	9	1	0	570
82 Ionia	VAV box, reheat, and DDC replacement for SE quadrant and basement. (Source: County)	551,556	1,882	411	\$ 46,346	\$ -	\$ 46,346	\$ 291,200	3.2	9	9	9	5	0	690
KCCF - replacement facility	Increase wall/roof insulation	547,418	1,868	408	\$ 21,896	\$ -	\$ 21,896	\$ 91,212	1.0	9	9	9	5	0	690
Health Department	DDC (Source: County)	520,615	1,777	388	\$ 17,492	\$ -	\$ 17,492	\$ 55,555	0.6	9	9	5	9	0	730
Sheriff/Corrections	Upgrade (212) 250 watt HID's to 97 Fluorescent F-bays. There are 31 of the required 97 done leaving 66 to complete. Calculations based on remaining 66 fixtures. (Source: CTA materials pricing + URS Calcs)	394,000	1,345	293	\$ 31,520	\$ -	\$ 31,520	\$ 26,800	0.3	9	5	1	9	9	700
Sheriff/Corrections Admin	Add DDC Control System (Source: County)	200,412	684	149	\$ 16,000	\$ -	\$ 16,000	\$ 50,000	0.5	5	5	5	9	0	570
IT Building	DDC only (Source: County)	195,046	666	145	\$ 15,695	\$ -	\$ 15,695	\$ 40,000	0.4	5	5	1	9	0	490
Administration Building - This project is contingent upon approval and funding of similar projects in the City portion of the City/County complex.	Upgrade lighting with T8 lamps and electronic ballasts + additional savings from 25 watts (County responsible for 100% cost of County Building Lighting replacement and County could only get 37.1% savings.) Data Based on 2006 Facility Assessment Report.	368,140	1,256	274	\$ 13,858	\$ 23,156	\$ 36,814	\$ 106,105	1.2	5	5	9	9	0	650
82 Ionia	Skylight Replacement (price per Dan Vos)	128,100	437	95	\$ 16,650	\$ -	\$ 16,650	\$ 250,000	2.7	5	5	9	0	0	380
82 Ionia	Replace 32 watt lamps with 25 watt lamps in existing T8 fixtures throughout the facility reducing areas high foot-candles. Second floor has 3-lamp ballasts that are only operating 2-lamps. 1192 fixtures or 3,576 25 watt lamps. (Source: URS calcs)	125,160	427	93	\$ 12,516	\$ -	\$ 12,516	\$ 19,500	0.2	5	5	1	9	5	540
Sheriff/Corrections	Install occupancy sensors. Assume 250 occupancy sensors. (Source: URS quantity assumption of offices using vandal resistant wall occupancy sensor and KC electrician labor.)	122,500	418	91	\$ 10,000	\$ -	\$ 10,000	\$ 19,800	0.2	5	5	1	9	9	580
Health Department	Air Handling Unit Upgrade to VFD & premium motors. As per B&V price ((1) 20hp, (1) 10 hp new motors; new VFDs for (1) 50hp, (2) 20hp, (1) 10hp)) (Source: County pricing & URS calcs.	96,235	328	72	\$ 8,064	\$ -	\$ 8,064	\$ 35,000	0.4	1	1	1	5	0	210
82 Ionia	Add motion sensors to storage, conference, lobby, break, copy, file, waiting, hallways, and individual offices. (Source: KC list of motion sensors with costs and URS inclusion of perimeter offices using KC costs)	95,605	326	71	\$ 9,561	\$ -	\$ 9,561	\$ 14,600	0.2	1	1	1	9	5	380
KCCF - replacement facility	Energy Recovery Chiller for domestic hot water.	73,017	249	54	\$ 4,124	\$ -	\$ 4,124	\$ 36,900	0.4	1	1	1	1	0	90
Fleet Services	Upgrade (35) 8 foot T12's and (28) 4 foot T12's to T8 lamps (25watt) and ballasts in Fleet Services and adjacent radio room and boiler room. (Source: URS calc with \$150 for 8' replacement and \$100 for 4' replacement)	30,040	103	22	\$ 2,405	\$ -	\$ 2,405	\$ 10,255	0.1	1	1	1	5	9	300
IT Building	Update (520) T8 32 watt lamps in existing 3 lamp fixtures to (520) 25 watt lamps. (Source: URS calcs)	18,165	62	14	\$ 1,815	\$ -	\$ 1,815	\$ 2,835	0.0	1	1	1	9	5	380
Courthouse	Replace (644) 32 watt lamps on floors 1 to 11 with (644) 25 watt lamps. (Source URS calcs). County pays 100% receives 68.65% in savings. City of Grand Rapids to benefit 31.35% of savings = \$1063.75 annually.	23,247	79	17	\$ 1,596	\$ 729	\$ 2,325	\$ 3,560	0.0	1	1	1	9	5	380
MSU Cooperative Extension	Motion Sensors . (Source: URS inclusion of perimeter offices using KC costs from 82 Ionia occupancy sensor list)	6,720	23	5	\$ 672	\$ -	\$ 672	\$ 1,200	0.0	1	1	1	9	0	330
Courthouse	Upgrade (41) 100 watt MH fixtures in the parking garage with (41) one lamp T5 enclosed lighting fixtures. (Source: Bazen Electric Quote 7/2/09) (Values indicate 100% of total project cost with EECBG/ARRA Grant listed at County's 68.65%) CECCO rebate \$1076	8,457	29	6	\$ 581	\$ 265	\$ 846	\$ 9,920	0.1	1	1	1	5	0	210

