SALT LAKE CITY SCHOOL DISTRICT
Your Best Choice

2040

SUSTAINABILITY ACTION PLAN

Sustainability, Clean Energy, and Carbon Neutrality

Greg Libecci, Energy and Resource Manager and Logan Hall, Executive Director Human Resource Services, on Hillside Middle School rooftop during solar installation

PLAN PREPARED BY

brendle GROUP

SALT LAKE CITY SCHOOL DISTRICT
Your Best Choice

2040

SUSTAINABILITY ACTION PLAN

Executive Summary | September 2021

A NOTE FROM OUR SUPERINTENDENT

I'm proud to support one of the first carbon-neutral plans for a school district in Salt Lake County. This Sustainability Action Plan is the culmination of an inspired, student-led effort that prompted our board to set ambitious goals to address the urgency that has resulted from climate change. This plan was developed through a year-long, inclusive process as one of the district's largest ever mobilizations around a common cause. In this plan, you'll read about the strategies and priority actions we'll start taking immediately to achieve 100% clean, renewable electricity by 2030 and carbon neutrality by 2040.

The plan will also require continued board leadership and bold action across the district, as the costs of inaction are too high. We all agree that we find common ground to do what's most important by putting students first. I was excited to join SLCSD earlier this school year because we have all the makings of a world-class school district. Equity-centered climate action and sustainability are crucial cornerstones to our undertaking. I hope you'll join me in working together to do our part.

Timothy Gadson
Superintendent of Schools

SUSTAINABILITY LEADERSHIP OVER THE YEARS

2009
District hires Energy and Resource Manager

2010
Awarded "K-12/School District Green Cleaning Award" by American School and University

2012
Awarded "Energy Star Partner of the Year", one of only 27 districts in the nation

2014
Awarded "Integrated Pest Management STAR" by US Environmental Protection Agency

Awarded "Recycler of the Year" by Recycling Coalition of Utah

2015
Awarded "Benchmarking Champion" by Salt Lake City Sustainability Department for benchmarking all district buildings with *Energy Star Portfolio Manager*

2020
Sustainability resolution passed establishing goals for sustainability, clean energy, and carbon neutrality

SUSTAINABILITY RESOLUTION

This plan is the result of a student-led initiative urging their school district to do its part in the fight against climate change. In 2019, students from SLCSD's three major high schools formed the Student 100% Clean Energy Team to organize a campaign to advance climate solutions. This effort culminated in the development of the Resolution to Establish Goals for Sustainability, Clean Energy, and Carbon Neutrality. The Board embraced this effort by unanimously adopting the resolution on June 2, 2020, which sets the following goals and directs the district to create a task force to address sustainability in nine action areas.

GOALS

Use 100 percent clean, renewable energy in the electricity sector by 2030

Meet 100% of all district operations energy needs with carbon neutral energy by 2040.

ACTION AREAS

1. Sustainability Education
2. New Schools
3. Existing Building Upgrades
4. Energy Efficiency and Renewable Energy
5. Integrated Pest Management
6. Recycling and Composting
7. Least Toxic Cleaning Materials
8. Farm-to-School
9. Funding Partners

Student Group that Lead the Sustainability Resolution

Top Row: Emma Johnson, Lola Maldonado, Julia Grant, Kenzie Young, Lisa Hoyos, Carly Ferro, Arya Barkesseh, Andoni Telonidis

Bottom Row: Andie Madsen, Tory Peters, Georgia Brach

SUSTAINABILITY TASK FORCE

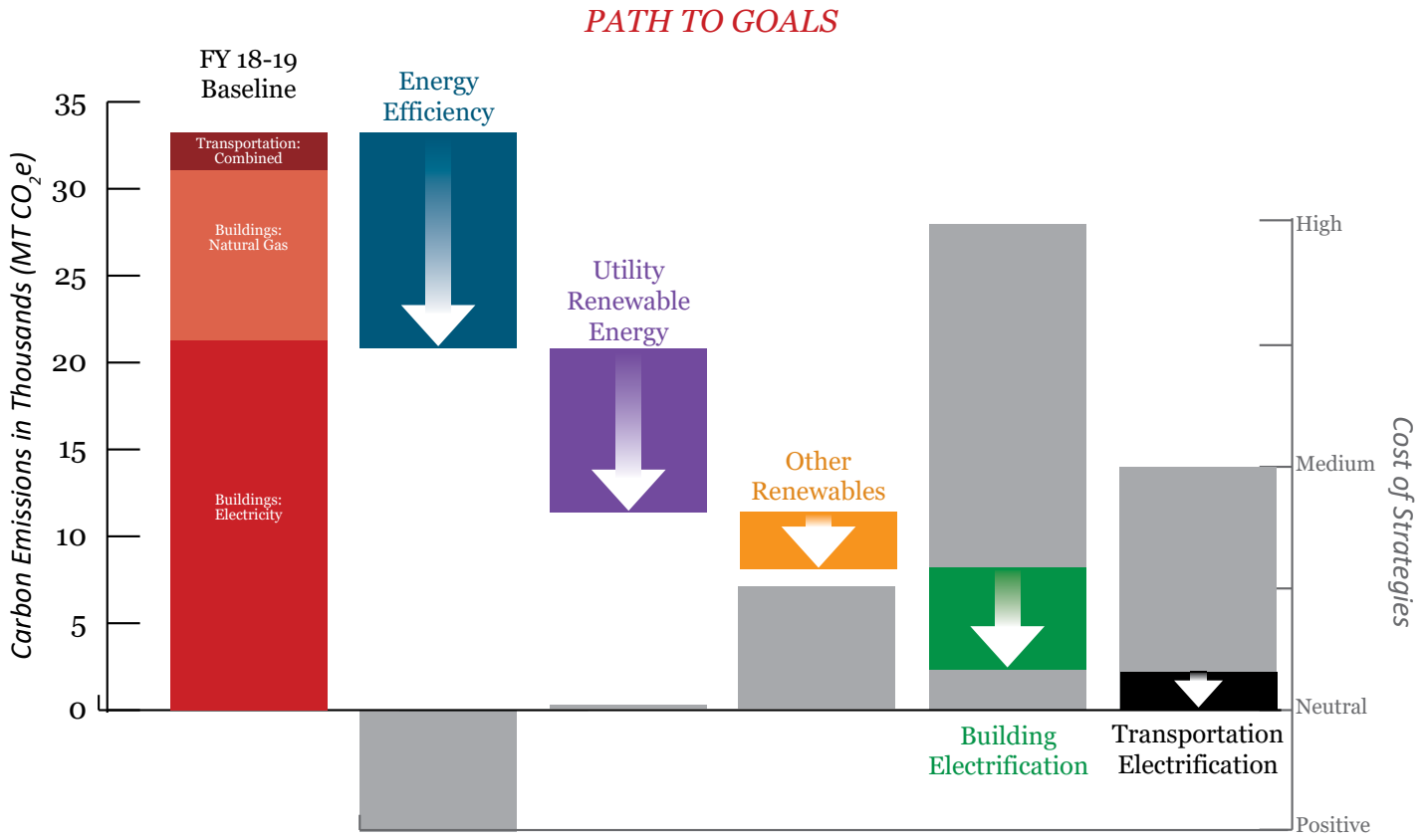
The Sustainability Action Plan is powered by students, from beginning to end. Once the student-led resolution was adopted, students were part of a Sustainability Task Force to develop plan goals and strategies. The Task Force also included faculty, staff, and community partners and formed subcommittees to dive into each of the action areas outlined in the Sustainability Resolution. Moving forward, Task Force members will continue to lead the implementation of the plan.

WHERE ARE WE NOW?

SLCSD owns and maintains 43 buildings, which includes 28 elementary schools, 6 middle schools, and 3 high schools, which is over 4.5 million square feet. Energy use in these buildings is by far the largest source of greenhouse gas (GHG) emissions. These emissions will be addressed through three main tactics as shown in the figure below to meet the District's carbon neutral energy goal.

1. **Energy Efficiency:** Reduce the amount of energy used by electric and natural gas equipment.
2. **Utility and Other Renewable Energy:** Increase the amount of renewable energy in the utility grid mix and the amount procured by the district.
3. **Transportation and Building Electrification:** Electrify all vehicles, buildings, and other equipment using fossil fuel to run on clean renewable energy.

The figure also outlines how the cost effectivness varies for each of these GHG emissions reduction strategies ranging from energy efficiency that typically saves the district money in the long term to building electrification that will be a significant investment with the current technologies and utility rates.

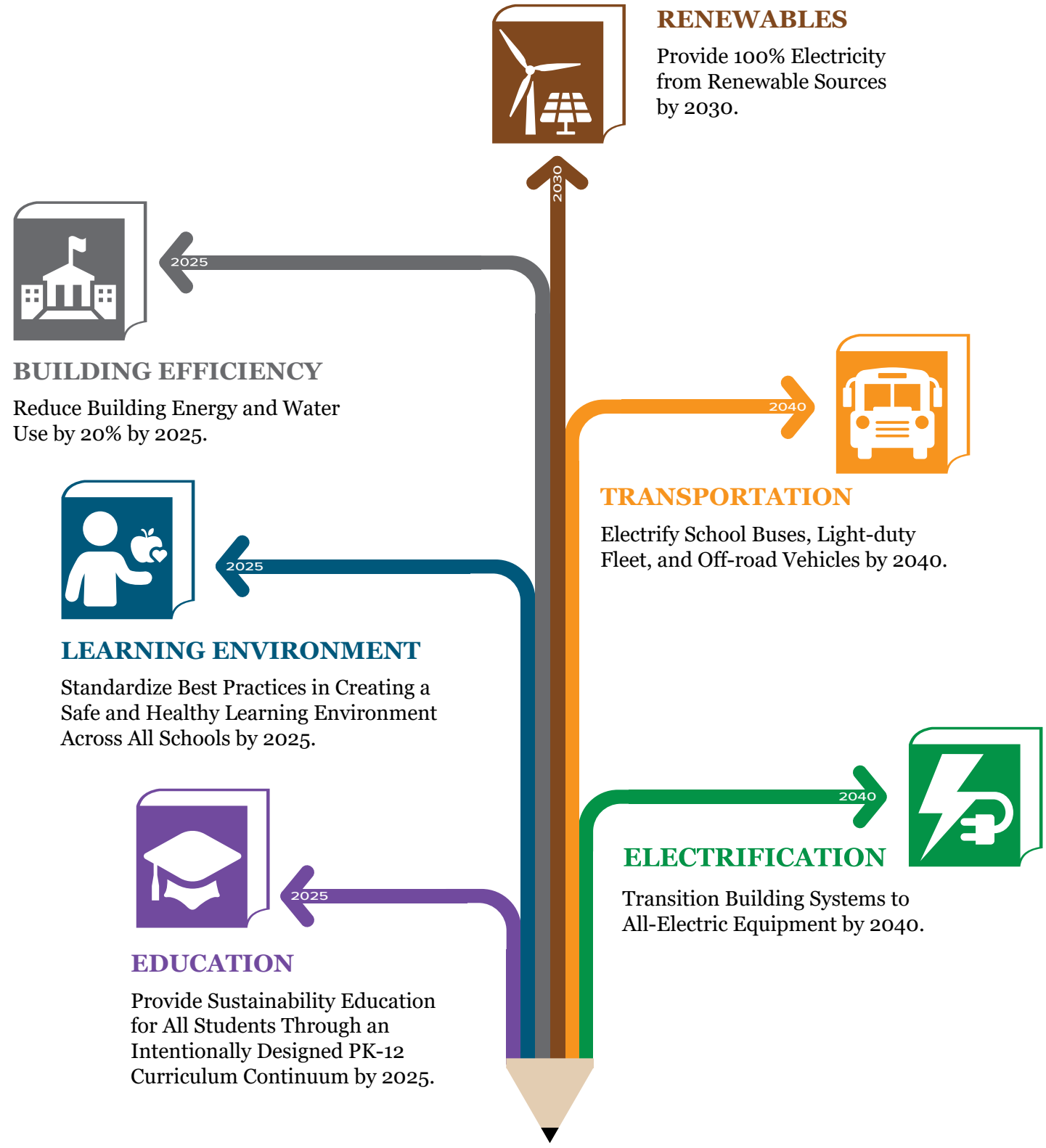


Legend and Key Terms

Cost of Strategies	The grey bars indicate the typical cost to implement each strategy type. For example: energy efficiency strategies typically result in cost savings, while renewable energy investments typically have a low increased cost.
Carbon Dioxide Equivalents (CO2e)	A unit of measurement used to standardize the climate effects of various greenhouse gases by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential. Typically measured in metric tonnes (MT CO2e).

SIX STRATEGIES FOR SUCCESS

To meet the goals and address sustainability in the action areas outlined in the Resolution to Establish Goals for Sustainability, Clean Energy, and Carbon Neutrality, six strategies were identified from the recommendations from the Sustainability Task Force. Priority actions for each strategy are identified in this plan, and the task force will continue to meet annually to review progress and identify the next actions to keep the district on track towards meeting its sustainability goals.



ACKNOWLEDGEMENTS

STUDENTS 100% CLEAN ENERGY TEAM

The following students collaborated to create the sustainability resolution adopted by the Salt Lake City School District Board of Education and ultimately resulted in the creation of this plan.

- Andie Madsen
- Andoni Telonidis
- Emma Johnson
- Eve Jeffries
- Lola Maldonado
- Arya Barkessah
- Mahider Tadesse

SUSTAINABILITY LEADERSHIP TASK FORCE

The following Salt Lake City School District students, faculty, staff, and community members assembled in the following subcommittees to contribute their ideas and expertise for this plan. Each subcommittee and its members are shown below, with the group leader designated by an *.

