



# Energy Efficiency & Conservation Strategy



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# The City of Meridian Energy Efficiency and Conservation Strategy (EECS)

## The City of Meridian Energy Strategy Overview

In an effort to improve the energy efficiency, transparency, accountability, and innovation of local government, the City of Meridian decided to prepare an **Energy Efficiency and Conservation Strategy (EECS)**. This EECS outlines the City of Meridian's long-range plans to integrate energy efficiency and energy independence, sustainability, resource conservation, environmental stewardship, improvements in air quality, and reductions in greenhouse gasses into the everyday operations of City government.

As part of the Energy Strategy, the City's mission, vision, and ongoing initiatives were incorporated into the energy planning process. These factors will be integral in directing policy options and for implementing the City's current and future energy projects. Moreover, they will help to guide and centralize the energy planning process. As a result, these principles are outlined at the beginning of the document and should be considered throughout the Strategy as a whole. The City's common mission, vision, and initiatives are as follows:

### Mission:

*Meridian is a vibrant community whose mission is to be a premier city to live, work, and raise a family.*

### Vision:

*The City of Meridian's vision for 2025 is to continue to be a safe, attractive, and inviting community that is full of diverse activities. Meridian delivers quality service, planning, and fiscal responsibility with open spaces, strong partnerships, and various educational opportunities. Culture, unique business ventures, and an abundant choice of jobs make Meridian not just a destination, but a lifestyle.*

### Focus Areas/Initiatives:

*Work together as City Departments with the common goal of economic excellence, guiding growth, ensuring services meet demand, organizational excellence, and stewardship of the public trust.*

Meridian's mission, vision, and ongoing initiatives were incorporated into the energy planning process. These factors will be integral in directing policy options and implementing the City's current and future energy projects identified in the Strategy. These principles will help to guide and centralize the energy planning process.

## Current Successes

The City of Meridian recently built the new City Hall as a high-performance green building that meets national benchmarks for design, construction, and operation. The building achieved a silver certification under the Leadership in Energy and Environmental Design (LEED) rating system.



## What prompted the EECS?

The EECS emerged as a result of federal funding through the Energy Efficiency and Conservation Block Grant (EECBG) program administered by the Department of Energy (DOE).

## What was the Planning Process?

The City of Meridian decided to pursue the goals of the EECBG program through a planning process that prioritizes funding and energy savings, while meeting federal requirements. The City engaged in a visioning and analysis process to make these goals a reality. The City Council was periodically debriefed and consulted for direction on steps forward during the planning process. This allowed a system of internal checks and balances, policymaker buy-in and stakeholder ownership in the Strategy's final outcomes.

## Will the Strategy be Incorporated into Existing Plans?

In order to ensure planning coordination and integration, the City intends to align this Strategy with ongoing planning efforts. Many of the goals identified by this Energy Strategy will be aligned with the mission, vision, and initiatives identified in the City's Comprehensive Plan, Development Code, operational policies and other long-range planning operational documents.

## Was There Regional Coordination?

The policies, programs, and energy vision identified in this Strategy should be used to shape the changing energy goals that define the region. Agency coordination will help to ensure regional acceptance and verification of adjacent energy-related policies and plans. This Strategy will be submitted to the State Office of Energy Resources to ensure statewide dissemination of the City's energy innovation, as well as ongoing projects and policies.

## What are the Guiding Energy Objectives?

Through the planning and coordination process of the Energy Strategy, key objectives were identified by City staff and approved by the City Council that are meant to guide the City in its future decisions toward improving energy efficiency and conservation.

The City's Energy Objectives are:

1. **Reduce energy-related expenses in City facilities**
2. **Promote energy efficient land use patterns and/or construction practices**
3. **Reduce waste generated in City facilities**

## Are there Supporting Policies and Programs?

A number of policies and programs are outlined in this Strategy that target sustainable building practices, long-range energy and cost savings and the conservation of resources. Each of these programs and policies should be pursued for implementation and adoption to launch City sustainability efforts.

**How Will Funds be Leveraged?**

Many projects identified in this Energy Strategy can be supplemented by local utility incentives or federal and state funding opportunities. Moreover, the cost savings from improving the energy efficiency of government operations can be re-invested in new energy projects and policies.

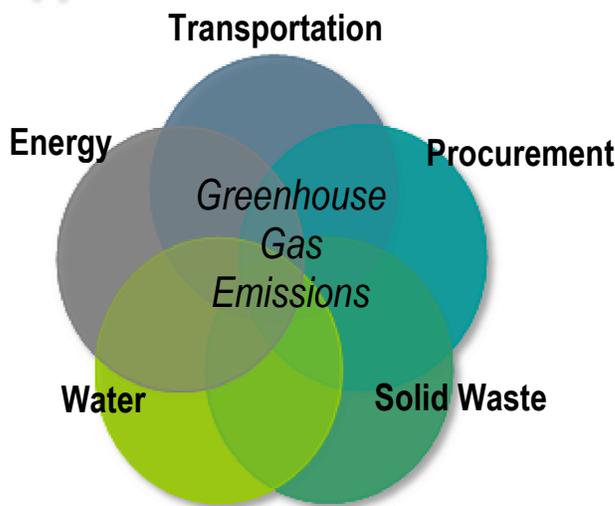
**How will the City Measure Progress?**

Annual and quarterly reporting of energy-related savings will demonstrate the success of the City’s ongoing energy-related projects and programs. Additional projects will be implemented over time to continue the success and benefits of the Energy Strategy. Maintaining an energy baseline from year to year will enable the City to track changes in energy costs and the benefits of implementing projects.

**What is the Implementation Timeline?**

Seven prioritized energy efficiency projects have been identified for application of EECBG funds. These projects symbolize the beginning steps toward achieving the City’s long-range energy goals. As part of this Strategy, a broad inventory of energy efficiency projects and programs, as well as a provisional timeline for completion of these goals, is also included in the EECS.

Project cost estimates have been obtained for some of the projects in the Energy Strategy. This will allow quick implementation when additional funding becomes available. These efforts will guide the City towards accomplishing current goals and setting the framework for implementation of future energy projects.



**Understanding and managing energy efficiency and Greenhouse Gas (GHG) emissions from all sources requires experience and project/program implementation within many disciplines**

Project cost estimates have been obtained for some of the projects in the Energy Strategy. This will allow quick implementation when additional funding becomes available. These efforts will guide the City towards accomplishing current goals and setting the framework for implementation of future energy projects.

*The Energy Efficiency and Conservation Strategy for the City of Meridian is a living document that should change with the City's needs and technological innovations.*

*This document includes a comprehensive list of future energy projects that demonstrate the City's long-range commitment to energy efficiency.*

*This Energy Strategy outlines goals that distinguish the City of Meridian as a leader and proponent of energy efficiency, sustainability and resource conservation*

## The Energy Strategy

The City of Meridian, Idaho developed this Citywide Energy Strategy as a guide for achieving both short-range and long-range objectives for energy efficiency, the reduction of greenhouse gas emissions, and the creation of sustainable jobs. Short-range energy goals will be achieved by allocating existing EECBG funding towards approved projects that will begin the process of accomplishing these goals. A comprehensive list of future energy projects is included in this report that demonstrates the City's long-range commitment to energy efficiency. The energy-related projects, programs, policies, and implementation measures identified in the planning process of this Strategy will facilitate The City of Meridian's long-range energy success.

The purpose of the Energy Strategy closely follows the requirements of the EECBG program to:

- Characterize current energy use in the City
- Identify practical projects and programs that will best achieve energy goals for analysis and inclusion as part of the City's long-range energy strategy
- Meet EECBG funding and documentation requirements
- Define metrics to assess project potential including:
  - Jobs created
  - Energy saved
  - Installed capacity
  - Greenhouse gas emissions reductions
  - Cost estimates and savings
  - Other funds leveraged
- Develop appropriate methodologies and templates for monitoring progress
- Identify projects that are most appropriate for the EECBG allocation and projects that are more appropriate for competitive grants, utility payback programs, incentives, etc.

## Climate Protection

The City of Meridian recognizes the potential impacts of global warming and the effects that local action can have on improving the world's climate. Existing scientific and economic information suggests that global climate change can be impacted by increasing greenhouse gas emissions. As a result, by taking action at the local level, municipalities can work to reduce these emissions to help prevent future environmental, social and economic threats. As part of the energy planning process, the City conducted or will conduct the following activities:

1. Analyzed current GHG emission levels produced by all City-owned assets
2. Estimated potential GHG emission reductions that could result from specific City actions
3. Identified policies and programs that could further enhance future GHG emission reductions
4. Implemented an Energy Strategy that will function as an Energy Action Plan to guide emission reductions
5. Will monitor and implement progress and results of implementing energy projects and programs

By taking these actions, the City of Meridian has begun the process of shaping its long-range energy goals that could help to prevent climate change. These actions will require the City to outline energy projects, programs and policies, follow-through with certain actions, determine the success of this energy strategy, continue the process of identifying and updating its energy goals, and work towards meeting specific targets that make it a leader in climate protection.

