

Climate Action Planning for the City of Missoula

Professor Robin Saha, Environmental Studies Program

CCS 103X Climate Change Science and Society

November 18, 2013

Why Cities?

- Pressing global problem
- Policy gridlock in Helena & Washington D.C.
- >80% of U.S. population lives in urban areas
- Municipal government decisions directly affect 30-50% of nation's GHG emissions (**Lindseth 2009**)
- Local leadership needed to develop long-term and effective solutions
 - Integrating climate change mitigation into municipal planning, infrastructure, and decision-making processes
 - Building public-private partnerships



Pre-CAP Missoula's Milestones

1996 – U.S. Conference of Mayors' Climate Protection Agreement Signed

1996 – Cities for Climate Protection Campaign

2004 – Missoula Greenhouse Gas – Energy Efficiency Plan

2004 – Greenhouse Gas and Energy Conservation Team Established

2007 – City Council Resolution #7241 – Energy Efficiency and Greenhouse Gas reduction policy for municipal building

2007 – Mayor's Advisory Group on Climate Change & Sustainability Established

2008 – City Council Resolution #7375 – Fuel and energy reduction policy

2008 – First City "Green Team" forms with staff from 18 departments

2009 – Mayor's Memorandum on new employee Green Policy

2009 – Missoula Greenhouse Gas Emissions Inventory & Analysis

2009 – Energy Efficiency & Conservation Block Grant (EECBG)



5 Milestones of U.S. Mayors Climate Protection Agreement

1. Conduct a Greenhouse Gas Emissions Analysis (Baseline Inventory and Forecast)
2. Establish a Reduction Target
3. Develop a Climate Action Plan
4. Implement the Climate Action Plan
5. Monitor Progress and Report Results



Recent Timeline

Sept. 2010 – Greenhouse Gas Emissions Inventory released

Apr. 2011 – Mayor Engen formed Climate Action Plan Task Force

2012 - Energy Conservation Coordinator position created and filled (Chase Jones)

Nov. 2012 – Missoula Conservation and Climate Action Plan (CCAP) released

Jan. 2013 – Missoula City Council adopts the CCAP, calling for establishment of a technical advisory team

Oct. 2013 – Technical Advisory Team holds first meeting



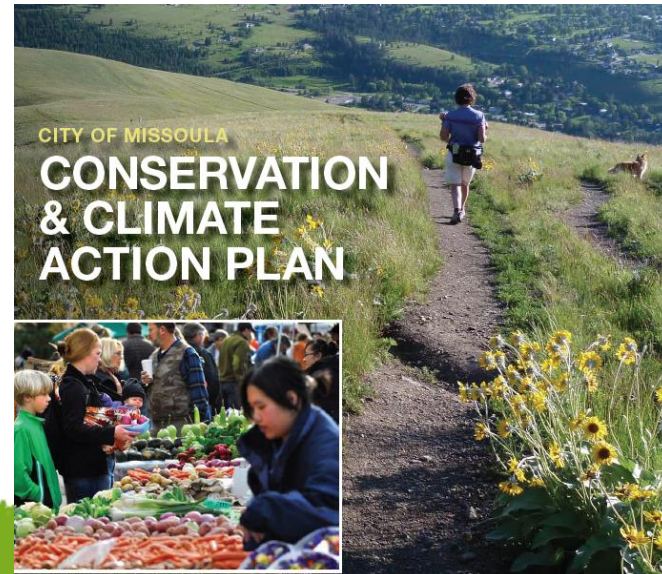
MISSOULA GREENHOUSE GAS EMISSIONS
INVENTORY AND ANALYSIS, 2003-2008:
Toward A Blueprint For Municipal Sustainability

SEPTEMBER 2010

Robin Saha, Ph.D.
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The University of Montana
Environmental Studies Program

City of Missoula
John Engen, Mayor



CITY OF MISSOULA
**CONSERVATION
& CLIMATE
ACTION PLAN**



Emissions Inventory Objectives

1. To present a baseline emissions inventory
 - quantifying municipal energy use and associated GHG emissions for each municipal sector
2. To identify major sources of municipal emissions
 - relative contributions within and among the sectors
3. To examine changes and trends in energy use, costs and emissions from FY 2003 to FY 2008
4. To offer recommendations to reduce municipal GHG emissions



Approach - What We Included

- Examined energy use, costs and emissions from:
 - Wastewater treatment (electricity, natural gas, biogas)
 - Operation of 29 municipal buildings (electricity & natural gas)
 - Municipal vehicle fleet and equipment, over 500 including ~330 vehicles (unleaded, diesel & biodiesel)
 - Employee Commuting (unleaded and diesel)
 - Outdoor lighting including Street Light Districts (electricity)
 - Water for streets, buildings and parks (electricity)



What Was Not Included

- Solid waste
- Embedded energy in products consumed and materials used
- Energy associated with construction projects performed by outside contractors
- “Agriculture” and urban forests
- Solar electricity generation



Primary Data Sources

- NorthWestern Energy – Vicki Judd (272 accounts in FY08)
- Mountain Water – John Kappes
- Msla Finance Dept. – Mary Kay Wedgwood
- Msla Wastewater Division – Starr Sullivan/Gene Connell
- Msla Vehicle Maintenance Dept. – Jack Stucky
- Msla Fire Dept. – Jason Diehl, Cheryl Schatz
- Msla Human Resources Dept.
- Msla Public Works Dept.
- National Climatic Data Center
- U.S. Census Bureau
- 125 anonymous city employees



EVST Student Researchers / Co-authors

Kathryn Makarowski

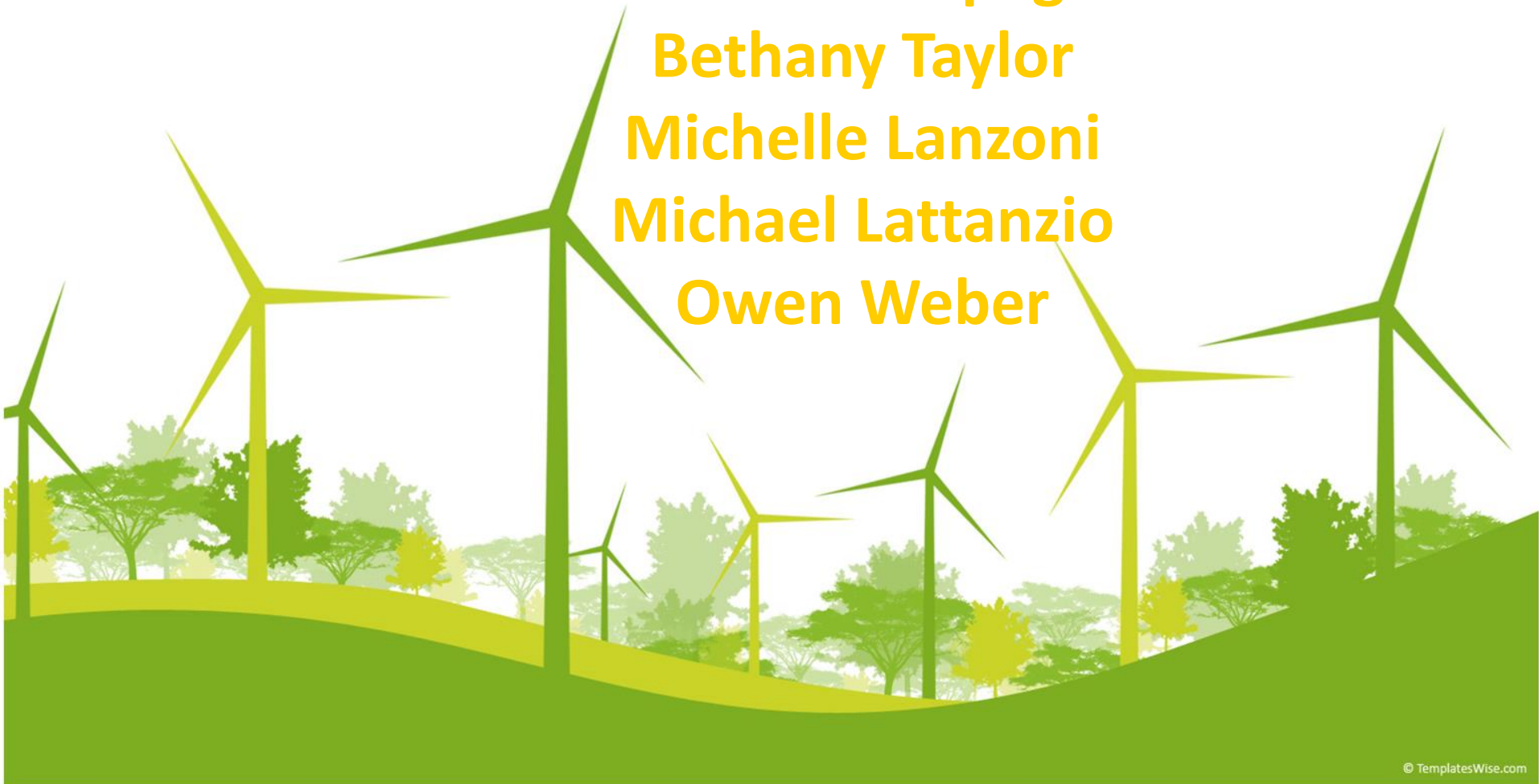
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Greenhouse Gas Emission Estimates

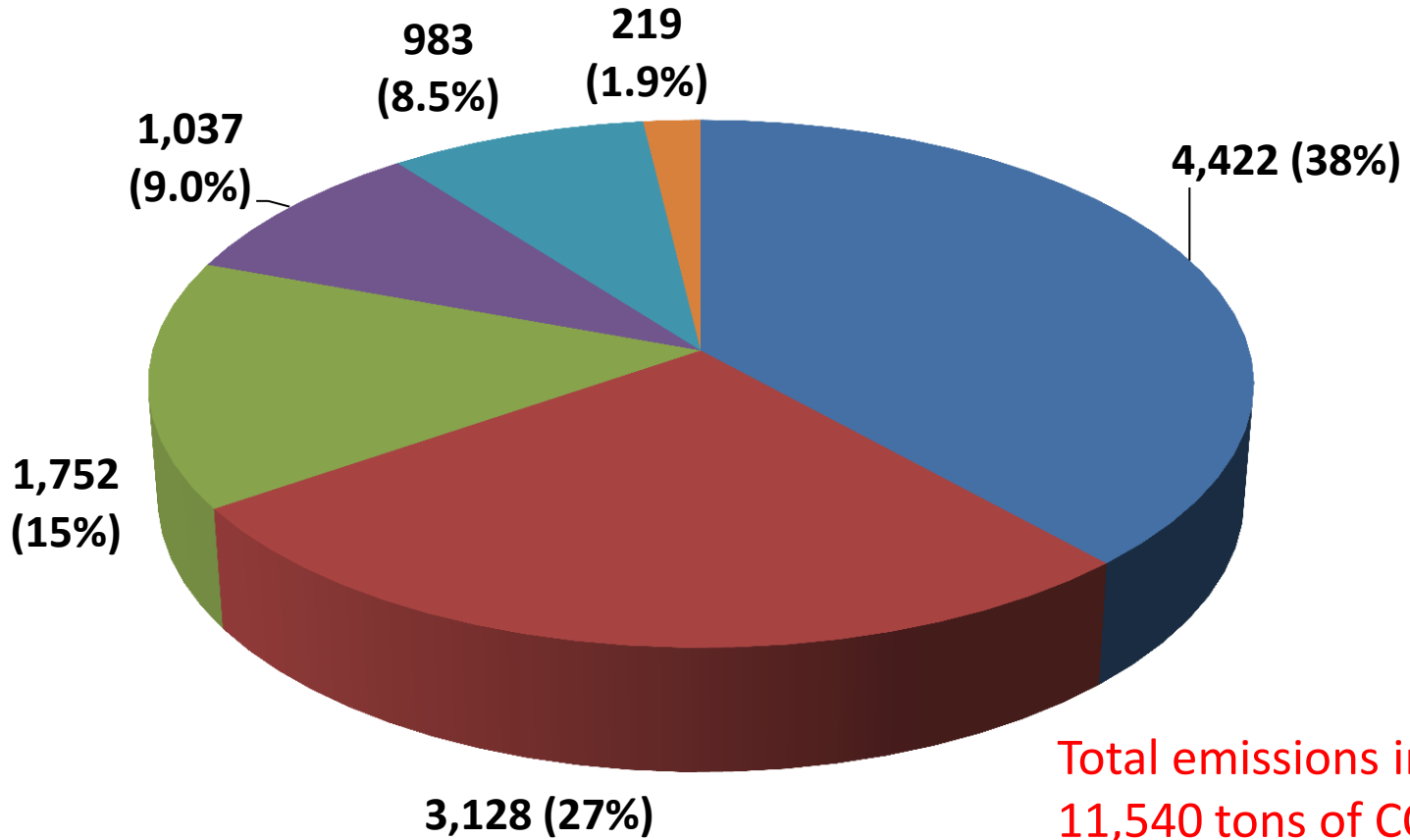
Used ICLEI's Clean Air and Climate Protection (CACP) Software – a collaborative product of the National Association of Clean Air Agencies (NACAA) and the U.S. EPA



Summary of Findings



City of Missoula Greenhouse Gas Emissions (metric tons of CO₂e) by Sector in FY 2008