Chair: Paul Schulte, Executive Director of Auxiliary Services

Vice-chair: Greg Libecci, Energy and Resource Manager

Sustainability Education Committee Members

- Candace Penrod*, Science Supervisor, SLCSD
- Tyler Barnes, Director of Purchasing, SLCSD
- James Yapias, Director, Salt Lake Education Foundation
- Crystal King, Science Teacher, West High School
- Robert Durham, Science Teacher, East High School
- Kody Colvin, Principal, Hawthorne Elementary School
- Greg Libecci, Energy and Resource Manager, SLCSD

New Schools

- Todd Plaga*, Assistant Director of Auxiliary Services, SLCSD
- Greg Libecci, Energy and Resource Manager, SLCSD
- Sunny Devnani, kW Engineering
- Monica French, Science Teacher, Highland High School
- Jeanne Jackson, VCBO Architecture
- Alex Booth, VCBO Architecture
- Rich Reeder, VBFA Consulting Engineers
- Drayton Bailey, BNA Consulting

Existing Building Upgrades

- Greg Libecci*, Energy Resource Manager, SLCSD
- Sunny Devnani, kW Engineering
- Curtis Barnett, Facilities Maintenance Manager, SLCSD
- Ricardo Zubiate, Assistant Director of Auxiliary Services, SLCSD
- Candace Penrod, Science Supervisor, SLCSD
- Todd Plaga, Assistant Director of Auxiliary Services, SLCSD

Energy Efficiency and Renewable Energy Committee Members

- Greg Libecci*, Energy and Resource Manager, SLCSD
- Sunny Devnani, kW Engineering
- Kody Colvin, Assistant Principal, Escalante Elementary School
- Todd Plaga, Assistant Director of Auxiliary Services, SLCSD
- Mahilder Tadesse, Student, East High School
- Jeff Barrett, Rocky Mountain Power
- Raina Ellis, Dominion Energy
- Debbie Lyons, Sustainability Director, Salt Lake City Corporation

Integrated Pest Management Committee Members

- Ricky Martinez*, Assistant Director of Facility, SLCSD
- Emma Johnson, Student, Highland High School
- Ricardo Zubiate, Assistant Director of Auxiliary Services, SLCSD
- David Miller, Grounds Supervisor, SLCSD
- Chaylee Olson, Grounds Keeper, SLCSD

Recycling and Composting Committee Members

- Ricky Martinez*, Assistant Director of Facility, SLCSD
- Greg Libecci, Energy and Resource Manager, SLCSD
- Lola Maldonado, Student, Highland High School
- Tory Peters, Student, West High School
- Mercedes Antos, Sustainability Manager, ACE Disposal and Recycling
- Sandi McKamey, GreenFiber
- Erik Adams, Middle School Head Custodian, SLCSD
- Matt Lily, Highland High School Head Custodian, SLCSD
- Travis Olsen, District Custodial Manager, SLCSD

Least Toxic Cleaning Materials Committee Members

- Ricky Martinez*, Assistant Director of Facility, SLCSD
- Ricardo Zubiate, Assistant Director of Auxiliary Services, SLCSD
- Merv Brewer, Assistant Custodial Manager, SLCSD
- Travis Olsen, District Custodial Manager, SLCSD
- Johnny Rodriguez, Parkview Elementary Head Custodian, SLCSD

Farm-to-School Committee Members

- Kelly Orton*, Director of Support Services, SLCSD
- Sandra Buendia, Executive Director of Educational Equity and Student Support, SLCSD
- Tina Bagley, Community Member
- Eve Jeffries, Student, East High School
- Candace Penrod, Science Supervisor, SLCSD
- Tory Peters, Student, West High School
- Lola Maldonado, Student, Highland High School
- Jeff Barrett, Rocky Mountain Power

Funding Partners Committee Members

- Paul Schulte*, Executive Director of Auxiliary Services, SLCSD
- Greg Libecci, Energy and Resource Manager, SLCSD
- Kody Colvin, Assistant Principal, Escalante Elementary School
- Tyler Barnes, Director of Purchasing, SLCSD
- James Yapias, Director, Salt Lake Education Foundation

Transportation Committee Members

- Paul Schulte*, Executive Director of Auxiliary Services, SLCSD
- Greg Libecci, Energy and Resource Manager, SLCSD
- Kaylene Lento, Administrative Assistant, SLCSD
- Kelly Orton, Director of Support Services, SLCSD
- Curtis Barnett, Facilities Maintenance Manager, SLCSD
- Ken Martinez, Fleet Manager, SLCSD

SALT LAKE CITY SCHOOL DISTRICT
Your Best Choice

SUPERINTENDENT'S OFFICE
440 East 100 South
Salt Lake City, Utah 84111
801.578.8351

August 12, 2021

Dear Friends of Salt Lake City School District,

I'm proud to support one of the first carbon-neutral plans for a school district in Salt Lake County. This Sustainability Action Plan is the culmination of an inspired, student-led effort that prompted our board to set ambitious goals to address the urgency that has resulted from climate change. This plan was developed through a year-long, inclusive process as one of the largest mobilizations around a common cause.

In this plan, you'll read about the strategies and priority actions we'll start taking immediately to achieve 100% clean, renewable electricity by 2030 and carbon neutrality by 2040. Greenhouse gas (GHG) scenario modeling and detailed building energy audits show that the goals are ambitious but achievable. The good news is we have a compelling history of accomplishment in all six strategy areas in this plan. By integrating and accelerating these strategies, we can achieve bold results. The funding sources and organizational roles identified in this plan will further ensure our success.

Beyond eliminating our contribution to climate change, we also need to prepare for an already changing climate. For example, as a new superintendent, one of the resounding concerns I've heard in visiting schools across the district is the drought and high heat that we've been experiencing and the importance of trees, xeriscaping, and water conservation in making us more resilient to climate change. That's why the board's resolution and this plan go well beyond just reducing our contribution to climate change and instead employ a comprehensive approach to sustainability.

One of our district's greatest strengths is our diversity. I'm pleased to see that this plan has equity considerations woven throughout, ensuring that no voices are forgotten or silenced on our journey to a carbon-free future. Even more, embracing our diversity provides a springboard for innovation. Considering our best analysis shows we still have some unknowns on our pathway to carbon neutrality, tapping into this innovation from within our diverse district will be very important.

The plan will also require continued board leadership and bold action across the district, as the costs of inaction are too high. We all agree that we find common ground to do what's most important by putting students first. As the father of an infant myself, I realize the importance of sustainability – ensuring that our children and future generations not only have access to healthy air and clean water but healthy, safe learning environments as well.

In developing this Sustainability Action Plan, we feel it's essential to support the greater Salt Lake City policy goals for renewable energy and carbon neutrality. Our operations represent a small portion of community emissions. Still, we hope to lead by example and, in doing so, inspire our community, partners, and other school districts in Utah and beyond to join us in these efforts.

I was excited to join SLCSD earlier this school year because we have all the makings of a world-class school district. Equity-centered climate action and sustainability are crucial cornerstones to our undertaking. I hope you'll join me in working together to do our part.

Sincerely,

Timothy Gadson III, Ph.D.
Superintendent


Stacking
Station


GLENDALE
MIDDLE SCHOOL
1430


FARM
RAISED
SEAFOOD
TRADER
JOE'S

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FORWARD:
RESOLUTION TO ESTABLISH GOALS FOR SUSTAINABILITY, CLEAN ENERGY, AND CARBON NEUTRALITY

This plan is the result of a student-led initiative urging their school district to do its part in the fight against climate change. In 2019, students from SLCSD's three major high schools formed the Student 100% Clean Energy Team to organize a campaign to advance climate solutions. This effort culminated in the development of the Resolution to Establish Goals for Sustainability, Clean Energy, and Carbon Neutrality, which addresses the severe threats and impacts from a warming climate and outlines a series of climate action commitments. After collecting dozens of letters of support from community members and local organizations, this resolution was presented to the Salt Lake City School District Board of Education (Board) on June 2, 2020. The Board embraced this effort by unanimously adopting the resolution, which included the following goals, acknowledgements (recitals), and commitments (action areas). The resolution called on Paul Schulte, Executive Director of Auxiliary Services, to Chair the Task Force and provide the Board with an Action Plan by October 2021.

Student Group that Lead the Sustainability Resolution

Top Row: Emma Johnson, Lola Maldonado, Julia Grant, Kenzie Young, Lisa Hoyos, Carly Ferro, Arya Barkesseh, Andoni Telonidis

Bottom Row: Andie Madsen, Tory Peters, Georgia Brach

GOALS

Use 100 percent clean, renewable energy in the electricity sector by 2030

Meet 100% of all district operations energy needs with carbon neutral energy by 2040.

RECITALS

- Climate action must be taken, to significantly reduce greenhouse gas emissions by 2030 and reach net zero carbon emission by 2050, to prevent irrevocable damage to the environment.
- School districts are significant consumers of natural resources that contribute to global environmental problems.
- Salt Lake City is experiencing the detrimental effects of climate change through increased temperatures, poor air quality, changes in water systems, increased wildfires, extreme weather events, and other environmental disruptions.
- SLCSD students and staff are entitled to safe and healthy working and learning environments.
- Achieving environmental sustainability will require a commitment from all sectors of society, and that school districts are in a unique position to make substantial contributions toward the goal of a sustainable world for future generations.
- The Board is committed to making positive, tangible changes to mitigate climate change, and to ensure that every effort is made to conserve energy and natural resources while exercising sound financial management.
- The district's purchasing power has the opportunity to improve the environment and to lower financial outlay by providing guidance for district expenditures on energy, water, construction materials, pest control, office and school supplies, and cleaning supplies.
- Many options exist for schools to use natural resources more efficiently.
- There is tremendous opportunity to teach students about ecological sustainability, environmental health, and nutrition; to meet math, science, and social studies standards by integrating environmental education; and to support students in becoming leaders as they make their own schools healthier and more ecologically friendly.
- Responsible stewardship of public funds requires that new schools and district buildings be designed to provide the district with cost-saving, environmentally sustainable systems, flexible configurations that will enable future improvements, and efficient use of its land and resources.
- The plan is intended as a long-term, inspiring vision that integrates and strengthens many efforts in the district; implementation of this plan will take time and must be achieved in stages.

ACTION AREAS

The sustainability resolution outlined nine action areas in which the district should advance sustainability. Some of these areas are integral to helping the district meet the renewable energy and carbon neutral goals outlined in the resolution, while others support healthy classrooms, reduced waste, and sustainability education for a more holistic look at sustainability in the district. Each action area was assigned to a Sustainability Task Force subcommittee, for them to develop a proposal addressing the specified sustainability topics. A tenth action area (transportation) was added during the planning process to ensure the district's carbon free energy goal could be met.

1. **Sustainability Education:** "proposed practices addressing areas such as sustainability education and professional development, green purchasing, waste reduction, energy-saving initiatives, and community partnerships"
2. **New Schools:** "a proposed program to ensure that new schools and district buildings are built and refurbished using environmentally sound building materials, efficient use of energy, water and other resources"
3. **Existing Building Upgrades:** "a proposal for applying sustainable building criteria when making improvements and addressing maintenance orders in existing buildings"
4. **Energy Efficiency and Renewable Energy:** "a district-wide proposal to improve the energy efficiency of schools, to increasingly rely on clean, renewable energy sources to power the district's facilities, and to ultimately transform schools into independent power producers by investing in clean renewable technologies such as solar and wind"
5. **Integrated Pest Management (IPM):** "a proposed integrated pest management program to minimize or eliminate the use of hazardous pesticides and herbicides in schools"
6. **Recycling and Composting:** "a proposal for creating or expanding the district's recycling and composting programs, along with the procurement of recycled office and classroom supplies"
7. **Least Toxic Cleaning Materials:** "a proposed plan to purchase and use the least toxic cleaning materials"
8. **Farm-to-School:** "the potential for developing a farm-to-school program to bolster the nutritional value of the district's school lunch program"
9. **Funding Partners:** "a proposal for pursuing outside funding partners and leveraging available incentive programs in the corporate community in order to offset the financial impacts of meeting"
10. **Transportation:** This action area was added to meet the district's goal of 100% carbon free energy by 2040, to ensure that energy use by district vehicles is also from a renewable energy source.

The resulting ten proposals were collectively reviewed to identify synergies and reorganized into six plan strategies (See Figure 1) for the district to focus on over the next twenty years.

STRATEGIES

Reduce Building Energy and Water Use by 20% by 2025.

Provide 100% Electricity from Renewable Sources by 2030.

Transition Building Systems to All-Electric Equipment by 2040.

Electrify School Buses and Light-duty Fleet Vehicles by 2040.

Provide Sustainability Education for all Students Through an Intentionally Designed PK-12 Curriculum Continuum by 2025.

Standardize Best Practices in Creating a Safe and Healthy Learning Environment Across all Schools by 2025.

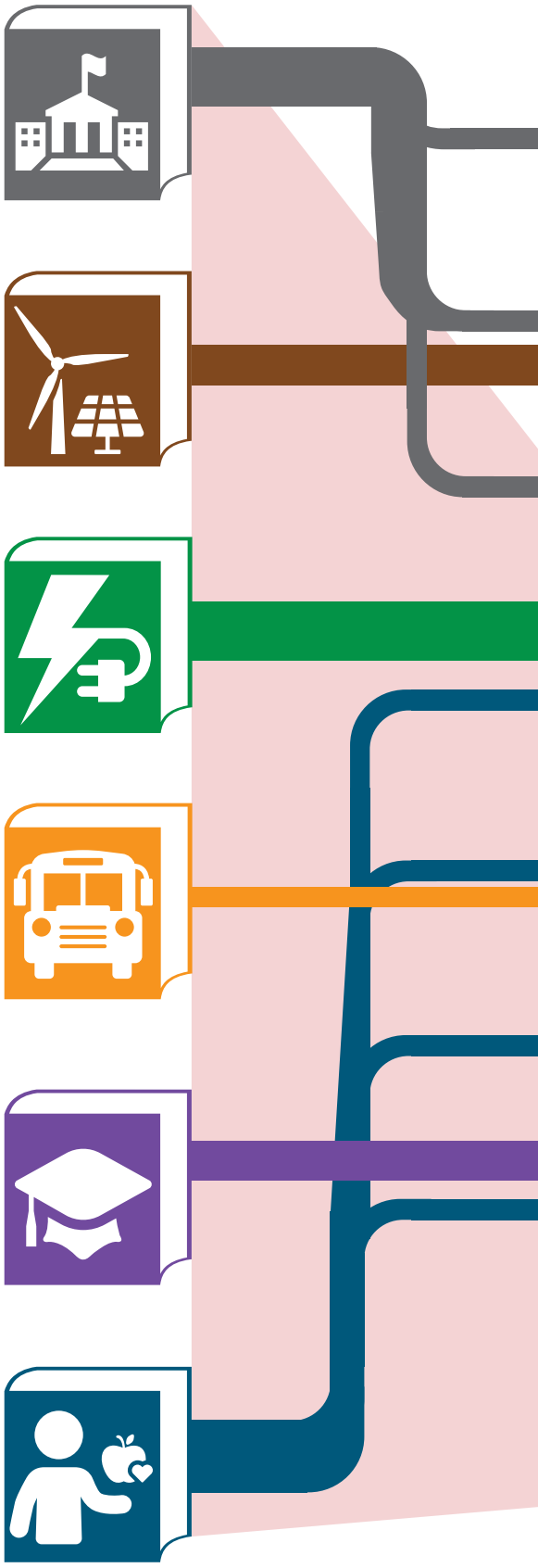
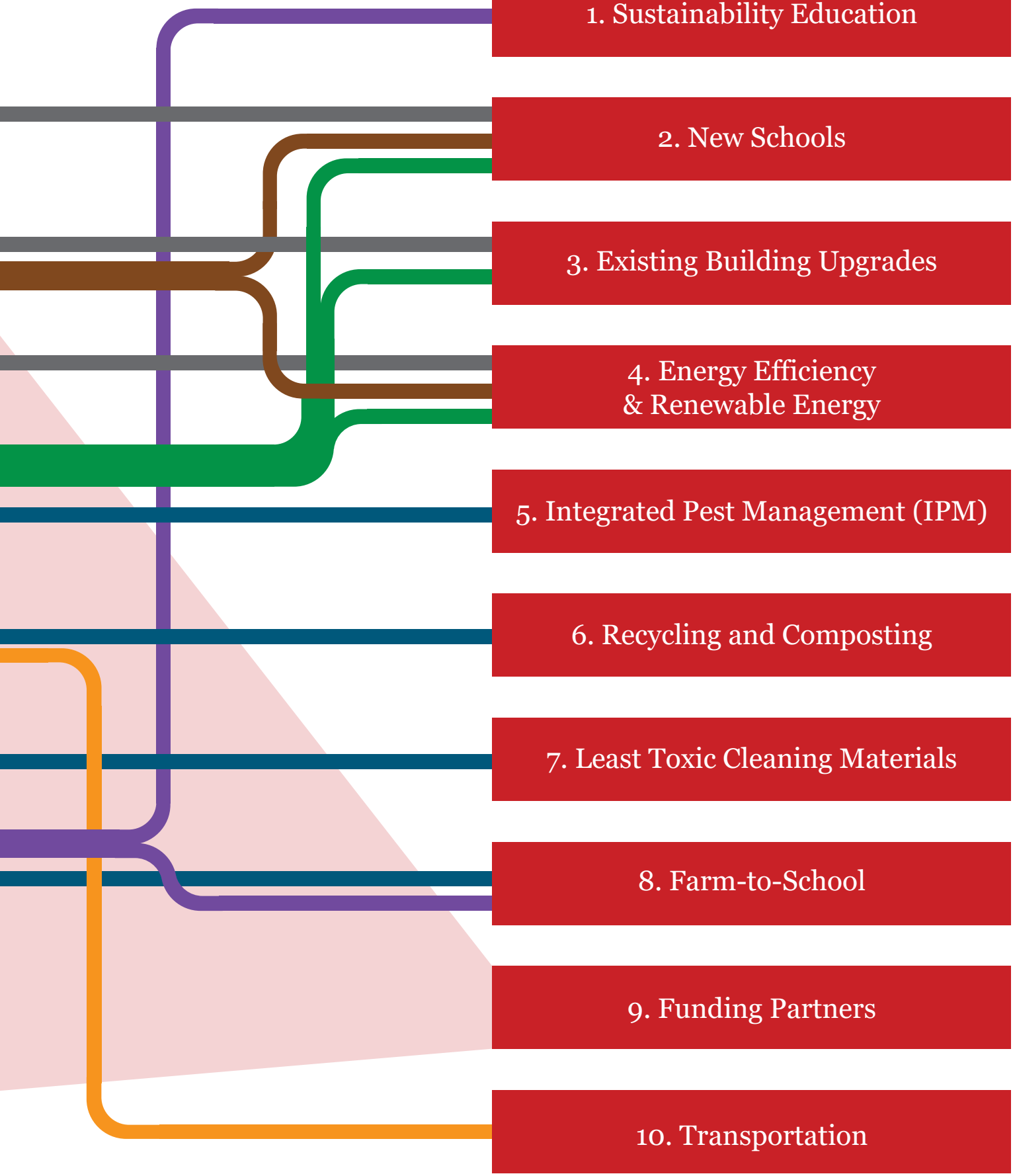


FIGURE 1: STRATEGIES AND ACTION AREAS MAP

ACTION AREAS



INTRODUCTION

WHY SLCSD IS ADVANCING SUSTAINABILITY

Now, more than ever, Salt Lake City School District's (SLCSD) commitment to the wellbeing of its students extends to the wellbeing of the environment. Salt Lake City is experiencing the detrimental effects of climate change through increased temperatures, poor air quality, changes in water systems, increased wildfires, extreme weather events, and other environmental disruptions. These threats do not impact all people equally. A recent study of Salt Lake County schools found that students from communities of color and low-income households are exposed to greater levels of air pollution (Potter, 2020). To prevent further irrevocable damage to the environment and to protect youth from all backgrounds, action must be taken to significantly reduce GHG emissions, reduce impact on the local environment, and increase resilience to these climate impacts.

