More for the Mission

Integrating Sustainability Metrics into Operational and Strategic Decision-Making

Lightning Session 2A: Management & Business
Behavior, Energy, Climate Change Conference
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Shengyin Xu
Minnesota Historical Society

Introduction

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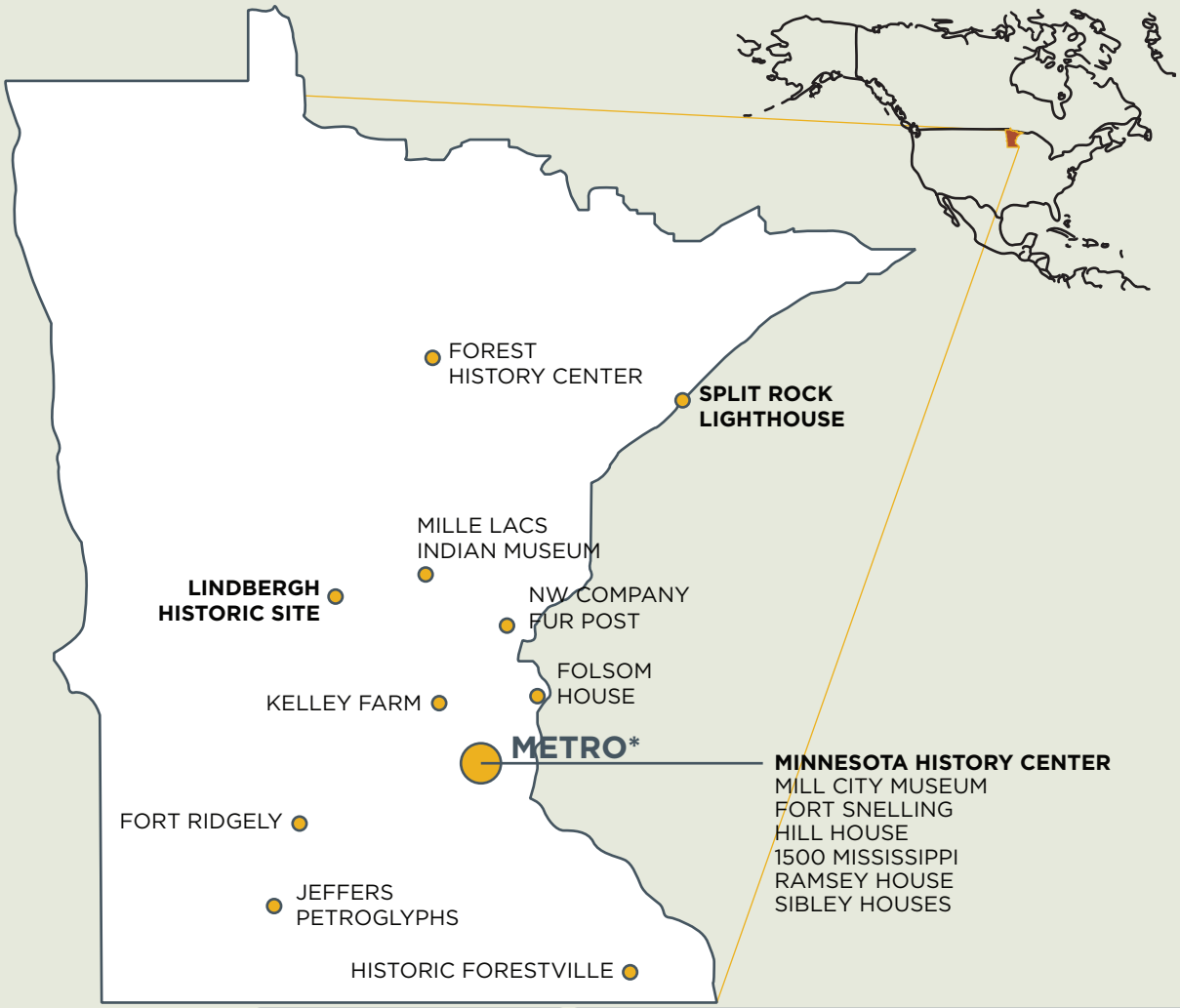