■ Wastewater Plant

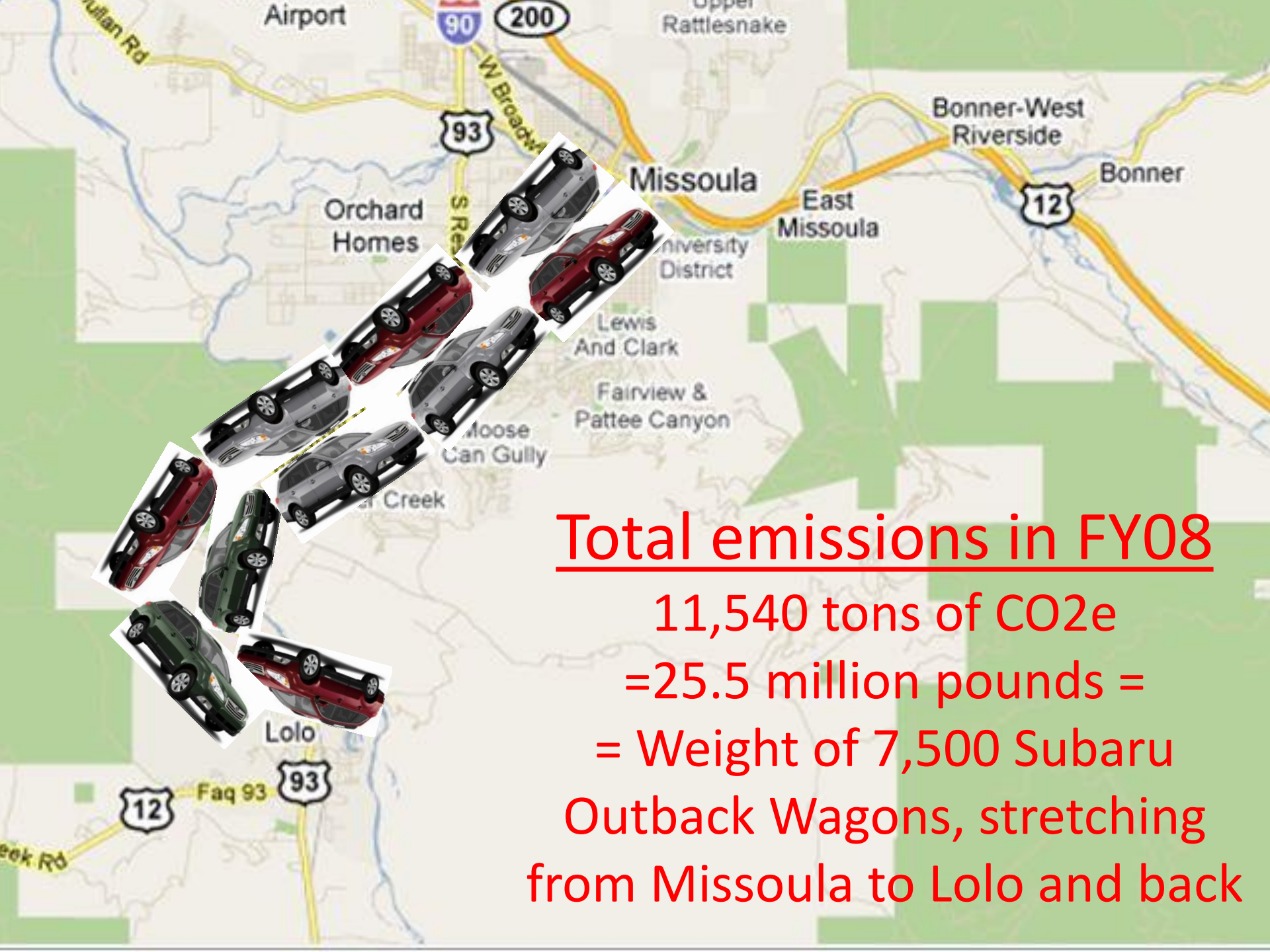
■ Municipal Buildings

■ Municipal Fleet

■ Employee Commuting

■ Outdoor Lighting

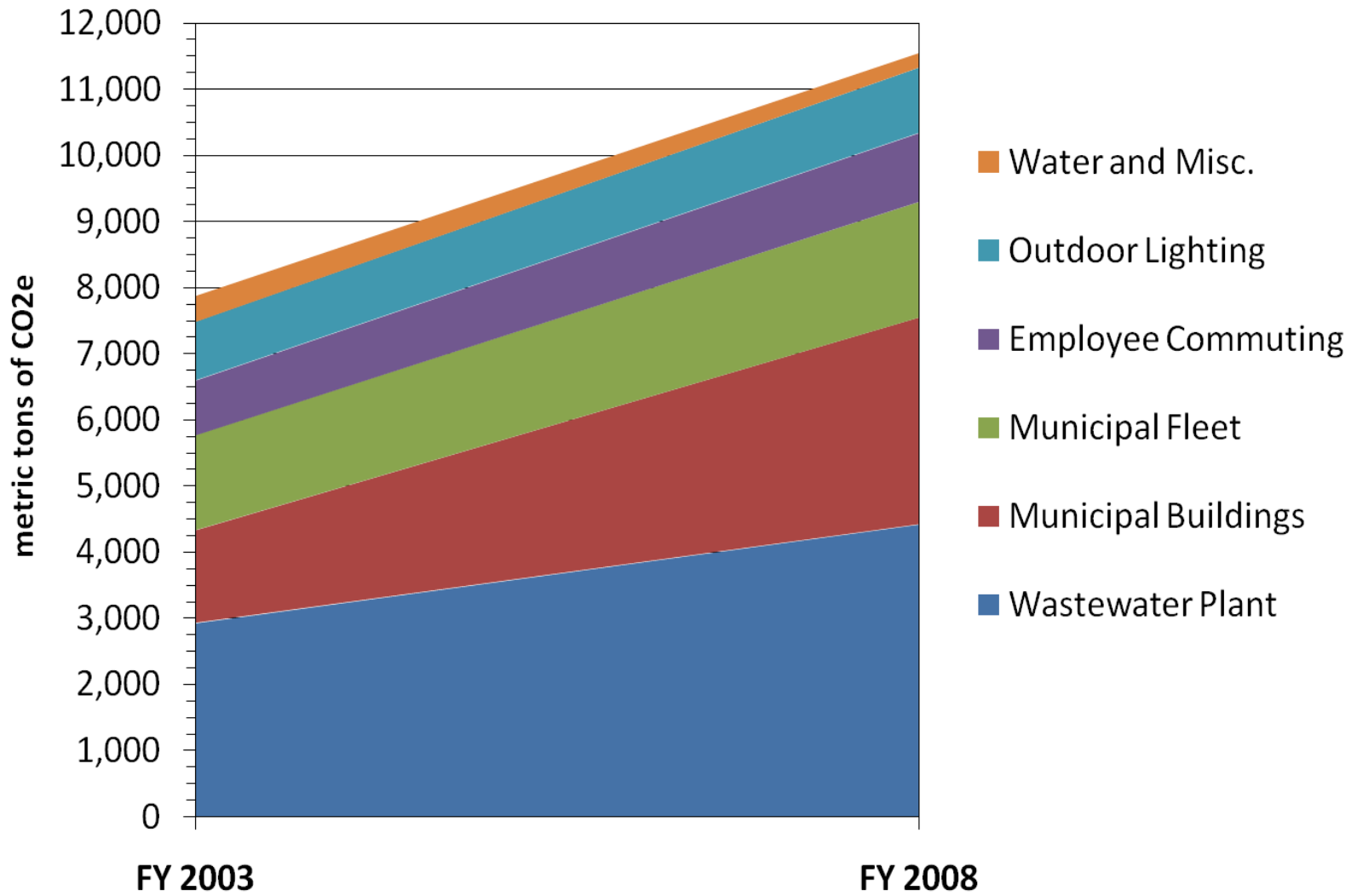
■ Water and Misc.



Total emissions in FY08

11,540 tons of CO₂e
=25.5 million pounds =
= Weight of 7,500 Subaru
Outback Wagons, stretching
from Missoula to Lolo and back

Growth in City of Missoula Greenhouse Gas Emissions in Metric Tons of CO2e by Sector in FY 2003 and FY 2008