As part of the long-range goals identified in this Energy Strategy, the City of Meridian has the potential to reduce GHG emissions by 5,720 MTCO<sub>2</sub> over the next ten years. These reductions symbolize the beginning of Meridian's ongoing effort to work towards slowing climate change.

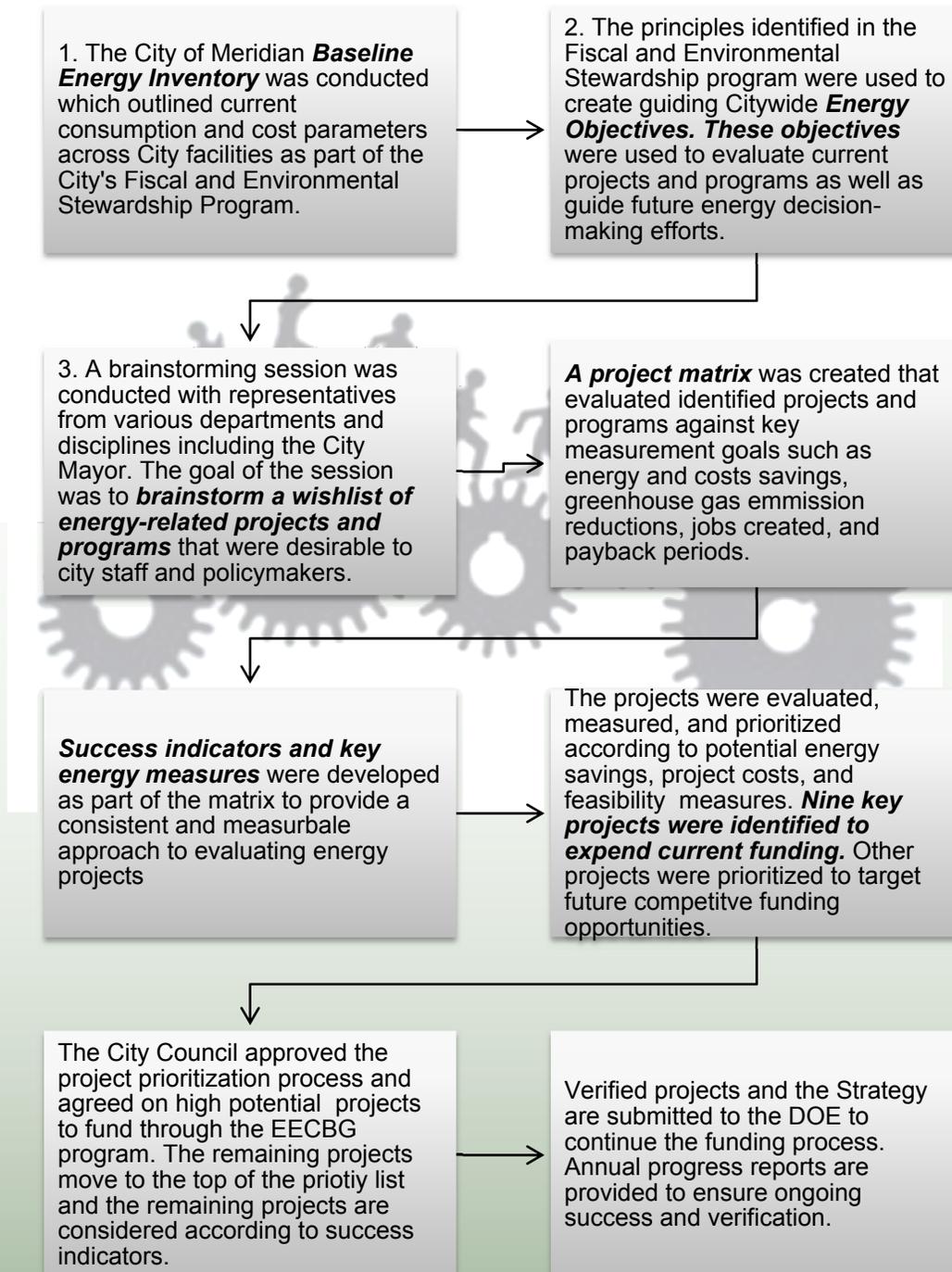
The City of Meridian Estimated 10 year Project Benefits & Savings				
Gas (Gallons)	Electricity (Kilowatt Hours)	Natural Gas (Therms)	Greenhouse Gas Emission (MTCO <sub>2</sub> )	Financial*
32,500	12,589,590	25,000	5,720	\$954,058

\*Savings to be added to the table include the savings and economic benefits generated by the implementation of various programs and policies



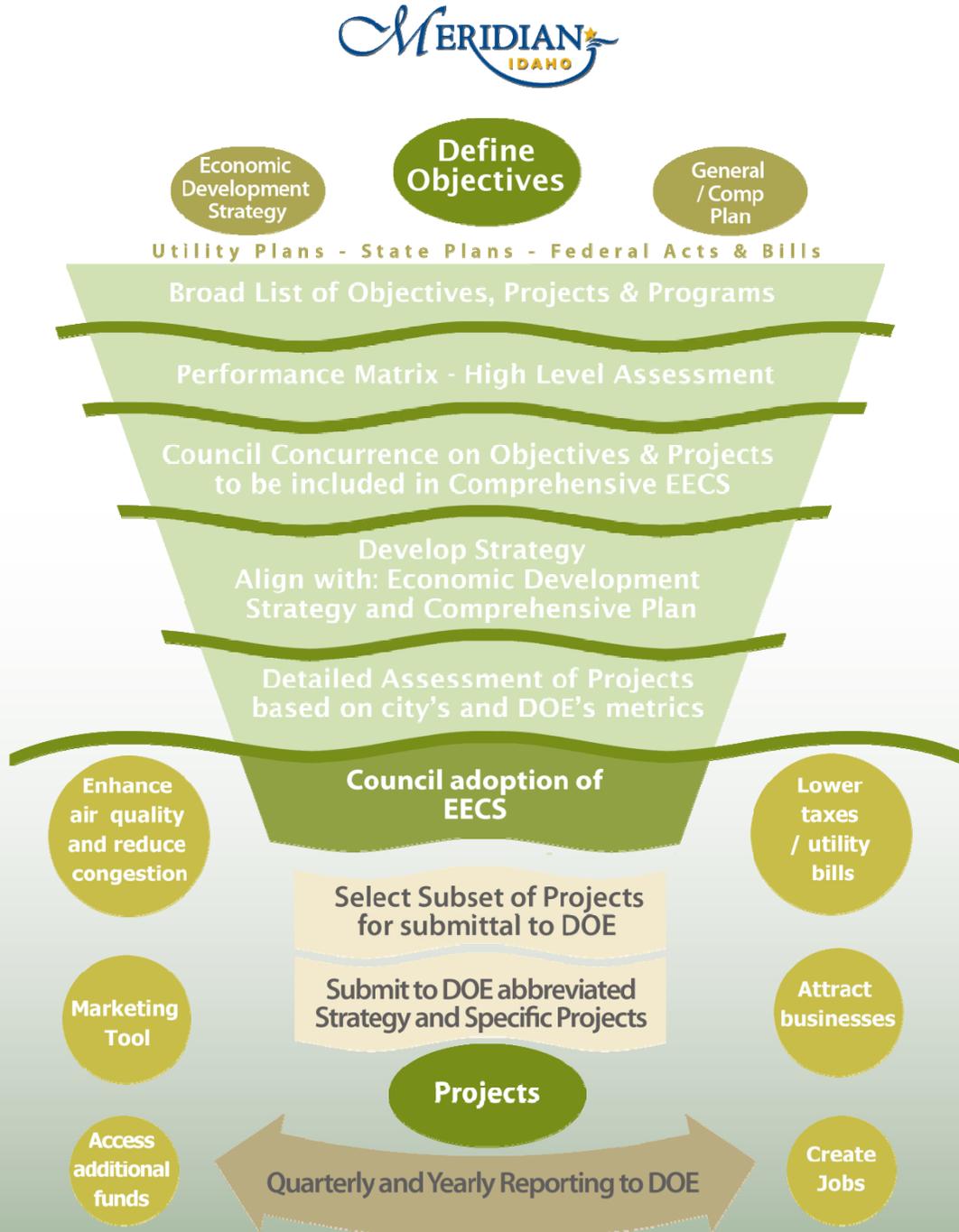
## The Energy Strategy Planning Process

The following flowchart outlines the planning process that was followed to produce the City of Meridian EECS.