SLCSD has a rare and essential role in the endeavor to create sustainability communities and combat climate change. Its influence extends far beyond its classrooms through its use of natural resources, its interactions with community partners, and most importantly, through its ability to build excitement and capacity in students from all backgrounds to address climate change in their future careers and personal lives.

Tackling climate change may seem like a monumental task, but school districts are uniquely positioned to make positive, tangible changes that will reduce greenhouse gas (GHG) emissions and prepare the community for climate impacts. Schools can improve the natural environment and reduce costs through smart, sustainable purchasing and responsible use of land, energy, water, and materials. Schools can also create healthy environments for children, who are often more vulnerable to poor air quality and other negative climate impacts. By accelerating these types of sustainability initiatives, SLCSD can contribute toward global climate action while achieving its own mission and vision (see Table 1). The district's goals closely align with those of the community it serves as well as the global community of which it is a part.

TABLE 1: GLOBAL TO LOCAL SUSTAINABILITY GOALS

GLOBAL	LOCAL	AT SCHOOL
IPCC Special Report on Global Warming of 1.5 °C	Salt Lake City Climate Positive 2040, Sustainable Salt Lake Plan 2015, and SLCDPU Water Conservation Plan 2020	SLCSD Sustainability Resolution and Board of Education Mission and Vision
To avoid devastating impacts on ecosystems, human health, food security, water supply, and other systems, the global temperature increase must be limited to 1.5°C from pre-industrial levels. This means global emissions must reach net zero around 2050. (IPCC, 2018)	**Sustainable Salt Lake Plan 2015 Highlighted Goals:** • Improve air quality to protect community health and our environment. • Develop a strong education system through appropriate assessments and best practices. • Cultivate a community of lifelong learners - ready for college, careers, and civic life. • Increase local food production and access to fresh and healthy foods. • Increase recycling and eliminate waste by 2040. • Maintain a safe and healthy natural and human environment. **Climate Positive 2040 Goals:** • 100% renewable electricity for community supply by 2030 • 80% reduction in community greenhouse gas emissions by 2040, compared to 2009 **SLC Department of Public Utilities Water Conservation Plan 2020:** • Reduce per capita water use by 6.9% in 2025 and 11.3% in 2030 with a long term goal of 22.3% reduction.	**Mission Statement:** Salt Lake City School District cultivates a love of learning in a diverse and inclusive school community, committed to educational excellence and integrity. In collaboration with families and community, we hold high expectations for all students, respond effectively to individual needs, and provide a safe, healthy environment in which every student can learn the academic, problem-solving, and social skills required for success in college, career, and life. **Vision Statement:** Excellence and Equity: every student, every classroom, every day **Sustainability Resolution Goals:** • 100% renewable electricity by 2030 • 100% carbon neutral energy by 2040

HISTORY OF SUSTAINABILITY AT SLCSD

SLCSD has a history of improving its sustainability through energy and water efficiency improvements, renewable energy procurement, waste reduction, local food sourcing, and green cleaning (Figure 2). These sustainability actions have enabled the district to reduce its carbon footprint, save hundreds of thousands of dollars, and create healthier learning environments.

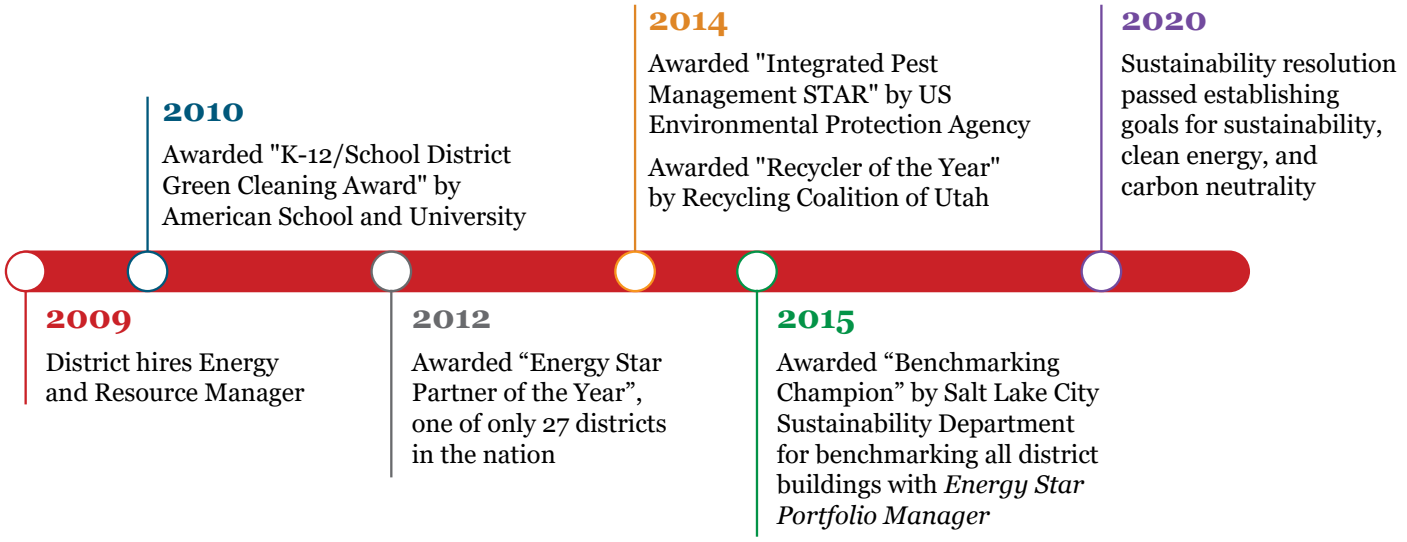


FIGURE 2: SUSTAINABILITY LEADERSHIP OVER THE YEARS

These significant accomplishments laid a solid foundation for SLCSD’s sustainability journey. However, to meet the goals set forth in the sustainability resolution, SLCSD will need to significantly accelerate its sustainability progress. As part of this planning process, SLCSD modeled where it would be in relation to its goals if it continued at its current level of effort over the next 20 years and RMP meets its carbon reduction goals. The combined impact of these efforts is that the district will be over halfway to meeting both its 100% renewable electricity by 2030 (54% renewable electricity in 2030) and its carbon neutral by 2040 goals (58% reduction in carbon emissions from 2019 baseline). The purpose of this plan is to fill the gap in this scenario, enabling SLCSD to think and act big, propelling itself toward a clean energy and carbon-neutral future. For more information about the assumptions made in this scenario analysis see Appendix A.

PLANNING PROCESS: SUSTAINABILITY LEADERSHIP TASK FORCE

This Sustainability Action Plan was powered by students, from beginning to end. In 2020, students from three district high schools collaborated to create a sustainability resolution that was presented to and approved, unanimously, by the Salt Lake City School District Board of Education. The resolution called on community members, students, energy experts, partners, and district staff to come together to develop a sustainability action plan to address the climate crisis. Over the following year, this plan was developed as one of the largest mobilizations around a common cause the district has ever seen.

The planning process began with the formation of a Sustainability Leadership Task Force, which included students, faculty, staff, and community partners. As outlined in the resolution, Paul Schulte, Executive Director of Auxiliary Services, chaired the Task Force. Once established, the Task Force formed subcommittees that each met 3-4 times in early 2021. Each subcommittee was tasked with creating a draft proposal for addressing one of the nine action areas outlined in the resolution. The subcommittee members are listed in the Acknowledgements section, and the action areas are summarized below.

1. **Sustainability Education**

   Resolution Action Area: "proposed practices addressing areas such as sustainability education and professional development, green purchasing, waste reduction, energy-saving initiatives, and community partnerships"

2. **New Schools**

   Resolution Action Area: "a proposed program to ensure that new schools and district buildings are built and refurbished using environmentally sound building materials, efficient use of energy, water and other resources"

3. **Existing Building Upgrades**

   Resolution Action Area: "a proposal for applying sustainable building criteria when making improvements and addressing maintenance orders in existing buildings"

4. **Energy Efficiency and Renewable Energy**

   Resolution Action Area: "a district-wide proposal to improve the energy efficiency of schools, to increasingly rely on clean, renewable energy sources to power the district's facilities, and to ultimately transform schools into independent power producers by investing in clean renewable technologies such as solar and wind"

5. **Integrated Pest Management (IPM)**

   Resolution Action Area: "a proposed integrated pest management program to minimize or eliminate the use of hazardous pesticides and herbicides in schools"

6. **Recycling and Composting**

   Resolution Action Area: "a proposal for creating or expanding the district's recycling and composting programs, along with the procurement of recycled office and classroom supplies"

7. **Least Toxic Cleaning Materials**

   Resolution Action Area: "a proposed plan to purchase and use the least toxic cleaning materials"

8. **Farm-to-School**

   Resolution Action Area: "the potential for developing a farm-to school program to bolster the nutritional value of the district's school lunch program"

9. **Funding Partners**

   Resolution Action Area: "a proposal for pursuing outside funding partners and leveraging available incentive programs in the corporate community in order to offset the financial impacts of meeting"

10. **Transportation**

    This action area was added to meet the district's goal of 100% carbon free energy by 2040, to ensure that energy use by district vehicles is also from a renewable energy source.

More than 50 actions were identified by the Task Force subcommittees, and each was evaluated based on impact and feasibility. The top priority actions for each sustainability strategy are outlined in this plan and all additional actions can be found in Appendix C. The committee will continue to meet annually to review impact of sustainability actions and identify actions for the coming year. For more on this process, see the Long-Term Implementation and Continuous Improvement section of this document.

MOVING FORWARD EQUITABLY

The 2040 Sustainability Action Plan outlines a pathway toward sustainable schools that elevates excellence and equity by preparing all students to tackle the climate crisis and ensuring safe, healthy learning environments for students from all backgrounds. Equity is often pushed to the fringe of the sustainability conversation, leaving those with louder voices and more resources to benefit from sustainability improvements, while those who may be underrepresented or underserved bear the burden of additional costs for new projects, culturally irrelevant programs, or other negative unintended consequences.

EQUITY CONSIDERATIONS

SLCSD believes that every child deserves to learn in a school with clean air and water, nutritious food, spaces to engage with nature, and opportunities to get involved with sustainability. Look for the heart holding hands icon [🤲] for equity considerations, including best practices, resources, and key questions to ask during plan implementation.

To combat these types of inequities, SLCSD will reference Appendix B: Equity Worksheet when creating new initiatives identified within the plan strategies and priority actions. The Equity Worksheet includes a series of questions intended to highlight and address systemic injustices related to the initiative. This is intended to facilitate an ongoing conversation, keeping in mind that equity is not a checkbox but rather an approach requiring daily practice.

The following sections of this plan provide data and additional narrative describing where SLCSD is starting from, detail the six key strategies necessary for achieving SLCSD's goals, and outline an implementation approach to ensure that the plan stays off the shelf and helps the district move toward a sustainable future.


Go green!
RECYCLABLES ONLY


FARM
RAISED
EAFOOD
The Difference
TRADER
JOE'S
GREENHOUSE GROWN

WHERE ARE WE NOW?

To better help the district target its strategies to meet its renewable electricity and carbon free goals, the district's energy use and greenhouse gas (GHG) emissions are shown below. Since 2020 data was likely significantly influenced by COVID-19 restrictions, FY18-19 was used as the district baseline.

GREENHOUSE GAS (GHG) EMISSIONS

SLCSD owns and maintains 43 buildings, including 28 elementary schools, 6 middle schools, and 3 high schools, with a combined area of more than 4.5 million square feet. Energy use in these buildings is by far the largest source of GHG emissions. The total greenhouse gas (GHG) emissions from district energy use (from buildings and transportation combined), was 33,216 metric tons of carbon dioxide equivalents (MT CO2e) in FY18-19. To put this in perspective, it would take approximately 64 square miles of forest to capture this amount of carbon each year (Environmental Protection Agency, 2021). The district's total emissions, broken out by emissions source, is shown in Figure 3.

TERM CHECK

Carbon Neutral Energy: This term is used to refer to energy that is generated without release of greenhouse gases (GHGs). GHGs are measured in carbon dioxide equivalents (CO2e), which translates the global warming impact of other gases into the equivalent amount of carbon dioxide (CO2). The majority of the district's GHG emissions are from CO2, but methane (CH4) and nitrous oxide (N2O) are also included in the emissions calculations. This methodology is consistent with standard GHG reporting protocols.