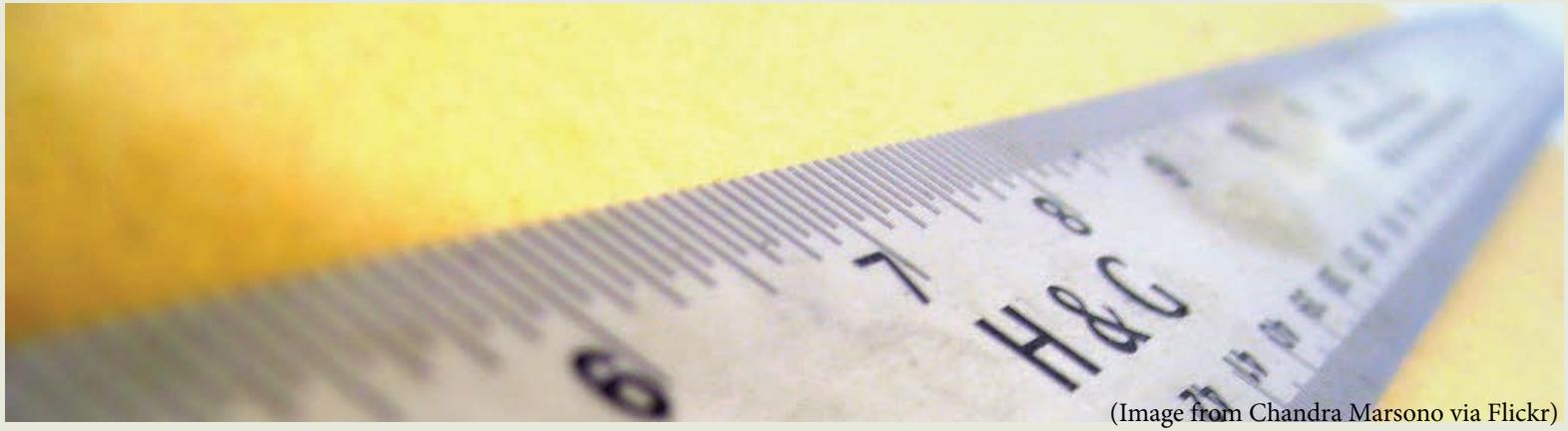
Introduction
Measuring Sustainability

Utilize Metrics to Meet Challenges

- Comprehensive inclusion of environmental, economic, and social impacts;
- Means of understanding progress towards sustainability;
- Measurements can integrate into long-term planning and operational decision-making processes.

"What gets measured gets done"

(attributed to Peter Drucker)



(Image from Chandra Marsono via Flickr)

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Measurements

Institutional Sustainability Metric - Greenhouse gas emissions

· Representation of consumption activities;
· Includes carbon dioxide (most common), methane, and nitrous oxide;
· Unit in carbon dioxide equivalent (CO2e);
· Standardization protocols available by IPCC, WRI, and other organizations.

Other Methods Utilized

· Custom criteria for environmentally preferred purchasing - C2C and LCA;
· LEED certifications for renovations and existing building operations;
· Energy audits for benchmarking, as part of Energy Star.

(http://www.federaltimes.com/article/20101005/FACILITIES01/10050304/New-tool-helps-agencies-measure-greenhouse-gas-emissions)