Each of the steps outlined in the above chart is discussed in the subsequent sections of the Strategy. A diagram of the Energy Strategy Planning Process is provided on the following page.

# The Energy Strategy Planning Process Diagram



## Baseline Energy Inventory

Energy Baseline Categories	The City of Meridian Energy Sectors	2008 Energy Cost
	Parks	\$43,982
	Police	\$33,505
	Fire	\$41,748
	Lights	\$193,933
	Water	\$240,800
	Fleet	\$353,947
	Wastewater Treatment Plant	\$464,156
	Other	\$49,890

To better understand existing energy consumption, the City analyzed their energy baseline consumption for the year 2008. The energy baseline analysis was conducted before the onset of the EECBG program, as part of the Citywide Environmental and Fiscal Stewardship Initiative. These steps analyzed the most current annual energy use information that was available including seasonal variations and monthly cost fluctuations.

The energy baseline included a compilation of all available energy costs and energy measures across each of the assets owned and operated by the

City of Meridian. Energy use was calculated for Kilowatt hours, thermal units, and fuel consumption. In many cases, buildings or specific City-owned assets used both Kilowatt hours and therms. In order to represent a common equivalent energy unit, each of these energy measurements was converted to British Thermal Units (BTU's) to calculate the total energy consumption for each building or asset.

To effectively categorize energy use by business class or department, the City's assets were split into sector classifications as shown above. The Energy Sector Classifications for the City of Meridian were organized and agreed to by City staff and the City Council.

Baseline energy use data helped to identify the facilities with high existing energy use. The buildings or facilities that represented high comparable energy consumption were considered for further evaluation in the project or program evaluation process. After the energy baseline was calculated for all energy sectors, an Energy Baseline Scorecard was created to provide a graphic representation of the City's 2008 energy use. The City of Meridian Energy Baseline is provided on the following page. The full energy baseline calculations and template are provided in the Appendix.

The City of Meridian consumed 82,673 million BTU's (MBTU) in 2008. The City's MBTU consumption is equivalent to 13,522,793 kilowatt hours of electricity, 235,503 therms of natural gas, and 102,750 gallons of fuel. The total annual energy cost to operate the City in 2008 was approximately \$1,421,969. This cost is equivalent to \$19.47 per capita based on 2008 population estimates. The City's highest consuming energy assets are its wastewater treatment plant, vehicle fleet, and the City water facilities.

By creating an energy baseline that includes all City assets, Meridian will be able to annually update their energy consumption and track fluctuations in energy cost and usage over time. Comparing the energy use of City facilities from year to year will permit energy reporting of the costs and benefits

# City of Meridian Energy Consumption Baseline



## BASELINE (2008)

Total Annual Energy Consumption: **82,673 MBTU**

Total Annual Energy Cost: **\$ 1,421,969**

Per Capita Cost: \$19.47

**Electricity: 13,522,793 Kwh**

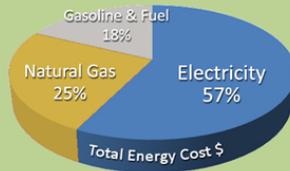
Cost: \$815,983

**Natural Gas: 235,503 Therms**

Cost: \$252,040

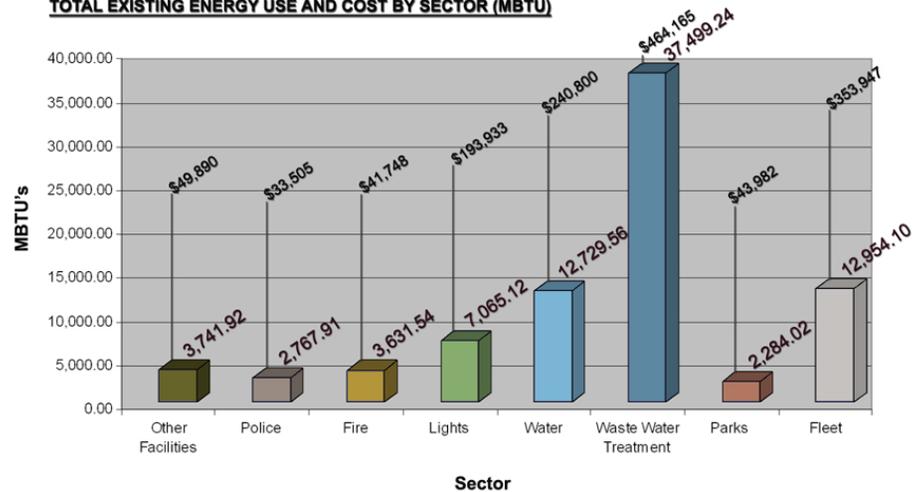
**Gasoline & Fuel: 102,750 gallons (22,712 Gas, 80,038 Diesel)**

Cost: \$353,947

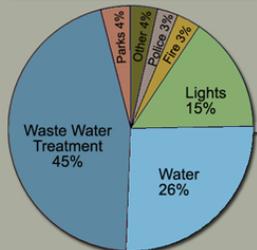


Total Greenhouse Gas Emissions: **7,912 MTCO<sub>2</sub>**

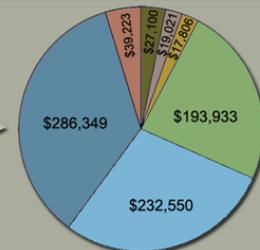
## TOTAL EXISTING ENERGY USE AND COST BY SECTOR (MBTU)



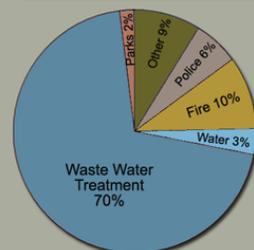
## ELECTRICITY USE BY SECTOR



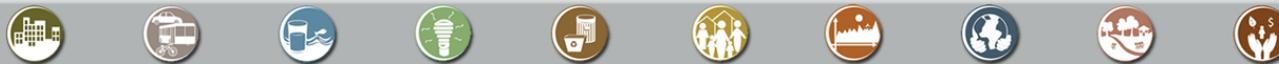
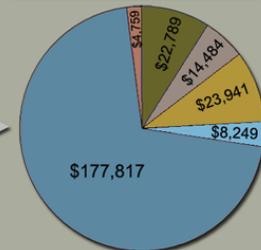
## ANNUAL ELECTRICITY COST BY SECTOR



## TOTAL GAS USE BY SECTOR



## TOTAL GAS COST BY SECTOR



## Success Indicators and Objectives

The City of Meridian identified a series of objectives that would guide their decisions for current and future energy projects and programs. Through this approach, success indicators and evaluation measures were integrated into the Strategy's goals and outcomes.

The energy objectives for The City of Meridian were developed by City staff based on current energy demands, ongoing City projects, and the desire to set sustainable goals. The objectives were then approved by the City Council on November 3, 2009.

The City of Meridian energy objectives helped to evaluate specific energy-related projects or programs identified for the current funding opportunity. These objectives can also be used to evaluate future project and programs over time. These objectives were used in the project matrix as a key measure that would help to evaluate other projects. Yet, it is important to recognize that as energy needs and opportunities change, the objectives can also change to align with future needs. Particularly, shifts in technology, funding, or project opportunities may motivate these changes. If energy objectives change, policymaker approval should occur.

### The City of Meridian Energy Objectives:

- Reduce energy-related expenses in City facilities
- Promote energy efficient land use patterns and/or construction practices
- Reduce waste generated in City facilities

Local energy objectives should not be static; they should change over time with shifts in technology and current funding or project opportunities. This approach will help to shape evolving success indicators that guide decision-making

In order to analyze a large number of potential projects, a planning-level analysis was created that estimated metrics such as project costs and savings, payback periods, and additional funding sources. This approach provided a relative comparison of project costs, benefits, and general feasibility.

## Project Brainstorming

In order to encourage City departments and staff to bring reality to potential energy efficiency projects, department heads and staff were encouraged to brainstorm any projects or programs they would like to pursue through the EECBG program. A project brainstorming session was conducted on October 28, 2009 that outlined the projects and programs that would be analyzed as part of the Energy Strategy. Representatives from Idaho Power, the Meridian Downtown Development Corporation (MDDC), Vengaworks, and the Mayor attended the meeting. In total, **thirty two project** ideas and **fifteen program or policy** ideas were submitted for consideration as part of the energy planning process.

