

## 2015 SMART Fund – Round 1 Proposals (March 2015)

<b>Project</b>	<b>AEC Coliseum Building Mechanical System Upgrades &amp; Adjustments</b>	<b>AEC Exhibition Hall Building Mechanical System Upgrades &amp; Adjustments</b>	<b>AEC Exhibition Hall LED Lighting and Lighting Control Panel Upgrade</b>
<b>Amount requested</b>	<b>\$ 192,800</b>	<b>\$84,500</b>	<b>\$265,100</b>
<b>Estimated Cost Savings and Other Sustainability Benefits</b>	<p><b><u>Annual operational cost savings:</u></b> At the rate that the county currently purchases electricity and gas it would be a savings of at least \$62,034 annually on energy.</p> <p><b><u>Energy conservation savings:</u></b> This project will eliminate the consumption of approx. 425,800 kWh of electricity and 32,769 therms of gas annually.</p> <p><b><u>Water conservation savings:</u></b> None estimated</p> <p><b><u>* Greenhouse Gas Emissions Avoided:</u></b> Will eliminate the generation of approx. <b>464 metric tons of CO<sub>2</sub> equivalent</b> emissions annually (based on energy savings alone). This is equivalent to saving (annually) 52,000 gallons of gasoline or 497,972 pounds of coal that will not be burned or reducing the annual GHG emissions of 97 passenger vehicles.</p>	<p><b><u>Annual operational cost savings:</u></b> At the rate that the county currently purchases electricity and gas it would be a savings of at least \$61,120 annually on energy.</p> <p><b><u>Energy conservation savings:</u></b> The project will reduce power consumption in Exhibition Hall by an estimated 332,891 kWh of electricity and 23,174 therms of gas annually.</p> <ul style="list-style-type: none"> <li>• These improvements are estimated to reduce greenhouse gas emissions by 352.3 metric tons per year.</li> </ul> <p><b><u>Water conservation savings:</u></b> None estimated</p> <p><b><u>*Greenhouse Gas Emissions Avoided:</u></b> Will eliminate the generation of approx. <b>352.3 metric tons of CO<sub>2</sub> equivalent</b> emissions annually (based on energy</p>	<p><b><u>Annual operational cost savings:</u></b> At the rate that the county currently purchases electricity and gas it would be a savings of at least \$34,819 annually on energy.</p> <p><b><u>Energy conservation savings:</u></b> The project will reduce power consumption in Exhibition Hall by an estimated 125 kWh of peak demand and 267,824 kWh of annually.</p> <p><b><u>Water conservation savings:</u></b> None estimated</p> <p><b><u>* Greenhouse Gas Emissions Avoided:</u></b> Will eliminate the generation of approx. <b>184.8 metric tons of CO<sub>2</sub> equivalent</b> emissions annually (based on energy savings alone). This is equivalent to saving (annually) 21,000 gallons of gasoline or 198,366 pounds of coal that will not be burned or reducing the annual GHG emissions of 39 passenger vehicles.</p>

## 2015 SMART Fund – Round 1 Proposals (March 2015)

	<p><b><u>Maintenance cost savings:</u></b> None estimated, but could reduce maintenance of certain systems.</p> <p><b><u>Project payback:</u></b> The projected return on investment based on a \$192,806 expenditure, with energy savings of \$62,034 per year is 3.11 years. Without the 15% contingency, the payback is 2.70 years.</p> <p>*Source of emissions calculations: <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a></p>	<p>savings alone). This is equivalent to saving (annually) 39,600 gallons of gasoline or 378,088 pounds of coal that will not be burned or reducing the annual GHG emissions of 74 passenger vehicles.</p> <p><b><u>Maintenance cost savings:</u></b> None estimated, but could reduce maintenance of certain systems.</p> <p><b><u>Project payback:</u></b> The projected return on investment based on a \$84,500 expenditure, with energy savings of \$61,120 per year is 1.38 years. Without the 15% contingency, the payback is 1.20 years.</p> <p>*Source of emissions calculations: <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a></p>	<p><b><u>Other environmental, social, and economic benefits:</u></b> By eliminating lamp replacement the project will keep a significant number of incandescent and metal halide lamps out of the community waste stream/landfill.</p> <p><b><u>Maintenance cost savings:</u></b> None estimated, but could reduce maintenance of certain systems.</p> <p><b><u>Project payback:</u></b> The projected return on investment based on a \$265,100 expenditure, with energy savings of \$34,819 per year is 7.61 years. Without the 15% contingency, the payback is 6.62 years.</p> <p>*Source of emissions calculations: <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a></p>
<p><b>Proposed Tracking and Measurement by Department</b></p>	<p>Because our event schedule can vary greatly from one month to the next and one year to the next it is very difficult to measure the outcome of this project. The energy savings estimates used to justify this project are based on estimates provided by Sustainable</p>	<p>Because our event schedule can vary greatly from one month to the next and one year to the next it is very difficult to measure the outcome of this project. The energy savings estimates used to justify this project are based on estimates provided by</p>	<p>Because our event schedule can vary greatly from one month to the next and one year to the next it is very difficult to measure the outcome of this project. The energy savings estimates used to justify this project are based on estimates provided by Sustainable Engineering Group, LLC</p>