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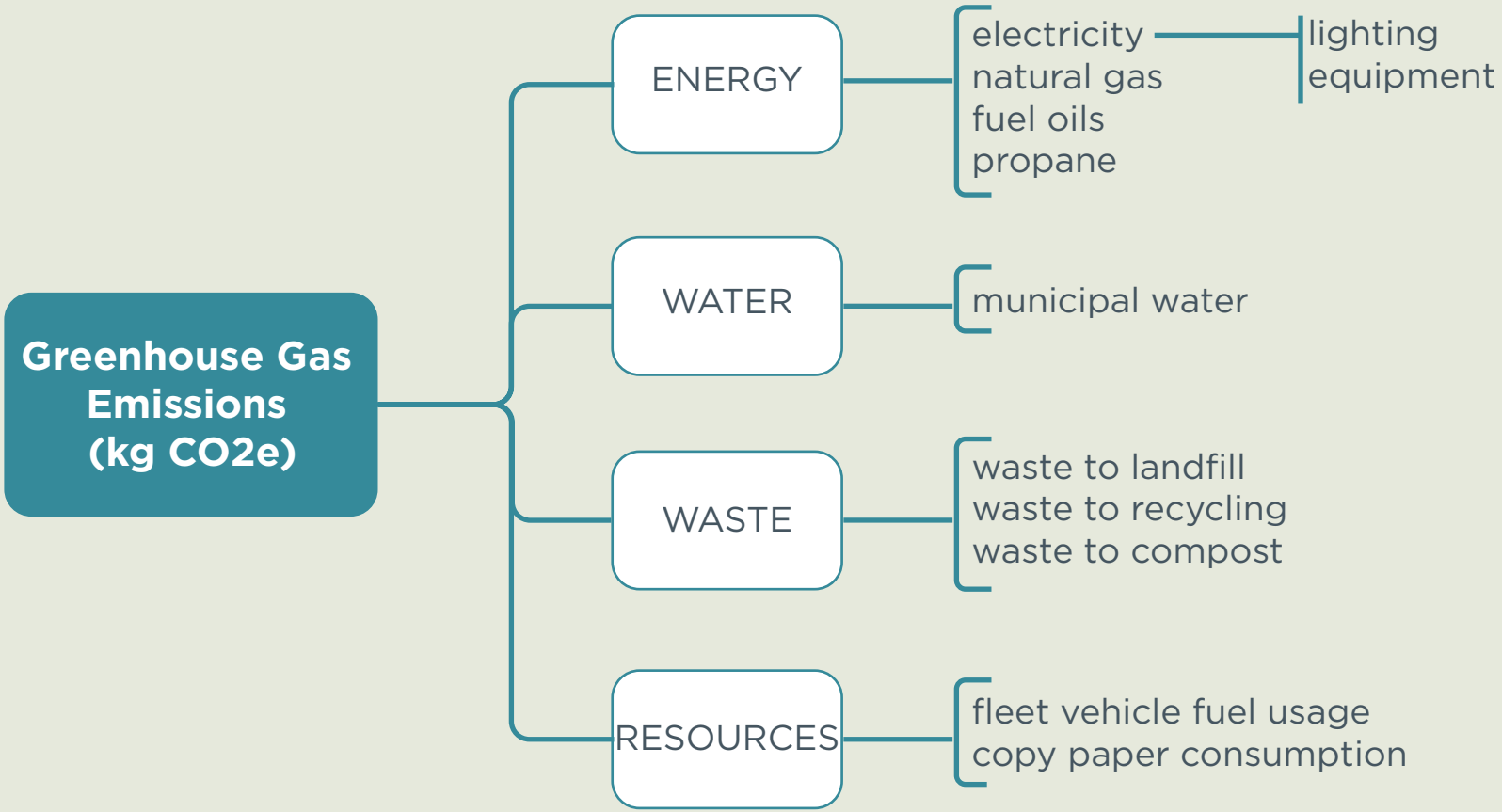
Scope



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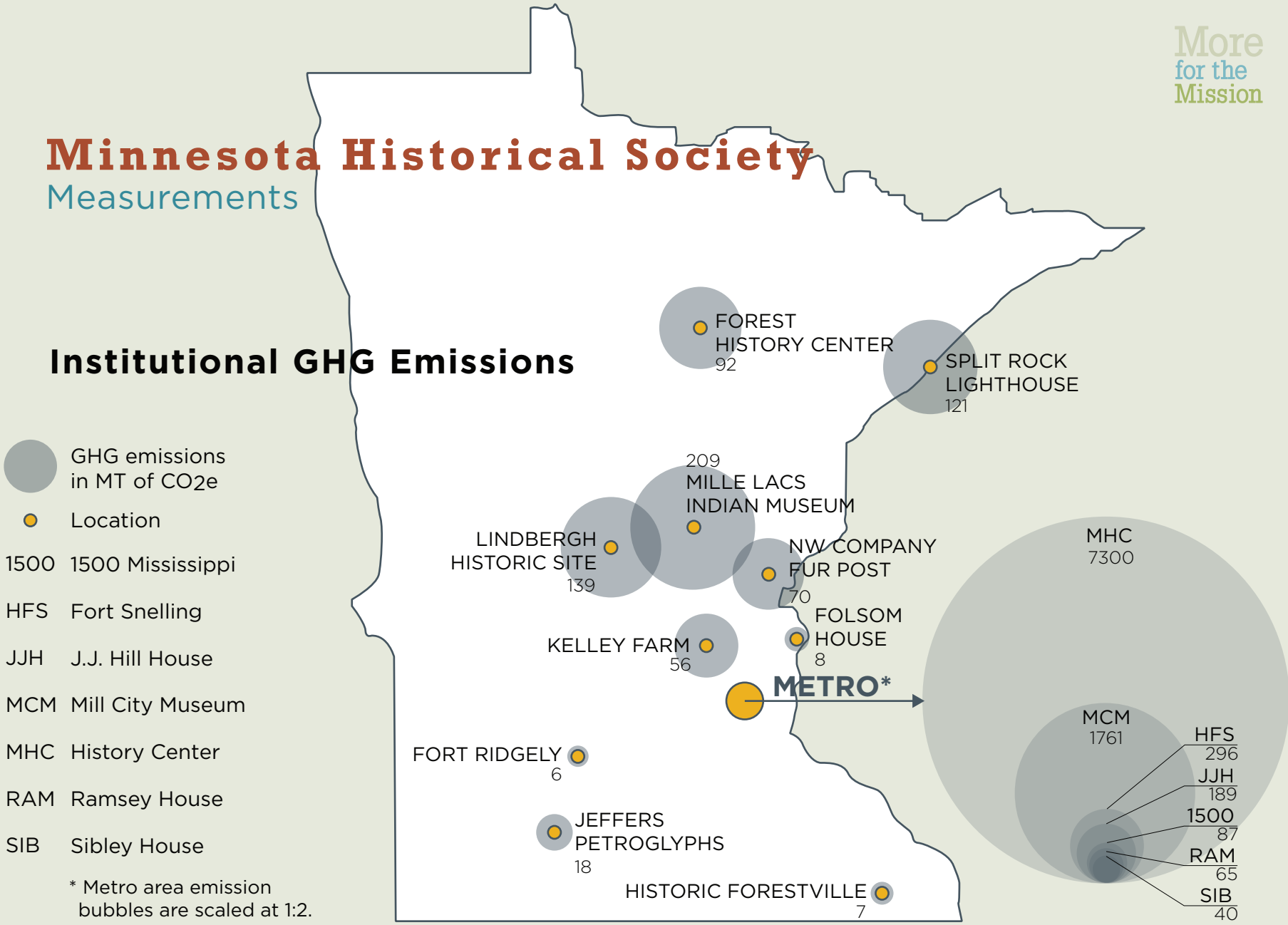
Measurements