Kent County EECBG Project List

Use the numbers 1, 5, 9 to score the strength of each criteria for each project/initiative, with  
 1 = low/no  
 5 = medium  
 9 = high

Facility	Project Description	TOTAL ENERGY SAVINGS	TOTAL Annual Energy Savings (MMBTU)	TOTAL Annual GHG Savings (Ton CO2)	COUNTY Annual Energy Savings (\$\$\$)	CITY Annual Energy Savings (\$\$\$)	TOTAL SAVINGS	Total Investment (EECBG/ARRA + Outside) = Total Project Cost	Number of Jobs Created or Retained	Energy Savings MMBTU's <avg =1; avg=5; >avg; 9	GHG Savings <avg =1; avg=5; >avg; 9	\$\$ CF Savings (offset to County CF for project cost) <40k-1; 40-80=5; 80+9	EECBG Payback Only 1-3=9; 4-7 = 5; 8-10 = 1; 10+=0	County Staff Offset	Total
IT Building	Upgrade (3) 100 watt MH fixtures in the parking garage with (3) one lamp T5 enclosed lighting fixtures. (Source: Utilized \$250.00/fixture from Bazen Electric quote on Courthouse)	900	3	1	\$ 90		\$ 90	\$ 750	0.0	1	1	1	5	0	210
Sheriff/Corrections	Sloan Valve retrofit to low water flow w/ labor. Source: County	-	-	-	\$ 17,956		\$ 17,956	\$ 57,000	0.6						460
Administration Building - TOTAL PROJECT COST = 798,600	Install Modular Boiler System County responsible for 100% project cost and City(62.9%=\$76,109) and County (37.1%=\$44891) would split savings. Data Based on 2006 Facility Assessment Report and EECBG Benefits Calculator. To be determined how difference of \$798600-443,000 is \$355600is determined	1,594,582	5,442	1,187	\$ 44,891	\$ 76,109	\$ 121,000	\$ 443,000	4.8	9	9	9	5	0	690
Administration Building	Install sub metering in County Administration Building in order to measure the actual County Energy Use. This function is critical to measuring the efficacy of energy efficiency projects that are implemented in the County Administration Building.		-				\$ 25,000		0.3						
<b>SUBTOTAL</b>		<b>7,194,073</b>	<b>24,553</b>	<b>5,356</b>	<b>\$ 416,752</b>	<b>\$ 130,954</b>	<b>\$ 547,706</b>	<b>\$ 2,307,692</b>	<b>25</b>						
<b>Project Administration, EECBG Strategy, and Budget</b>								<b>312,198</b>							
<b>Energy Manager - 3 Years = \$240,000</b>								<b>240,000</b>							
<b>TOTAL</b>		<b>7,194,073</b>	<b>24,553</b>	<b>5,356</b>	<b>\$ 416,752</b>	<b>\$ 130,954</b>	<b>\$ 547,706</b>	<b>\$ 2,859,890</b>							
TOTAL PROJECTS 1-3 YEAR PAYBACK		3,111,705	10,620	2,317	248,007	729	248,736	\$ 585,850	6						
TOTAL PROJECT 4-7 YEAR PAYBACK		1,498,054	5,113	1,115	84,395	23,156	107,551	499,522	5						