To begin ranking and analyzing the initial list of projects that were envisioned in the brainstorming session, a project matrix was created that included all the measures required by the DOE as part of the EECBG funding, as well as additional metrics such as City energy objectives, anticipated project costs and savings, payback periods, and additional funding sources. The matrix provides a planning-level analysis that measures the costs and benefits of each project or program to prioritize them for current and future funding opportunities. The list of projects in the project matrix that were evaluated for their energy, cost, and environmental benefits is shown on pages 13 and 14.

In many cases, the City departments or staff that suggested certain projects had cursory cost estimates or concepts of energy savings posed by the projects. In these cases, the available project information was populated into the matrix. The projects that did not have initial cost or energy information were estimated based on engineering and planning-level analysis. Some key project considerations included environmental, historical, or implementation issues that could delay the quick and efficient use of the funding. These issues were highlighted in the matrix in order to flag them for comparison against other projects that may not have similar issues.

This process of planning-level project analysis was an effective method of comparing different projects for funding prioritization. It provided a base-level analysis for an array of projects that had potential for energy savings. When future funding opportunities become available, this process should be repeated.

The programs and policies identified in the brainstorming process were separated from the projects. The identified programs and policies are recommended as part of the City's procedural approach to improving energy efficiency of its day-to-day operations. Example policy options and associated reference materials are provided in the Strategy that will facilitate successful implementation. Example policy or program options should be tailored to meet the City's specific priorities and needs.

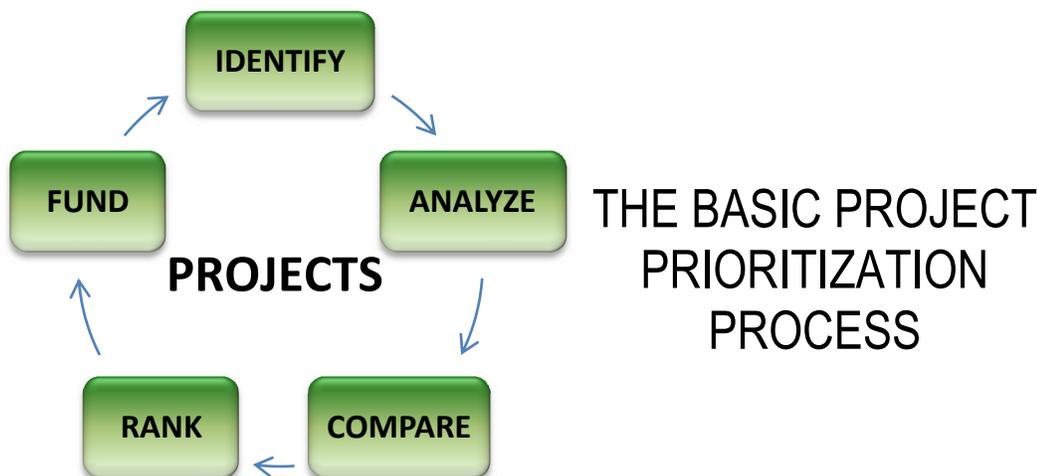
## Project Prioritization

After the initial list of projects and programs was compiled, a project prioritization analysis was conducted. As part of this analysis, all available information regarding the projects was compiled and populated into the matrix, including any project constraints that would hinder the quick and successful completion of the project. After compiling appropriate information for each of the projects, an internal team of professionals, engineers, electricians, planners, and energy consultants balanced and prioritized the projects. The projects that were costly, had limited foreseeable savings, or posed significant obstacles were moved to the bottom of the list. The projects that provided quick payback, significant energy or cost savings, and fit into the City's long-range energy vision were moved to the top of the list.

A high-level analysis of 16 projects that had significant energy and cost savings potential was then conducted including a detailed compilation of measures for each project. The information that was obtained for each of these projects included:

- Existing energy use
- Approximate investment
- Potential energy saved
- Potential costs saved
- Estimated jobs created or retained
- Associated GHG emissions reduced
- Additional funding opportunities (funds leveraged)

After the high-level analysis of the 16 proposed projects, eight projects were chosen to compete for application of the EECBG funding. One additional project was identified to apply any remaining funding from the allocation. Projects will be funded consecutively and balanced according to project incentives and budget offsets. The prioritized projects were approved by the Meridian City Council on November 18, 2009. The matrix with the 16 high-level projects is shown on the following page. The 9 prioritized projects are outlined in detail later in the Strategy.



Projects identified in an initial brainstorming session were included in the City's Energy Strategy. This provides a list of long-range projects that can be pursued over time.

#	Project Title	City Department	Information Brief Project Description	Objectives			Measures							
				Reduce energy-related expenses in City facilities	Promote energy efficient land use patterns and/or construction practices	Reduce waste generated in City facilities	Existing Annual Energy Use	Approximate Investment (\$)	Payback	Jobs Created/Retained	Potential Annual Energy Saved	Annual GHG Reduced (Metric Tons/yr)	Annual Costs Saved	Potential for Additional Funds
<b>EECBG Eligible Projects (Considering Time Constraints, Funding and Eligibility Criteria)</b>														
1	Energy Efficiency and Conservation Strategy	All Departments	Hire a consultant to conduct an Energy Efficiency and Conservation Strategy to prioritize and assess projects for energy eligibility	Y	Y+	N	N/A	\$48,758						
2	Program Administration	All Departments	Dedicate significant staff time and resources to successfully administrate and prioritize the EECBG program funding. The program requires energy reporting after the allocation period and considerable documentation and coordination efforts				N/A	\$59,200						
3	Retro-Commission Police Building	Police	Conduct a full energy audit that includes construction and installation of associated improvements to the Meridian police building	Y+	Y	N	401,691 kWh + 13,960 Therms	Up to \$120,000	Potential for up to 20% savings	0.86 to 1.3	80,000 kWh +2,500 therms	47	\$8,000 to \$9,000	Approximate \$16,000 in Idaho Power Incentives
4	LED/Green Energy Street Light Conversion Corridor	Public Works/ACHD	Replace street lights with more efficient or renewable energy powered lighting. Explore Franklin to Fairview or I-84 to Fairview corridors.	Y	Y+	N	Estimated Franklin to Fairview= 104,244 kWh; Franklin to I-84 =45,990 kWh	Franklin to Fairview=\$90,000; Franklin to I-84=\$43,000	20-25 years based on 50% savings	1.44	Based on 50% savings assumption: 52,000 kWh + 23,000 kWh = 75,000 kWh	Up to 31	Up to \$6,000	There are no Idaho Power incentives for outside lighting.
5	Change out Light Switches to Motion Sensors in Fire Stations	Fire	Replace old light switches in all buildings with new motion detector light switches.	Y	Y	N	393,321 kWh (at all fire stations)	\$9,000 to \$10,000 w/o installation	30%-50% savings, 1-3 year payback; will depend on occupancy	0.11	40,000 kWh to 50,000 kWh	21	\$2,500 to \$3,500	\$40 Idaho Power match per sensor
6	Bike & Pedestrian Pathway Design and Construction	Parks	Construct pathways to increase connectivity for pedestrians and bicyclists in Meridian and reduce vehicle miles traveled (VMT). Two options: Connect Fothergill path to an existing pathway network, this connection is 216' long by 10' wide. Five mile path segment "E", this path connects Linder Road to Ten Mile Road and is 1.06 miles long.	N	Y	N	None	Fothergill path = \$8,500; Five Mile Path = \$57,000 for design only. \$65,500 total	8 to 12 years	0.71	46,000 vmt and 2,500 to 3,000 gallons of gas	26	\$6,500 to \$8,000	None
7	Efficient Equipment Replacement (variable speed pumps, etc.)	Public Works	Install more efficient pumps and motors at WWTP. Public Works currently operates a total of approximately 230 horsepower for pumps, 800 horsepower for blowers and 3.25 horsepower for Clarifiers that are not on variable speed drives. The rest of the pumps, blowers, etc. operate on variable speed drives.	Y	Y-	N	230 hp for pumps, 800 hp for blowers and 3.25 hp for Clarifiers	\$125,000 to \$175,000	3 to 6 years	1.35 to 1.9	500,000 kWh to 700,000 kWh annually	209 to 292	\$30,000 to \$50,000 annually (based on current consumption)	Idaho Power could pay \$60 per horsepower converted. This could be up to \$25,000.
8	Change out Lighting at Wastewater Treatment Plant	Public Works	Replace existing light fixtures at WWTP with newer more efficient lighting. Total of 68 fixtures anticipated. WWTP 6,143,589 kWh + 165,201 Therms	Y	Y	N	N/A	\$15,000 to \$16,000 w/ installation	2 to 5 years. 30% to 50% of current usage	0.17	70,000 kWh to 80,000 kWh	29 to 33	\$5,000 to \$6,000	Idaho Power incentive of \$6,174.
9	Video Conferencing pilot project for Fire Stations	Fire	Install video-conferencing capabilities for certain departments to decrease vmt travel between city facilities. Assume \$2.70 per gallon. Current cars for fire get 4 mpg. This would include video installation in 1 to 2 buildings as a pilot project.	Y	Y	N	3,000 vehicle miles	\$20,000.00	7 to 8 years	0.22	3,000 vehicle miles; 750 gallons	7	\$2,025	None
<b>High Potential Energy Projects</b>														
10	Meridian Incubator - Vengaworks Solar Panel Energy Transfer Project	Building Maintenance	Install solar panel on Vengaworks building where installation infrastructure already exists - transfer solar power generation to Meridian Incubator	M	Y+	N	None	\$100,000 to \$120,000	30 to 35 years; Could be 12 to 15 years with energy inflation.	1.3	36,000 kWh to 44,000 kWh	16 to 18	Up to \$3,000 to \$4,000 with power and green tag paybacks	Vengaworks cost-share
11	Purchase Hybrid Vehicles (or other energy efficient vehicles) for Public Works	Public Works	Vehicle replacement program with energy efficient vehicles, for those vehicles that make sense. Potential for 2-5 cars	Y	N	N	211,470 vmt total for PW	Assume \$26,000 per car or \$52,000 for two cars	18 to 20 yr payback per car	1.41	Potential for 500 gallons per car	4	\$1,200 to \$1,500 per car (depending on vmt)	Eligible for EECBG Retrofit and Ramp Up Program -Topic Area 1
12	Energy Efficient Vehicle(s) for Code Enforcement and Admin	Other	Vehicle replacement program with hybrid vehicles, for those vehicles that make sense (no work trucks, etc). Potential for 8-10 cars.	Y	N	N	15,000 vmt per car or 150,000 vmt for all cars	Assume \$22,000 per car	11 to 12 years per car	2.39	700 gallons per car	6	\$1,800 to \$2,000 per car	Eligible for EECBG Retrofit and Ramp Up Program -Topic Area 1
13	Electric golf carts for maintenance vehicles	Parks Department	Replace some existing maintenance vehicles with electric golf carts. Would remove the use of fuel with electric use where feasible.	Y	N	N	\$37,319 in fuel or 10,976 est gallons	\$20,000 to \$25,000 for two Toro Workman MDE's	30+ years	0.25	200 to 230 gallons	2	\$550 to \$650	Eligible for EECBG Retrofit and Ramp Up Program -Topic Area 1
14	Employ Digester Gas for Building Heating at Wastewater Treatment Plant	Public Works	Capture heat from combustion of digester gas and use energy onsite. Construct a hot water distribution system at the WWTP. Current Energy use of 6,143,589 kWh + 165,201 Therms	Y	Y	Y	Current total use of 165,201 Therms for whole WWTP	\$500,000 to \$750,000	13 to 20 year payback	5.43 to 8.15	35,000 to 40,000 Therms	202	\$30,000 to \$40,000	Idaho Power Bundle Incentives- up to 30% to 70% of project cost
15	Wind Energy Conversion Facilities on Public Buildings	All	Install wind power faculties on public buildings that generate energy - can be sold back to Idaho Power or use for City purposes	Y	Y+	N	Various	\$20,000 to \$25,000 per unit	avg of 30 year payback	0.22 per turbine	Assume 8,000 kWh to 11,000 kWh per year per turbine	3 to 5	\$600 to \$800 per turbine	Rural Energy for America Program
16	Video Conferencing for Fire Stations after pilot project	Fire	Install video-conferencing capabilities for certain departments to decrease vmt travel between city facilities. Assume \$2.70 per gallon. Current cars for fire get 4 mpg.	Y	Y	N	9,000 vehicle miles	\$40,000.00	7 to 8 years	0.43	9,000 miles; 2,250 gallons	20	\$6,000	None