Institutional GHG Emissions



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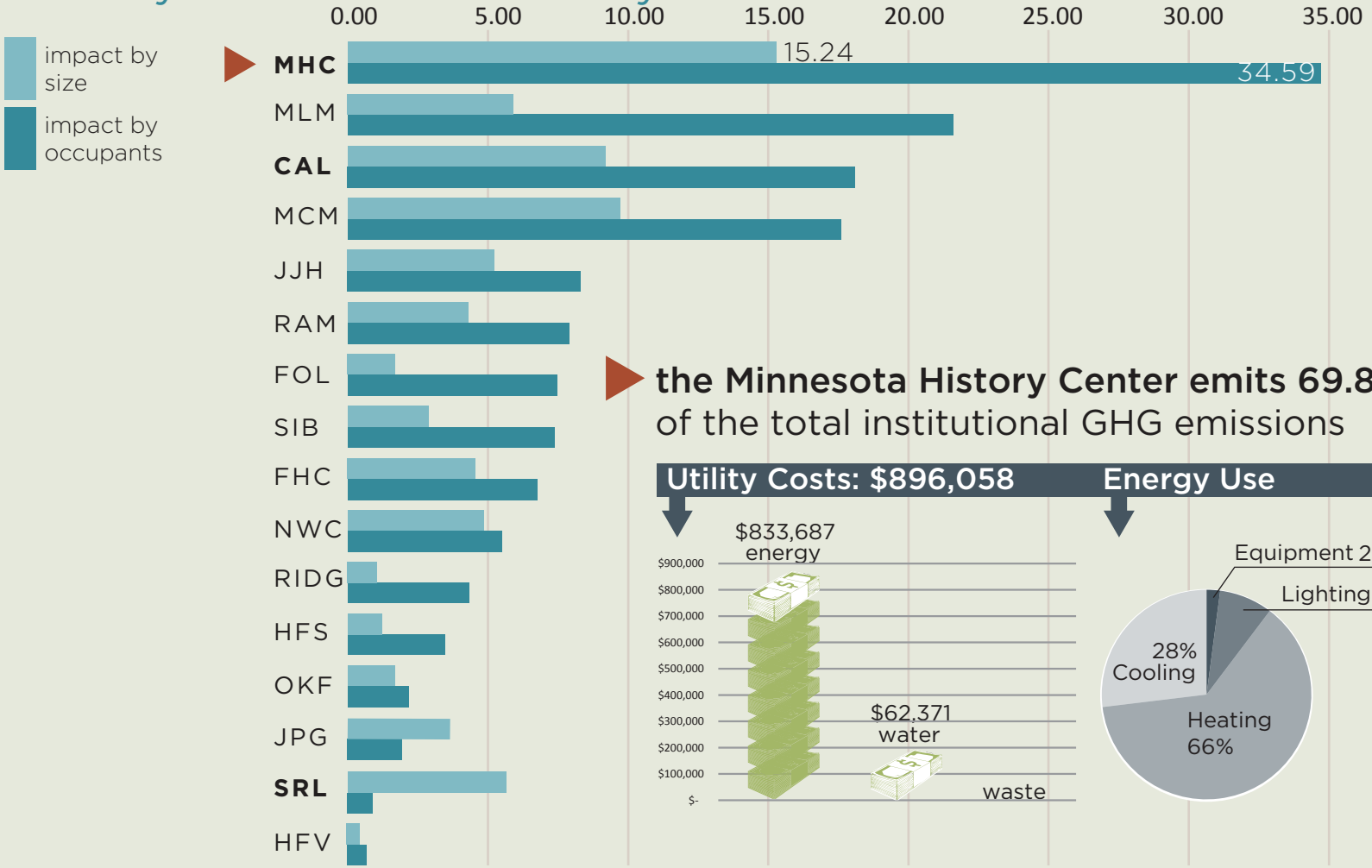
Analysis - Minnesota History Center



the Minnesota History Center emits 69.8% of the total institutional GHG emissions