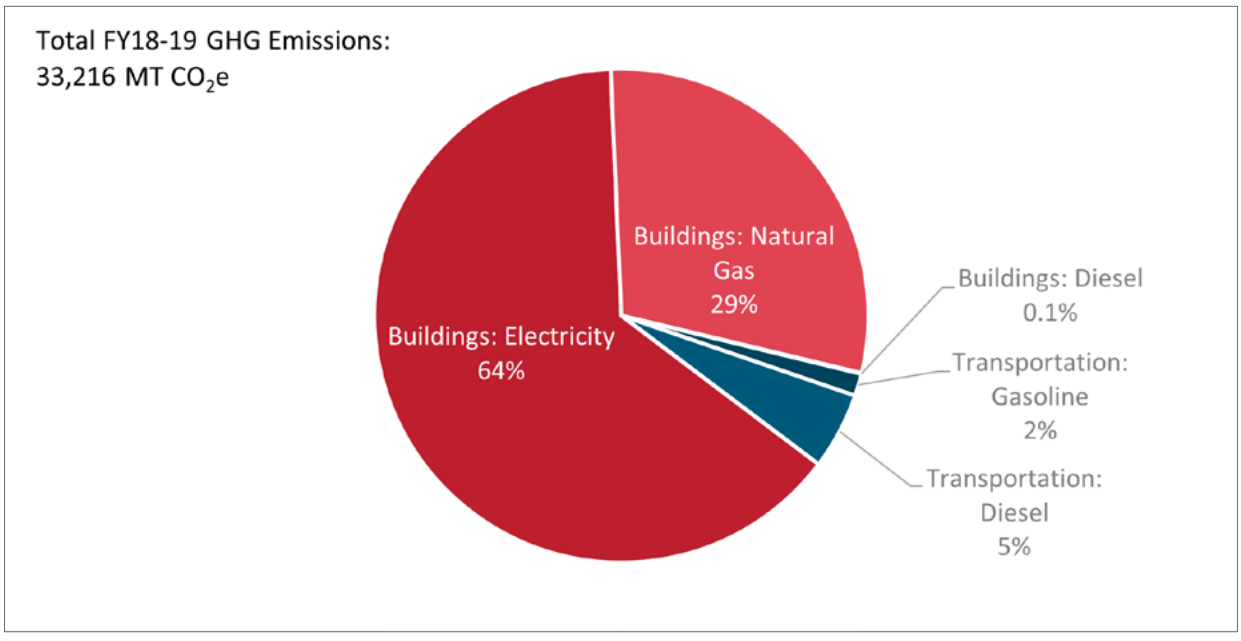


FIGURE 3: FY18-19 GHG EMISSIONS FROM ENERGY USE

Since the district does not anticipate that any new schools will be added or that there will be any significant growth over the next 20 years, the district's GHG emissions are expected to stay relatively constant without any additional action taken. This is shown by the business-as-usual line in Figure 4.*

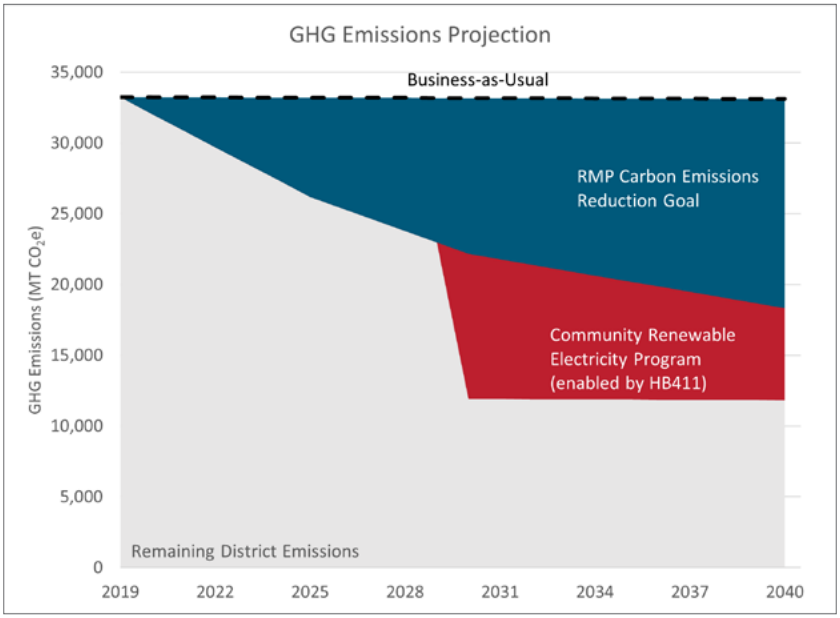


FIGURE 4: PROJECTED DISTRICT GHG EMISSIONS THROUGH 2040

Electricity is provided to the district by Rocky Mountain Power (RMP), which has made commitments to reduce the carbon emissions from their operations by 80% by 2045 as shown in Figure 5. This carbon reduction initiative from RMP is anticipated to reduce the district's emissions by about 45%, as represented by the blue wedge in Figure 4 above.

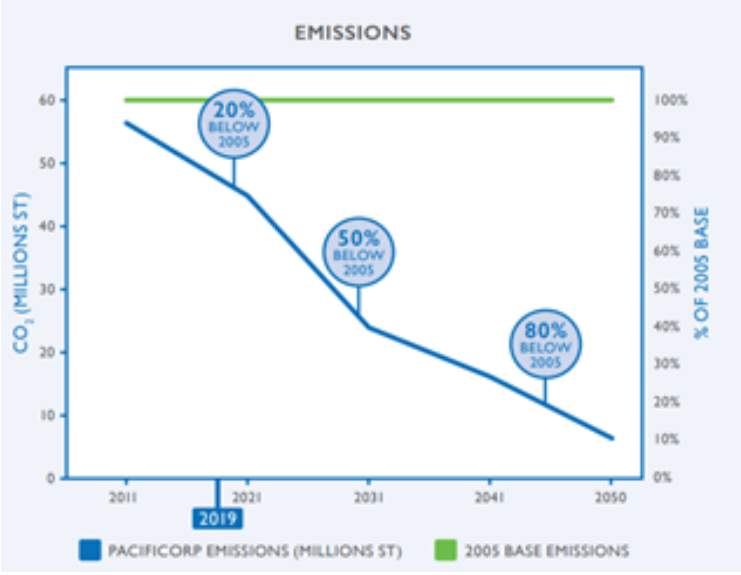


FIGURE 5: ROCKY MOUNTAIN POWER CARBON REDUCTION GOALS

**Calculations shown in this plan are based on the 2019 IRP. The 2021 IRP document was recently released and shows more aggressive renewable energy targets. For more information visit: pacificorp.com/energy/integrated-resource-plan.html.*

The other major external factor that may affect progress toward the district sustainability goals is the HB 411 Community Renewable Energy Act. This legislation enables communities that opt in to create the Community Renewable Electricity Program to procure 100% renewable electricity from RMP by 2030. Customers living in these communities can choose to receive 100% renewable energy at the agreed-upon rate or to opt out of the program. Salt Lake City has chosen to opt into the Community Renewable Electricity Program and is working with other participating communities to determine the terms of the agreement with RMP. Once the details are finalized, the district may be able to purchase 100% renewable energy from the RMP. This will allow the district to meet its 100% renewable electricity by 2030 goal and make significant progress toward its carbon neutral goal. The impact of the Community Renewable Electricity Program on the district's GHG emissions is shown by the red wedge in Figure 4. If the district can procure renewable electricity through the Community Renewable Electricity Program, its total emissions will be reduced by about 64%. It should be noted that details of the Community Renewable Electricity Program are still in the negotiation phase, so the district will need to continue to consider all of the renewable energy options. A proposal is expected to be presented to the Utah Public Utilities Commission by the end of 2021, with a decision from the commission expected in late 2022.

BUILDING ENERGY USE

Since 93% of the district's emissions come from building energy use, this plan will focus on these emissions sources. To better understand the energy efficiency of the district's schools, building Energy Use Intensity (EUI) was calculated for each school based on FY18-19 utility data. The district average EUI was 63 kBtu/sq. ft., which is higher than the mean EUI for K12 school nationally of 48.5 kBtu/sq. ft.

Figure 6 shows the EUI range for each building type in the district. In this graph, the line in the middle of each box shows the median EUI value and the lines extending from the top and bottom shows the range of values.

Greg Libecci accepting Energy Star Partner of the Year awarded in Washington DC, on behalf of Salt Lake City School District.

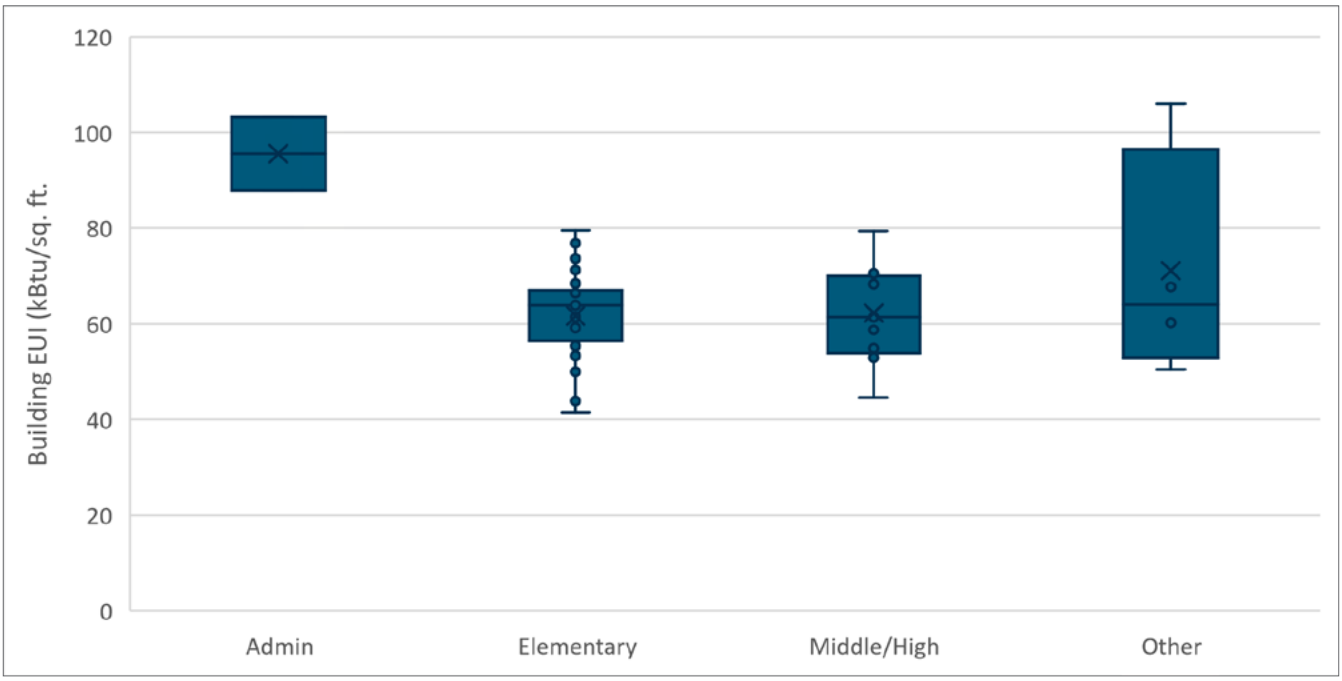


FIGURE 6: EUI RANGE SHOWN BY BUILDING TYPE

This shows that there is a significant range between the best- and worst-performing schools, from an energy efficiency perspective. For example, the least efficient elementary school uses almost twice the energy per square foot than the most efficient school. It should be noted that schools that have significant afterschool activities will have a higher EUI than a school with shorter hours of operation. For more details of energy use by school, see Appendix A.

SUSTAINABILITY SUCCESS STORY:
WASTE TO RENEWABLE NATURAL GAS

Salt Lake City School District partnered with Momentum Recycling to pilot a food waste project at Wasatch Elementary. The food waste is transported to the Wasatch Resource Recovery bio-digester facility located in North Salt Lake. Here, they breakdown the food waste to create methane that is then converted to Natural Gas and sold to Dominion Energy. Natural gas created this way is a renewable energy source.

This project reduces the carbon emissions that would have been released if the food waste was sent to the landfill and provides homes and businesses in the Wasatch valley an opportunity to use renewable energy to heat their homes and businesses.

Fast Facts

Average of 1,010 lbs. of food waste recycled per month

Over the course of the pilot (since Dec 2019)

- ✓ Over 9,000 lbs. of food recycled
- ✓ 1.9 MT CO_2e avoided
- ✓ Totals reduced due to COVID-19 stay- at-home orders.

BUILDING ENERGY EFFICIENCY AND EQUITY

Building performance can have a significant impact on the student learning environment and is a key tool in promoting equity across the district. In many cases, an energy efficient school can provide a better learning environment for its students. For example:

1. High efficiency insulation and high-quality windows can reduce cold drafts, increasing the comfort of students and teachers in the classroom.
2. Heating and air conditioning systems with carbon dioxide (CO_2) sensors can control the amount of outside air provided, based on the number of people in the space, helping ensure good indoor air quality. High CO_2 levels have been shown to impair learning and decrease productivity (Satish, Mendell, & Shekhar, 2012).
3. LED lighting is free from the flickering, buzzing, and humming produced by fluorescent lights that can produce negative mental or physical effects.

Figure 7 shows energy performance of district schools, along with the poverty rates in the neighborhoods they serve. Investing in the building performance of schools in underserved neighborhoods can be a good way to promote equity across the district.

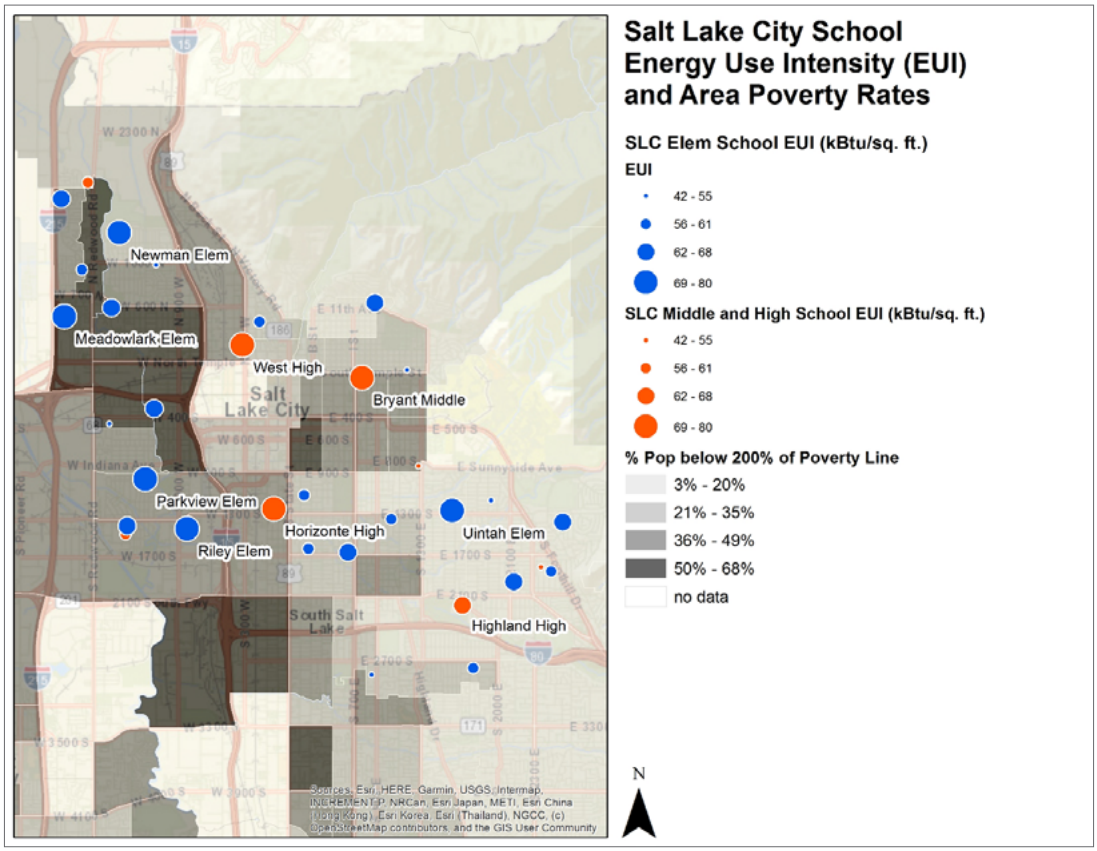


FIGURE 7: SCHOOL PERFORMANCE SHOWN WITH POVERTY RATE OF THE NEIGHBORHOODS THEY SERVE

DISTRICT WATER USE

In FY18-19, the district used almost 195 million gallons of water for indoor water use and landscape and turf irrigation. Water use per school can be found in Appendix A. Benchmarking water use against typical school performance is difficult because only a few schools have irrigation submeters that allow for separation of indoor water use and landscape and turf irrigation water use. For schools where irrigation is sub-metered, indoor water use is significantly higher than median water use for typical k12 schools. This indicates that there may be opportunity for water efficiency measures and highlights the need for additional submetering to monitor water use. Indoor water use can be reduced by installing WaterSense Certified sinks, toilets, urinals, and other water using equipment. These fixtures use less water, which reduces water use as well as associated water use and sewer charges.