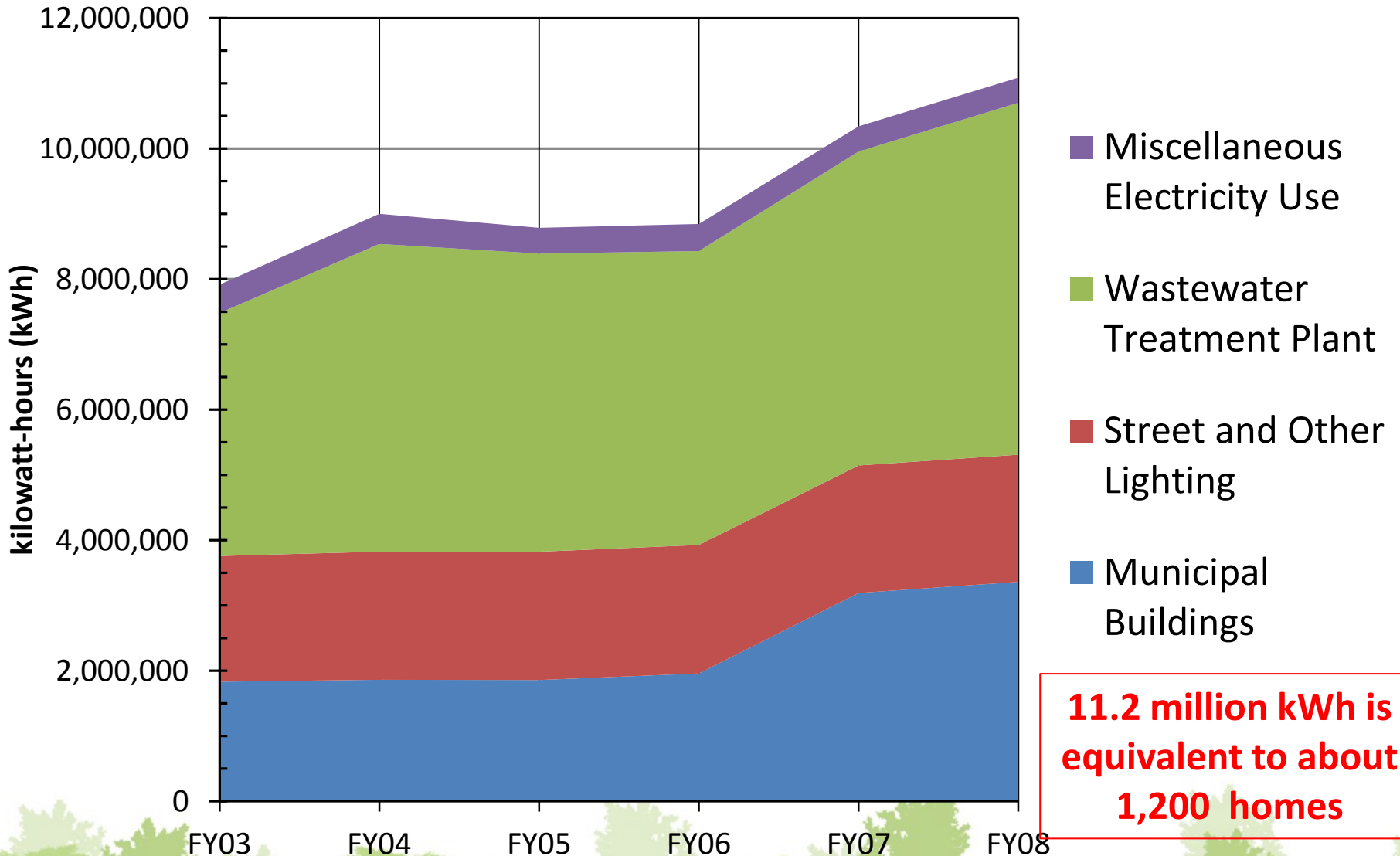
Drilling Down

Electricity Use

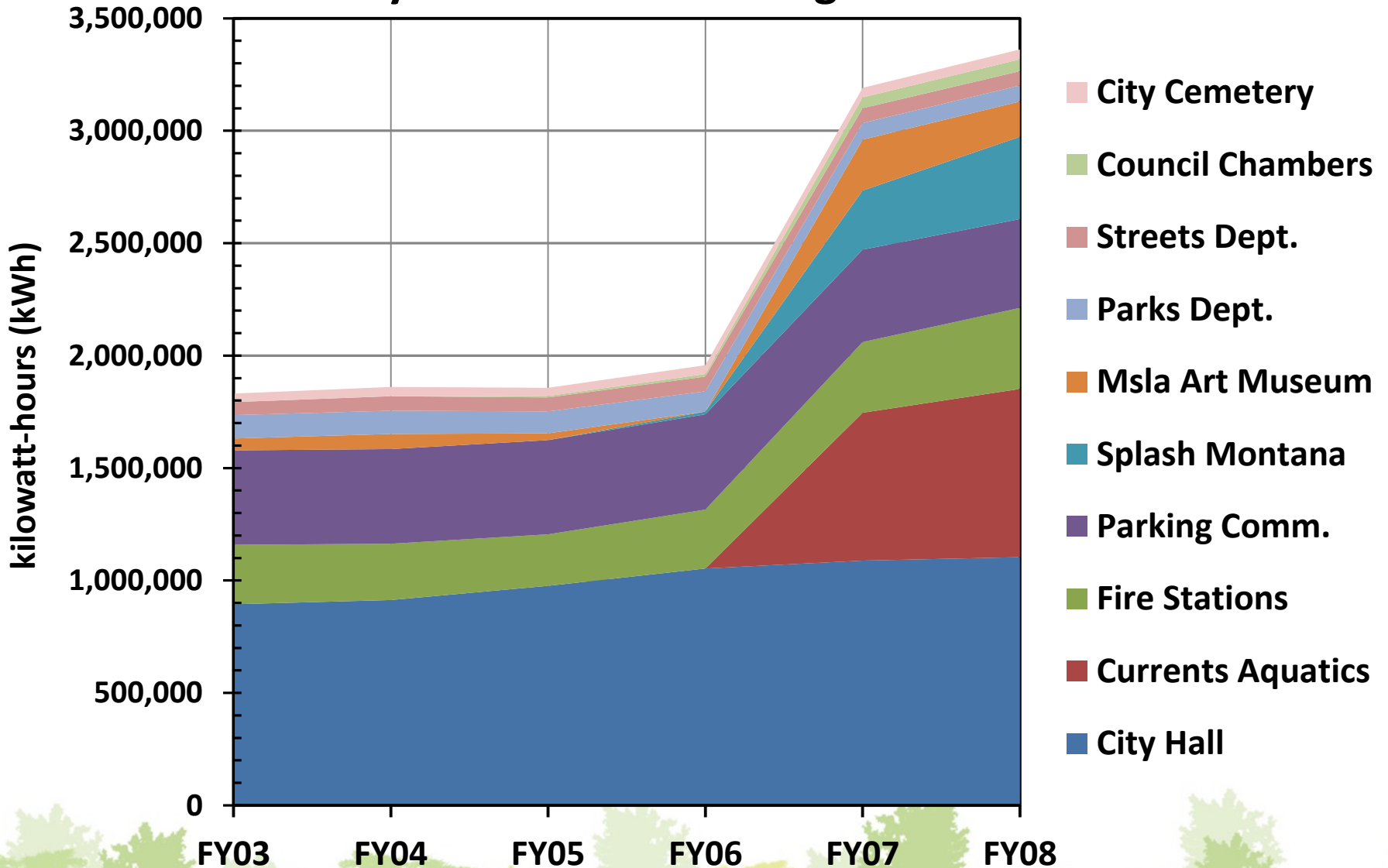


Electricity Use (kWh) for City of Missoula, FY03 to FY08

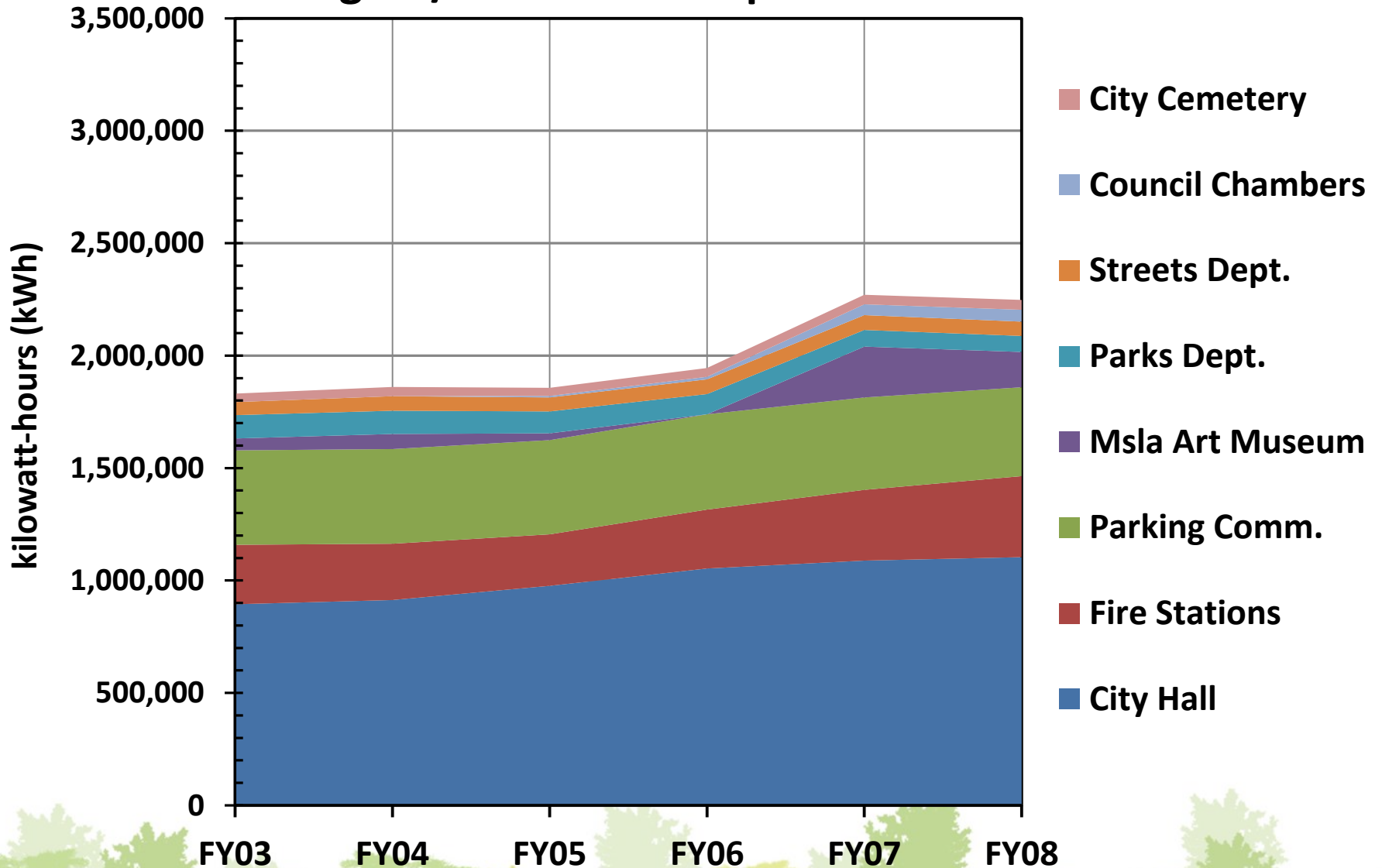
(from Northwestern Energy; excludes Missoula Electric Coop usage)



NorthWestern Energy (NWE) Electricity Use (kWh) for City of Missoula Buildings - FY03 to FY08



NWE Electricity Use (kWh) for City of Missoula Buildings w/o Currents & Splash - FY03 to FY08