## 2015 SMART Fund – Round 1 Proposals (March 2015)

	Engineering Group, LLC as part of the retrocommissioning study they did for Exhibition Hall.	Sustainable Engineering Group, LLC as part of the retrocommissioning study they did for Exhibition Hall.	as part of the retrocommissioning study they did for Exhibition Hall.
<b>Measurement Schedule</b>			
<b>Actual Outcomes</b>			

**2015 SMART Fund – Round 1 Proposals (March 2015)**

Sustainability Principles	AEC Coliseum Building Mechanical System Upgrades & Adjustments	AEC Exhibition Hall Building Mechanical System Upgrades & Adjustments	AEC Exhibition Hall LED Lighting and Lighting Control Panel Upgrade
Reduces and eventually eliminates county government’s contribution to fossil fuel dependence and to wasteful use of scarce metals and minerals			
Reduces and eventually eliminates county government’s contribution to dependence upon persistent chemicals and wasteful use of synthetic substances			
Reduces and eventually eliminates county government’s contribution to encroachment upon nature and harm to life-sustaining ecosystems (e.g., land, water, wildlife, forest, soil, ecosystems)			
Reduces and eventually eliminates county government’s contribution to conditions that undermine people’s ability to meet their basic human needs			

## 2015 SMART Fund – Round 1 Proposals (March 2015)

Project	Facilities Mgt: CCB Steam convector controls upgrade and trap replacement	Public Works/Solid Waste Landfill Shop Lighting	Parks Division Recycled Rubber Playground Chips
Amount requested	<b>\$70,789</b>	<b>\$6,300</b>	<b>\$96,760</b>
Estimated Cost Savings and Other Sustainability Benefits	<p><b><u>Annual operational cost savings:</u></b> At the rate that the county currently purchases energy it would be a savings of <b>\$57,301 annually</b> on energy and labor.</p> <p><b><u>Energy conservation savings:</u></b> ** 57,701 therms of gas (5,528,643 lbs steam). Energy Equivalent savings would be 189 tons of coal, 1,539,781 kWh of electricity or 46,203 gallons of gasoline.</p> <p><b><u>Water conservation savings:</u></b> None estimated</p> <p><b><u>Greenhouse Gas Emissions Avoided:</u></b> *Will eliminate the generation of approx. 306 <b>metric tons of CO<sub>2</sub> equivalent</b> emissions annually (based on energy</p>	<p><b><u>Annual operational cost savings:</u></b> This project is estimated to save the County \$2009.00 a year in energy expenses from the reduction of electricity consumed.</p> <p><b><u>Energy conservation savings:</u></b> <b>262 therms annually (Get clarification from John Welch)</b></p> <p><b><u>Greenhouse Gas Emissions Avoided:</u></b> *Will eliminate the generation of approx. 1.4 <b>metric tons of CO<sub>2</sub> equivalent</b> emissions annually (based on energy savings). *Source of emissions calculations: <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a></p>	<p><b><u>Annual operational cost savings:</u></b> Recycled rubber playground chips have an approximate 15 year lifespan, as opposed to a maximum of 4 (weather dependent) for wood chips, so the material cost will be fairly comparable over a 15 year timeframe. Also, they anticipate reduced labor costs from the anticipated elimination of 2 chip-spreading events. The upfront cost of the rubber chips have made purchase prohibitive.</p> <p><b><u>Energy conservation savings:</u></b> <b>Approx. 110 fewer gallons of gas used per year.</b></p> <p><b><u>Greenhouse Gas Emissions Avoided:</u></b> *Will eliminate the generation of approx. 1 metric ton of CO<sub>2</sub> equivalent emissions annually, or approximately 15 metrics tons of CO<sub>2</sub>e emissions</p>