BUILDING UTILITY COSTS

In FY18-19, the district spent about $5.6 million on utilities. The breakout between electricity, natural gas, and water costs is shown in Figure 8. The water costs shown here include sewer and stormwater costs. For a more detailed breakout of utility costs by school, see Appendix A.

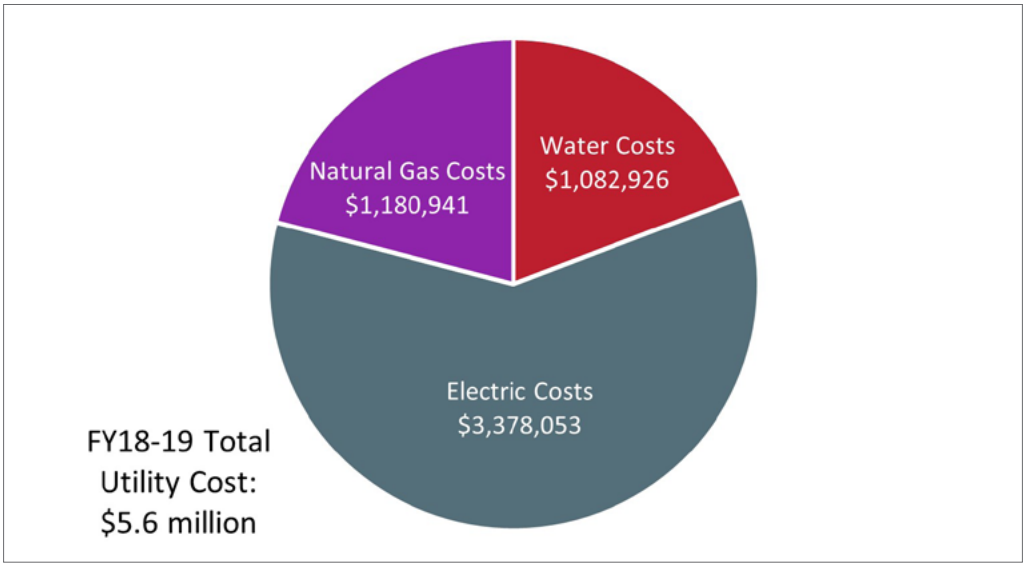


FIGURE 8: DISTRICT UTILITY COSTS

In FY18-19, 60% of district utility costs came from electricity use in buildings; and, that percentage will only increase as more loads are shifted from natural gas to renewable electricity to meet the district's carbon neutral goals. It will be important for the district to monitor and manage electricity use patterns, in all buildings, with peak demand or time-of-use charges to manage utility costs effectively.

TRANSPORTATION ENERGY USE

Although transportation energy use makes up a small percentage of total GHG emissions, vehicle emissions are a major contributor to local air quality. As shown in Table 2, the majority of transportation fuel use at the district is for diesel school buses, which have a greater impact on air quality as compared to light-duty gasoline vehicles.

TABLE 2: FY18-19 TRANSPORTATION FUEL USE, COST, AND EMISSIONS SNAPSHOT

FY18-19 Fleet	Buses	Light Duty Fleet
Number of vehicles	105	135
Gasoline (gallons)	0	55,285
Diesel (gallons)	157,071	6,325
Estimated Fuel Costs ($)	$500,800	$185,700
GHG Emissions (MT CO2e)	1,600	550
Pounds of Air Pollutants[1]	6,580	2,470

[1] *Air pollutants measured include CO, NOx, PM2.5, PM10, VOC based on assumptions from AFLEET tool: https://afleet.es.anl.gov/afleet/*

Fuel use from district off-road vehicles and equipment (e.g., lawn mowers, string trimmers, leaf blowers) is not included in the data above. This two-stroke engine equipment burns fuel less efficiently than vehicle engines do, resulting in more harmful air pollutants.

SUSTAINABILITY SUCCESS STORY:
ELECTRIC SCHOOL BUSES

The district has leveraged more than $1.5 million in grant funding from the Utah Department of Environmental Quality (DEQ) to purchase four electric school buses, with an additional four on order, and install the necessary charging infrastructure. These buses are the first electric school buses to be used in the state. Since the buses have zero tailpipe emissions, they will eliminate local air pollutants from bus transit and reduce GHG emissions by more than 60% (Argonne National Labratory, 2021). These electric school buses will be used on routes on the west side of the city where air pollution is of greater concern.

> *"These first four, we've got some routes in mind to run them in Rose Park area where we've got the dirtiest air in the state. So hopefully that'll help us with that issue." – Ken Martinez*

To charge the new school buses, charging stations and a solar canopy will be installed at the transit center. This charging center will be able to accommodate up to 16 buses when it is fully built out.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HOW ARE WE GOING TO GET THERE?

Each of the six strategies identified in this plan work to improve the district's sustainability in different ways. Figure 9 shows that strategies identified addresses sustainability at different levels, ranging from addressing global climate change through significant GHG emissions reductions, to improving local air quality through reducing burning of fossil fuels, to reducing toxins and pollutants in school buildings. More details on how these strategies promote sustainability at all levels is outlined below.

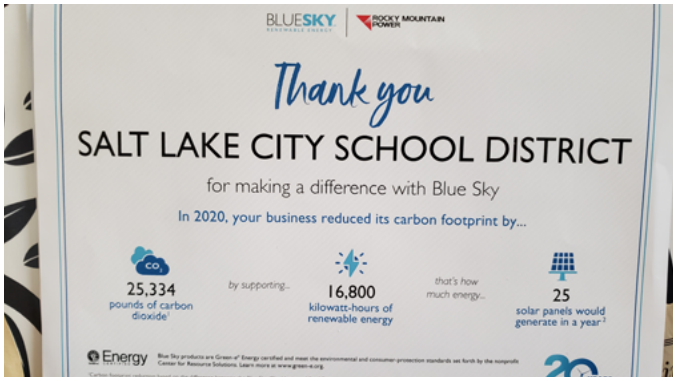

FIGURE 9: STRATEGY IMPACT ON SUSTAINABILITY BY SCALE

SUSTAINABILITY SUCCESS STORY:
GREEN RIBBON SCHOOL

In 2020, Bonneville Elementary was recognized as a U.S. Department of Education Green Ribbon School for efforts to address the three pillars of the program: reducing environmental impact and utility costs, improving health and wellness, and ensuring effective sustainability education. This award is intended to highlight promising school sustainability practices and resources that other schools can employ. Honored schools are announced each spring and awardees are invited to a fall ceremony in Washington, D.C. where they receive a sustainable plaque; receive media attention; and have their efforts celebrated.

Bonneville Elementary Sustainability Highlights

- ✓ Energy Star Certification
- ✓ Lowest energy usage in Salt Lake City School District
- ✓ Water-wise practices inside and outside the school
- ✓ School gardens to attract local pollinators and grow produce for the school
- ✓ Anti-idling signs
- ✓ Professional development trainings, related to sustainability and environmental studies, completed by several teachers

More details are available here.

Reduce Building Energy and Water Use by 20% by 2025.

- ✓ Complete District-Wide Energy Efficiency Upgrades
- ✓ Improve Irrigation and Culinary Water Efficiency
- ✓ Develop Building Standards for all New Construction
- ✓ Develop a Program to Educate District Faculty and Staff on Energy and Water Conservation Behaviors

Provide 100% Electricity from Renewable Sources by 2030.

- ✓ Install Solar and Storage in Place of Diesel Generators
- ✓ Review On-site Solar PV Opportunities
- ✓ Evaluate HB411 for Cost Effectiveness

Transition Building Systems to All-Electric Equipment by 2040.

- ✓ Retrofit Two Pilot Schools to All-Electric Systems
- ✓ Create an All-Electric Appliance Policy
- ✓ Provide Controls Training for Maintenance Staff to Effectively Manage Building Energy Demand

Electrify School Buses, Light-duty Fleet, and Off-road Vehicles by 2040.

- ✓ Continue to Leverage Grant Funding to Electrify Bus Fleet
- ✓ Encourage the Use of Public Transportation
- ✓ Optimize Light Duty Fleet and Investigate the Option to Lease Vehicles

Provide Sustainability Education for All Students Through an Intentionally Designed PK-12 Curriculum Continuum by 2025.

- ✓ Implement a Sustainability Curriculum
- ✓ Provide Sustainability Education Opportunities for District Faculty and Staff
- ✓ Establish School Green Teams
- ✓ Expand Outdoor Learning Environments
- ✓ Engage the Community Around Sustainability

Standardize Best Practices in Creating a Safe and Healthy Learning Environment Across All Schools by 2025.

- ✓ Prioritize Local and Sustainable Food for School Meals
- ✓ Standardize Recycling Best Practices Across All Schools
- ✓ Standardize Green Cleaning Practices Across All Schools
- ✓ Standardize IPM Best Practices Across All Schools
- ✓ Create Sustainable Procurement Standards to Guide All District Purchases
- ✓ Plant Trees Strategically Across the District
- ✓ Create an Indoor Air Quality Procedure that Requires Regular Scheduled Reporting To Schools

FIGURE 10: STRATEGIES AND PRIORITY ACTIONS

GLOBAL CARBON EMISSIONS

The sustainability resolution's two main goals of 100% renewable energy by 2030 and carbon neutral energy by 2040 are focused on mitigating the district's impact on global climate change by eliminating the district's carbon emissions. The district's path to carbon neutral is outlined in Figure 11. This diagram illustrates that the first 75% of carbon emissions reduction can be achieved through energy efficiency and renewable energy strategies. These strategies typically result in cost savings to the district or require a small investment. The last two strategies to electrify the district's vehicles and buildings will require a larger capital investment, based on current technology and retrofit costs.

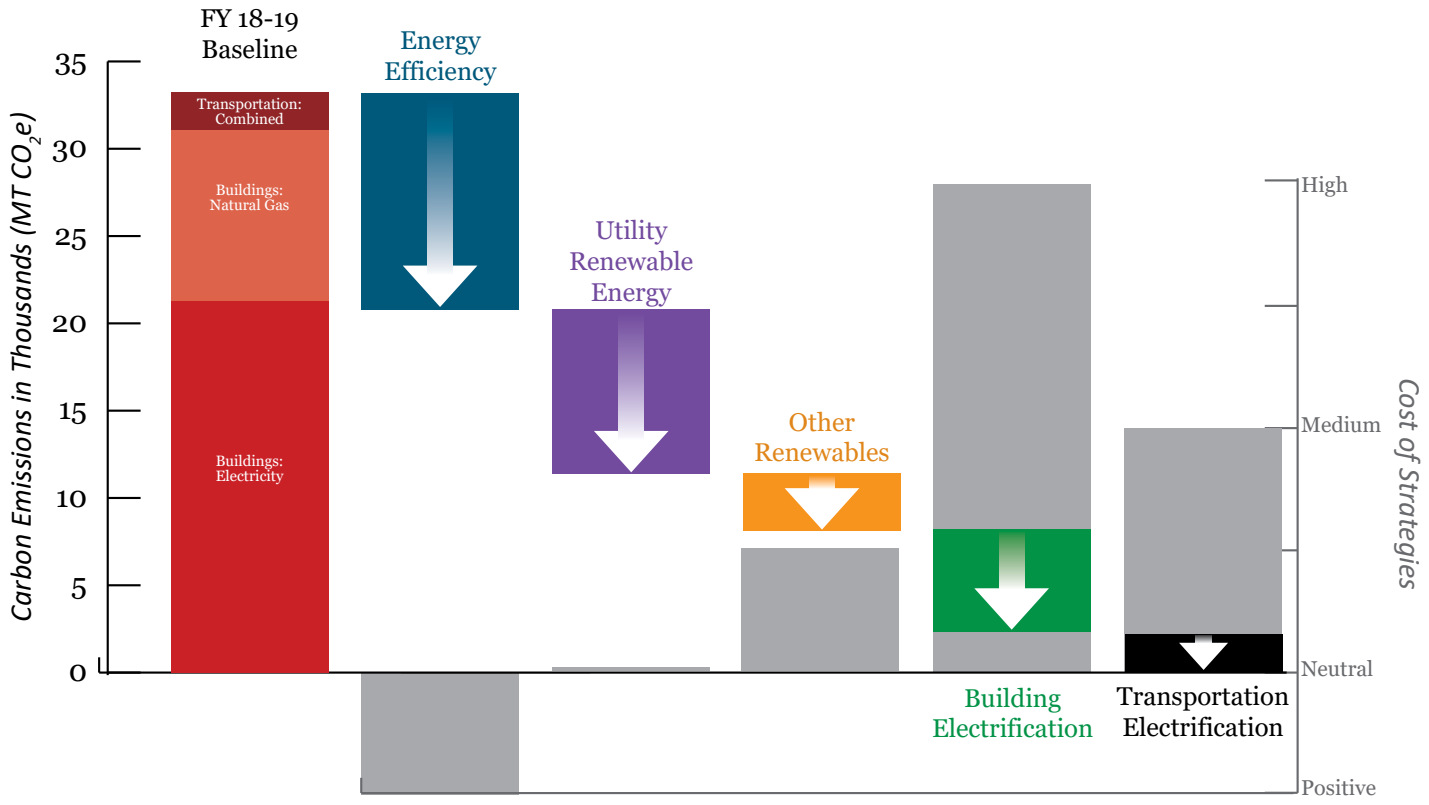

FIGURE 11: GHG EMISSIONS REDUCTIONS AND RELATIVE COST BY STRATEGY

This diagram highlights the three major strategies to reduce the district's GHG emissions.

1. Improve Building Energy and Water Efficiency by 20% by 2025
2. Provide 100% Electricity from Renewable Energy Sources
3. Transition Building Systems to All-Electric Equipment by 2040

There is also a small contribution from electrification of fleet vehicles, but this has a stronger impact on local air quality (as discussed in the next section).

LOCAL ENVIRONMENTAL IMPACT

Other strategies identified in this plan are more focused on reducing impact on the local environment, including air quality, water use, and waste. The two strategies that contribute significantly toward these efforts are:

1. Reduce water and energy use by 20% by 2025.
    - Especially water savings targets to support local water conservation efforts.
2. Electrify School Buses and Light-duty Fleet Vehicles by 2040.
3. Standardize Best Practices in Creating a Safe and Healthy Learning Environment Across All Schools by 2025.
    - Especially sustainability action around farm-to-school local food procurement, and recycling and composting waste reduction programs.

HEALTHY AND SAFE LEARNING ENVIRONMENT AT SCHOOL

The last group of strategies strives to elevate the district's level of excellence in creating a safe and healthy learning environment, as well as comprehensive sustainability education to develop the next generation of sustainability conscious adults. Strategies that are integral to supporting these efforts:

1. Provide sustainability education for all students through an intentionally designed PK-12 curriculum continuum by 2025.
2. Standardize Best Practices in Creating a Safe and Healthy Learning Environment Across All Schools by 2025.
    - Especially sustainability actions around best practices in integrated pest management (IPM) and using least-toxic cleaners.

Each of these strategies will be implemented in a phased approach to allow the district to review progress and revise strategies based on which strategy types are working well, along with evolving technology. For more information about this process, see the Implementation section. The sustainability strategies and priority actions are listed in Figure 10 with more details in the following sections.

SUSTAINABILITY SUCCESS STORY:
INTEGRATED PEST MANAGEMENT

In 2005, the Facility Services Department began a comprehensive Integrated Pest Management (IPM) Program to eliminate health and environmental threats caused by pests and the use of harmful pesticides. Integrated Pest Management (IPM) uses common sense practices to discourage pest development and manage pest damage with the least possible hazard to people, property, and the environment. IPM principles include education and communication, culture and sanitation practices, physical and mechanical control, and the use of the least toxic pesticides.