The calculations contained herein are planning-level assessments and will be used to prioritize and balance potential projects. More detailed assessment of these project should occur after prioritization. Project recommendations will be based on a combination of cost, feasibility, energy savings, jurisdictional preference, and potential for cost-share or additional funding opportunities. Costs saved are based on estimated average costs per kWh of \$0.07 according to Idaho Power's rates. Therms costs are calculated at \$0.8 to \$0.96 per hour which correlate to regional estimates. Avg gasoline cost is based on a \$2.70 estimated average cost per gallon. It should be noted that fuel costs may fluctuate over time. Potential energy saved is calculated as a percentage of existing facility energy consumption. The percentage used depends on the proposed project. Where feasible, referenced standards were used.

#	Project Title	City Department	Information Brief Project Description	Objectives			Measures							
				Reduce energy-related expenses in City facilities	Promote energy efficient land use patterns and/or construction practices	Reduce waste generated in City facilities	Existing Annual Energy Use	Approximate Investment (\$)	Payback	Jobs Created/Retained	Potential Annual Energy Saved	Annual GHG Reduced (Metric Tons/yr)	Annual Costs Saved	Potential for Additional Funds
<b>Medium Potential Energy Projects</b>														
17	Install Micro Turbines for Electricity Generation at Wastewater Treatment Plant.	Public Works	Install 250 kW micro turbine to use biogas that would help to decrease energy costs at the WWTP	Y	Y-	N	165,201 Therms for entire WWTP	\$900,000 to \$1,200,000	8 to 10 year payback	9.78 to 13.04	1.5 to 2.5 million kWh annually	627-1,045	"\$90,000 to \$150,000 annually"	IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program; USDA RD Bioenergy Program
18	Wind or Solar Energy Generation Facilities at Wastewater Treatment Plant	Public Works	Install solar or wind energy generation capabilities on the WWTP.	Y	Y+	N	N/A	Assume \$25,000 for wind (see project 15); solar estimate from Aurora is \$140,000 for Admin building	Wind is up to 30 years, solar is 50+ years	0.22 for wind and 1.52 for solar	Assume 5,000 to 6,000 kWh per year per wind turbine. 36,000 to 44,000 kWh for solar	3 to 5 for wind; 16 to 18 for solar	\$600 to \$800 per turbine. \$3,000 to \$4,000 for solar	
19	Waste Water Treatment Plant Energy Efficient Blowers	Public Works	Replace existing blowers at WWTP with newer more efficient blowers	Y	Y-	N	6,143,589 kWh for entire WWTP	\$600,000 to \$800,000	30-40 years	6.52 to 8.69	250,000 kWh to 300,000 kWh annually (4.5% of WWTP energy use)	104 to 125	\$17,000 to \$21,000	IP Custom Program - could reimburse up to 70%; IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program
20	Point Source Water Meter Readers	Public Works	A program to replace water meters City wide with point source read meters allowing remote readings to reduce vehicle miles traveled; increased efficiencies over the long term	Y	Y	Y-	14,000 vmt	\$8,000,000 to \$12,000,000	50+ years	86.9 to 130.4	14,000 vmt + vehicle maintenance cost + improved efficiencies	123	\$2,000 to \$3,000 + maintenance costs and efficiencies.	IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program
21	Public-Private Wind Turbine Project	None	Lease to own wind farm pilot project. The project would include contracts to purchase wind turbines with payback on investments	Y	Y-	N	N/A	\$1.8 to \$3.9 million per (1.5 MW) turbine	Could be 3 to 10 years	19.56 to 42.39	7,700,000 kWh to 16,700,000 kWh	3,217 to 6,977	\$540,000 to \$1,170,000	Rural Energy for America Program
22	WWTP Struvite Production	Public Works	Install a facility to produce struvite from WWTP solid dewatering side stream.	Y	Y+	Y	6,143,589 kWh; 165,201 Therms	\$1,500,000 to \$2,000,000	5 to 8 years	16.3 to 21.7	1,400,000 kWh to 1,800,000 kWh	585 to 752	\$100,000 electrical costs; \$161,000 in P recovery; \$240,000 to \$300,000 total	IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program
<b>Limited to Low Potential Energy Projects</b>														
23	Solar bollards as pathway lighting	Parks	Install solar bollards on future pathways identified by the city. It is assumed that these lights will replace high intensity street lights	N	Y	N								
24	Fleet - Efficient Battery Replacement Program	All	Replace batteries of existing fleet cars with more efficient energy saving car batteries	M	N	N		Minimal						
25	MDI Compressed-Air Cars	All	Explore vehicle replacement program for MDI zero emissions vehicles	Y	Y	Y+	\$707,985 cost or 102,750 gallons total	\$16,000-\$20,000 per car	\$3.25 per gallon					
26	Ice Storage Cooling for Air Conditioners at City Hall	Other	Replace existing air conditioners at City Halls with newer AC that utilizes ice storage for cooling capabilities	Y	Y	N	75,420 kWh	Minimal						
27	City Hall Hand Blowers	Building Maintenance	Replace existing paper towel dispensers with hand blowers	N	Y	Y	None				Replacing a manual facility with an electric facility			
28	Statistical Process Control (SPC) for Wastewater Treatment Plant	Public Works	Use SPC technology and verification process to optimize operations at the WWTP. Hire external engineers to evaluate operations, interview operators, and review instrumentation and controls	Y-	Y-	N	6,143,589 kWh	\$300,000 to \$500,000	Potential for 5% to 20% of electricity	3.26 to 5.34	307,179 kWh to 1,228,717 kWh	128 to 513	\$15,000 to \$100,000 annually	None
29	Turbines at Pressure Zone Boundaries	Public Works	Install Turbines at Water Distribution Pressure Zones to generate energy.	Y-	Y-	N	Not available							
30	Waterless or low flow urinals	Building Maintenance	Replace existing flush toilets with low flow or waterless urinals to decrease city water use over the long term.	N	Y	N	avg 18 gallons per person per day; 260 work days year; \$1.50 per 1000 gallons	\$400 per urinal	avg of \$1.50 per 1,000 gallons	0.004 per urinal	40,000 gallons of water per year per urinal	None	N/A	
31	Upgrade Lighting in Fire Stations	Fire	Replace existing light fixtures at Fire Station with newer more efficient lighting	Y	Y	N	100,000 to 150,000 kWh (3 Stations- Assume lights use 30% of total electricity use)	Minimal						Idaho Power initial audit is free.
32	Energy Audit of Fire Stations 1 and 2	Fire	Perform detailed building energy audits on identified City Fire Stations; Based on energy baseline operations.	Y	Y-	N	247,200 kWh + 12,132 Therms	Minimal						Idaho Power - Initial audit is free. Eligible for EECBG Retrofit and Ramp Up Program - Topic Area 1
33	Purchase Electric Vehicles for Park Maintenance.	Parks	Vehicle replacement program with electric vehicles, for those vehicles that make sense	Y	N	N	\$37,319 in fuel or 10,976 est gallons	Minimal						
34	Potable Water Storage	Public Works	Install additional potable water storage to promote off-peak pumping (est. 2,000,000 gallons). Coordinate energy savings with current city pumping and peak load operations.	Y	N	N	None	\$2,000,000 to \$3,000,000						Idaho Power incentive for minimizing usage during peak loads