## 2015 SMART Fund – Round 1 Proposals (March 2015)

	<p>savings). This is equivalent to saving (annually) 328,604 pounds of coal that will not be burned or reducing the annual GHG emissions of 64 passenger vehicles.</p> <p><b><u>Maintenance cost savings:</u></b> 35 work orders @ 1 hour labor avg = <b>\$1,925 in labor savings</b></p> <p><b><u>Project payback:</u></b> Annual Projected Savings = \$57,301 Simple Payback = 1.29 years</p> <p>*Source of emissions calculations: <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a></p> <p>**These calculations follow the calculations table used by Sustainable Engineering Group in our retrocommissioning report from 2012, page 77.</p>	<p><b><u>Maintenance cost savings:</u></b> None estimated, but more efficient lighting should reduce bulb changes and labor associated with that.</p> <p><b><u>Project payback:</u></b> At an estimated project cost of \$6,300.00, the project will have a 3.1 year return on an investment, after which the county will be saving money as a result of this project.</p>	<p>reduced over the 15-year life of the recycled rubber chips (based on gasoline savings of 110 gallons annually)). This is equivalent to saving (annually) 1000 pounds of coal that will not be burned or reducing the annual GHG emissions of 0.2 passenger vehicles.</p> <p>*Source of emissions calculations: <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a></p> <p><b><u>Other environmental, social, and economic benefits:</u></b> Playground chips are made from 100% recycled rubber and provide superior drainage that allows rainwater to infiltrate much better than compacted wood chips. They provide a soft surface to help keep children safe on the playground and help reduce the stress on joints and bones. Recycled rubber playground chips exceed standards set by the U. S. Consumer Product Safety Commission and are made from non-toxic, environmentally-friendly materials approved by the EPA. They inhibit growth of molds and fungi, thereby reducing allergy risk. At five times heavier than wood mulches, rubber mulch will not float, absorb water or erode during heavy rain and flooding.</p>
--	--	--	--

**2015 SMART Fund – Round 1 Proposals (March 2015)**

			<p>Playground surfacing material is typically loaded and installed by diesel skid steer loaders, a 50% reduction in required material would result in major reductions of diesel fuel consumption and greenhouse gas emissions.</p> <p><b><u>Project payback:</u></b> No ROI provided. Will measure labor and topdressing costs post-implementation.</p>
<p><b>Proposed Tracking and Measurement by Department</b></p>	<p>All measurement and verification for this project will be done by Facilities Management. There will be a separate file set up to log convector related work orders for comparison to prior years. It will also let us establish a baseline to gauge the upgrades to the remaining non-renovated areas of the building to see how beneficial the conversion is for comfort issues and mechanical failures. The steam usage will be measured from the condensate meter located in the ground floor mechanical room. This meter is the property of the State of Wisconsin, and it is what is used to bill the county monthly. We will be able to compare</p>	<p>The outcome of the project will be directly apparent in the utilities billing for the building and the reduction in the electricity bill. Annual electricity costs at the building shall be compared to electricity cost during 2014 and the cost reduction shall be attributed to the replacement of lighting fixtures.</p>	<p>If awarded this grant, Dick Black, Parks Operation Manager, will track amount of trucking, labor and topdressing material required for each maintenance event.</p>

## 2015 SMART Fund – Round 1 Proposals (March 2015)

	<p>records from years past, and post project, to track reductions in condensate produced very easily. This M&amp;V will require the state to keep its meter functional and calibrated.</p> <p><b>The person responsible for managing this project and keeping record of all payback data will be Todd Draper.</b></p>		
<b>Measurement Schedule</b>	<p><b>To be determined by Facilities Mgt based on what makes sense to get good comparisons.</b></p>	<p>After a 6 or 12 month period to compare 2014 and 2015 bills.</p>	<p>If awarded this grant, Dick Black, Parks Operation Manager, will track amount of trucking, labor and topdressing material required for each maintenance event.</p>
<b>Actual Outcomes</b>			



**2015 SMART Fund – Round 1 Proposals (March 2015)**

<b>Sustainability Principles</b>	<b>Facilities Mgt: CCB Steam convector controls upgrade and trap replacement</b>	<b>Public Works/Solid Waste Landfill Shop Lighting</b>	<b>Parks Division Recycled Rubber Playground Chips</b>
<b>Reduces and eventually eliminates county government's contribution to fossil fuel dependence and to wasteful use of scarce metals and minerals</b>			
<b>Reduces and eventually eliminates county government's contribution to dependence upon persistent chemicals and wasteful use of synthetic substances</b>			
<b>Reduces and eventually eliminates county government's contribution to encroachment upon nature and harm to life-sustaining ecosystems (e.g., land, water, wildlife, forest, soil,</b>			