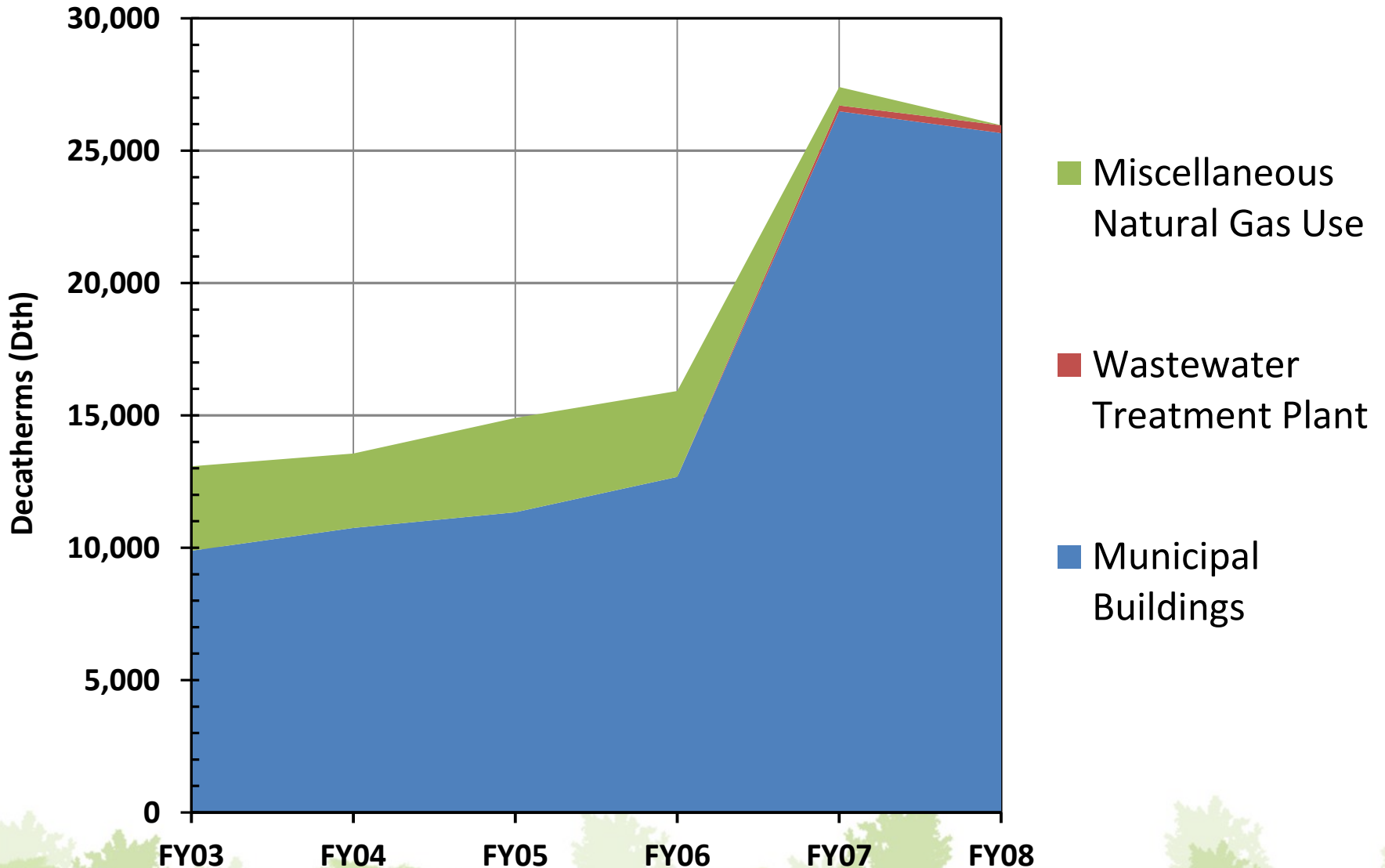
Drilling Down

Natural Gas Use

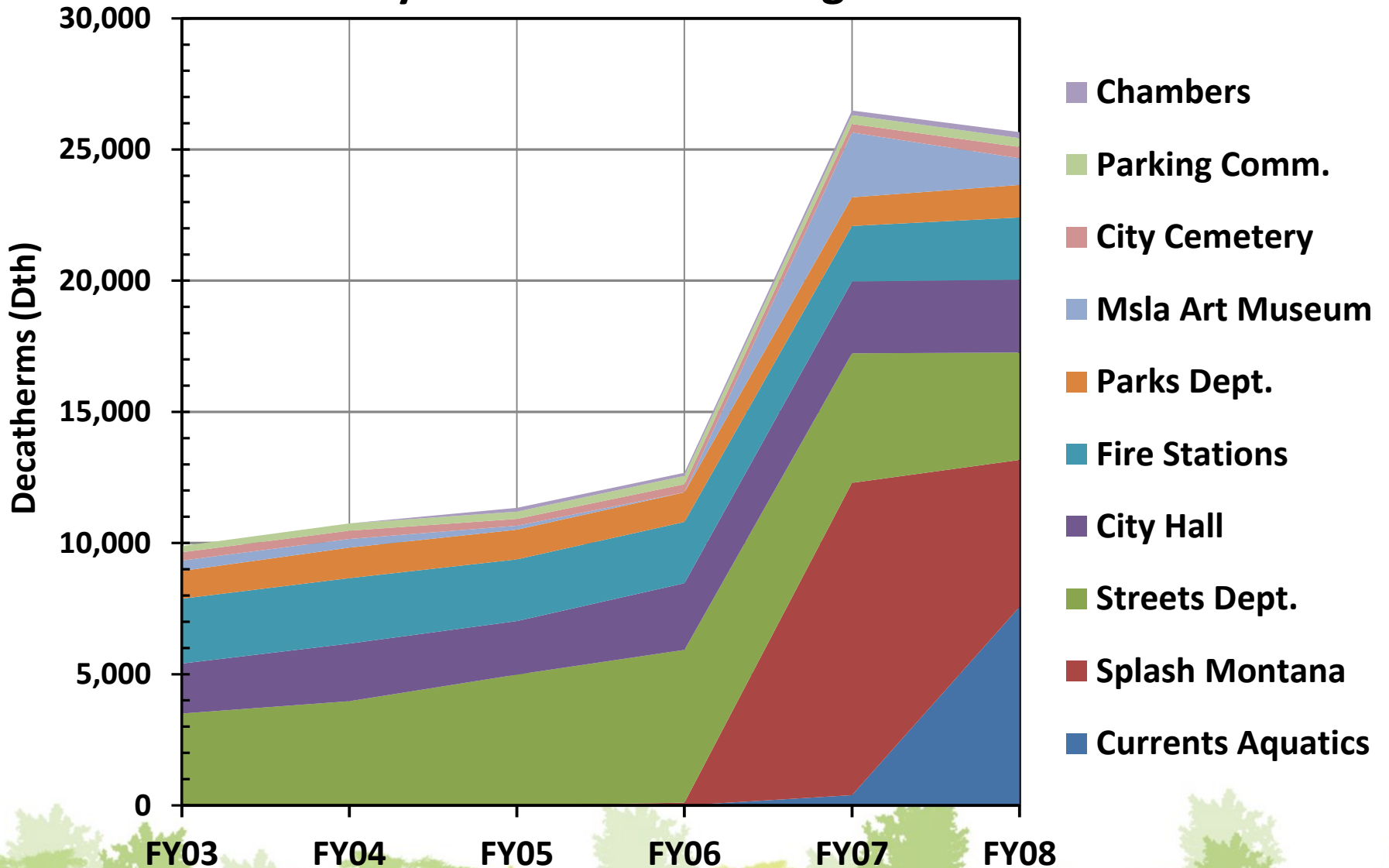


Natural Gas Usage (Dth) for City of Missoula, FY03 to FY08

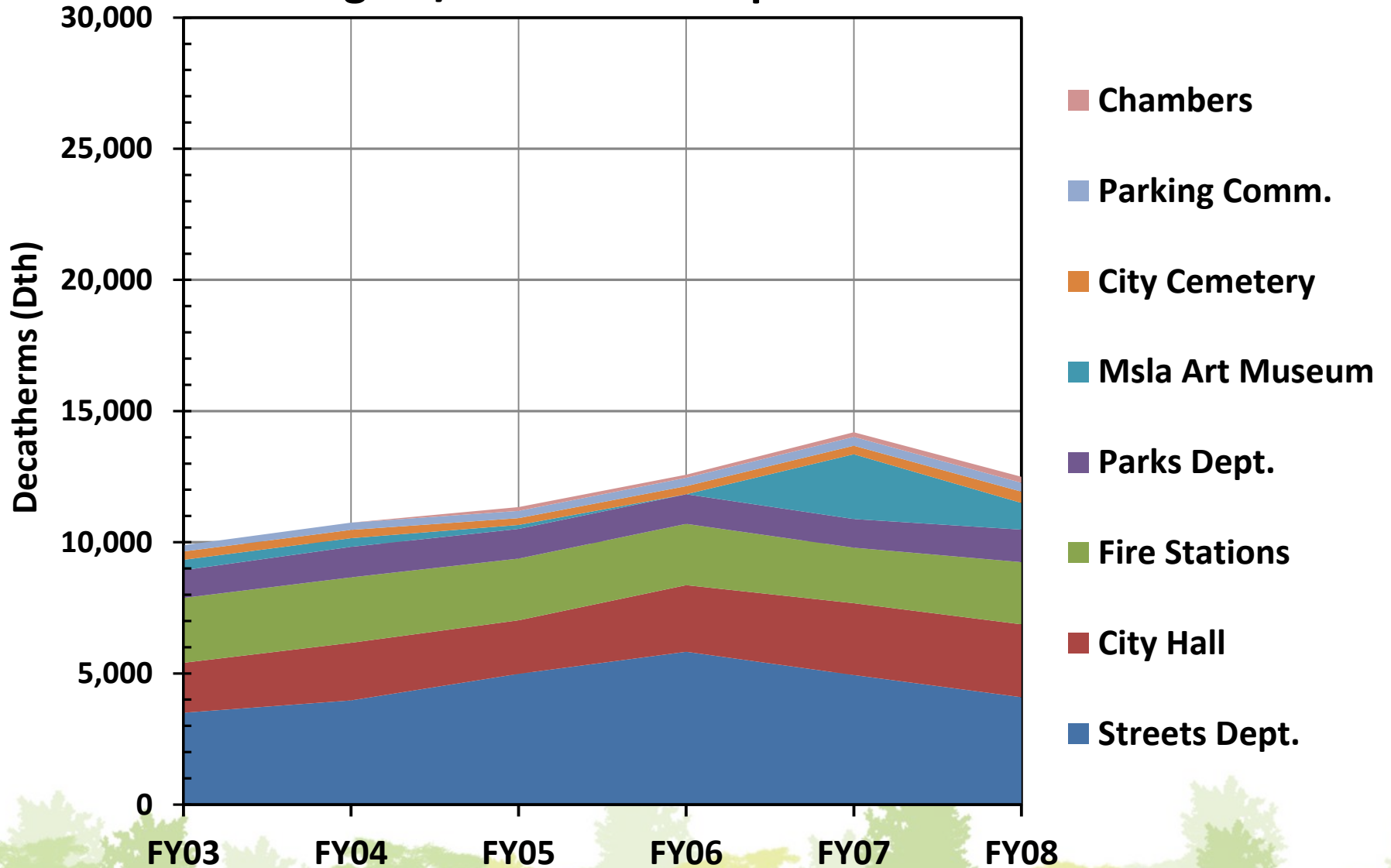
(from Northwestern Energy; excludes Commercial Energy and Jefferson Energy)



NorthWestern Energy (NWE) Natural Gas Use (Dth) for City of Missoula Buildings - FY03 to FY08



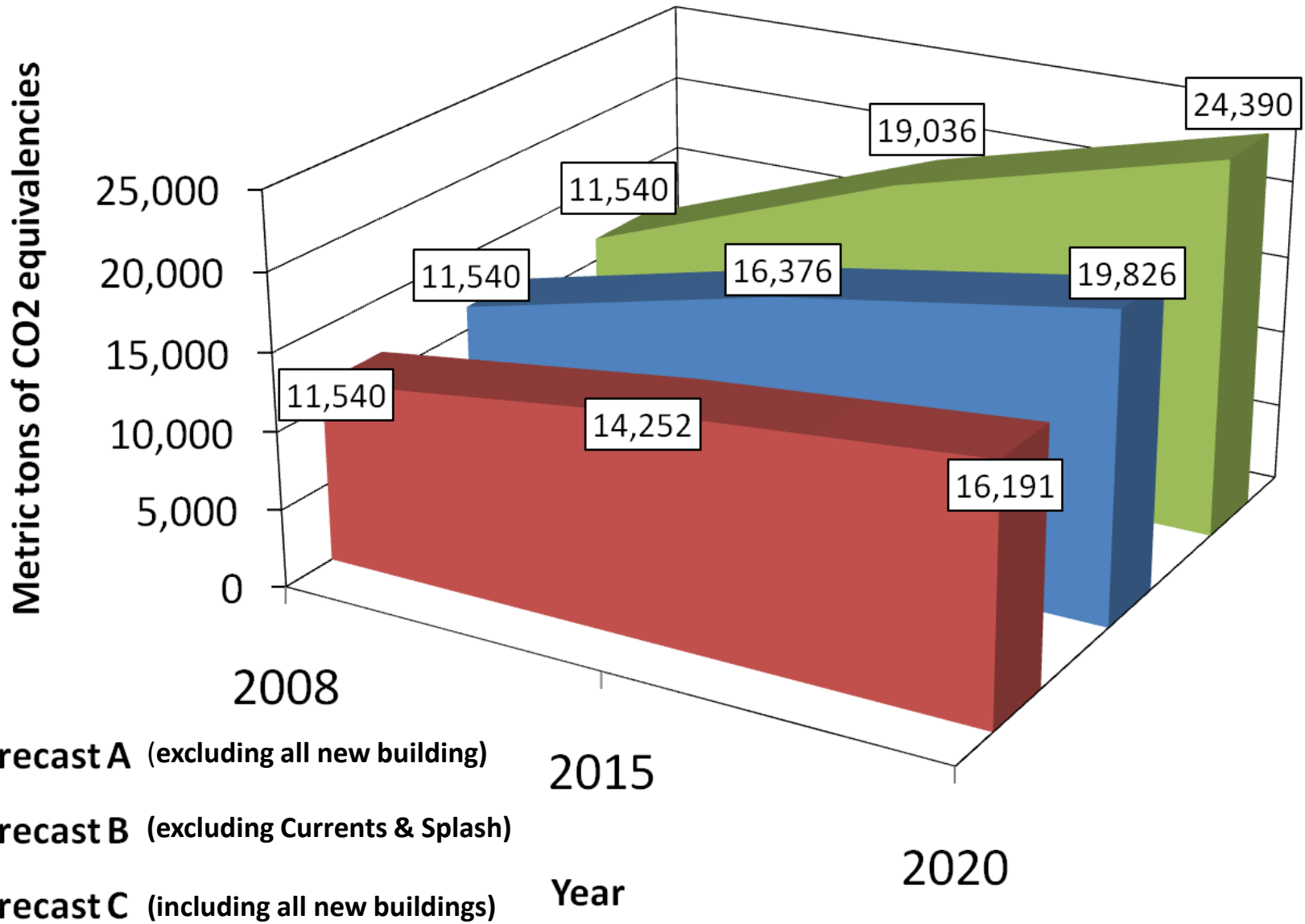
NWE Natural Gas Use (Dth) for City of Missoula Buildings w/o Currents & Splash - FY03 to FY08



“Quick and Dirty” Emissions Forecast



Forecasted Emissions (tons of CO2e) for City of Missoula in 2015 and 2020 Using Recent Rates of Increase in Emissions
















- Forecast A (excluding all new building)
- Forecast B (excluding Currents & Splash)
- Forecast C (including all new buildings)

Year

2020

Where Does Missoula Stack Up?

Milestone	Helena	Bozeman	UM	Missoula
Conduct Emissions Inventory				
Establish a Reduction Target				
Develop Climate Action Plan				
Implement Climate Action Plan				
Monitor Progress and Report Results				



Greenhouse Gas Emission Trends and Emission Reduction Targets for Bozeman, Helena, and the University of Montana

	Base Year / Comp. Year	Base Year Emissions (tons CO ₂ e)	Comp. Yr. Emissions (tons CO ₂ e)	% Change	Ave. Annual % Change	Emissions Reduction Target
Missoula	2003 / 2008	7,883	11,540	46.4%	9.4%	N/A
Bozeman	2000 / 2006	6,083	7,866	29.3%	4.9%	15% below 2000 level by 2020
Helena	2001 / 2007	12,691	10,397	-18.1%	-3.0%	15% below 2007 level by 2020
UM	2000 / 2007	36,657	42,687	16.4%	3.3%	100% below 2007 level by 2020

Sources: Bozeman Climate Protection Task Force 2008; Helena Climate Change Task Force 2009; Davie 2007; and Peacock and Bloom 2010.



Conclusions & Recommendations



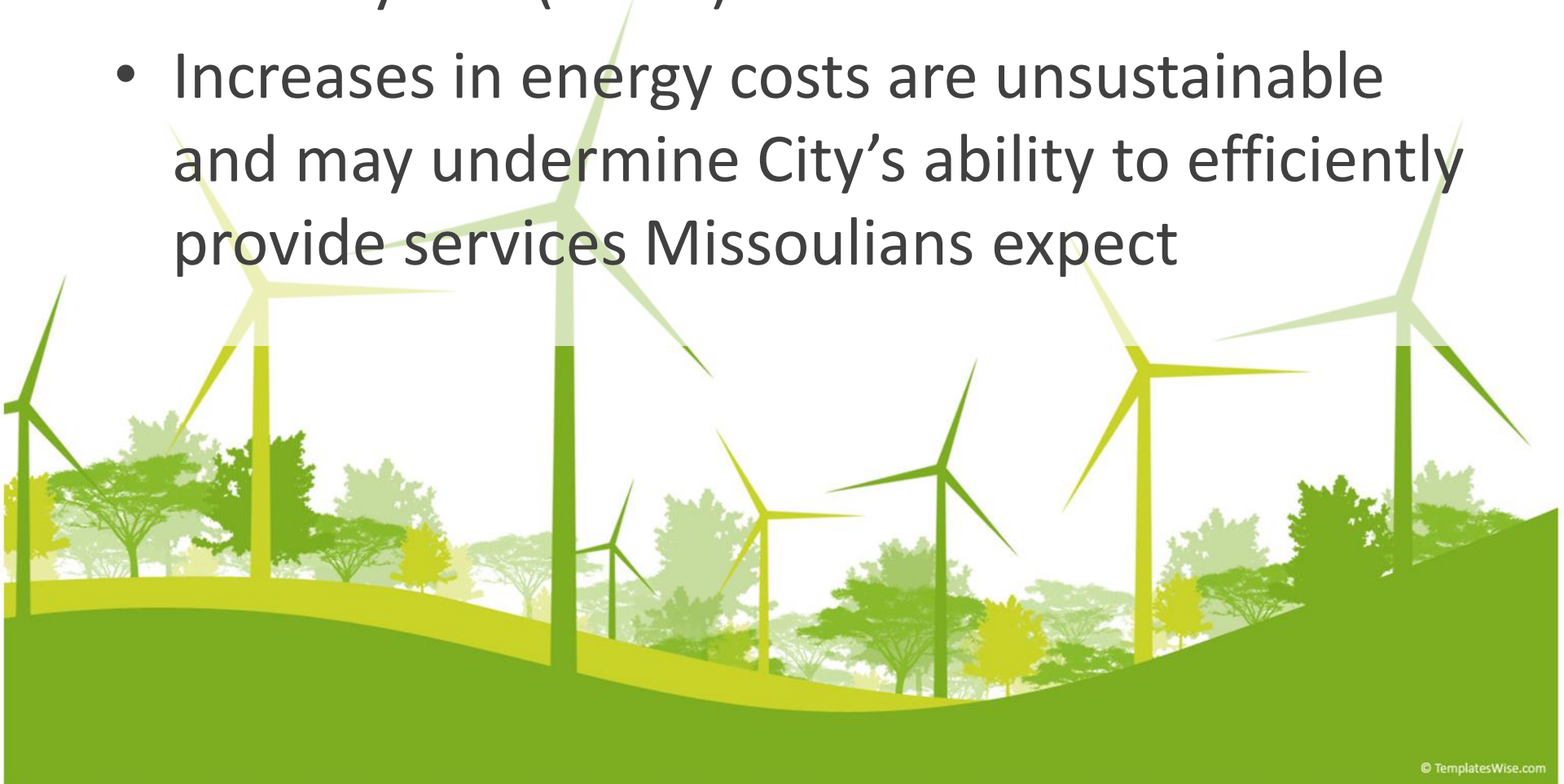
Conclusions

- Missoula's municipal GHG emissions have increased rapidly in recent years
 - At a far greater rate than other cities in Montana
 - Rate outpaces our population growth
 - Outpaces Montana as a whole ... and the nation
- Emissions contribute to threats to the things Missoulians value:
 - Our open space, rivers and streams, forests and parks, clean air, and our health
 - City budget and our economy
 - Our sense of civic responsibility and sustainability



More ... Costly Conclusions

- Energy costs have also risen substantially in recent years (233%)
- Increases in energy costs are unsustainable and may undermine City's ability to efficiently provide services Missoulians expect



The Good News Is ...

- Climate protection and energy costs savings, fiscal responsibility, are mutually-beneficial civic goals



A Four Part Strategy ... building on existing successes

1. Set a greenhouse gas emissions reduction target, e.g., zero net emissions by 2020
 - without a clear goal, progress will be hard to achieve or measure
2. Carry out a climate action planning process
 - to identify, prioritize, and adopt policies to support emission reduction goals.
3. Develop an efficient energy use monitoring and reporting system
 - to assure accountability and gauge progress toward emission reduction goals
4. Delegate responsibility for implementing, managing and reporting on energy-saving measures – being accountable!
 - climate action takes dedicated personnel.



CITY OF MISSOULA

CONSERVATION & CLIMATE ACTION PLAN



Local Climate Action Plans (from Boswell et. al. 2012*)

- Plan for reducing (mitigation) emissions and also for adapting to impacts
- *Cities for Climate Protection Milestones Guide* is often used (5 steps)
- Typical categories: land use, transportation, energy use, and waste
- May distinguish between community-wide actions and local gov't operations
- May be stand-alone document or integrated into comprehensive land use and other plans
- Vary by role (i.e., function in community) and content

* Boswell, Michael R., Adrienne I. Greve, and Tammy L. Seale. 2012. *Local Climate Action Planning*. Washington D.C.: Island Press.