Fast Facts

Since the implementation of IPM, SLCSD has been able to:

- ✓ Eliminate the use of pesticides by over 90%.
- ✓ Save $32,000 in annual pest management contracts.
- ✓ Certify all Head Custodians as IPM site coordinators.
- ✓ Educate maintenance, grounds, child nutrition, school administrators, teachers, and the community on IPM principals.


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REDUCE BUILDING ENERGY AND WATER USE BY 20% BY 2025.

Key Performance Indicators	FY18-19 Baseline
Average EUI	63 kBtu/sq. ft.
Annual Water Use	195 million gallons
Utility Cost per Student	$249

It is important to address building energy efficiency first, when seeking to reduce buildings' carbon footprint, for several reasons:

1. Cost Effectiveness: Energy efficiency projects can often have a short (1–5-year) payback period due to utility bill savings.
2. Available Incentives: Most energy efficiency projects will qualify for utility incentives, increasing cost effectiveness.
3. Building Performance: Energy efficiency upgrades often have co-benefits of improving building thermal comfort, lighting, or ease of maintenance. This improves the built environment for all students and staff working in the building. One example of this benefit is replacing fluorescent lighting with LED fixtures. LED lighting does not produce the flickering, buzzing, or humming that negatively impacts some people.

HISTORY OF SUSTAINABLE ACTION

Over the last 10 years, the school district has completed energy efficiency projects with a cumulative energy savings of 42.4 million kBtu or about 22% of the district's current building energy use. For these energy efficiency projects, the district has received approximately $637,000 in utility incentives. The estimated energy savings for past energy efficiency projects as well as the utility incentives received is shown in Figure 12. These projects have included boiler tune-ups, boiler replacements with higher efficiency units, lighting upgrades to LED lights, and equipment controls optimization. These energy efficiency improvements led to the district being Awarded "Energy Star Partner of the Year" in 2012, one of only 27 districts nationwide to receive this honor. The district was also named "Benchmarking Champion" by Salt Lake City Sustainability Department for benchmarking all district buildings with Energy Star Portfolio Manager in 2015.

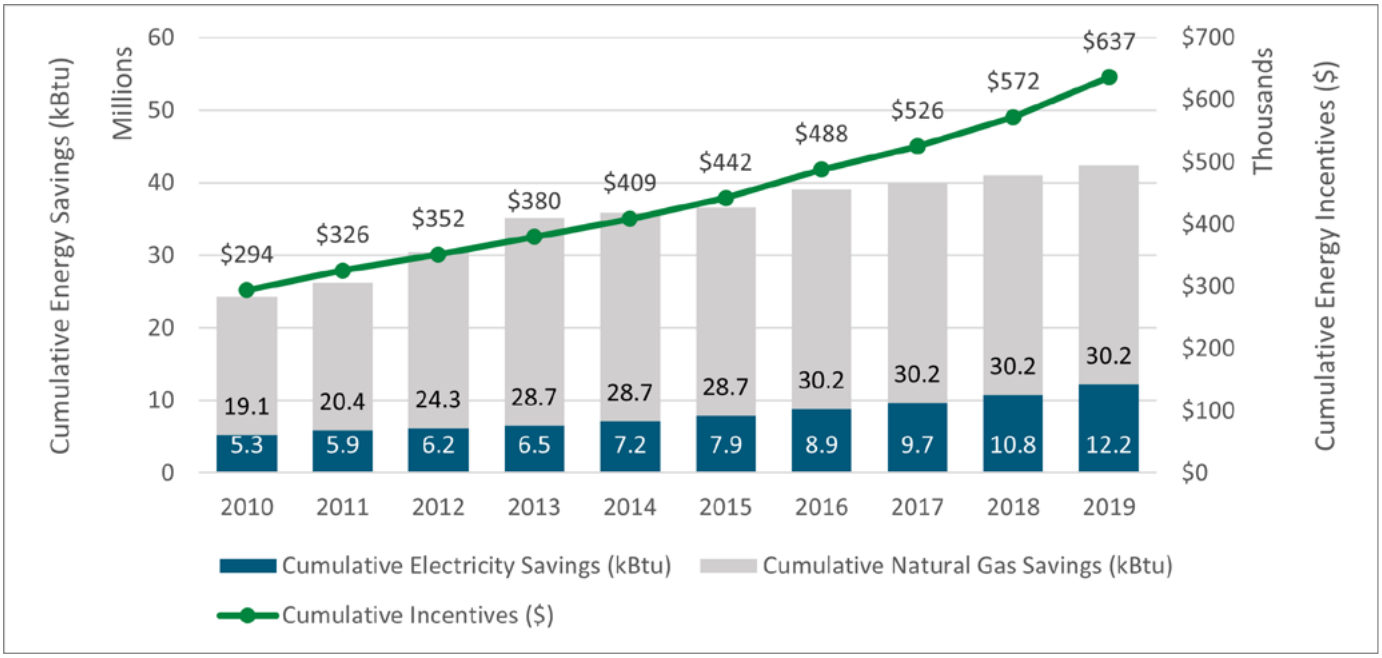


FIGURE 12: CUMULATIVE IMPACT OF ENERGY EFFICIENCY PROJECTS 2010-2019

The district has begun installation of WeatherTRAK irrigation controllers at select school across the district. These controllers use site-specific weather data to adjust the irrigation schedule based on rainfall patterns. This helps avoid overwatering during rainy weather. The system can provide a real-time report of water use to allow the district to better monitor and manage irrigation water use. Additional training of district staff will be required to take full advantage of this feature.

For all new construction, the district currently has a policy to build all buildings a minimum of 10% more energy efficient than required by current building code. Current new construction standards used to meet this policy include LED lighting, advanced lighting controls, and white reflective membrane roof material. To meet the district's energy goals, a more aggressive new construction policy will be required. The task force working group explored best practices in building net zero energy schools; their findings are documented in Appendix D as draft new building specifications.

PRIORITY ACTIONS

The following actions have been identified to be completed during Phase 1 for this strategy.

1. COMPLETE DISTRICT-WIDE ENERGY EFFICIENCY UPGRADES

SCOPE

Complete energy and water efficiency projects with a short payback at all schools. Energy conservation measures include:

- LED Lighting and Controls
- Domestic Water Fixture Upgrades
- Retro-commissioning to Optimize Equipment Controls

IMPLEMENTATION RESOURCES

- Rocky Mountain Power Wattsmart Incentives
- Dominion Energy ThermWise Incentives

2. IMPROVE IRRIGATION AND CULINARY WATER EFFICIENCY

SCOPE

Opportunities to improve water efficiency might include:

- Train grounds staff to leverage new irrigation controller software to manage irrigation water use.
- Continue to reduce the amount of Kentucky Bluegrass in non-essential areas, replacing it with Xeriscaping (drought tolerant plants). This transition will include the necessary adjustments to the irrigation system.
  - » Evaluate school garden programs and alternative landscape options and estimate water savings vs. Kentucky Bluegrass and associated maintenance costs.
  - » Target areas will include parking and curb strip replacement.
- Work with SLC Public Utilities and create ‘irrigation budgets’ for district green acres.
- Install WeatherTrak irrigation systems at schools that don’t yet have advanced systems.
- Add irrigation-specific meters at schools that have single ‘combination’ irrigation and culinary meters.
- Install low flow faucets, urinals and toilets.

IMPLEMENTATION RESOURCES

- Central Utah Water Conservation District incentives
- SLC Public Utilities

3. DEVELOP BUILDING STANDARDS FOR ALL NEW CONSTRUCTION

SCOPE
Develop a set of standards, to which all new buildings will be built, on net zero energy principals and best practices in water efficiency. See Appendix D for draft standards developed by the new building subcommittee.

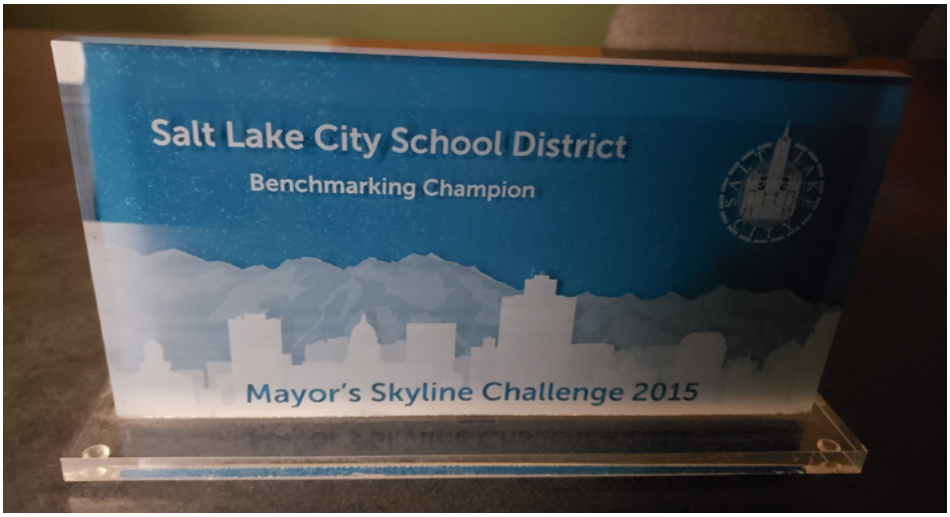
IMPLEMENTATION RESOURCES
- Rocky Mountain Power Wattsmart Incentives
- Dominion Energy ThermWise Incentives

EQUITY CONSIDERATIONS

When providing opportunities to use energy improvements as an educational activity for students, look for and remove barriers that may prevent students from participating.

4. DEVELOP A PROGRAM TO EDUCATE DISTRICT FACULTY AND STAFF ON ENERGY AND WATER CONSERVATION BEHAVIORS

SCOPE
Create a program to educate all building occupants on best practices in energy and water efficiency, to support energy and water saving efforts in capital improvement projects.



US House Representative, Jim Matheson, presenting Energy Star Label to Hillside Middle School.

200 kW photovoltaic solar array on school bus protective canopy.

PROVIDE 100% ELECTRICITY FROM RENEWABLE SOURCES BY 2030.

Key Performance Indicators	FY18-19 Baseline
Renewable Energy Percentage	18%
Average Electric Rate	$0.11/kWh

One of the goals set forth in the district's sustainability resolution is to ensure that all electricity use in district facilities is procured through renewable energy sources. In the current utility energy mix, 18% of total electricity generation comes from renewable energy sources, which is mainly from the utility electricity generation mix. Rocky Mountain power has set carbon reduction goals of 59% by 2030 and 74% by 2040 as compared to their 2005 baseline. Based on the utility's current generation mix and projects outlined in their 2019 Integrated Resource Plan, it is estimated that this will result in about 53% of all electricity delivered by the utility coming from renewable energy resources by 2030.* This means, the district needs to procure or produce about 47% of total electricity use from renewable sources to meet its renewable energy goals. It should also be noted that the utility plans to continue to add renewable energy to its generation mix, so the amount of renewable energy the district will need to provide will decrease over time. As the District considers its renewable energy options, it should keep in mind the growing utility renewable energy percentage. There may also be an opportunity to include some more flexible renewable energy procurement options, along with on-site procurement, to allow the district flexibility as grid energy becomes cleaner.

**Calculations shown in this plan are based on the 2019 IRP. The 2021 IRP document was recently released and shows more aggressive renewable energy targets. For more information visit: pacificorp.com/energy/integrated-resource-plan.html.*

HISTORY OF SUSTAINABLE ACTION

The district has on-site solar PV installed at 9 sites throughout the district, totaling 362.49 kW of generation capacity. Table 3 below shows each installation size and estimated annual generation. This generation accounts for less than 1% of the district's total electricity energy use.

TABLE 3: DISTRICT SOLAR INSTALLATIONS

Location	Capacity (kW)	Annual Energy Production (kWh)
Mt View CLC	60.25	81,200
Rose Park	2.0	3,400
Meadowlark	41.58	44,900
Liberty	14.0	22,600
Edison	28.16	45,100
Hillside*	5.5	8,400
SLCSE*	5.5	8,400
Glendale*	5.5	8,400
Transportation	200	269,500
Total	362.49	491,900

RENEWABLE ENERGY PROCUREMENT OPTIONS

There are two main ways the district might procure the additional renewable energy required to meet their goal. For any renewable energy procurement option, the district should be sure to retain the RECs. These procurement options focus on rooftop solar and utility scale solar and wind as they are currently the most cost-effective opportunity for renewable energy generation to meet the district's needs. Small scale wind could be considered at select sites as an educational opportunity or as technology evolves.

1. **On-Site Generation:** Install solar photovoltaic panels on school buildings or other school property.

   Procurement Options:

   - Purchase: Under this model, the district pays for the cost of the system up front, and owns and operates the system.
   - Physical Power Purchase Agreement (PPA): With a PPA, the district signs a long-term contract with a third-party seller who agrees to build, maintain, and operate a renewable energy system on the district's property. The district then purchases the power at a set price over an agreed-upon term.

Pros: This option provides the potential for the solar installments to be used in sustainability curriculum and would also allow the generation to be paired with batteries to provide backup power in the case of a power outage - improving building resiliency.

Cons: Smaller rooftop solar installations tend to be more expensive than utility scale projects and, depending on the funding option, the district may be responsible for equipment maintenance.

Other considerations: Ensure that when solar panels are installed on a building roof the roof is newer - to avoid having to remove the panels for roof repairs.

2. **Off-site Renewable Energy Procurement:** Purchase renewable energy through an off-site procurement option.

   Procurement Options:

   - Virtual PPA: Like on-site PPA agreements, these are typically long-term contracts to purchase renewable electricity at an agreed-upon rate. In a virtual agreement, the generation source does not need to be onsite or even in the same grid region. It is important to ensure that the purchase of this renewable energy results in additional renewable energy generation being built. Recently, Vail Resorts in Colorado used a virtual PPA to help meet its 100% renewable energy goals. More information can be found here.
   - Utah House Bill 411 Community Renewable Energy Act: This legislation directs the Public Service Commission to implement a 100% renewable energy plan for communities that opt into the program by 2030. Salt Lake City has currently opted into the program, but the details of the agreement are still being worked out. Assuming this plan goes through, the district can procure 100% renewable electricity from the utility. The coalition of communities and RMP will file a program application, jointly, to the Utah Public Service Commission this winter, and expect a decision by fall 2022 on whether the Community Renewable Electricity Program, enabled by HB411, is approved. The potential cost implications of this agreement are not yet known.
   - Utility Subscription Program: Rocky Mountain Power's Blue Sky program offers renewable energy for an additional cost of $1.95 per 200 kWh, with discounts available for bulk purchases.

   Pros: Off-site renewable options mean the district doesn't have to maintain equipment, and some options offer more flexibility in adjusting the renewable energy procurement to meet the district's needs.

   Cons: The renewable energy is not on site, so there isn't an opportunity to use in the education process; and it can be more difficult to message the benefits to the community.

DECISION TREE FOR RENEWABLE ENERGY OPTIONS

This decision tree (Figure 13) is designed to help the district screen renewable energy option when considering actions to meet its renewable energy goals.