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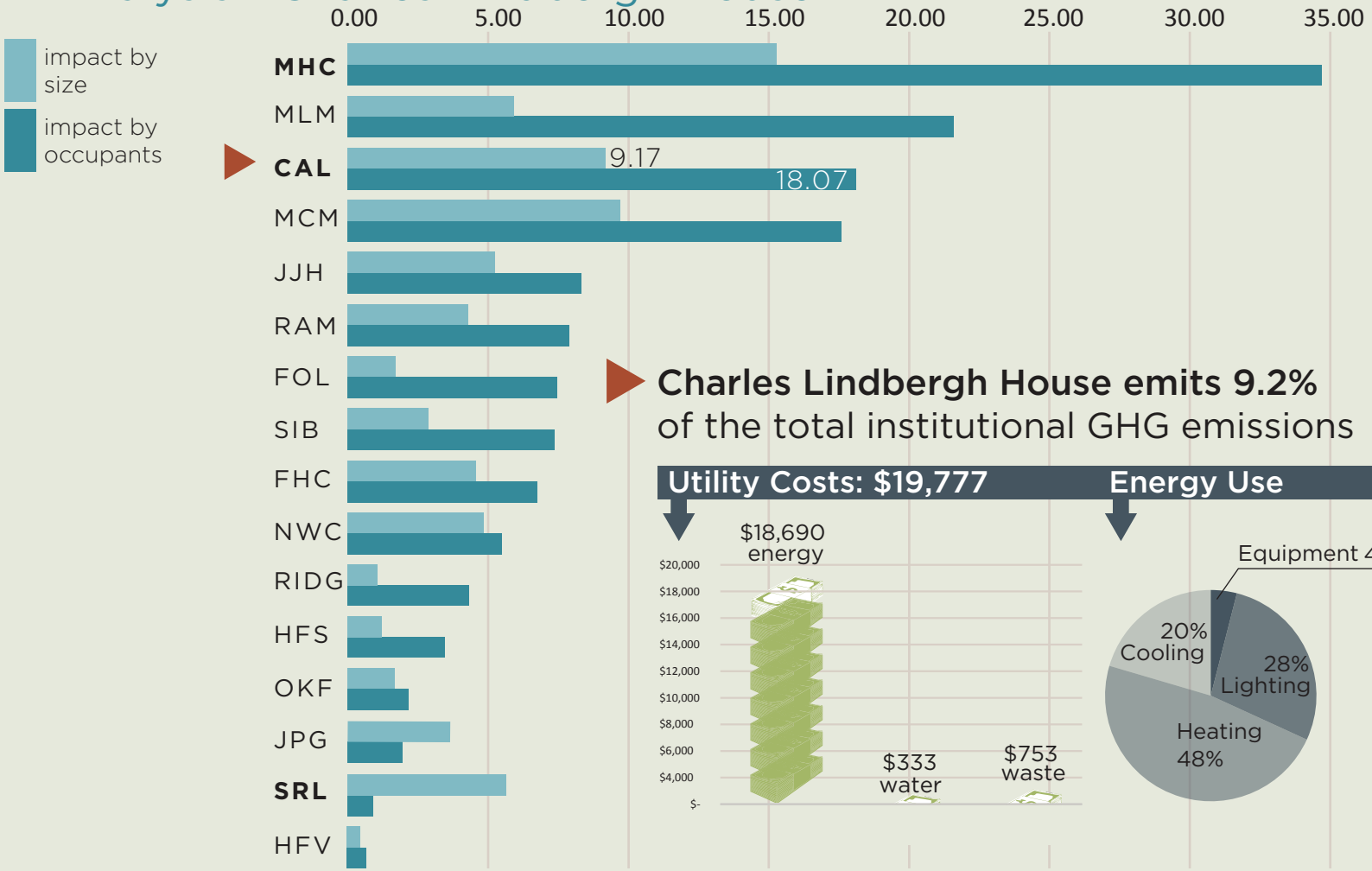
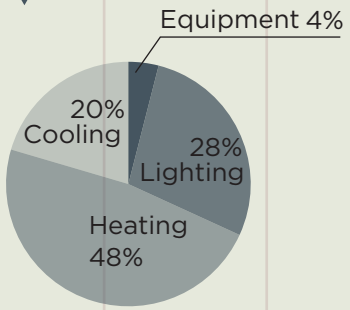
Analysis - Charles Lindbergh House