TOTAL PROJECT 8-10		1,667,599	5,692	1,242	49,015	76,109	125,124	479,900	5						
TOTAL PROJECT 10+		916,715	3,129	683	35,335	30,960	66,296	717,420	8						
Other								25,000	-						
<b>TOTAL</b>		<b>7,194,073</b>	<b>24,553</b>	<b>5,356</b>	<b>\$ 416,752</b>	<b>\$ 130,954</b>	<b>\$ 547,706</b>	<b>\$ 2,307,692</b>	<b>25</b>						
<b>TOTALS BY FACILITY</b>															
<b>82 IONIA Totals</b>		<b>900,421</b>	<b>3,073</b>	<b>670</b>	<b>\$ 85,073</b>	<b>\$ -</b>	<b>\$ 85,073</b>	<b>\$ 575,300</b>	<b>6</b>						
<b>ADMINISTRATION Bldg Total Projects</b>		<b>2,742,880</b>	<b>9,361</b>	<b>2,042</b>	<b>76,654</b>	<b>129,960</b>	<b>206,614</b>	<b>1,031,605</b>	<b>11</b>						
<b>Courthouse Project Totals</b>		<b>31,704</b>	<b>108</b>	<b>24</b>	<b>2,176</b>	<b>994</b>	<b>3,170</b>	<b>13,480</b>	<b>0</b>						
<b>Health Department Totals</b>		<b>616,850</b>	<b>2,105</b>	<b>459</b>	<b>25,556</b>	<b>-</b>	<b>25,556</b>	<b>90,555</b>	<b>1</b>						
<b>IT BUILDING</b>		<b>214,111</b>	<b>731</b>	<b>159</b>	<b>17,600</b>	<b>-</b>	<b>17,600</b>	<b>43,585</b>	<b>0</b>						
<b>KCCF - Replacement Facility</b>		<b>620,435</b>	<b>2,118</b>	<b>462</b>	<b>26,020</b>	<b>-</b>	<b>26,020</b>	<b>128,112</b>	<b>1</b>						
<b>MSUIE Project totals</b>		<b>6,720</b>	<b>23</b>	<b>5</b>	<b>672</b>	<b>-</b>	<b>672</b>	<b>1,200</b>	<b>0</b>						
<b>Sheriff's Dept/Corrections/Fleet Svc</b>		<b>2,060,952</b>	<b>7,034</b>	<b>1,534</b>	<b>183,001</b>	<b>-</b>	<b>183,001</b>	<b>423,855</b>	<b>5</b>						
<b>Total</b>		<b>7,194,073</b>	<b>24,553</b>	<b>5,356</b>	<b>\$ 416,752</b>	<b>\$ 130,954</b>	<b>\$ 547,706</b>	<b>\$ 2,307,692</b>	<b>25</b>						

## EECBG Activity Worksheet

Grantee: County of Kent, MI Date: 12/03/2009  
 DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
 Program Contact First Name: Jennifer Last Name: DeHaan  
 Project Title: 82 Ionia - Retrofit  
 Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_  
 Sector: Public If Other: \_\_\_\_\_  
 Proposed Number of Jobs Created: 6.30 Proposed Number of Jobs Retained: \_\_\_\_\_  
 Proposed Energy Saved and/or Renewable Energy Generated: 900421  
 Proposed GHG Emissions Reduced (CO2 Equivalents): 670.000  
 Proposed Funds Leveraged: \$5,165.00  
 Proposed EECBG Budget: 570,135.00  
 Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
 Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
 Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