CAP Functions (from Boswell et. al. 2012)

1. Establishes actions necessary to reduce local GHG emissions and meet desired targets
2. Establishes action for adapting to climate-change induced impacts and hazards
3. Establishes accountability for action
4. Brings stakeholder groups together
5. Informs the public
6. Integrates actions with various community plans
7. Integrates actions across different scales (local, regional state, national, etc.)
8. Saves money through energy efficiency and builds the local economy
9. Improves community health and livability
10. Responds to local context and conditions

Typical CAP Content (from Boswell et. al. 2012)

1. Background on climate change and potential impacts
2. Inventory of local emissions using standard protocol
3. Forecasts of future GHG emissions
4. Emission reduction strategies (quantified and based on best available science and appropriate for the jurisdiction)
 - Covering energy, transportation, waste, land use etc.
5. Adaptation strategies that reflect community history, local values and traditions
6. Implementation program, including assignment of responsibility, timelines, costs and financing mechanisms
7. Monitoring and evaluation programs

Reasons to Prepare a CAP (from Boswell et. al. 2012)

- 1) Global leadership
- 2) Energy Efficiency
- 3) Green Community (create image possibly to promote tourism or economic development)
- 4) State Policy (comply with directives or anticipate looming mandates)
- 5) Grant Funding
- 6) Strategic Planning
- 7) Public Awareness
- 8) Community Resiliency

3 Phases to CAP Preparation

PHASE 1 – Preliminary Activities

PHASE 2 – CAP Development

PHASE 3 – Implementation & Monitoring

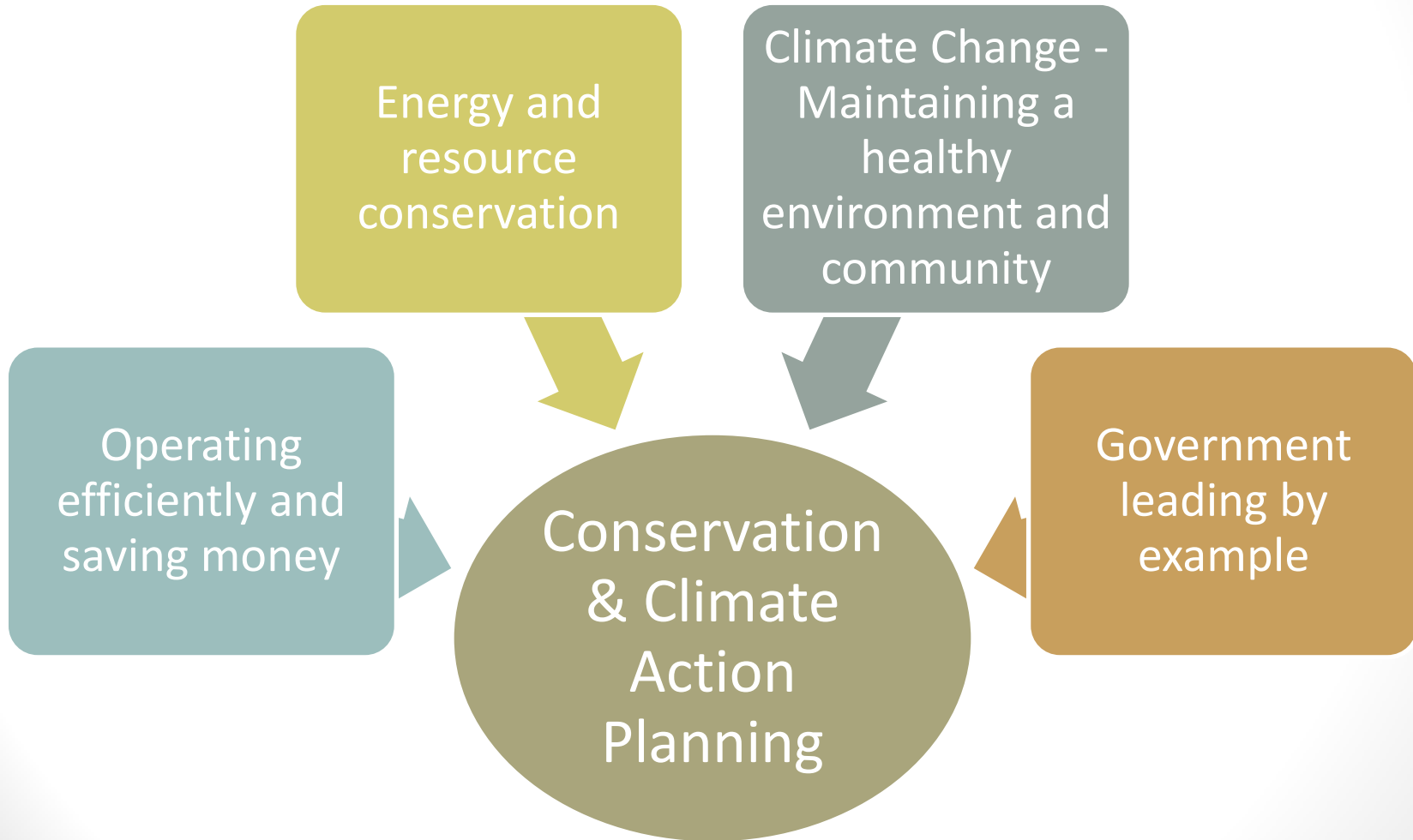
Creating a Task Force



Task Force Members

- Amy Cilimburg, Montana Audubon (Task Force Co-Chair)
- Ross Keogh, Sagebrush Energy (Task Force Co-Chair)
- Jill Alban, Clark Fork Coalition
- Dan Daly, Roseburg Forest Products Co.
- Steve Loken, Loken Builders
- Bryan von Lossberg, Alternative Energy Resources Organization
- Ginny Merriam, City of Missoula
- Cherie Peacock, PE, LEED AP, University of Montana
- Robin Saha, Ph.D., University of Montana
- Beth Schenk, St. Patrick Hospital and Health Sciences Center
- Ben Schmidt, Missoula City-County Health Department
- Jack Stucky, City of Missoula
- Andrew Valainis, Climate Ride (Previous Energy Corps Member)
- Krisztian Varsa, (Previous Energy Corps Member)

Why are we doing this? Why is it important?



The Conservation & Climate Action Plan

- Scope
 - Municipal Operations
 - Mitigation
- Objectives
 - Document current activities
 - Identify potential reduction strategies
 - Evaluate feasibility of the strategies
 - Establish a reduction target and date
 - Research and consider monitoring, tracking and reporting system

The Bottom Line – Where do we want to go?

Emissions Reduction Targets

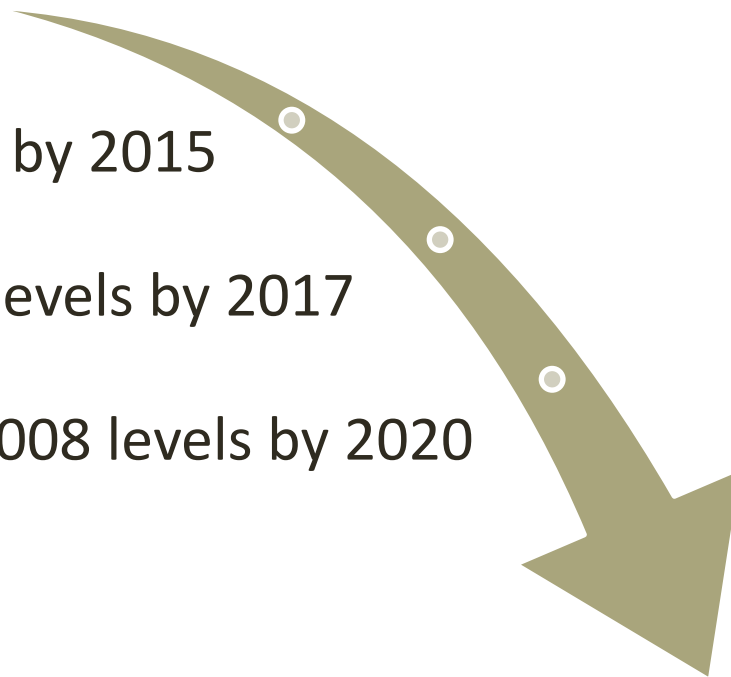
11,540 mtCO₂e

10% below 2008 levels by 2015

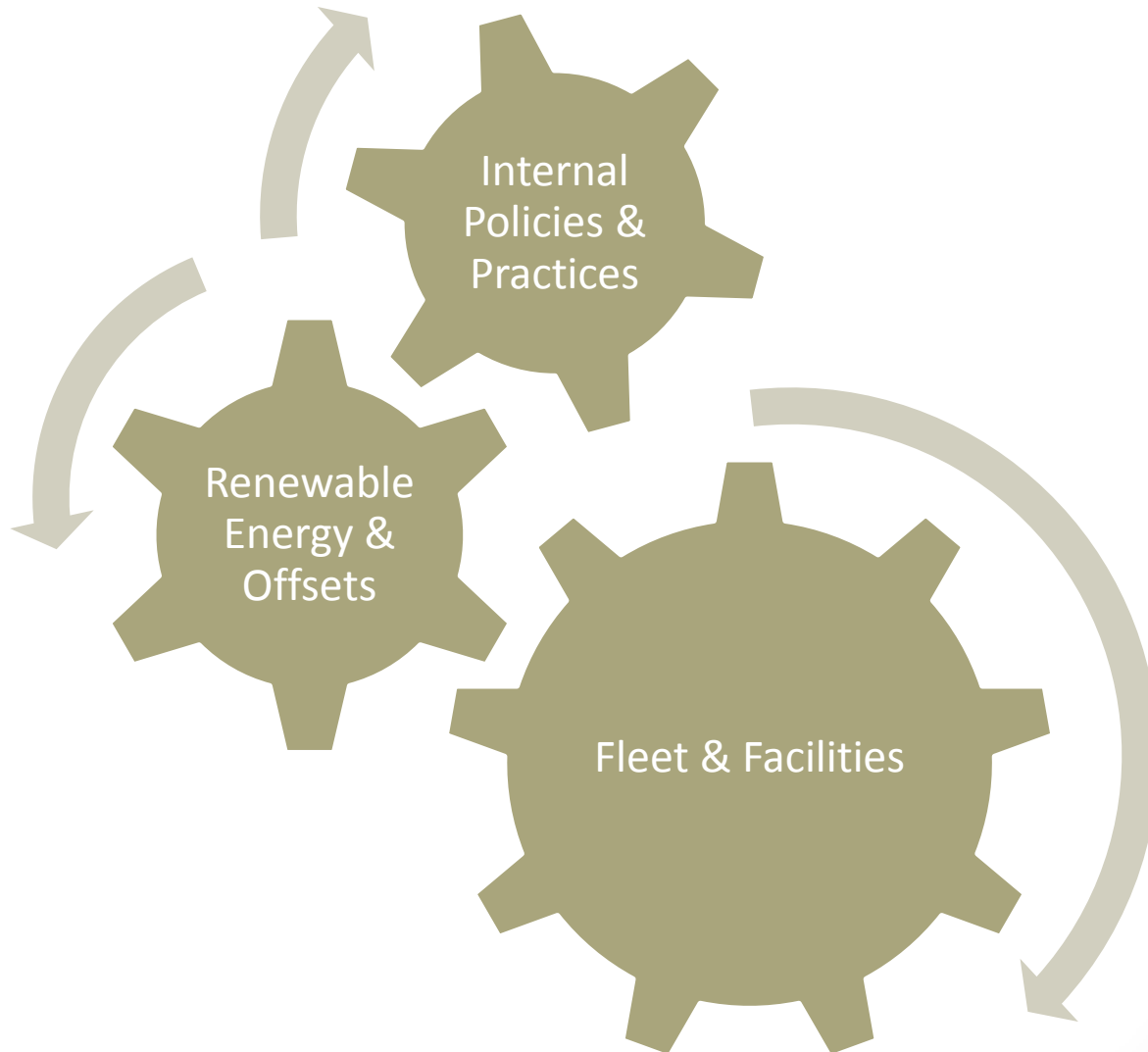
30% below 2008 levels by 2017

50% below 2008 levels by 2020

CARBON NEUTRALITY BY 2025



Working Groups



Fleet and Facilities



Strategy	Implementation Cost	Est. Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback (yrs)
FLEET				
FF-1 Bike Fleet Infrastructure	\$180-\$653	\$140	0.36	1-4
FF-2 Eco Drivers Manual	< \$1,000	\$35,000	90.5	< 0.1
FF-3 Efficient Fleet Vehicle Purchasing (fuel economy)	-\$121,290	\$8,723	22.5	0
FF-4 Expand Route Optimization Software/GPS	\$65,313	\$19,800	51.6	3.3
FF-5 Hybrid/Electric Vehicle Purchasing	\$221,058	\$50,572	134	4
FF-6 Sustainable Commute Infrastructure	Unknown	Indeterminable	Indeterminable	Indeterminable
FF-7 Utilize Cleaner Fuels	Unknown	-\$14,131/\$104,574	165-565	N/A
FACILITIES				
FF-8 Continuous Building Retro and Re-commissioning for Existing Buildings	\$89,224	\$176,975	862.1	0.5
FF-9 Geothermal/Groundwater Cooling/Heating	\$174,000	\$2,230	9.63	78
FF-10 LEED EBOM Policy	\$88,000	\$35,500	169.1	2.5
FF-11 Real-time Energy Monitoring Systems	\$105,000	\$23,532	1,452	4.5
FF-12 Shut Off/ Remove Water Fountain Cooling	\$160	\$11,123	4.8	0.16
FF-13 Water Wise Bathroom Features	\$27,624	\$72,025	1.2	0.41
FF-14 Water Wise Park Areas	\$9,583 / acre	\$42,560 / acre	0.3 / acre	0.5