The calculations contained herein are planning-level assessments and will be used to prioritize and balance potential projects. More detailed assessment of these project should occur after prioritization. Project recommendations will be based on a combination of cost, feasibility, energy savings, jurisdictional preference, and potential for cost-share or additional funding opportunities. Costs saved are based on estimated average costs per kWh of \$0.07 according to Idaho Power's rates. Therms costs are calculated at \$0.8 to \$0.96 per hour which correlate to regional estimates. Avg gasoline cost is based on a \$2.70 estimated average cost per gallon. It should be noted that fuel costs may fluctuate over time. Potential energy saved is calculated as a percentage of existing facility energy consumption. The percentage used depends on the proposed project. Where feasible, referenced standards were used.

## Sustainable Initiatives, Programs and Policies

A main goal of the City of Meridian Energy strategy is to develop policies and programs that will help make Meridian healthy, vibrant, cohesive, and sustainable for many generations into the future. Many of these initiatives will be considered as part of the implementation process to facilitate the City's energy progress. Where feasible, the specific initiatives outlined in this Strategy will be measured to help identify the City's progress toward achieving GHG reductions. Initiatives that are difficult to measure with available resources should still be recognized as key efforts towards sustainability.

Numerous energy initiatives, programs and policy options were identified during the brainstorming process that will facilitate energy efficiency, and sustainability. In many cases, the initial costs associated with energy programs and policies are generally minimal. Yet, these initiatives, programs and policies can require a significant level of stakeholder and policymaker support to ensure successful implementation. Outcomes of the specific energy-related initiatives will hinge on policymaker sponsorship and the feasibility of each specific action.

In many cases, the conceptual premise of identified energy initiatives is detailed in the Strategy. When available, materials to help launch these programs are provided in the Appendix. The final content of these programs and policies will be outlined in detail by City staff and approved by City Council to guarantee applicability and effectiveness. **Target dates have been identified for initiating each of the energy programs and policies. The 10-Year Action Plan outlines the anticipated periods of attainment.** Meridian's City Council will direct the years of attainment for each specific initiative as part of the adoption of the Energy Strategy. If goals will not be met for certain initiatives, the dates will be modified and re-adopted by City Council as necessary. Where feasible, many of these programs and policies should be considered for integration into the City's associated planning or operational documents and procedures to ensure their long-range success.

### The City of Meridian Energy Programs & Policies:

- **Conservation and/or Sustainability Chapter in Comprehensive Plan – FY 2012**

*Update the City's Comprehensive Plan to include a chapter, element, or section on citywide sustainability, conservation, and/or energy stewardship. This effort will require a significant amount of planning, public involvement, and integration of the City's vision. This element or component of the Comp Plan should include a clear definition of sustainability and/or conservation and the goals that define the City's commitment to promoting sustainability/conservation in all aspects of everyday City operations. Specific policies covered in this section may include a green building program, sustainable agriculture, as well as economic sustainability. Metrics may be created that measure success for each of these programs. This component will help to guide future regulatory decision-making so that sustainability becomes a key consideration. A sample Sustainability Chapter for a Comprehensive Plan is provided in the Appendix.*

Adopting energy initiatives, programs and policies will help to further enhance long-range energy and sustainability goals. These steps are operational efforts that will enhance the everyday execution of City staff duties and governmental processes.

Consequently, sustainable initiatives, programs or policies will



- **Downtown Multi-Media Energy Efficiency Display – FA (Future Action)**  
*Assemble a multi-media display in downtown Meridian to showcase the City's efforts towards energy efficiency and sustainability. The display could present the City's current efforts to reduce GHG emissions and the cost and return on investment for energy projects and programs. The display would function as an advertisement of the City's efforts towards economic stewardship and providing innovative service to its residents.*
- **Form a Citywide Energy Committee – FY 2010**  
*Formulate an energy committee of energy specialists, policymakers, and community stakeholders in Meridian that tracks energy opportunities and possible advancements for the City of Meridian. The Committee should meet regularly to consider the issues of conservation, sustainability, energy efficiency, and renewable energy opportunities. Additional tasks may include exploring renewable or energy saving technologies, or monitoring the City's energy projects or programs. This committee would seek incentives for the City to sustain and prolong their current efforts and investments in promoting energy efficiency and sustainability.*
- **Create a Revolving Fund for Energy Efficiency Grants, Loans, or Private Financing of Renewable Energy Projects – FA (Future Action)**  
*Create a tax-free or incentivized government revolving fund that could be used to help compile and finance future energy projects. Opportunities for the fund could include applying funding towards public-private partnership energy projects, or investing project incentives or funding matches that can be used for future energy projects. Caveats could be created to require that allocations be applied towards renewable energy projects, or projects that have a minimum payback period.*
- **Purchasing Policy for Conservation Fixtures – FA (Future Action)**  
*Update City purchasing policies to encourage the replacement of traditional fixtures with energy efficient or resource conserving fixtures. Purchasing guidelines could include fixtures such as light bulbs, low-flow showerheads and faucets, waste reducing towel dispensers, products that use renewable materials, or any other energy or resource conserving products available. A sample sustainable practices policy is provided in the appendix.*
- **Purchasing Policy for Sustainable Products – FY 2010**  
*Update City purchasing policies to encourage the purchase of traditional disposable materials (i.e. paper or styrofoam) with more resource conserving products such as biodegradable, renewable or natural cups, plates, napkins, paper towels and any other frequently used products. Evidence of compliance with this policy could be required in all quarterly or annual departmental performance reports. A sample sustainable purchasing policy is provided in the appendix.*
- **Retain an Energy Monitoring System Specialist – FA (Future Action)**  
*Create an energy specialist staff position in a City of Meridian department that would monitor energy-related savings, update plans, and track energy project and program success. Depending on the City's current financial abilities, this position could be hired externally or retained internally.*

- **Hire an Energy Performance Contractor – FA (Future Action)**

In order to provide a system of checks and balances of the City's energy usage to maintain financial stewardship, the City may consider hiring an energy performance contractor to monitor future energy usage. The contractor could be used to monitor and report on the benefits associated with EECBG and other energy projects, future energy programs and policies, and the ongoing efforts of staff to enhance internal energy conservation. This would permit a method of annually updating the Energy Strategy and a way to track energy funding opportunities.