Project Location: 82 Ionia, Grand Rapids, MI

-Install VAV box, reheat and DDC Replacement. Applying variable air volume with reheat and new DDC controls at the SE building quadrant is expected to save 1,242,000 pounds of purchased steam and 187,560 kWh of electricity per year. The total utility cost savings is estimated to be \$46,000 per year.

This 4 story, 132,000 sq.ft. facility was built in 1932 and renovated in 1980. The main air handlers and cooling equipment were recently upgraded to new VFDs. Three quarters of the building has replacement VAV (variable air volume) boxes with hot water coils. This project will complete the building to fully operational DDC controls offering scheduling, night setback, zone control, etc.

-82 Ionia Lamp Replacement: 82 Ionia houses the County friend of the court and other social worker programs and was upgraded in 1998 to utilize T8 lamps and electronic ballasts. Most all areas were designed with three and four lamp, 32 watt, T8 fluorescent lamps that results in more light output than required. The County performed tests to utilize less lamps in the existing light fixtures and found that the ballast continues to draw the same energy. However, by utilizing 25 watt long life lamps in lieu of 32 watt lamps, the electronic ballasts used less energy and have a longer life cycle.

The activity includes replacement of (3,576) 32 watt lamps in existing light fixtures with (3,576) 25 watt lamps. The existing 32 watt lamps will be put back in the County inventory and utilized in areas where more light output is required in fixtures with less lamps.

-82 Ionia Occupancy Sensors: 82 Ionia houses the County friend of the court and other social worker program. The facility was upgraded in 1998 to utilize T8 lamps and electronic ballasts. The County would like to add occupancy sensors to storage rooms, conference rooms, lobby, break rooms, copy rooms, file rooms, waiting areas, hallways, and individual offices. All proposed spaces have intermittent occupancy. The proposed leveraged funds include the Consumers Energy Rebate for lighting controls based on \$0.08 per watt controlled.

The activity includes replacement of (243) normal light switches in areas mentioned above with (243) wall mounted dual technology occupancy sensors.

-82 Ionia Skylight Replacement. This building has a large 4 story atrium which was constructed in 1980 to attach the east and west side of an existing 1932 structure. This building houses Friend of Court, Circuit Court, Probation, Community Development and similar office type departments.

The atrium has five (5) 10'x40' skylights which are approaching 30 years in age. Replacement of these skylights with a unit with lower conductance (U-value) and lower shading coefficient (SC) would result in an estimated 36% decrease in energy use resulting from heat transfer and radiance through skylights.



EECBG Activity Worksheet

Grantee: County of Kent, MI Date: 01/06/2010

DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov

Program Contact First Name: Jennifer Last Name: DeHaan

Project Title: Kent County Information Technology Retrofit

Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_

Sector: Public If Other: \_\_\_\_\_

Proposed Number of Jobs Created: 0.00 Proposed Number of Jobs Retained: \_\_\_\_\_

Proposed Energy Saved and/or Renewable Energy Generated: 214111

Proposed GHG Emissions Reduced (CO2 Equivalents): 159.000

Proposed Funds Leveraged: \$465.00

Proposed EECBG Budget: 43,120.00

Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_

Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov

Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

Facility Location: 320 Ottawa Ave. Grand Rapids MI 49504

DDC Installation: Adding Direct Digital Controls (DDC). Providing DDC to the IT Building will save an estimated 63456 kWh of electricity and 449 MMBTU of steam per year for a cost savings of \$15,695 per year. This savings gives a 2.5 year simple payback. This 17,100 sq. ft. facility is a two story building which includes a main floor Data Center.