## 2015 SMART Fund – Round 1 Proposals (March 2015)

ecosystems)			
<b>Reduces and eventually eliminates county government's contribution to conditions that undermine people's ability to meet their basic human needs</b>			

## 2015 SMART Fund – Round 1 Proposals (March 2015)

Project	Juvenile Court Program Appliance update	Sheriff Office CNG Van	Sheriff Office Laundry System
Amount requested	\$13,800	\$55,000	\$209,100 (\$650,000 in current budget for project)
Estimated Cost Savings and Other Sustainability Benefits	<p><b><u>Annual operational cost savings:</u></b> At the rate that the county currently purchases energy it would be a savings of <b>\$245 annually</b> on energy.</p> <p><b><u>Energy conservation savings:</u></b></p> <ul style="list-style-type: none"> <li>- This project will reduce natural gas usage by at least 30% when comparing the proposed range vs the existing range.</li> <li>- This project will reduce electricity usage by approx.. 531 kWh annually based on manufacturer's efficiency estimates. This amounts to an electricity savings of \$245 annually.</li> </ul> <p><b><u>Water conservation savings:</u></b> None estimated</p>	<p><b><u>Annual operational cost savings:</u></b> If DCSO and HNT kept a CNG vehicle for the next 10 years and put 102,857 miles on it as was done with Van #48, the county could save approx. \$181,573.46, or \$18,157 annually.</p> <p><b><u>Energy conservation savings:</u></b> Assumption is that vehicle mileage will be approx. the same.</p> <p><b><u>Water conservation savings:</u></b> None estimated</p> <p><b><u>Greenhouse Gas Emissions Avoided:</u></b> Will eliminate the generation of approx . between 61 and 75 metric tons of CO2equivalent emissions over the life of the vehicle.</p>	<p><b><u>Annual operational cost savings:</u></b> Once project payback is achieved, there would be an estimated annual operational cost savings of \$146,400 based on the current annual cost of outside contract laundry service (\$216,400) minus the estimated annual cost of in-house laundry service (\$70,000) .</p> <p>The current annual contractual cost of jail laundry service is \$216,400.</p> <p>The annual re-occurring costs associated with bringing laundering services in-house, in terms of chemicals, maintenance and replacement linens is estimated to be around \$70,000. Additional cost savings in terms of energy and utility efficiencies gleaned is currently unknown.</p>

## 2015 SMART Fund – Round 1 Proposals (March 2015)

	<p><b><u>Greenhouse Gas Emissions Avoided:</u></b> *Will eliminate the generation of approx. a minimum of 0.366 metric tons of CO2 equivalent emissions annually (based on energy savings).</p> <p><b><u>Maintenance cost savings:</u></b> Estimated at a minimum of \$1,000 annually. This project will save resources by minimizing repair costs due to the new units and warranties.</p> <p><b><u>Other environmental, social, and economic benefits:</u></b> This project will use local vendors for the appliances, which helps with the local economy. This project will further demonstrate to the youth of the facility that energy efficiency is an important consideration. Shelter staff will have discussions with the youth about the benefits of energy efficiency and sustainability and will be able to use the replacement appliances as examples once the comparison data is tabulated. Staff had these discussions with the youth</p>	<p><b><u>Other environmental, social, and economic benefits:</u></b> See application/ proposal packet for extensive discussion of sustainability benefits.</p> <p><b><u>Maintenance cost savings:</u></b> None estimated, but maintenance savings are anticipated because of fewer oil changes, etc.</p> <p><b><u>Project payback:</u></b> Based on the estimated savings of \$18,157 and assuming similar mileage annually, the payback should be around 3 years.</p>	<p><b><u>Energy conservation savings:</u></b> TBD. Anticipated to increase operational cost savings once measured.</p> <p><b><u>Water conservation savings:</u></b> Estimated 85% reduction in hot water usage and a 30% decrease in overall water usage.</p> <p><b><u>Greenhouse Gas Emissions Avoided:</u></b> Will eliminate the generation of approx . 2 metric tons of CO2 equivalent emissions annually based just on transport emissions avoided. Will likely be higher due to uncalculated energy conservation from use of more efficient system (fewer loads, etc.)</p> <p><b><u>Other environmental, social, and economic benefits:</u></b> See Exhibit 1 of proposal packet for extensive discussion of sustainability benefits.</p> <p><b><u>Maintenance cost savings:</u></b> None estimated.</p> <p><b><u>Project payback:</u></b> The total project cost of bringing laundry service in-house is \$925,000 (including the \$209,100 requested from the SMART Fund). Based on the operational savings, this total amount would be paid back in 6.3 years.</p>
--	--	--	---