Charles Lindbergh House emits 9.2%
of the total institutional GHG emissions

Utility Costs: $19,777

Energy Use



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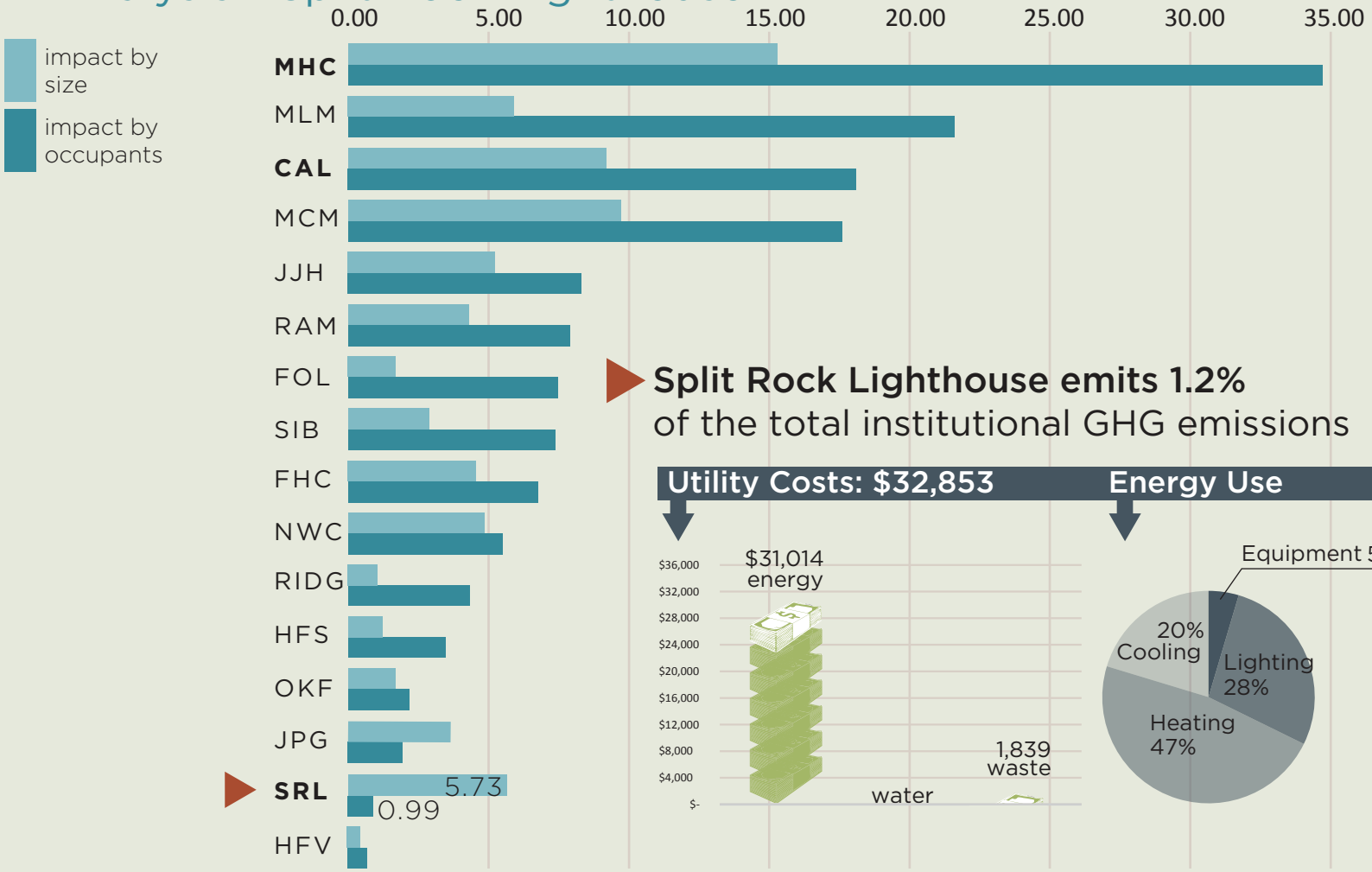
Analysis - Split Rock Lighthouse