The building is heated via a 4 inch city steam loop to hot water heat exchanger serving the make-up air unit, fan coil units and perimeter heat. The building is cooled via a 50-ton water chiller feeding the fan coil units and the make-up air unit. The Data Room is conditioned with (2) 8-ton Liebert DX systems.

DDC controls will offer use scheduling, night setback and more efficient operation of the facility.

Lighting Improvements are necessary in the Information Technology Building. The following two projects will enable better utilization of energy and less energy consumption.

- Update 520 T8-32 Watt lamps in existing 3 lamp fixtures to 25 watt lamps
- Upgrade 3-100watt MH fixtures with one lamp T5 enclosed lighting fixtures.

EECBG Activity Worksheet

Grantee: County of Kent, MI Date: 12/03/2009  
DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
Program Contact First Name: Jennifer Last Name: DeHaan  
Project Title: Energy Manager  
Activity: 2. Technical Consultant Services If Other: \_\_\_\_\_  
Sector: Public If Other: \_\_\_\_\_  
Proposed Number of Jobs Created: 1.00 Proposed Number of Jobs Retained: \_\_\_\_\_  
Proposed Energy Saved and/or Renewable Energy Generated: 0  
Proposed GHG Emissions Reduced (CO2 Equivalents): 0.000  
Proposed Funds Leveraged: \$0.00  
Proposed EECBG Budget: 240,000.00  
Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

County desires to consider establishing an energy manager to oversee projects, initiatives, and energy education. The proposed amount is a 3-year allocation of \$80,000 per year. If additional funds remain, County will reallocate funds.

**EECBG Activity Worksheet**

Grantee: County of Kent, MI Date: 01/06/2010  
 DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
 Program Contact First Name: Jennifer Last Name: DeHaan  
 Project Title: Kent County Health Department Retrofit  
 Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_  
 Sector: Public If Other: \_\_\_\_\_  
 Proposed Number of Jobs Created: 1.00 Proposed Number of Jobs Retained: \_\_\_\_\_  
 Proposed Energy Saved and/or Renewable Energy Generated: 616850  
 Proposed GHG Emissions Reduced (CO2 Equivalents): 459.000  
 Proposed Funds Leveraged: \$6,240.00  
 Proposed EECBG Budget: 84,315.00  
 Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
 Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
 Metric Activity: Building Retrofits If Other: \_\_\_\_\_

**Project Summary: (limit summary to space provided)**

Project Location: 700 Fuller Ave. NE. Grand Rapids, MI

-DDC Installation: Providing DDC to the Health Department Building will save an estimated 14684kWh per year of electricity and 1726 MMBTU of gas energy for a cost savings of \$17,492 per year. This savings gives a 3.2 year simple payback.

This 3 story building consists of 80,000 sq.ft. of public health, administration and laboratory services. This DDC upgrade will complete the conversion from the original pneumatic system to complete DDC control of VAV (variable air volume) boxes, air handlers, coils, etc. This upgrade will offer daytime scheduling, night setback, zone control and efficient operation of the entire building.

-Air Handling Unit Upgrade to VFD & premium motors: AHU upgrade to VFD and premium efficiency motors. Installing VFDs on four AHU motors (20HP, 50HP, 10 HP, and 20 HP) provides a yearly electrical savings of 93,546 kWh. Replacing a 10HP and 20HP motor with premium efficiency motors saves approximately 2689 kWh. The combined electrical cost savings will be approximately \$8,064 per year with a simple payback period of 4.3 years.

This 3 story, 80,000 sq.ft. building was built in 1977 to provide health and administration services. It is served by 2 main variable volume air handlers with vortex dampers. The air handlers will be upgraded with VFDs and premium efficiency motors to provide more accurate control and operational efficiency.