## 2015 SMART Fund – Round 1 Proposals (March 2015)

	<p>during the last project to replace the toilets, faucets, etc. with low water usage models.</p> <p><b>Project payback:</b> A conservative estimate, not taking into account the gas cost reductions, is \$1,245 annually, or approx. an 11 year payback.</p>		
<p><b>Proposed Tracking and Measurement by Department</b></p>	<p>We will be able to measure actual wattage used for the new appliances and compare this data to the new units after they are installed. We will also be able to compare the total household electric bill pre- and post-installation.</p> <p>The gas usage for the range will be a challenge given the other gas uses in the facility for the boiler heater and new water heater. We will also be able to compare previous repair costs for the appliances, which should be zero. The annual repair costs currently are approximately \$1,000 for all of the units combined. Suzanne Stute and John Bauman will be responsible for measuring and reporting outcomes.</p>	<p>DCSO will retain the abovementioned information on Van #48's miles per gallon, average gas price, metric tons of CO2 dispersed and barrels of oil that were burned. In reference to a new NGV, DCSO will record information associated with CNG tank fill ups for the next five years. In addition, hours idled and miles driven will also be recorded. The Dane County Sheriff's Office recognizes a new vehicle is a huge investment. Extra care will be exercised to ensure information will be transparent and provided in an efficient manner.</p> <p>DCSO Lt. Alecia Rauch will be responsible for documenting the fuel usage and subsequently reporting this information to the Dane County Department of Administration (DOA). Lt. Rauch is the Fleet Manager for DCSO and is the HNT Team Leader.</p>	<p>To track and measure outcomes associated with this project, we are proposing the following:</p> <p>A water meter is being installed on the washing machines in the Public Safety Building to track current water consumption. A baseline for natural gas consumption for the Public Safety Building will be derived from billing during the summer months as natural gas is currently not used elsewhere in the buildings during this period. (During cold weather, there are some Air Handling Units that use natural gas.) The Sheriff's Office utilizes natural gas also in the City County Building Jail (CCB) for laundering purposes. Public Health is the only other consumer of natural gas in the building, however their use is minimal. A baseline will be established for this building by obtaining billing documentation</p>

## 2015 SMART Fund – Round 1 Proposals (March 2015)

		<p>requirements of DOA. Additionally, the impact this vehicle has on the environment will be tracked using the following website, <a href="http://www.epa.gov/cleanenergy/energy-resources/calculator.html">http://www.epa.gov/cleanenergy/energy-resources/calculator.html</a> .</p>	<p>from the Department of Administration. This project eliminates all laundering in the CCB as laundering for both downtown facilities will be handled for the Central Laundry.</p> <p>The Sheriff's Office has purchased an Electric Meter to track electrical use on the washers and dryers to obtain a baseline on energy consumed.</p> <p>We have reached out to our third party vendor regarding the card operated machines to obtain baseline data.</p> <p>We are researching energy and water consumption for the existing equipment and will use the number of loads purchased as a basis of calculation.</p>
<b>Measurement Schedule</b>	On a 6 and/ or 12 month schedule post-installation, to be determined by Juvenile Court staff.	The tracking will be done on a quarterly time period on an Excel spreadsheet as provided by Baker Tilly Consulting in 2014. The timeframe can also be determined based on the reporting	Usage of the existing machines in the city county building will be tracked for a one week period as usage is relatively stable. This will then be applied to the energy guidelines for the specific pieces of equipment.
<b>Actual Outcomes</b>	Not established.	Not established.	Not established.

**2015 SMART Fund – Round 1 Proposals (March 2015)**

Sustainability Principles	Juvenile Court Program Appliance update	Sheriff Office CNG Van	Sheriff Office Laundry System
Reduces and eventually eliminates county government’s contribution to fossil fuel dependence and to wasteful use of scarce metals and minerals			
Reduces and eventually eliminates county government’s contribution to dependence upon persistent chemicals and wasteful use of synthetic substances			
Reduces and eventually eliminates county government’s contribution to encroachment upon nature and harm to life-sustaining ecosystems (e.g., land, water, wildlife, forest, soil, ecosystems)			
Reduces and eventually eliminates county government’s contribution to conditions that undermine people’s ability to meet their basic human needs			

**2015 SMART Fund – Round 1 Proposals (March 2015)**