Internal Policies and Practices

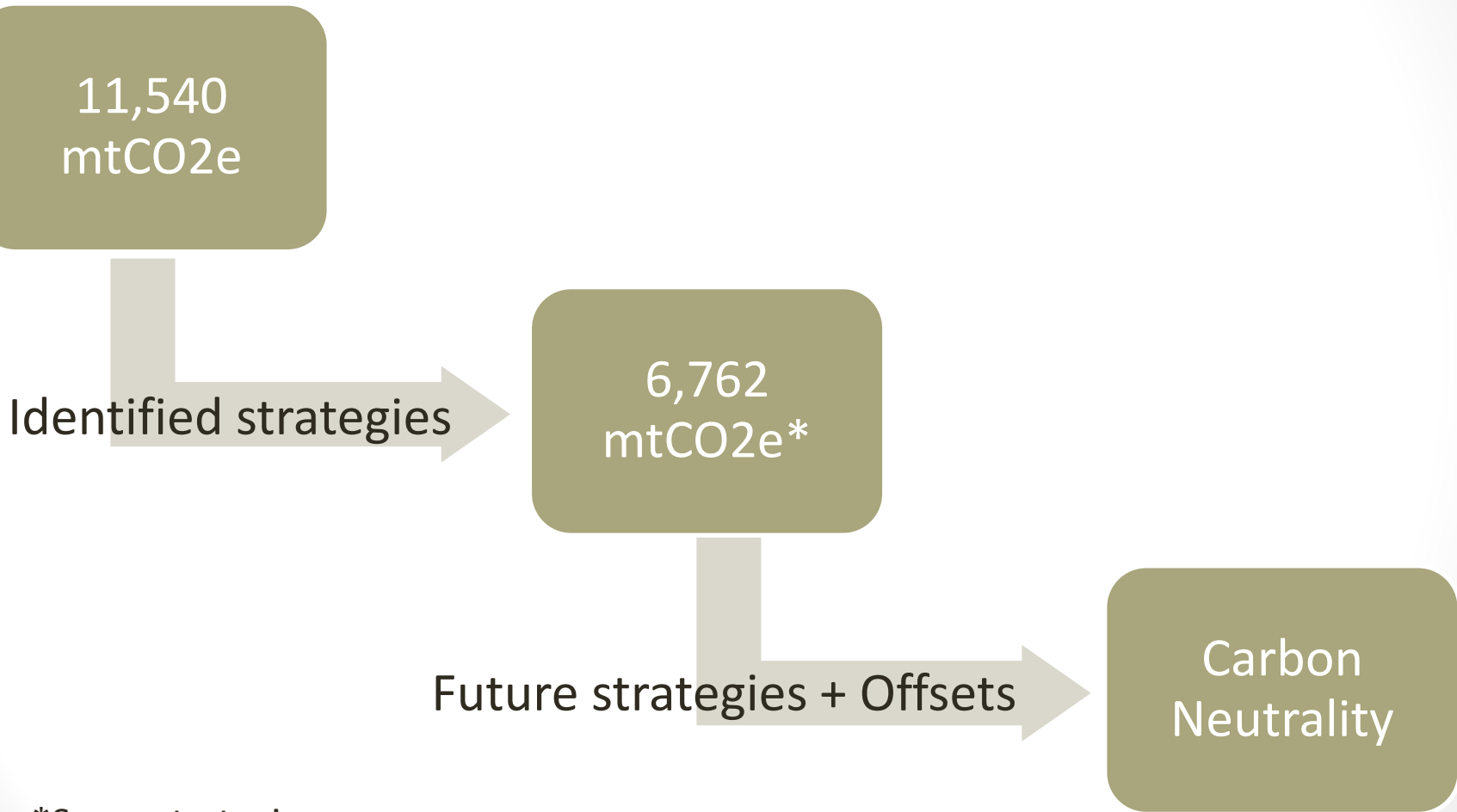
Strategy	Implementation Cost	Est. Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback (yrs)
EMPLOYEE COMMUTE				
IPP-1 Employee Commuting Incentive Program	Unknown	\$0	31	--
IPP-2 Flexible Work Scheduling	< \$1000	Indeterminable	31	Unknown
IPP-3 Rideshare Scheduling plan for employees	< \$1000	\$0	62	--
EMPLOYEE CULTURE				
IPP-4 Conservation and Sustainability in Work Plans and Annual Review	Unknown	Indeterminable	Indeterminable	--
IPP-5 Fostering Sustainable Workplace	Unknown	Indeterminable	Indeterminable	--
IPP-6 Include Conservation and Sustainability in Job Descriptions	Unknown	Indeterminable	Indeterminable	--
IPP-7 Include Sustainability in Employee Orientation	Unknown	Indeterminable	Indeterminable	--
PRODUCTS, PROCUREMENT, & FACILITIES				
IPP-8 Green Purchasing Policy	Unknown	Indeterminable	Indeterminable	--
IPP-9 LEED for New Construction and Major Renovations Policy	\$43,500	\$25,438	119	< 2
IPP-10 Paper and Printing Policies	< \$1000 - \$9,500	\$58,000 - >\$170,000	0.5 -1.4	< 2 months
IPP-11 Reduce Electronics Energy Use	< \$1000	\$3,350	14.5	0.3
IPP-12 Waste Stream Reduction Policy	< \$1000	Indeterminable	Indeterminable	--



Renewable Energy and Offsets

Strategy	Implementation Cost	Est. Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback (yrs)
RENEWABLE ENERGY				
REO-1 Expand Methane Capture at WWTP	\$300k - \$1,000,000	\$55,357	259.7	5-18
REO-2 Micro-hydropower Electricity Generation at the WWTP	< \$100,000	\$10,000	43	10
REO-3 Solar PV Installations on Municipal Buildings	\$1,100,000	\$39,000	168.5	28
REO-4 Solar Thermal Heating System and Thermal Pool Blanket at Splash Montana and Similar Energy Efficiency Improvements at Currents	\$515,000	\$33,600	224	15-16
OFFSETS				
REO-5 Carbon Offset Development	\$10,000-\$250,000 per project	--	--	--
REO-6 Carbon Offset Purchasing	\$69,240 / \$167,907	\$0	11,540 / 4,836	n/a
CARBON SEQUESTRATION				
REO-7 Missoula Open Space Portfolio	\$237,000	--	57.99	Unknown
REO-8 Poplar Plantation near Wastewater Treatment Plant	\$797,000	--	240.73-924.33	Unknown
REO-9 Urban Tree Planting and Maintenance	\$44,000-\$57,000	\$4,750	20.8	9-12

Adding it up...



*Some strategies not yet quantified

Greenhouse Gas Emissions (mtCO₂e)

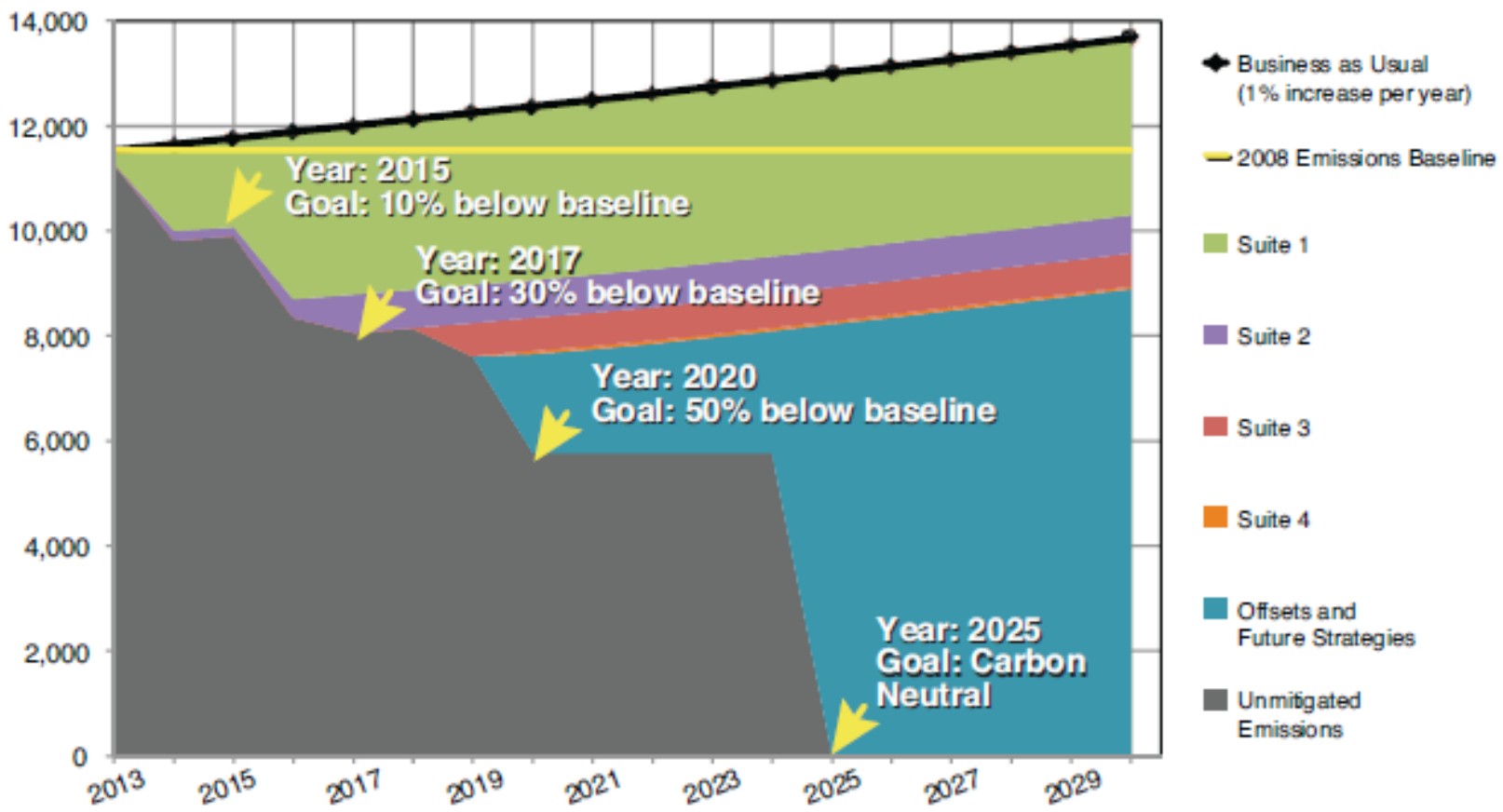
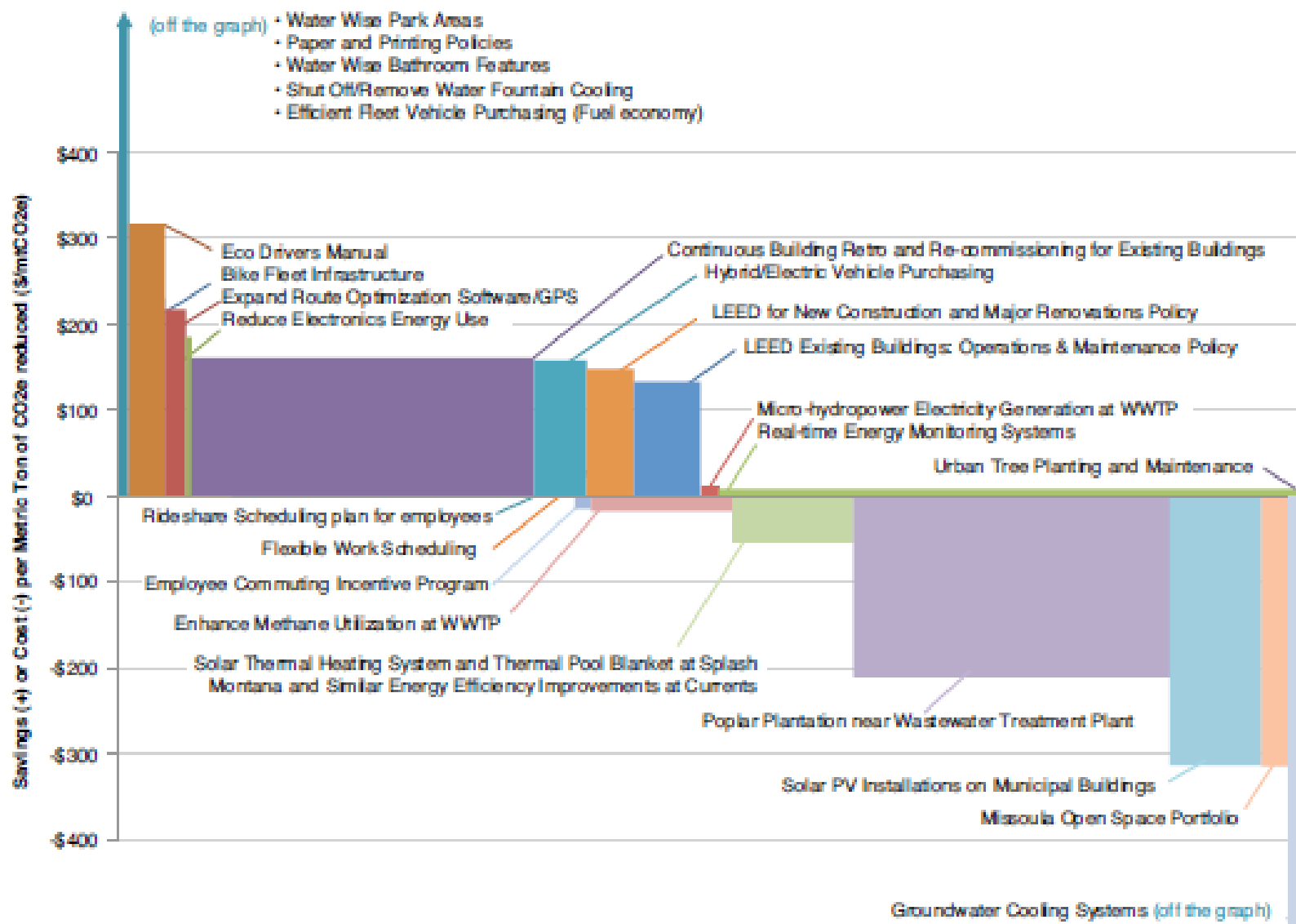


Figure 3-1: Comparison of Conservation and Climate Action Strategies



Plan to Succeed

Budget and Financing
Strategy

Data Monitoring, Tracking
and Reporting

Energy
Conservation
Coordinator

Technical Advisory
Committee

Implementation and
Timeline

Getting Started!

Green Building Policy Briefing Paper for the City of Missoula



DRAFT – FOR COMMENT ONLY

Prepared by Morgan Erickson-Davis, Nicholas
Littman, Colin May, and Peter Sureson

Environmental Studies Program
Jeanette Rankin Hall
University of Montana
Missoula, Montana 59812

Faculty Advisor: Robin Saha, Ph.D.

November 18, 2013

The City of Missoula identified a LEED green building policy for municipal buildings as an integral component of the 2012 Missoula Conservation and Climate Action Plan. To our policy makers, we have produced a working document that discusses the costs and benefits of green buildings; compares several different certifications and standards which can be incorporated into a policy; and provides case examples of existing policies that could serve as a guide for the City of Missoula to draft its own unique policy. We see this document as an initial step towards developing a green building policy for the City of Missoula that is cost-effective, provides benefits for the City, incorporates the concerns of City employees and decision makers, and satisfies the MCCAP's recommendation.