EECBG Activity Worksheet

Grantee: County of Kent, MI Date: 01/06/2010  
 DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
 Program Contact First Name: Jennifer Last Name: DeHaan  
 Project Title: Kent County Correctional Facility (replacement facility)  
 Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_  
 Sector: Public If Other: \_\_\_\_\_  
 Proposed Number of Jobs Created: 1.00 Proposed Number of Jobs Retained: \_\_\_\_\_  
 Proposed Energy Saved and/or Renewable Energy Generated: 620435  
 Proposed GHG Emissions Reduced (CO2 Equivalents): 462.000  
 Proposed Funds Leveraged: \$0.00  
 Proposed EECBG Budget: 128,112.00  
 Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
 Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
 Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

Project Location: 701 Ball Ave. Grand Rapids, MI 45903

Increase wall-roof insulation: Both of the following projects will enable better use of energy by reducing energy loss.

- WALL: ASHREA 2001 Requires R8/U.123 (1.5" of extruded polystyrene rigid insulation with fluid applied vapor barrier). Proposed design is R23/U.043 (3" spray applied foal insulation).
- ROOF:ASHREA 2001 requires R15/U.063(2: 2#/CF Polyisocyanurate).

Energy Recovery Chiller for domestic hot water-The water cooled chillers reject a significant amount of heat to the cooling tower. The addition of a heat reclaim chiller would use this heat for preheating the domestic water and heating the building via the reheat coils. Adding a decoupler system with dedicated heat recovery reduces the temperature of the return water stream without altering the system flow rate offering "free cooling" and saving energy.

**EECBG Activity Worksheet**

Grantee: County of Kent, MI Date: 01/06/2010  
 DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
 Program Contact First Name: Jennifer Last Name: DeHaan  
 Project Title: County Administration Building Retrofit  
 Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_  
 Sector: Public If Other: \_\_\_\_\_  
 Proposed Number of Jobs Created: 11.00 Proposed Number of Jobs Retained: \_\_\_\_\_  
 Proposed Energy Saved and/or Renewable Energy Generated: 2742880  
 Proposed GHG Emissions Reduced (CO2 Equivalents): 2,042.000  
 Proposed Funds Leveraged: \$3,850.00  
 Proposed EECBG Budget: 1,027,755.00  
 Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
 Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
 Metric Activity: Building Retrofits If Other: \_\_\_\_\_

**Project Summary: (limit summary to space provided)**

Project Location: 300 Monroe Ave NW. Grand Rapids, MI 49503

-Install Sub-Metering to measure actual County Energy Use - The Administration Building is owned by Kent County; however, certain portions of the electric and heating / air conditioning systems are located within the adjacent City Building owned by the City of Grand Rapids. Therefore, the electricity and steam utility bills are currently divided between Kent County (37%) and the City of Grand Rapids (63%) based on the square-footage that each entity occupies. The installation of sub-metering will allow measure of efficacy of EECBG dollars in the County facility.

- The Kent County Administration Building utilizes T12 fluorescent lamps with electromagnetic ballasts. Fluorescent lighting has gone through revolutionary improvements in the last few years. The current electronic ballasts are more efficient than the current electromagnetic ballast. This is achieved by operating lower watt fluorescent lamps at higher frequencies which require 20% less energy. These electronic ballasts utilize a lower ballast factor which further reduces energy consumption, while maintaining proper operating conditions to maximize lamp performance. It is important to note that T12 fluorescent lamps will no longer be manufactured as of 2010. The maximum energy efficiency is realized by combining the newest technologies of both lamp and ballast together. The proposed leveraged funds include the Consumers Energy Rebate for 4 foot and 8 foot T12 to T8 with ballast Fluorescent Retrofit that is based on \$4.00 per 4 foot lamp and \$5.00 per 8 foot lamp.

The activity includes replacement of (1298) 4 foot T12 electromagnetic ballasts with (1298) 4 foot T8 electronic ballasts and replacement of (2596) 4 foot T12, 40 watt fluorescent lamps with (2596) 4 foot T8, 25 watt lamps. Upgrade Lighting with t8 lamps and electronic ballasts and change-out to 25-watts.

-Install Modular Boiler System. This is a tentative project that may be amended due to determination regarding funding. The County Administration Building purchases district steam to produce hot water required for heating at the air handling units and terminal unit coils. Installing gas fired modular boiler to produce the required hot water would eliminate the need for purchased steam. Savings are estimated at approximately \$121,000 per year.