Split Rock Lighthouse emits 1.2%
of the total institutional GHG emissions

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Responding to Data

Short-Term Actions	Cost	Avg Annual Savings	Pay-back	GHG Impact
LED fixtures to replace high pressure sodium in conservation areas of History Center museum.	$108,610	$2,100	27.3	15,443
LED lamps to replace halogen in retail areas of Split Rock Lighthouse Visitor Center.	$3,780	$1,355	2.9	8,784
Unoccupied space heating setpoint in Lindbergh House Visitor Center lowered from 60F/15.5C to 55F/12.8C.	$13	$587	0.0	8,796
Use CO2 sensors in return air of each air-handler to control outside air dampers by demand at Split Rock Lighthouse.	$10,120	$2,379	4.2	640
Add occupancy sensor for restroom exhaust fan in Lindbergh House Visitor Center.	$253	$8	20.8	109

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Responding to Data

Engagement Strategies	Cost	Avg Annual Savings	Pay-back	GHG Impact
Computer equipment kill switch 6 of 7 days a week in History Center building.	$9,040	$26,083	0.4	196,120
Conversion of 20% of site-to-site meetings to web-based meetings.	$1,828	$7,608	0.3	16,264
Copy paper reduction by 20% through print-tracking and staff campaign at History Center.	$5,000	$4,159	1.3	3,086

More for the Mission

Money saved through sustainability is money for our mission | Using the Power of History to Transform Lives | Preserving * Sharing * Connecting

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Responding to Data

Long-Term Planning	Cost	Avg Annual Savings	Pay-back	GHG Impact	Maint-enance Cost	Prog-ram
Forest History Center geothermal system to replace fuel oil system.	$330,650	$8,069	41.0	33,278	$200	No
Forest History Center wood pellet fired boiler to replace fuel oil system.	$128,900	$6,526	19.8	-14,754	$5,000	Yes
Forest History Center natural gas furnance to replace fuel oil system.	$119,409	$7,282	16.4	32,637	$300	No

Qualitative and quantitative factors are considered in long-term, strategic projects.

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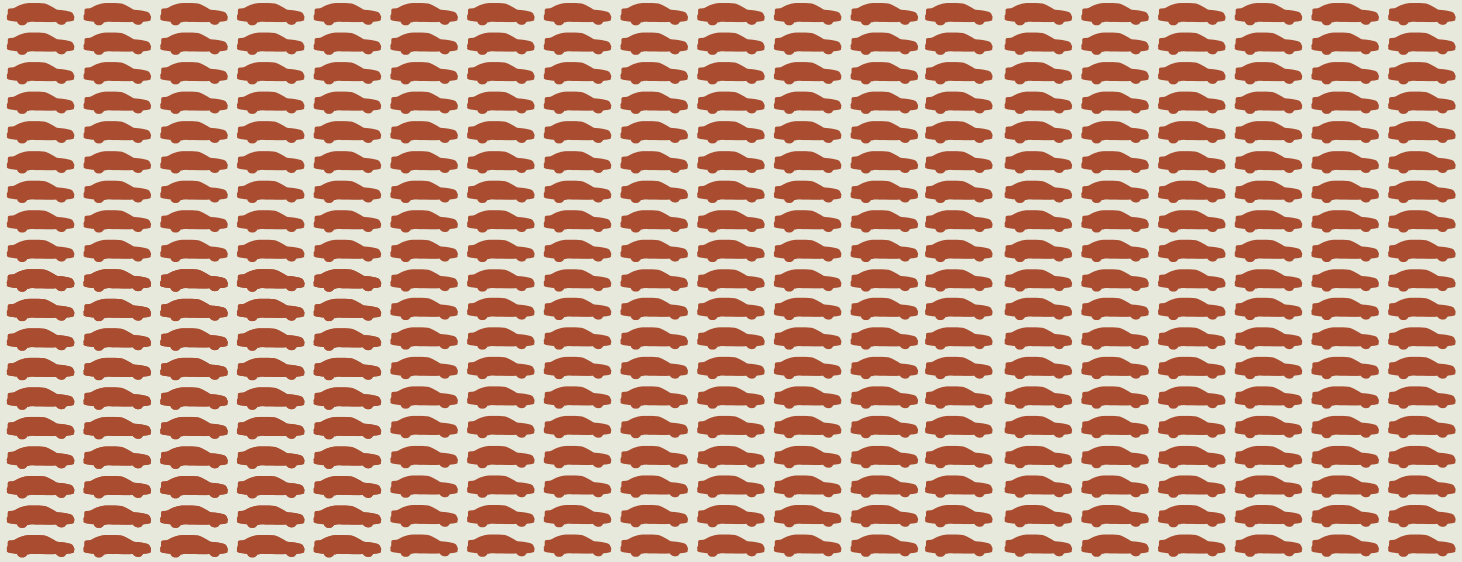
Outcomes