- **Change Public Works Standards to include Efficient Street Lighting – FA (Future Action)**

Update the public works development standards to accommodate new street light that are more energy efficient. A sample revised lighting standard recommendation is provided in the appendix.

- **Change UDC Requirements to Support Landscaping Efficiency – FA (Future Action)**

Update and adopt uniform development code (UDC) requirements or a new City ordinance that sets minimum standards for landscaping efficiency and encourages additional levels of landscaping efficiency through development incentives or reduced costs. Updating the UDC would require a significant planning effort with coordination from the parks departments as well as approval and adoption by the City Council. Sample efficient landscaping code requirements and efficient landscaping ordinances are provided in the appendix.

- **Develop System to Monitor and Track City Energy Use – FA (Future Action)**

As part of this Energy Strategy, the City has created a template for tracking their current energy baseline. This can be updated annually to monitor the overall energy use of City assets. In addition to this effort, the City would like to develop a template that can be used to measure and assess large energy fluctuations in specific facilities, as well as provide a system of energy control to limit over-usage of energy, especially during peak usage periods. This system could be created and maintained by a future energy monitoring specialist or energy intern at the staff level.





- **Ten Mile Road Conservation Corridor – FY 2011**

The area around the Ten Mile Interchange is planned as a vibrant center for intensive employment, retail and mixed use development. In addition to being designated a business enterprise corridor, the area has potential to serve as a model for energy efficient development and conservation.

This could occur through a number of initiatives. One is the City's partnership between the Idaho Transportation Department and the City to install a reclaimed waste water system to be used for irrigation for the interchange and street landscaping as well as for private development. Another initiative would be to provide incentives to encourage future construction to employ building design and construction standards to LEED or other energy saving standards. The Energy Committee should focus on the area in order to fully articulate the energy saving and conservation opportunities for future development.

In order to initiate a large scale effort that involves regional energy and urban planning, direction from the Citywide Energy Committee, Planning and Zoning Commission, and the City Council would be crucial as well as guidance by the US Green Building Council and CNU. Involving regional members, stakeholders, land owners, and agencies will facilitate the implementation of this energy planning area. This policy may be considered for incorporation into the conservation or Sustainability Chapter of the Comprehensive Plan as well as integrated into future land use planning or zoning guidelines.

- **Compost Facility – FA (Future Action)**

According to the EPA, yard trimmings and food residuals together constitute nearly 26% of the municipal solid waste stream. Composting offers the benefits of resource conservation and the creation of useful organic waste that can be used for landscaping fertilization. In an effort to harness these benefits, the City will work to institute a compost facility for the benefit of conservation and environmental stewardship. A compost facility, housed at the Waste Water Treatment Plant, could be developed in partnership with the City's solid waste contractor Sanitary Services Company (SSC) to create the most effective operation possible.



## Additional Funding Sources

In order to further leverage the current funding allocation, additional funding sources have been identified in the Strategy for some of the projects analyzed. In some cases, the utility incentives cover a large portion of the costs for these projects. Each of the eligible projects and their potential funding sources is presented below. In some cases, general funding opportunities suggest qualification for the associated projects, but each agency or funding program should be consulted before project implementation. It will be up to the City to pursue additional funding sources for each project during implementation.

### Energy Projects and Potential Funding Sources:

No.	Project Description	Potential Funding Opportunity
1.	Retro-Commission Police Building	Idaho Power – up to \$16,000 incentive
2.	Change out Light Switches to Motion Sensors in Fire Stations	\$40 Idaho Power match per sensor
3.	Efficient Equipment Replacement (variable speed pumps, etc.)	Idaho Power - \$60 per horsepower or up to \$25,000.
4.	Change out Lighting at Wastewater Treatment Plant	Idaho Power – \$6,174 incentive
5.	Employ Digester Gas for Building Heating at Wastewater Treatment Plant	Idaho Power Bundle Incentives- up to 30% to 70% of project cost
6.	Wind Energy Conversion Facilities on Public Buildings	Rural Energy for America Program
7.	Install Micro Turbines for Electricity Generation at Wastewater Treatment Plant	IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program; USDA RD Bio-energy Program
8.	Waste Water Treatment Plant Energy Efficient Blowers	IP Custom Program - could reimburse up to 70%; IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program
9.	Public-Private Wind Turbine Project	Rural Energy for America Program
10.	WWTP Struvite Production	IDEQ Drinking Water Revolving Loan Fund and Planning Grant Program
11.	Potable Water Storage	Idaho Power incentive for minimizing usage during peak loads

One of the goals of this Energy Strategy is to identify a series of projects that qualify for additional funding sources beyond the current DOE allocation. Numerous projects can be leveraged by utility and federal grant matches to increase their economic advantage.

Seven key projects have been identified in this Strategy that will apply for funding of the EECBG program. One surplus project was also identified to expend any remaining budget. A detailed summary of these projects and their energy metrics must be submitted to DOE. The adjacent project descriptions and energy

## EECBG Projects

### Retro-Commission Police Building

The purpose of this project is to retro-commission the City of Meridian Police Building. The project will include; retro-commissioning of the building's mechanical and electrical systems to optimize performance with a focus on operational improvements, lighting control strategies, demand controlled ventilation, and installation of a building automation systems to help improve building operation and reduce energy costs. The cost for the

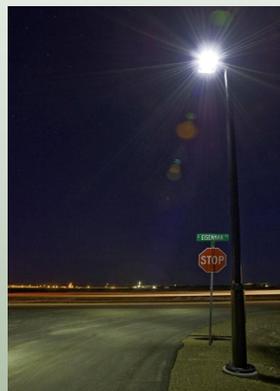


project was estimated at \$120,000. According to Energy Star estimations, energy efficiency retrofits can save up to 20% of a building's energy use. These savings could result in a reduction of 80,000 kWh and 2,500 therms per year and an annual cost reduction of \$8,000 to \$9,000. This would achieve a cost payback of 13 to 14 years with decreased maintenance costs. This project would result in a 47 metric ton reduction in GHG emissions. This project meets the City's objectives for:

- 1) Reducing energy-related expenses in City facilities
- 2) Promoting energy efficient land use patterns and or construction practices

It is anticipated that retro-commissioning of the police building will be complete within two years of activity approval.

### LED Street Light Conversion Corridor



The purpose of this project is to replace existing street lights with more efficient LED lighting on Meridian Road from Franklin to Fairview and from I-84 to Fairview Ave. corridors. The cost for the project was estimated at \$133,000 for both corridors including installation of poles. According to the lighting manufacturer, LED lighting retrofits can save up to 50% of current lighting costs. These savings would result in a reduction of 75,000 kWh and an annual cost reduction of \$6,000. This project is expected to result in a 31 metric ton reduction in GHG emissions.

The LED Street Light Conversion Corridor project meets the City's objectives for:

- 1) Reducing energy-related expenses in City facilities
- 2) Promoting energy efficient land use patterns and or construction practices

It is anticipated that street lighting replacement will be complete within one to three years of activity approval.

### **Change Light Switches to Motion Sensors in Fire Stations**

The purpose of this project is to replace old light switches in all fire station buildings with new motion detector light switches. A total of 105 switches were identified. The cost for the project was estimated at a little under \$90 per switch for a total of \$9,000. According to Idaho Power estimates, motion sensors can result in a 1-to 3-year payback. These savings could achieve a reduction of 50,000 kWh and an annual cost reduction of \$3,500. This project is expected to result in a 21 metric ton reduction in GHG emissions. This project meets the City's objectives for:

- 1) Reducing energy-related expenses in City facilities
- 2) Promoting energy efficient land use patterns and or construction practices

It is anticipated that motion sensor lighting replacements will be complete within one to two years of activity approval.

### **Bike & Pedestrian Pathway Construction**

The purpose of this project is to construct and design pathways to increase connectivity and reduce vehicle miles traveled (VMT) for pedestrians and bicyclists in Meridian. This project includes construction of Fothergill path to an existing pathway network, a connection of 270' long by 10' wide and design of the Five mile path segment 'E', which connects Linder Road to Ten Mile Road for a length of 1.06 miles. The cost for the project was estimated at \$8,500 for the Fothergil Path and \$57,000 for the Five Mile path for a total of \$65,500. According to average commuter travel miles estimated by the Community Planning Association of Idaho (COMPASS) and US Census estimates for population and percentage of walking and other commuters, improved connectivity could increase walking and biking commutes by 0.75% of the labor force. This would result in a potential savings of 46,000 vehicle miles or 2,500 to 3,000 gallons of fuel and an annual cost reduction of approximately \$6,500 to \$8,000. This project is expected to result in a 26 metric ton reduction in GHG emissions. This project meets the City's objectives for:

- 1) Promoting energy efficient land use patterns and or construction practices

It is anticipated that construction of Fothergil Path will be complete within three years of activity approval. The design of the Five Mile Path could be completed within two years of activity approval.