-Install new high performance window glass on floors 1-3. The County Administrative Building was built in 1967. This construction incorporated 1/4 inch single pane glass with exterior shading added to reduce the cooling load. This glazing surface covers 16,026 sq.ft. of the wall surfaces.

Replacement of the wall glass to a 1 inch, double pane, insulated glass that has a conductivity (U-value) of 0.43 will reduce the energy use related to wall loss by an estimated 2662x10<sup>6</sup> btu/ year.

EECBG Activity Worksheet

Grantee: County of Kent, MI Date: 12/03/2009

DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov

Program Contact First Name: Jennifer Last Name: DeHaan

Project Title: Project Management,EECBG Strategy,and Budget

Activity: 1. Energy Efficiency and Conservation Strategy If Other: \_\_\_\_\_

Sector: Public If Other: \_\_\_\_\_

Proposed Number of Jobs Created: 0.00 Proposed Number of Jobs Retained: \_\_\_\_\_

Proposed Energy Saved and/or Renewable Energy Generated: 0

Proposed GHG Emissions Reduced (CO2 Equivalents): 0.000

Proposed Funds Leveraged: \$0.00

Proposed EECBG Budget: 312,198.00

Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_

Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov

Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

County has retained a consultant to complete the energy strategy. Funds will be used to reimburse County staff for cost of time spent administering the grant. Funds will be reallocated to energy projects as identified.

EECBG Activity Worksheet

Grantee: Kent County, Michigan Date: 01/06/2010  
DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
Program Contact First Name: Jennifer Last Name: DeHaan  
Project Title: Occupancy Sensors: MSU Cooperative Extension Retrofit  
Activity: 12. Lighting If Other: \_\_\_\_\_  
Sector: Public If Other: \_\_\_\_\_  
Proposed Number of Jobs Created: 0.00 Proposed Number of Jobs Retained: 0.00  
Proposed Energy Saved and/or Renewable Energy Generated: 6,720 kWh/year  
Proposed GHG Emissions Reduced (CO2 Equivalents): 5.000  
Proposed Funds Leveraged: \$305.00  
Proposed EECBG Budget: 895.00  
Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

Project Location: 775 Ball Ave NE, Grand Rapids, MI

MSU Cooperative Extension Occupancy Sensors. The County operates a Cooperative Extension with MSU. Current light fixtures are 4 foot, T8 with electronic ballasts. The perimeter enclosed offices can be upgraded with wall mounted dual technology occupancy sensors for energy savings. The proposed leveraged funds include the Consumers Energy Rebate for lighting controls based on \$0.08 per watt controlled.

The activity includes replacement of (20) normal light switches in perimeter enclosed offices with (20) wall mounted dual technology occupancy sensors.

**EECBG Activity Worksheet**

Grantee: County of Kent, MI Date: 01/06/2009  
 DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
 Program Contact First Name: Jennifer Last Name: DeHaan  
 Project Title: Sheriff's Department Retrofit  
 Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_  
 Sector: Public If Other: \_\_\_\_\_  
 Proposed Number of Jobs Created: 5.00 Proposed Number of Jobs Retained: \_\_\_\_\_  
 Proposed Energy Saved and/or Renewable Energy Generated: 2060952  
 Proposed GHG Emissions Reduced (CO2 Equivalents): 1,534.000  
 Proposed Funds Leveraged: \$45,610.00  
 Proposed EECBG Budget: 378,245.00  
 Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
 Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
 Metric Activity: Building Retrofits If Other: \_\_\_\_\_

**Project Summary: (limit summary to space provided)**

Project Location: 701 Ball Ave. Grand Rapids, MI 49503

-Adding Direct Digital Controls (DDC). Providing DDC to the Sheriff/Correction Administration Building will save an estimated 200,412 kWh per year for a cost savings of \$16,000 per year. This savings gives a 3.1 year simple payback. This front end panel will tie all the HVAC systems together to one main control point. This will allow access for programming the entire building offering more efficient operation of all heating/cooling systems and zone control.