“This is a good thing, a long time in the making, that will have consequences for many years to come. With this plan, we further commit to doing the right thing.”

-John Engen
Mayor

FOR MORE INFORMATION ON MISSOULA’S CCAP, CONTACT:

Chase Jones

Energy Conservation Coordinator, City of Missoula

406-552-6389

cjones@ci.missoula.mt.us

ci.missoula.mt.us

To jump into climate action ...

- Take ENST 476/CCS 485 Environmental Citizenship / Srv Lrng
 - Spring 2014
 - Meets Mon. 11-12 and Wed. 11-1
 - CRN 32861
 - Project class with focus on individual behavior change, fostering sustainable behaviors, leadership development, and environmental organizing
- Take CCS 395 Climate and Clean Energy Policy (co-convenes with ENST 367 Environmental Politics and Policy)
 - Also Spring 2014, MW 3:10 to 4:30 PM
 - CRN 35388
 - Topics include:
 - critical analysis of “clean energy”
 - renewable energy impacts and impact mitigation
 - campus, local, state and federal climate and energy policy
 - climate action planning
 - climate activism

Questions?

Greenhouse Gas Emissions in MT

- 60% higher per capita than the rest of the country (40 vs. 25 metric tons/year)
- Estimated increase of 14% between 1990 and 2005 or 1% per year
- Net annual GHG emissions average ~12 million metric tons of carbon dioxide equivalents (tons of CO₂e)
 - A metric ton is 1000 kilograms (approx. 2,205 lbs)

Source: Montana Climate Change Advisory Committee 2007



Impacts in Montana

- Agriculture and water supply
- Water temperatures and timing of run-off
- Extreme weather events
- Terrestrial and aquatic habitats
- Threatened and endangered species
- Invasive species
- Tourism and related industries and local economies

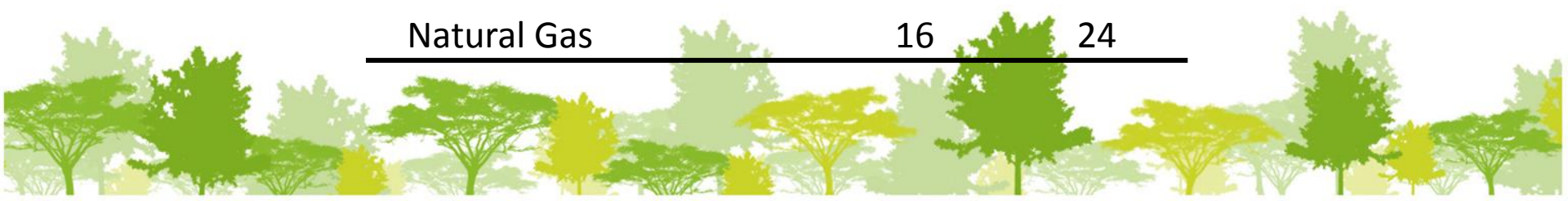
Coordination with the City

- Scoping meeting with Mayor's Administrative Leadership Team (ALT) and other city staff, 2/09
- Technical assistance meeting with Helena Utility Billing Dept. personnel, 2/09
- Presentation to the Missoula GHG Energy Cons. Team, 3/09
- On-going collaboration with city personnel
 - Staff comment and review of all chapters
- Presented preliminary findings to:
 - GHG Energy Conservation Team on Apr. 8, 2009
 - Mayor's Advisory Group on Climate Change and Sustainability on May 12, 2009
 - ALT on June 16, 2009
- Presentation to Mayor's Advisory Group on Climate Change and Sustainability on Sept. 9, 2010

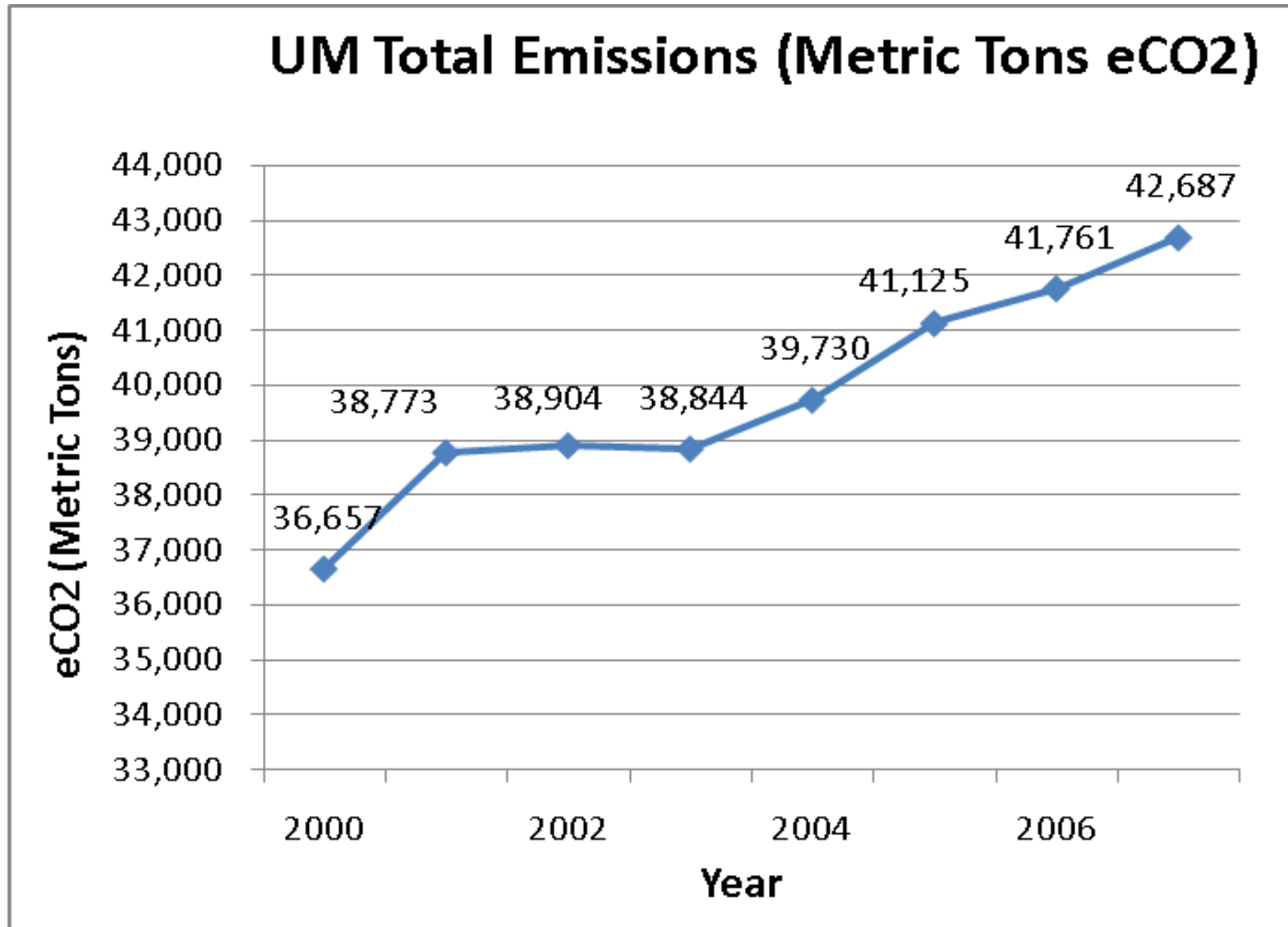


Number of NorthWestern Energy (NWE) Accounts by Energy Type and Sector, FY03 and FY08

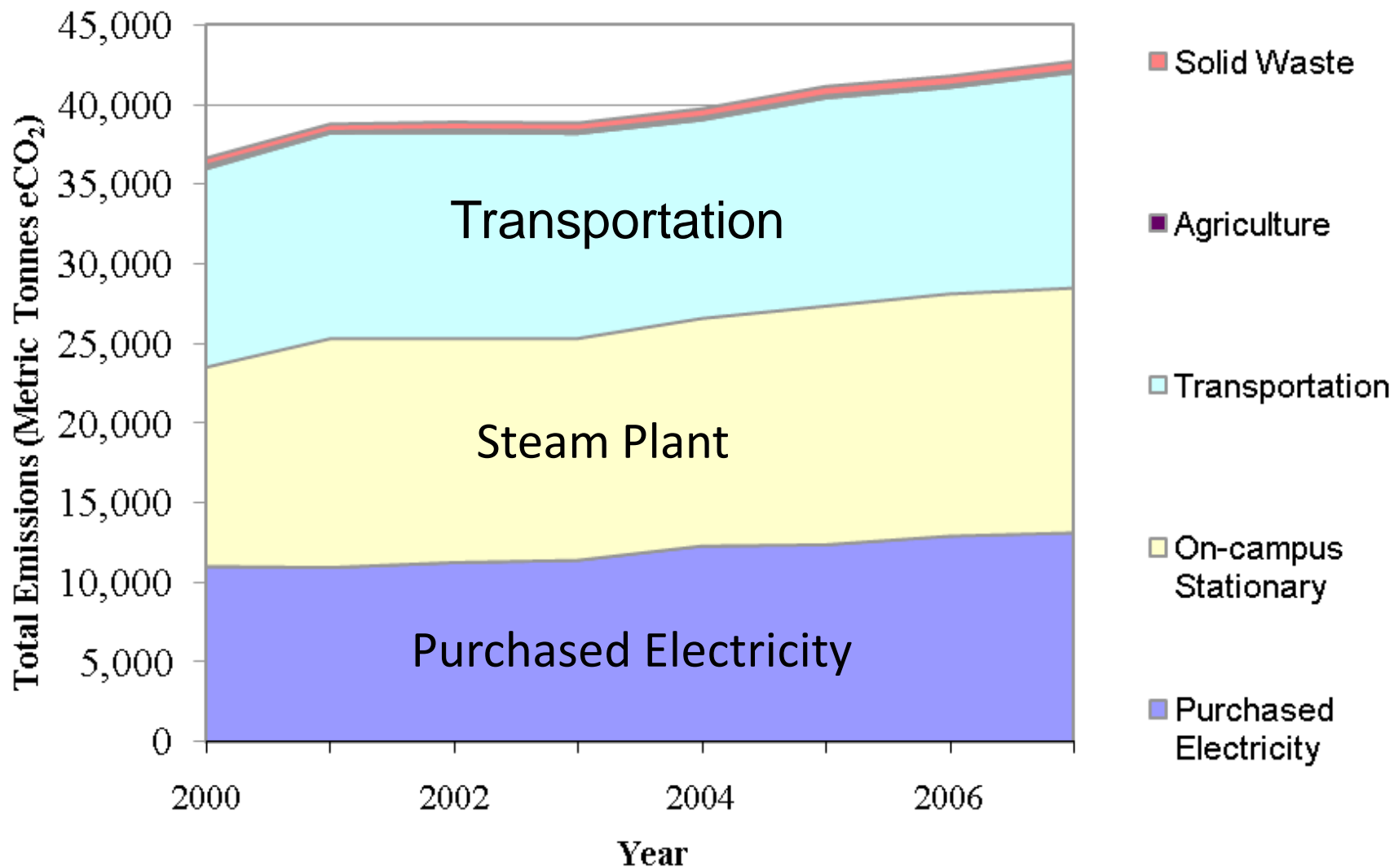
Sector and Energy Type	FY03	FY08
Municipal Buildings	31	48
Electricity	18	26
Natural Gas	13	22
Wastewater Treatment	28	35
Electricity	28	34
Natural Gas	0	1
Lighting	113	124
Electricity	113	124
Natural Gas	0	0
Other Miscellaneous	71	65
Electricity	68	64
Natural Gas	3	1
Total (All Sectors)	243	272
Electricity	227	248
Natural Gas	16	24