**Turbo Blowers at the Wastewater Treatment Plant (WWTP)**

The purpose of this project is to purchase and install two new turbo blowers at the Wastewater Treatment Plant (WWTP). Public Works currently operates a total of approximately 230 horsepower for pumps, 800 horsepower for blowers, and 3.25 horsepower for clarifiers. The cost for the project was estimated at \$300,000. \$175,000 of the project will be covered by the City with the remaining cost covered by a grant from Idaho Power. The installation of these turbo blowers could result in a potential yearly savings of 970,000 kWh and an annual cost reduction of approximately \$48,000. This project is expected to result in a 407 metric ton reduction in GHG emissions. This project meets the City's objectives for:

- 1) Reducing energy-related expenses in City facilities
- 2) Promoting energy efficient land use patterns and or construction practices



**Lighting at Wastewater Treatment Plant (WWTP)**

The purpose of this project is to replace 68 existing light fixtures at the WWTP with newer more efficient lighting. The cost for the project was estimated at \$16,000 by a lighting contractor. According to Alloway Lighting estimates, new lighting at the WWTP could result in a potential yearly electricity savings of 70,000 kWh to 80,000 kWh and an annual cost reduction of approximately \$5,000 to \$6,000. This project is expected to result in a 29 to 33 metric ton reduction in GHG emissions. This project meets the City's objectives for:

- 1) Reducing energy-related expenses in City facilities
- 2) Promoting energy efficient land use patterns and or construction practices

**Surplus Budget Project**

Based on the contingency of preliminary project estimates combined with anticipated project incentives for the eight projects identified above, surplus budget may be available from the EECBG allocation to finance one additional project. Any remaining budget from the EECBG allocation will be applied to the following project:

**Video Conferencing Pilot Project for Fire Stations**

The purpose of this project is to install video-conferencing capabilities at the fire stations to decrease automobile travel between city facilities. This would include video installation in 1 to 2 buildings as a pilot project, depending on budget opportunities. The total cost for the project was estimated at \$20,000. This project could result in an annual savings of 3,000 vehicle miles and an annual cost reduction of approximately \$2,025. This project is expected to result in a 7 metric ton reduction in GHG emissions. This project meets the City's objectives for:

- 1) Reducing energy-related expenses in City facilities
- 2) Promoting energy efficient land use patterns and or construction practices



## Future Energy Projects

A list of future projects and programs not funded by the EECBG allocation has been developed as part of the EECBG process. A Ten Year Energy Action Plan has been created for both projects and programs to identify clear measurable goals that will help to improve the City's energy efficiency in the long-term.

In many cases, timeframes in the Action Plan have been identified for projects that suggest the earliest possible attainment. In these cases, subsequent years were also highlighted to show a range of time to complete the project. The City will attempt to achieve each project in the most feasible timeframe possible, depending on current funding opportunities and other City priorities.

## Collaborative Energy Projects

A few of the projects identified by the City of Meridian would be collaborative energy efforts that would work towards enhancing the region's energy future. These projects were identified during the project brainstorming period, but were not analyzed in detail due to the scope and available information for these projects. These are considerable efforts that the City has undertaken to enhance their regional leadership in energy efficiency and sustainability. The following collaborative projects would represent key steps towards enhancing the region's Energy Future:

### **Public-Private Wind Turbine Project**



This was a conceptual project introduced by Idaho Power that would include a lease to own investment opportunity for a regional wind farm. The project would be a pilot program with private regional investment and a local utility partnership that would include contracts to purchase wind turbines with payback on investments. This project would require a significant level of private investment to make it feasible

By identifying and executing appropriate programs, policies, and projects that can facilitate a more efficient City government, enhancements in government transparency, energy efficiency, and long-range sustainability will guide The City of Meridian in the future.

# The City of Meridian 10 Year Energy Action

Activity	FY 2010 Quarters	FY 2011 Quarters	FY 2012 Quarters	FY 2013 Quarters	FY 2014 Quarters	FY 2015 Quarters	FY 2016 Quarters	FY 2017 Quarters	FY 2018 Quarters	FY 2019 Quarters	Responsible Department	Supporting Department
<b>Projects*</b>												
Retro-Commission Police Building											Police	
LED/Green Energy Street Light Conversion Corridor											Public Works	
Change out Light Switches to Motion Sensors in Fire Stations											Fire	
Bike & Pedestrian Pathway Design and Construction *											Parks	
Waste Water Treatment Plant Energy Efficient Blowers											Public Works	
Change out Lighting at Wastewater Treatment Plant (WWTP)											Public Works	
Video Conferencing pilot project for Fire Stations											Fire	
Purchase Hybrid Vehicles (or other energy efficient vehicles, such as electric or CNG vehicles) for Public Works *											Public Works	
Energy Efficient Vehicle(s) for Code Enforcement and Admin											Police	
Electric golf carts for maintenance vehicles *											Parks	
Employ Digester Gas for Building Heating at WWTP											Public Works	
Wind Energy Conversion Facilities on Public Buildings											Maintenance / Public Works	
Install Micro Turbines for Electricity Generation at WWTP											Public Works	
Wind/Solar Energy Generation Facilities at WWTP											Public Works	
Efficient Equipment Replacement (variable speed pumps, etc.)											Public Works	
Public-Private Wind Turbine Project											Planning / Public Works	
WWTP Struvite Production											Public Works	
<b>Programs and Policies</b>												
Conservation/Sustainability Chapter to Comp. Plan.											Planning	
Multi-Media Downtown Energy Efficiency Display											Maintenance	
Form a City-Wide Energy Committee											Public Works & Planning	
Revolving Fund for Private Financing of Renewable Energy Projects											Finance	
Conservation Items such as CFLs, Low Flow Showerheads, Door sweeps											Maintenance	
Capital Revolving Fund for Energy Efficiency Grants and Loans											Finance	
Energy Monitoring System Specialist											Public Works	
Change Requirements for Street Light Poles											Public Works	
Develop system to monitor and track energy use in City facilities											Public Works	
Hire Energy Performance Contractor											Public Works	
10 Mile Road Conservation Corridor											Planning & Public Works	
Xeriscape Standards, Energy Efficiency Incentives											Planning & Parks	
Compost Facility –partner with SSC											Public Works	
Update City Purchasing Guidelines to Require Sustainable Products											Finance	

\* Projects identified in the analysis matrix as having "limited energy potential" should also be considered a part of the Energy Action Plan

## Long-Range Energy and Cost Opportunities

The projects analyzed as part of this Strategy are anticipated to save energy, reduce GHGs, and leverage funds to the maximum extent possible. Over the period identified in the Ten Year Energy Action Plan, significant energy savings can be attained, resulting in cost reductions for the City of Meridian. During this period, energy costs can be expected to inflate, which would increase the actual cost savings. For this assessment, a 3% annual increase in cost is assumed. In order to present the potential energy savings and cost opportunities assessed in this Strategy, the long-range packaged energy and costs savings were calculated for all projects assessed. It should be noted that some projects, as well as all programs and policies, were not assessed due to data limitations. As this information becomes available, the 10-year savings projections can be updated to represent the complete potential for energy savings. The table below provides a summary of the expected outcomes associated with all of the proposed projects over a ten year period.

The City of Meridian Estimated 10 year Project Benefits & Savings					
	Gas (Gallons)	Electricity (Kilowatt Hours)	Natural Gas (Therms)	Greenhouse Gas Emission (MTCO2)	Financial*
	32,500	12,589,590	25,000	5,720	\$954,058

\*Savings to be added to the table include the savings and economic benefits generated by the implementation of various programs and policies

The 10 year savings shown above is equivalent to:

- Annual GHG emissions from 1,100 cars
- CO2 emissions from the electricity use of 743 homes for one year
- Carbon sequestered annually by 1,220 acres of pine forests
- GHG emissions avoided by recycling almost 2,000 tons of waste instead of sending it to the landfill
- CO2 emissions from 643,000 gallons of gasoline consumed

# Appendix 1

## Project Matrix and Energy Baseline Data

## Appendix 2

### Example Policies and Programs