Lighting Improvements are necessary at the Kent County Correctional Facility. The following projects will enable better utilization of energy and less energy consumption.

- Upgrade (212) 250 watt HID's to 97 Fluorescent F-bays.
- Upgrade (5,000) T12 ballasts to T8 ballasts and 2-lamps.
- Install approximately 250 occupancy sensors

Water closet Conversion to Low Flow. Converting 635 fixtures of this facility to low flow fixtures can save an estimated 2,201,800 gallons of water per year. By installing Sloan valve conversion kits, the fixture's water usage per flush can be reduced from 3.5 gallons per flush (gpf) to 1.6 gpf. With a combined sewer and water rate average of \$6.10/HCF, this water savings equates to a savings of \$17,956/year. With a project cost of \$57,000, the simple payback is 3.2 years.



## EECBG Activity Worksheet

Grantee: County of Kent, MI Date: 01/06/2010  
 DUNS #: 1266840 Program Contact Email: Jennifer.DeHaan@kentcountymi.gov  
 Program Contact First Name: Jennifer Last Name: DeHaan  
 Project Title: Kent County Courthouse Retrofit  
 Activity: 6. Buildings and Facilities If Other: \_\_\_\_\_  
 Sector: Public If Other: \_\_\_\_\_  
 Proposed Number of Jobs Created: 0.00 Proposed Number of Jobs Retained: \_\_\_\_\_  
 Proposed Energy Saved and/or Renewable Energy Generated: 31704  
 Proposed GHG Emissions Reduced (CO2 Equivalents): 24.000  
 Proposed Funds Leveraged: \$1,555.00  
 Proposed EECBG Budget: 11,925.00  
 Projected Costs Within Budget: Administration: \_\_\_\_\_ Revolving Loans: \_\_\_\_\_ Subgrants: \_\_\_\_\_  
 Project Contact First Name: Jennifer Last Name: DeHaan Email: Jennifer.DeHaan@kentcountymi.gov  
 Metric Activity: Building Retrofits If Other: \_\_\_\_\_

Project Summary: *(limit summary to space provided)*

Project Location: 180 Ottawa Ave. Grand Rapids MI 49503

The following two lighting projects will reduce energy consumption and result in cost savings for the County (The City of Grand Rapids will also see cost savings as electrical costs are shared).

-Courthouse Lamp Replacement. The Courthouse was constructed in 2004 and utilizes T8 lamps and electronic ballasts. The corridors on floors 1 through 11 were designed with three lamp, 32 watt, T8 fluorescent lamps that results in more light output than required. The Attorney Visitation areas utilize 4 foot, 2 lamp, 32 watt T8 light fixtures that once again provide more light than required. The County performed tests to utilize less lamps in the existing light fixtures and found that the ballast continues to draw the same energy. However, by utilizing 25 watt long life lamps in lieu of 32 watt lamps, the electronic ballasts used less energy and the lamps have a longer life cycle.

The activity includes replacement of (644) 32 watt lamps in existing light fixtures with (644) 25 watt lamps. The existing 32 watt lamps will be put back in the County inventory and utilized in areas where more light output is required in fixtures with less lamps.

-Courthouse Parking Garage Lighting Retrofit. The County Courthouse Parking Garage utilizes 100 watt HID light fixtures. The County is reviewing all parking garage light fixtures and proposes to replace these fixtures with 54 watt T5 fluorescent light fixtures. The proposed leveraged funds include the Consumers Energy Rebate for HID to fluorescent conversions at \$0.35 per watt reduced.

The County owns the Courthouse but utilities are split between Kent County (68.65%) and the City of Grand Rapids (31.35%). However, in this case the county will be responsible for 100% of the cost after the Consumers Energy Rebate and receive 68.65% of the savings as worked out with the City. The Proposed Funds Leveraged are the Consumers Energy Rebate.

The activity includes replacement of (41) 100 watt (129 watts including ballast loss) metal halide HID with (41) 54 watt T5 and electronic ballasts.