UM's Greenhouse Gas Inventory

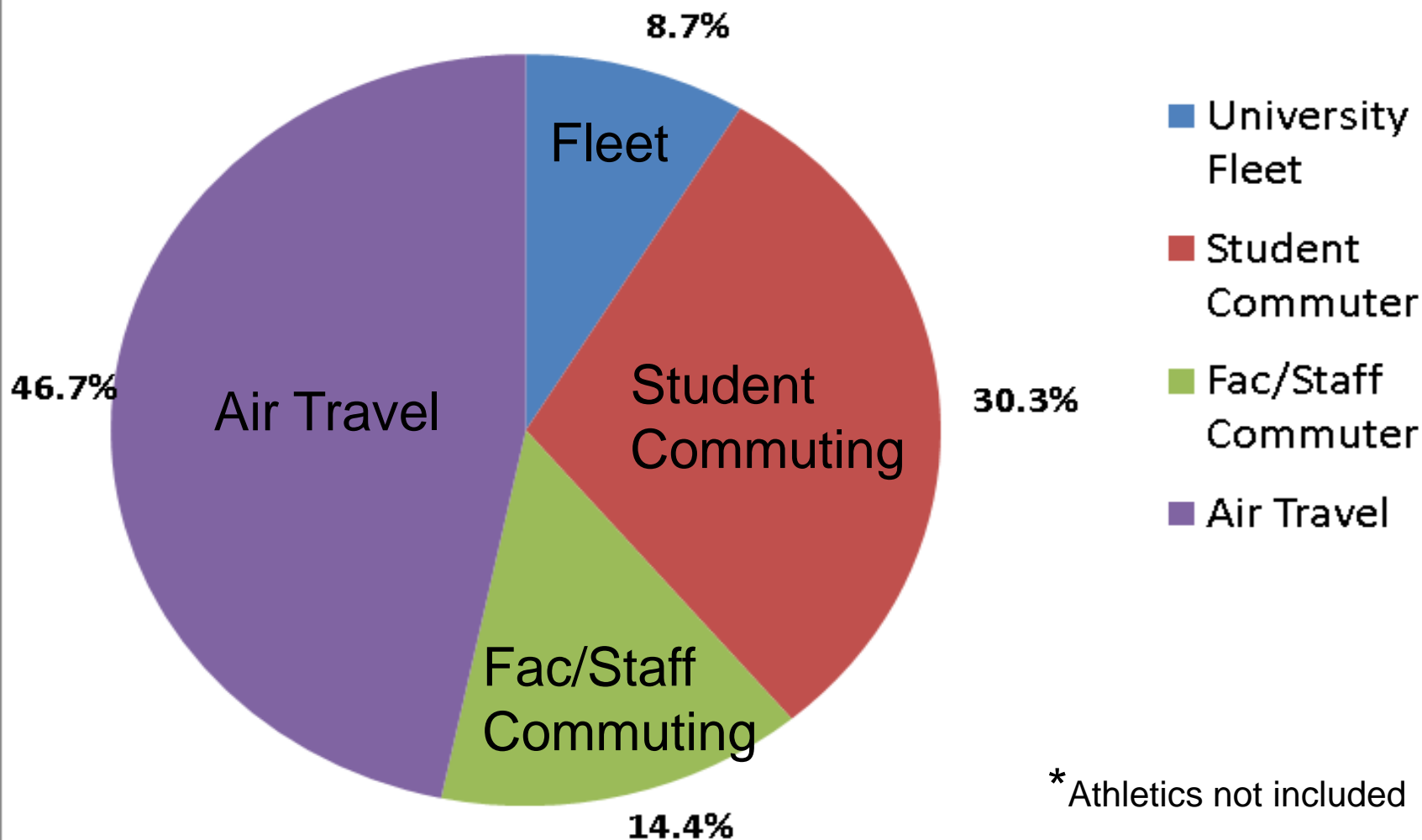


UM's Greenhouse Gas Inventory



UM's Greenhouse Gas Inventory

% by Transportation Method

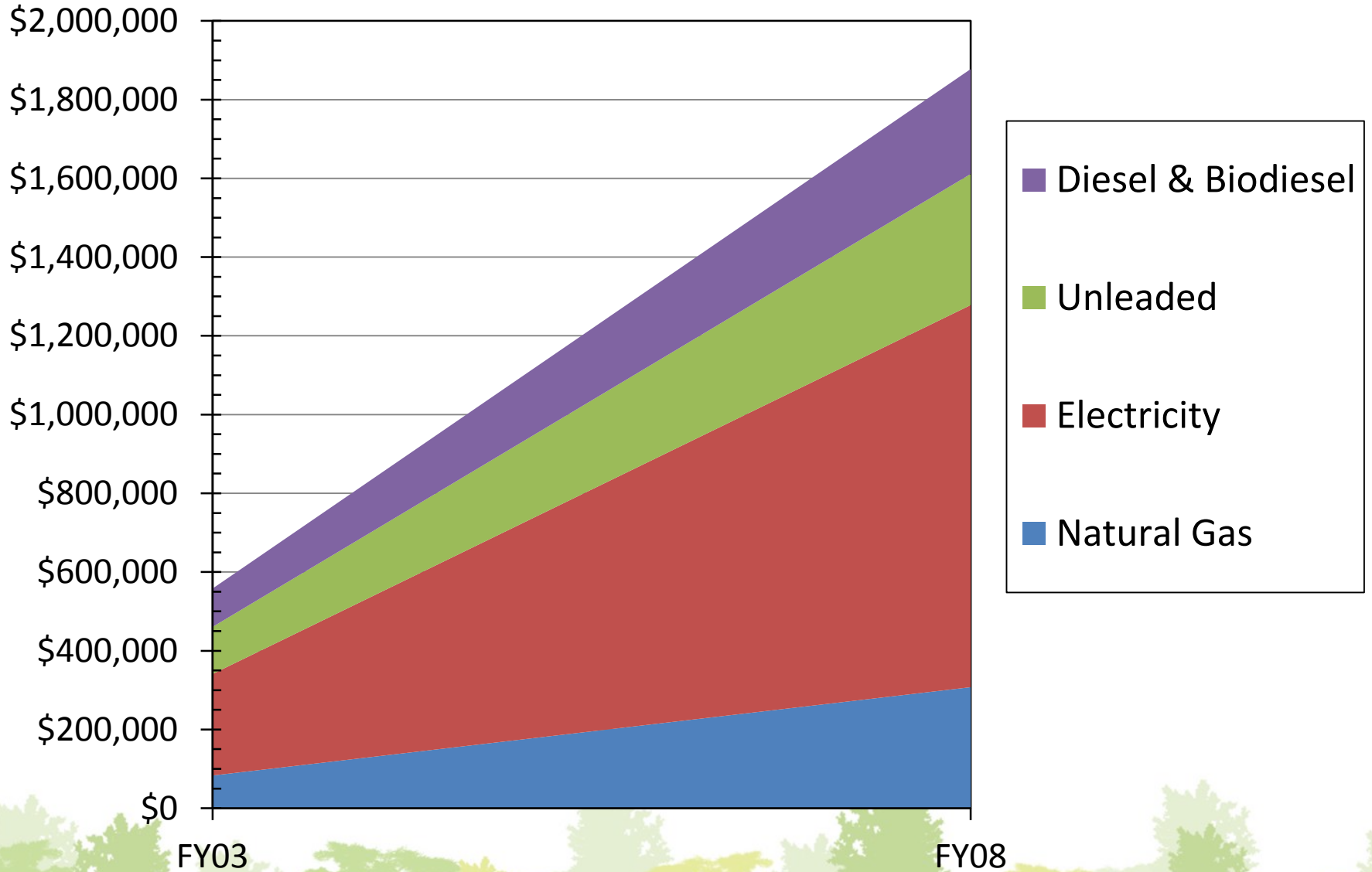


Drilling Down

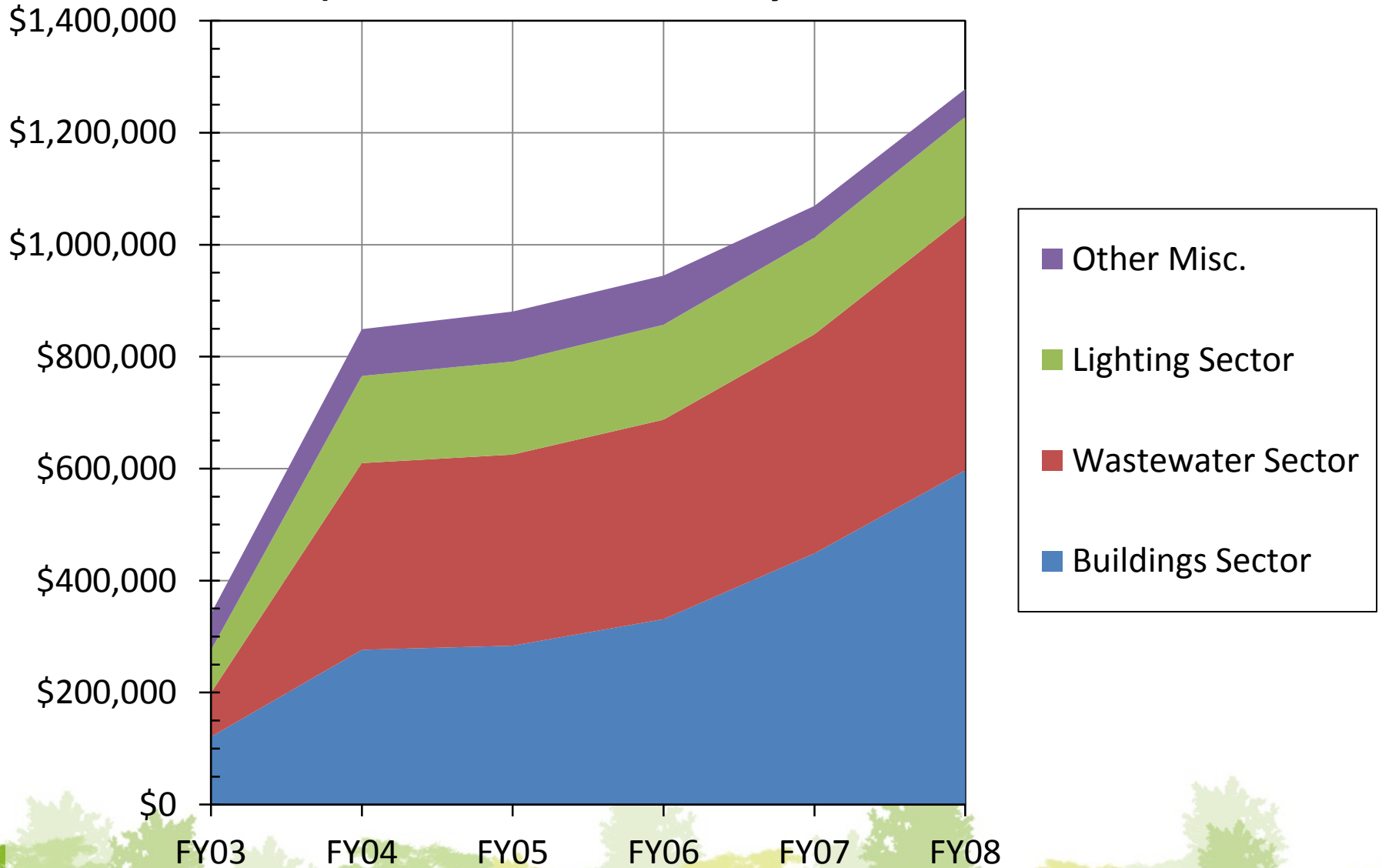
Energy Costs



City of Missoula Purchased Energy and Fuel Costs by Type in 2009 Dollars, FY03 and FY08



City of Missoula Purchased Energy (Electricity and Natural Gas) Costs in 2009 Dollars by Sector, FY03 to FY08



Overarching Recommendations

(see report for sector-specific recommendations)

- Set an Emissions Reduction Target & Develop a Climate Action Plan
- Form a Climate Action Plan Task Force
- Develop Energy and Emissions Monitoring and Reporting System
- Consider a Four-day Work Week and Work-at-Home
- Create a Revolving Energy Loan Fund
- Explore Renewable Energy Partnerships
- Consider Municipal Energy Bond or Renewal Energy Loan Fund
- Establish Renewable Energy Certificate and/or Carbon Offset Program
- Hire a Full-time Permanent Sustainability Coordinator
- Integrate GHG Emissions into Planning and Decision Making



Costs of Inaction

- Continued increase in energy costs
 - Bites into municipal and household budgets
 - Higher costs of goods and services
 - Less to spend and invest on city services and local economy
- Threats of climate change go unabated
 - Impacts to the things Missoulians value
 - Parks and open space
 - Forests and streams
 - Wildlife habitat
 - Quality of life and livability of our neighborhoods
 - Our economy



Moving Forward – How To, How Not To

- Steps toward sustainability that rely on planning, policy and practice have proven successful in cities (Zahran et al. 2008; Portney 2003; Bulkeley and Betsill 2003)
- Local initiatives are less successful if disconnected and piecemeal actions occur outside of a broader context of sustainability
- Local climate solutions are less successful when environmental priorities are seen as being in conflict with other municipal agendas (Portney 2003)



Local Solutions to Climate Change

- Build on efforts already underway
- Use the Mayors Climate Protection Agreement framework – **Develop a climate action plan**
- Adopt emissions reduction strategies to Missoula that:
 - Use less energy and use what we use more wisely
 - Recover waste energy
 - Developing renewable energy capacity
- Attend to staffing and funding needs
- Build public-private partnerships
- Draw of leadership and skills of movers-and-shakers, citizens, technical and policy wonks

Thank You!

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MCV Conservation Roundtable

Six Pony Hitch

References

Available by request or see full report





Sector-specific Recommendations



Wastewater Recommendations

- Increase biogas reclamation and use – sell as RECs under MT Renewable Energy Portfolio Standard
- Install other on-site renewable energy production, solar or wind power production
- Support water conservation measures to reduce the total quantity (gallons) of influent wastewater that the plant receives for treatment
- Expand ecological treatment / wastewater reclamation by growing biomass, i.e., hybrid poplars (carbon sinks)
- Improve energy efficiency in design of future upgrades



Buildings Recommendations

- Strengthen energy efficiency standards for new buildings
- Adopt energy efficiency policies or standards for office equipment and lighting to be ENERGY STAR certified.
- Conduct additional energy audits of all municipal buildings and performance contracting
- Develop a new program to assess and monitor building performance and set goals, benchmarks, and a monitoring plan
- Hire a new position to manage energy use for buildings, or train and reassign existing staff to serve in that capacity
- Consider using Energy Performance Certificates, “energy identity cards” (Directgov 2009)
- Inventory personal space heaters and other office appliances and consolidate or prohibit their use.
- Reduce the number of vending machines in City buildings



Fleet Recommendations

- Implement the Missoula Fuel Use Reduction Plan
- Amend Administrative Rule #11 regarding vehicle use and anti-idling policy, or if necessary, pass an ordinance to accomplish same goals
- Further encourage the use of alternative transportation (such as Mountain Line buses) for city business-related trips, minimization of vehicle use and other voluntary measures by City employees
- Establish Green fleet policy whereby fleet size is reduced, smaller and more fuel efficient vehicles are purchased, and unneeded uses are eliminated



Employee Commuting Recs

- Fund and implement the City employee “cash for commuters”
- Encourage more employees to participate in vanpools carpools, and ride sharing
- Provide free parking for employees who carpool
- Incentivize living in Missoula or closer to work
- Empower division and department heads and supervisors to allow four-day work weeks (see above).
- Partner with Missoula In Motion on an employee car share program.
- Further research ways to incentivize low-carbon and carbon-free employee commuting.



Lighting Recommendations

- Investigate high annual ownership, operation and maintenance charges for Streetlight Districts and other outdoor lighting
- Facilitate community dialog about reducing lighting costs for Streetlight Districts
- Consider renegotiating contracts with NorthWestern Energy regarding light maintenance services
- Consider transfer of responsibility for ownership, operations, and maintenance to the City for certain districts or lighting groups
- Consider partner with NorthWestern Energy to install energy-saving Light-Emitting Diode (LED) luminaries for streetlights
- Initiate outdoor lighting replacement projects for City-owned lights
- Conduct other energy efficient lighting upgrades, such as installing small solar power cells on outdoor lighting fixtures