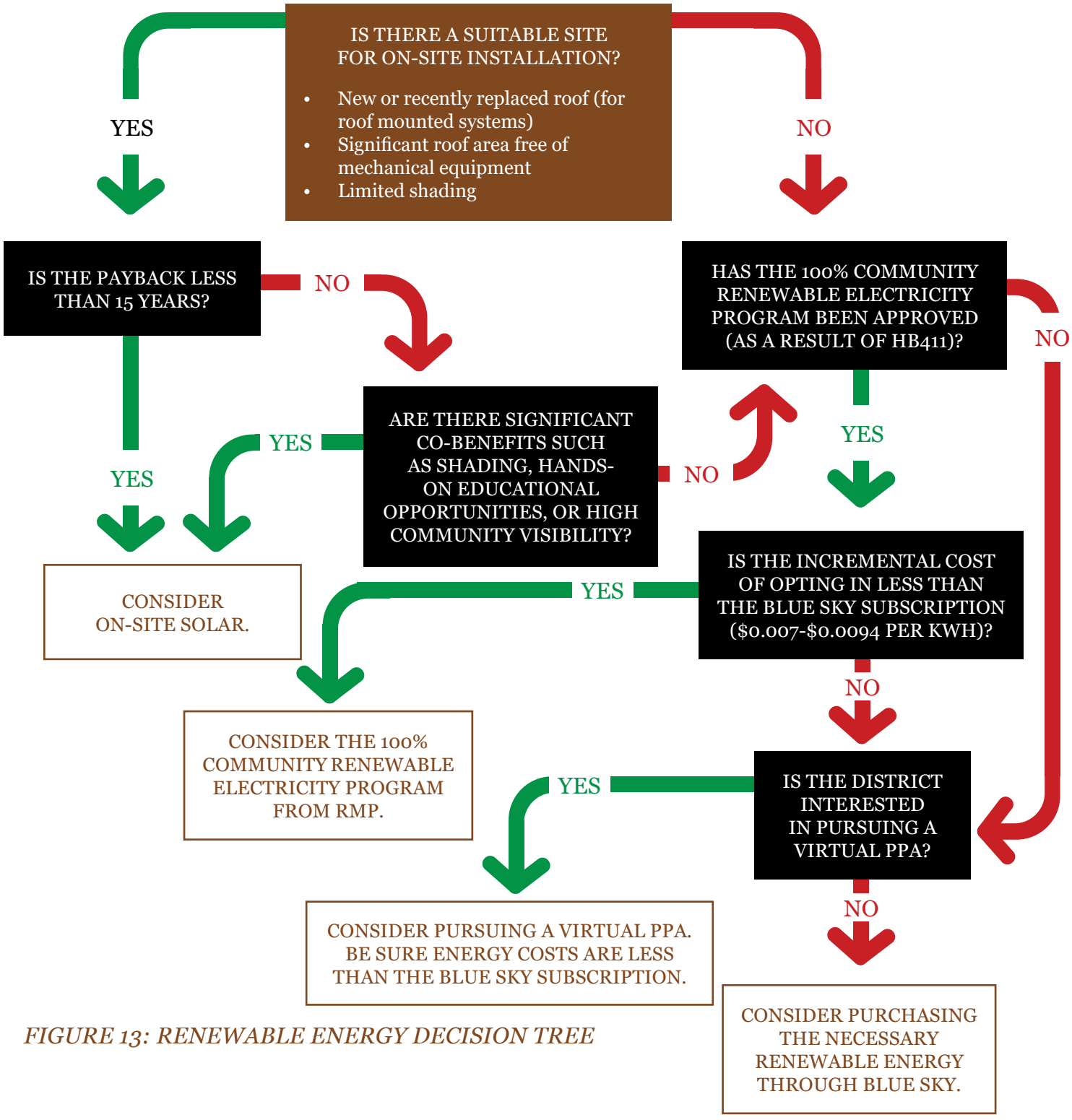


FIGURE 13: RENEWABLE ENERGY DECISION TREE

PRIORITY ACTIONS

1. INSTALL ON-SITE SOLAR.

SCOPE
Review portfolio of district buildings and conduct cost-benefit and structural engineering analysis to determine which are appropriate for immediate installation. Develop a plan to install the most beneficial opportunities.

EQUITY CONSIDERATIONS

Prioritize on-site generation at schools for all schools, providing exposure to renewable energy technologies and associated career pathways in neighborhoods where this may not currently be available or where renewable energy is scarce.

IMPLEMENTATION RESOURCES

- Rocky Mountain Power Blue Sky Program and Custom Solutions

2. EVALUATE ON-SITE ENERGY STORAGE OPPORTUNITIES.

SCOPE
Investigate, in conjunction with on-site solar, on-site batteries for energy storage as an option for replacing current diesel back-up powered generators. Review should include a conduct cost benefit analysis comparing installation costs with potential energy savings opportunities such as peak shavings to reduce building peak energy demand costs.

IMPLEMENTATION RESOURCES

- Rocky Rocky Mountain Power WattSmart Battery Program
- FEMA Grant

3. EVALUATE HB411 FOR COST EFFECTIVENESS.

SCOPE
As details of HB411 are finalized, evaluate program cost effectiveness as compared to on-site solar opportunities and Blue Sky subscription programs - to inform district's renewable energy strategy.

TRANSITION BUILDING SYSTEMS TO ALL-ELECTRIC EQUIPMENT BY 2040.

Key Performance Indicators	FY18-19 Baseline
Annual Natural Gas Use	1.8 million therms
Annual Generator Diesel Use	1,394 gallons

Natural gas use in buildings makes up about 30% of the district's total GHG emissions from energy use. To eliminate these emissions and meet the district's goal of carbon neutral by 2040, the district will need to transition natural gas heating, hot water, and cooking systems to electric equipment. In addition to carbon emissions reduction, elimination of natural gas combustion in schools can increase school safety by avoiding the potential for natural gas leaks. There are also benefits to local and indoor air quality. Combustion in residential and commercial buildings contribute about 27% of air pollutants, including PM 2.5and ozone in the Wasatch valley (Envision Utah, 2021).

Building electrification generally requires significant upfront investment and needs to be done thoughtfully to avoid significant increases in utility costs. Table 4 below shows the likely systems replacements although final determination should be made on a school-by-school basis.

TABLE 4: ELECTRIC ALTERNATIVES FOR BUILDING SYSTEMS

Existing System	Preferred All-electric Alternative
Space Heating	
Natural gas boiler	Geo-thermal heat-pump system (note this also provides high-efficiency cooling)
Roof-top unit	Air-source heat pump (note this also provides high-efficiency cooling)
Other Equipment	
Natural gas hot water heater	Tankless electric hot water heater
Natural gas kitchen equipment	All electric models

While the district's preference would be to electrify all buildings, there may be some specific situations where this is not the best option. The district may choose to leverage a small carbon budget (up to 10% of the district's current GHG emissions or 3,300 MT CO2e) that may be covered through the purchase of carbon offsets. The district may choose to leverage this carbon budget if:

- The school or equipment systems are due for replacement or major retrofit shortly after 2040 at which time they will be replaced with all-electric systems.
- The incremental difference between the total cost of ownership of an all-electric system is greater than the cost to purchase carbon offsets for system emissions over the life of high-efficiency natural gas equipment.
- All-electric equipment is not commercially available for the application.

HISTORY OF SUSTAINABLE ACTION

The district does not currently have any all-electric schools.

PRIORITY ACTIONS

1. RETROFIT TWO PILOT SCHOOLS TO ALL-ELECTRIC SYSTEMS.

SCOPE
Choose two pilot schools to retrofit to all-electric systems, allowing the district to better understand the requirements as well as have proof of concept to leverage for future funding opportunities.

EQUITY CONSIDERATIONS

Prioritize electrification for schools in neighborhoods with poorer air quality.

IMPLEMENTATION RESOURCES
- Rocky Mountain Power Wattsmart Incentives

2. CREATE AN ALL-ELECTRIC APPLIANCE POLICY.

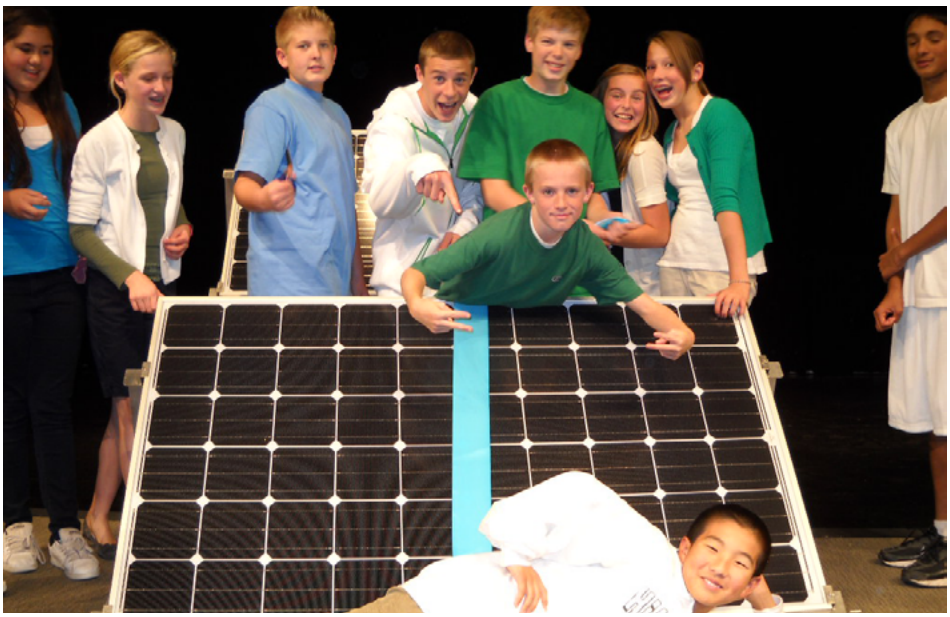
SCOPE
Create a purchasing procedure or policy that after a specified date only ENERGY STAR or high-efficiency all-electric equipment will be purchased for all school appliances.

IMPLEMENTATION RESOURCES
- Rocky Mountain Power Wattsmart Incentives

3. PROVIDE CONTROLS TRAINING FOR MAINTENANCE STAFF TO EFFECTIVELY MANAGE BUILDING ENERGY DEMAND.

SCOPE

Provide professional development training to allow facilities staff to effectively manage the district's building automation system for electricity demand management, which will become increasingly important as more systems are electrified.




SCHOOL BUS
E-450
ELECTRIC
Hankook
UTAH
531495

ELECTRIFY SCHOOL BUSES, LIGHT-DUTY FLEET, AND OFF-ROAD VEHICLES BY 2040.

Key Performance Indicators	FY18-19 Baseline
Annual Vehicle Fossil Fuel Use	281,681 gallons

Because of the geography of the Salt Lake City area, air pollutants released in the valley are often trapped by a layer of warm air, causing significant air quality concerns in the area. The Salt Lake Valley has been designated a serious non-attainment area for 24-hour PM2.5 by the EPA since 2017. PM 2.5 is a class of air pollutants that are fine particulate matter of less than 2.5 micrometers in diameter. Because these particles are so small, they can easily enter residents' lungs. Short-term exposure can cause throat and lung irrigation, coughing, and shortness of breath. Longer-term exposure has been linked with chronic bronchitis and asthma. Children can be especially susceptible to these health concerns because their heart and lungs are still developing.

One of the top sources of PM2.5 pollutants is internal combustion engine (gasoline- and diesel-powered) vehicles. Converting these vehicles to electric vehicles can be a good strategy to combat local air pollution because all-electric vehicles have no tailpipe emissions.

The school district fleet breakout is shown in Figure 14 by vehicle type as of 2020, showing school buses as the largest category. School buses and sedans currently have the most electric vehicle options for replacement. Options are starting to become available for light trucks and vans, but electric dump trucks and snowplows are not commercially available yet.

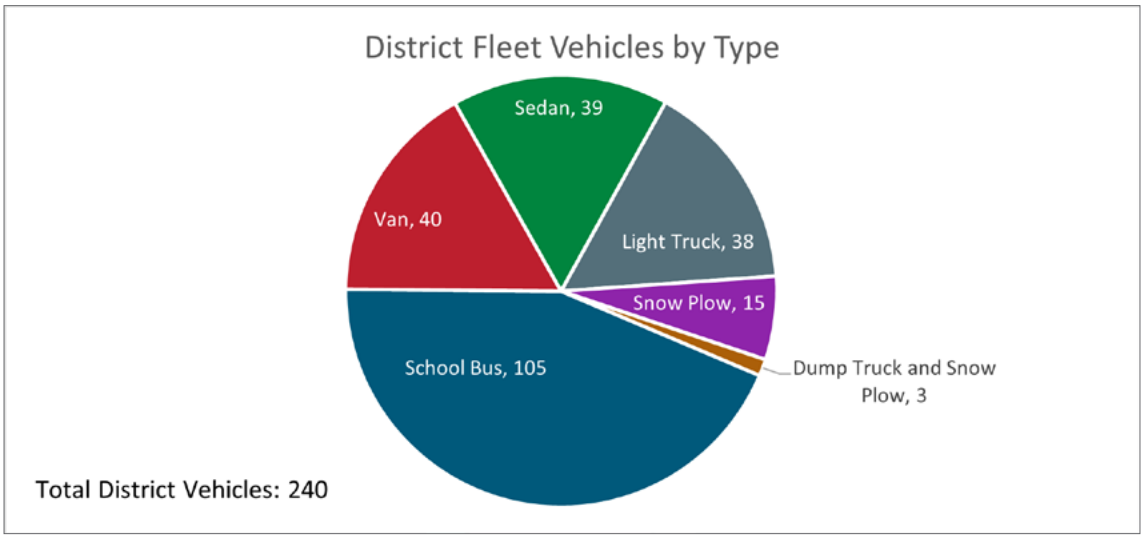


FIGURE 14: FLEET BREAKOUT BY VEHICLE TYPE

The school district also has several lawn mowers, string trimmers, and leaf blowers that run on 2-stroke engines that are used by maintenance staff across the district. All-electric options are available for much of this equipment.

STEPS FOR INTENTIONAL ELECTRIFICATION

A recent study from the Rocky Mountain Institute found that fleet managers who create an intentional electrification strategy for their fleet can save 50% or more on the total cost of fleet electrification. These cost savings come from intentional planning of fleet infrastructure installations as well as cost savings from optimization of fleet charging (Rocky Mountain Institute, 2021).

Some of the keys to success highlighted by this study include:

1. Developing an organization-wide group to plan fleet electrification and associated charging infrastructure.
2. Engaging with electric utilities early to identify service upgrade requirements and understand how to take advantage of utility rates to minimize charging costs.
3. Creating a plan to manage charging, which may include “charging as a service” options.
4. Updating budgeting processes to track and understand the total cost of ownership for fleet vehicles, to better inform decision making.

HISTORY OF SUSTAINABLE ACTION

In 2020, the district purchased 4 electric school buses using a grant from the Utah Department of Environmental Quality. These buses are used for student transportation on the west side of Salt Lake City where students experience a higher level of air pollution.

PRIORITY ACTIONS

1. CONTINUE TO LEVERAGE GRANT FUNDING TO ELECTRIFY BUS FLEET.

SCOPE
Apply to for grant funding through local or federal sources to continue purchasing new electric buses and retire old diesel buses. Be sure to coordinate with Rocky Mountain Power on charging needs and the best electric rates, to manage charging costs.

IMPLEMENTATION RESOURCES
- Utah Department of Environmental Quality

EQUITY CONSIDERATIONS

Prioritize electric buses in neighborhoods with poorer air quality.

2. ENCOURAGE THE USE OF PUBLIC TRANSPORTATION.

SCOPE
Develop a program to encourage staff and students to take public transportation to school. This program may include transit vouchers, incentives, education campaigns, and/or fleet vehicles for transportation between sites during the day.

EQUITY CONSIDERATIONS

Consider neighborhoods' accessibility to bus routes when developing public transportation incentives or other program features.

3. OPTIMIZE LIGHT DUTY FLEET AND INVESTIGATE THE OPTION TO LEASE VEHICLES.

SCOPE
Review the current use patterns and operational needs of light-duty fleet vehicles. Create a plan to optimize the number and type of vehicles, to best match the district's needs. Since vehicle needs and uses can vary over time, increasing the vehicle turnover rate can help better match the fleet to the district's needs. One option for increasing the vehicle turnover rate may be leasing some or all of the district's vehicles rather than purchasing them.