Save $1.8 million in utility bills in 5 years

20 positions

Reduce GHG emissions by 1.5 million kg (15%)



380 cars

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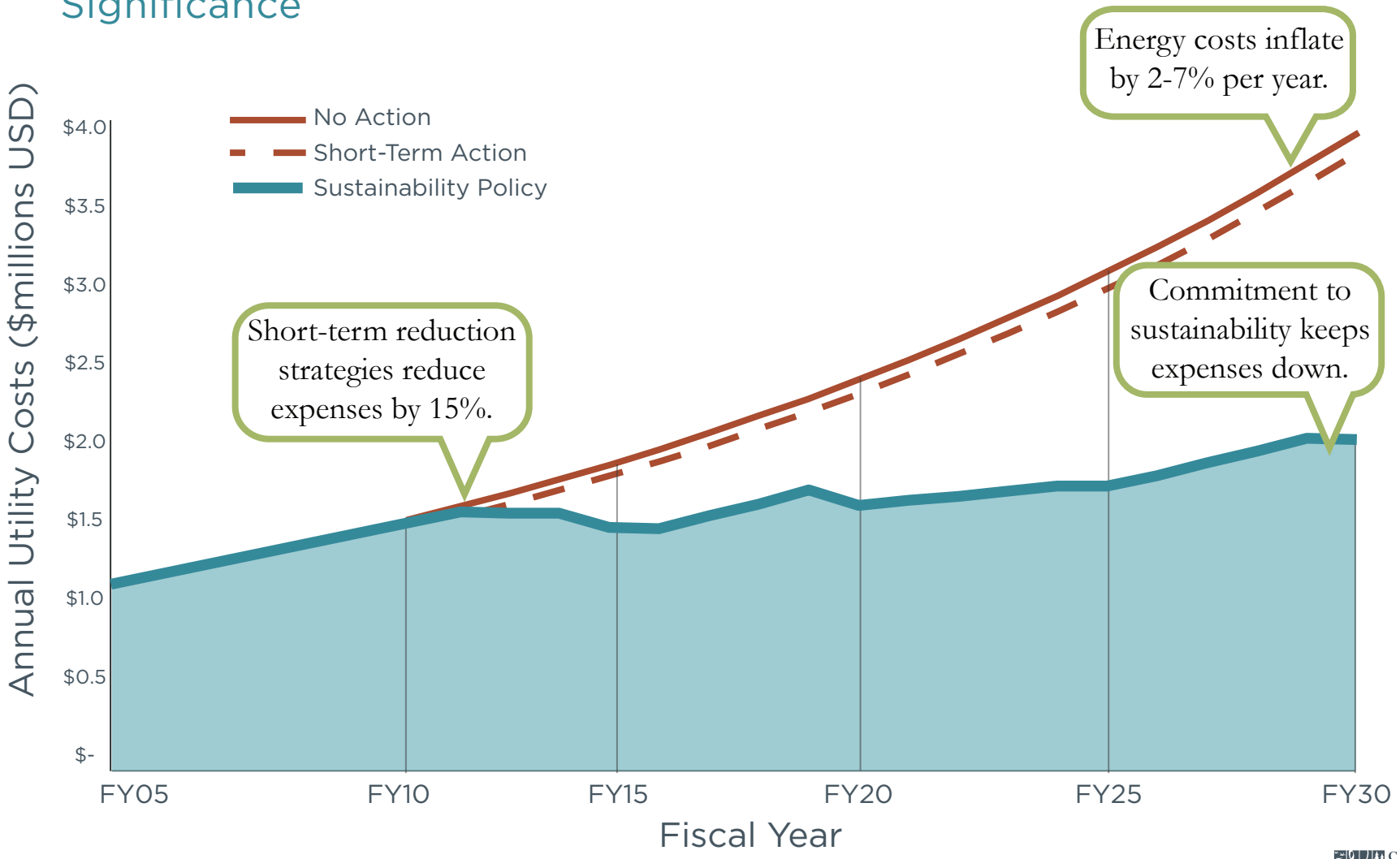
Significance



Conclusions

Benefits

Measuring sustainability is a key first step to integrating sustainbility into an organization.

Growing Availability of Resources

- Tools exist to help simplify data collection and analysis.
- Different methods for different scopes and scales.
- Growing body of manufacturers and private organizations that provide sustainability studies or conduct LCA measures on their products or services.

Benefits

- Data-based decision-making at operational and strategic levels.
- Save money, time, and resources in the long-run.
- Engagement opportunity for staff, visitors, and other stakeholders.

Thank you!

Questions?

Shengyin Xu
shengyin.xu@mnhs.org

www.blogs.mnhs.org/sustainability