ENERGY STAR
Hillside Middle School
2011
KSL TV

PROVIDE SUSTAINABILITY EDUCATION FOR ALL STUDENTS THROUGH AN INTENTIONALLY DESIGNED PK-12 CURRICULUM CONTINUUM BY 2025.

Key Performance Indicators	FY18-19 Baseline
Percent of Students Participating in Sustainability Curriculum	0%

Education is the catalyst for creating sustainable systems. By providing comprehensive sustainability education for all students, SLCSD can empower students to make healthier and more efficient choices as they use resources and enable them to see their future careers through a lens that acknowledges how ecosystems, social dynamics, and economic forces intersect and interact.

This strategy focuses on establishing organizational structures that support a common sustainability education vision across SLCSD schools and departments.

HISTORY OF SUSTAINABLE ACTION

Over the years, sustainability concepts have played an increasing role in student curricula, educators' professional development, and extracurricular organizations and activities. SLCSD has embraced the tremendous opportunity to teach students about ecological sustainability, environmental health and nutrition; to meet math, science, and social studies standards by integrating environmental education; and to support students in becoming leaders as they make their own schools healthier and more ecologically friendly. Efforts to date include the following:

- Sustainability concepts are included in Utah's Science with Engineering Education (SEEd) Standards.
- SLCSD high schools offer courses in Environmental Science.
- A group of educators have pursued coursework in sustainability and shared their learnings with peers.
- Environmental clubs have been established at several SLCSD schools.
- Several student science and engineering projects have focused on sustainability and climate change.
- SLCSD works closely with Wasatch Gardens to facilitate community school gardens and provide direct teaching and learning opportunities for students. Schools currently involved in Wasatch Gardens include Backman, Emerson, Escalante, Mary Jackson, The Open Classroom, Meadowlark, Mountain View, Riley, Rose Park, and Washington Elementary.
- Six schools have student or community gardens – Beacon Heights, Bonneville, Indian Hills, Liberty, Nibley Park, and SLCSE.
- Two schools have a greenhouse – Dilworth and Newman.

PRIORITY ACTIONS

1. IMPLEMENT A SUSTAINABILITY CURRICULUM.

SCOPE
Adopt and implement a Sustainability Curriculum by:

- Completing an audit of sustainability-related secondary courses.
- Completing an audit of resources available that support sustainability education.
- Improving course offering and opportunities for students.
- Amplifying career technical education (CTE) pathways that intersect with the District Sustainability Vision.

EQUITY CONSIDERATIONS

Consult local community organizations to incorporate cultural considerations into new curricula.

2. PROVIDE SUSTAINABILITY EDUCATION OPPORTUNITIES FOR DISTRICT FACULTY AND STAFF.

SCOPE
Provide sustainability education opportunities for SLCSD faculty and staff by:

- Auditing current practices.
- Establishing a Sustainability Staff Team to act as liaison between the Sustainability Manager and individual schools.
- Sharing professional learning and resources.

IMPLEMENTATION RESOURCES

- Utah Society for Environmental Education

3. ESTABLISH SCHOOL GREEN TEAMS.

SCOPE
Establish Green Teams as school clubs at all secondary schools, to develop a supportive system for student-driven innovation and advocacy that facilitates:

- A pipeline of sustainability projects for students to work on.
- Mentoring program connecting secondary and elementary students around sustainability topics.
- Participation in a Sustain Utah roundtable of high school students from across Utah.
- Advocacy for Utah State Board of Education (USBE) support for sustainability in educational settings.
- Funding requests for sustainability projects.
- Student participation in sustainability internships.

EQUITY CONSIDERATIONS

Evaluate what additional resources are needed to support Green Teams in communities where public transportation is scarce and cost-prohibitive, such as fare for transportation to and from afterschool activities.

4. EXPAND OUTDOOR LEARNING ENVIRONMENTS.

SCOPE

Link K-12 instruction to an outdoor learning experience by:

- Establishing a Garden Sustainability Task Force in partnership with Wasatch Community gardens and Child Nutrition to coordinate education with garden expansion.
- Ensuring every garden has a space dedicated as an outdoor classroom or learning environment.
- Tying in health and science components, including education on the purpose of the Fresh Fruit and Vegetable Program.
- Establishing an agricultural internship with Utah State University or Westminster College.
- Developing entry level agricultural college course for high school / college credit hours during the summer.
- Evaluate school grounds and identify appropriate space for creating outdoor learning environments.

EQUITY CONSIDERATIONS

Incorporate culturally affirming vegetables and farming methods into school garden programming and ensure garden staffing is equitable across the district.

IMPLEMENTATION RESOURCES

- Wasatch Community Gardens
- Utah State University
- Westminster College

5. ENGAGE THE COMMUNITY AROUND SUSTAINABILITY.

SCOPE

Engage the community around sustainability by:

- Establishing School Sustainability Councils.
- Exploring opportunities for community education on sustainability through the website, events, signage.
- Exploring opportunities for citizen science involvement.
- Encouraging the community to support recycling efforts at sporting events and other activities open to the community.
- Coordinating with Wasatch Community Gardens on community education efforts.

EQUITY CONSIDERATIONS

Engage local community leaders to inform messaging and language used in educational materials to ensure the messages are culturally affirming and relevant, and to help share the materials through their own networks.

STANDARDIZE BEST PRACTICES IN CREATING A SAFE AND HEALTHY LEARNING ENVIRONMENT ACROSS ALL SCHOOLS BY 2025.

Key Performance Indicators	FY18-19 Baseline
Percent of Spending on Local Foods (including milk)*	20%
Annual Landfilled Waste	Not currently tracked
Percent Green Seal or EPA Certified Cleaners	80%
Percent reduction in pesticide use through IPM	90%

Safe and healthy learning environments are largely determined by the materials that students breathe, eat, and touch. Choosing and using food and materials in a sustainable way can also result in cost savings, educational opportunities, community partnerships, and other co-benefits. For example, eliminating pesticide use through integrated pest management (IPM) reduces student exposure to toxic chemicals, saves the district money, and protects ecosystems.

This strategy focuses on establishing best practices across the district around the sustainable procurement, use, maintenance, and disposal of food and materials.

* *Based on USDA Farm-to-School census results: https://farmtoschoolcensus.fns.usda.gov/census-results/states/ut/salt-lake-school-district-84119*

HISTORY OF SUSTAINABLE ACTION

SLCSD has successfully undertaken many initiatives to create safe and healthy learning environments.

Efforts to date include the following:

SUSTAINABLE FOOD

Existing SLCSD programs focus on sourcing food locally to bolster the nutritional value of the district's school lunch program and supporting healthy food options for students and their families.

- The Utah State Board of Education (USBE) Child Nutrition Program works with SLCSD to create partnerships with local farmers to increase consumption of locally grown foods. For example, SLCSD works with local dairy farmers through Dairy West to host virtual student field trips; and, during the month of October SLCSD celebrates "Apple Crunch Month" and includes locally grown apples on the menu.
- The USDA's Fresh Fruit and Vegetable Program is offered at 16 Title I Schools.
- SLCSD works with the Utah Food Bank and Utahns Against Hunger to provide meals to families in low-income communities.

RECYCLING

SLCSD's past and current waste initiatives focus on finding ways to give materials a second life through recycling, one of the key components of a circular economy.

- Paper and cardboard: All classrooms have containers to recycle paper and all schools have on-site dumpsters provided and serviced free of charge. SLCSD receives quarterly reports for each school and $30 per ton collected. The collected material is converted into attic and wall insulation sold locally at Home Depot and Lowes. District recycling efforts average about 40 tons of paper recycled per month, resulting in a payment of $15,000 reinvested in schools.
- Mixed plastics and metals: All schools have on-site containers for plastic and metal, including beverage containers and aluminum cans.
- Metal (large items): The Auxiliary Services Department has a 30-yard roll-off container permanently located on site. Items that are not serviceable and that contain at least 30% metal content can be deposited in this container.
- Electronics: The Warehouse/Purchasing Department manages electronics recycling, including computers, printers, copy machines, phones, and batteries.
- Miscellaneous: Individual schools have various recycling initiatives they are managing independently. Items include plastic bags, pop tops, ink cartridges, etc.
- Food Waste: SLCSD has conducted two pilot compost programs for food waste to be sent to a regional biodigester facility in North Salt Lake. Here, the food waste is ultimately converted to natural gas used for heating homes in Utah and the by-product of this process is compost fertilizer.

TERM CHECK

Circular Economy: A circular economy rethinks how we use our resources by designing out waste and pollution, keeping materials in use, and regenerating natural systems.

These ongoing efforts earned SLCSD "Recycler of the Year" by Recycling Coalition of Utah in 2014.

GREEN CLEANING

By using the least toxic cleaning materials, SLCSD has been able to create healthy indoor air

quality. These efforts are critical for the short- and long-term health of students and staff, impacting attendance, comfort, and performance.

- 80% of cleaners, degreasers and detergents have Green Seal or EPA Safer Choice Certification.
- 100% of sanitizer/disinfectants are either EPA Certified, Sustainable, or contain the least toxic active ingredients to date.
- Green certified floor waxes are used in three SLCSD facilities, and process improvements have been made districtwide to reduce the long-term toxicity (of waxes) to the environment.
- Gym floor finishes meet or exceed state and federal compliance levels of VOC (volatile organic compound) which is 250 grams per liter.

For its ongoing efforts to use green cleaners in its school, the district was awarded "K-12/School District Green Cleaning Award" by American School and University in 2010.

INTEGRATED PEST MANAGEMENT (IPM)

SLCSD's IPM program is focused on minimizing or eliminating the use of hazardous pesticides and herbicides in schools, while still preventing pest infestation and other interference. Since the IPM program began, 90% of pesticides have been eliminated and a draft Environmental Awareness, Responsibility and Sustainability policy is under review.

PRIORITY ACTIONS

1. PRIORITIZE LOCAL AND SUSTAINABLE FOOD FOR SCHOOL MEALS.

SCOPE

Continue partnering with local farmers and organizations to include providing local food in school meals, as well as providing educational opportunities for students to learn about where their food comes from. Provide alternative vegan or vegetarian meal options on every menu and, when possible, incorporate school garden vegetables.

IMPLEMENTATION RESOURCES

- Local farmers (e.g., Dairy West)
- Utah School Board of Education
- U.S. Department of Agriculture (USDA)
- Utah Food Bank
- Utahns Against Hunger

2. STANDARDIZE RECYCLING BEST PRACTICES ACROSS ALL SCHOOLS.

SCOPE

Leverage successful recycling programs from various schools to reduce landfilled waste across the district. This includes:

General Recycling: Establish a more formal recycling program that includes an annual budget, District Recycling Committee, district-wide recycling procedure; school-specific recycling strategies; and a tracking and reporting system. Ensure the program is paired with educational efforts for students, faculty, staff, and the community. To inform the development of this program, begin by conducting a recycling infrastructure assessment to determine the equipment and infrastructure needs on a school-by-school basis, as well as identify funding sources.

Recycling at Sporting Events: Implement recycling stations to capture plastic and metal beverage containers at Sporting Events at secondary schools.

Hard-to-Recycle Items: Engage teachers, administrators, and students to establish reuse and recycling programs in their schools for hard-to-recycle items - with support and oversight from the district.

Food Waste: Evaluate the compost pilot program's effectiveness and costs - to inform expansion of composting efforts. Facilitate collaboration between Custodial and Child Nutrition to reduce cafeteria waste by:

- Reducing food packaging or replacing with recyclable or compostable materials.
- Replacing milk cartons with a milk dispenser and reusable cups.
- Educating students on how to reduce food waste and compost.
- Using food waste for renewable energy through use of anerobic digestion in all schools.

IMPLEMENTATION RESOURCES

- Salt Lake Education Foundation to identify funding partners
- Waste and recycling vendors (e.g., ACE Disposal, Green fiber, Momentum Recycling)

3. STANDARDIZE GREEN CLEANING PRACTICES ACROSS ALL SCHOOLS.

SCOPE

Continue SLCSD's commitment to green cleaning practices through procurement, maintenance, and education. Specifically:

- Develop procurement standards for non-toxic custodial supplies and building materials (e.g., flooring) that can be maintained through non-toxic methods.
- Prioritize maintenance practices that reduce the use of toxic cleaning supplies and evaluate green cleaning practices on a regular basis to identify opportunities for improvement.
- Develop a certification process for custodians - that targets cleaning for health and combating pathogens - using the least toxic chemicals and best practices.
- Educate SLCSD staff on existing green cleaning practices through videos, new teacher trainings, and flyers.
- Share SLCSD's green cleaning programs, procedures, and testing results with the community to maintain transparency.

IMPLEMENTATION RESOURCES

- International Sanitary Supply Association (ISSA)
- Healthy Schools Campaign
- Health Department
- Utah Schools Custodial Management Association (USCMA)
- Environmental Protection Agency (EPA)
- Centers for Disease Control (CDC)
- Third party certifiers (e.g., microbiologists)
- Existing capital projects in SLCSD facilities

4. STANDARDIZE IPM BEST PRACTICES ACROSS ALL SCHOOLS.

SCOPE
Continue SLCSD's commitment to Integrated Pest Management (IPM) practices by expanding the existing, successful IPM program and providing education and training for students, faculty, staff, and the community. Specifically:

- Adopt the draft Environmental Awareness, Responsibility and Sustainability policy to assure implementation and application of IPM practices throughout the district as directed and administered by the Facility Services Department.
- Expand IPM program resources including a dedicated IPM vehicle and an IPM coordinator responsible for tracking and reporting toward IPM goals; developing and overseeing site-specific IPM plans; organizing training for teachers, administrators, food service, maintenance, transportation, and nurses; and other efforts to enhance the IPM program.
- Establish an IPM program for the Grounds Department, including an expanded mow crew, pesticide licensing, Integrated Weed Management (IWM), turf management, and water conservation.
- Provide opportunities for Head Custodians and Grounds staff to obtain non-commercial pesticide licenses.
- Educate SLCSD staff on existing green cleaning practices through videos and faculty and staff training.
- Share SLCSD's IPM program updates with the community, including progress toward targets, links to recent incidents, and summary IPM reports.

5. CREATE SUSTAINABLE PROCUREMENT STANDARDS TO GUIDE ALL DISTRICT PURCHASES.

SCOPE
Develop guidelines and standards to help inform district purchasing decisions to include a preference for items that are:

- Made from sustainable materials
- Can be reused and/or recycled
- Come from a local source

EQUITY CONSIDERATIONS

Consider including procurement guidance that supports businesses owned by people of color.

6. PLANT TREES STRATEGICALLY ACROSS THE DISTRICT.

SCOPE
Plant trees strategically on school grounds to provide shading during the summer. This will help reduce the urban heat island effect, providing a more comfortable outdoor play and learning area thereby increasing students' connection to nature. Additionally, if these trees also shade the school building, the cooling needs of the school will be reduced - decreasing energy costs and carbon emissions.

IMPLEMENTATION RESOURCES:
- Tree Utah
- Utah Society for Environmental Education (USEE)

EQUITY CONSIDERATIONS

Prioritize tree planting in neighborhoods with poorer air quality.

7. CREATE AN INDOOR AIR QUALITY PROCEDURE THAT REQUIRES REGULAR SCHEDULED REPORTING TO SCHOOLS.

SCOPE
Install sensors to monitor and report real-time air quality readings and create a procedure to report and address any areas with chronic poor indoor air quality issues.

IMPLEMENTATION RESOURCES:
- Environmental Protection Agency
- Tools For Schools

SUSTAINABILITY SUCCESS STORY:
PAPER RECYCLING

The school district partners with a local recycling company called GreenFiber to turn paper used in schools into attic insultation (Figure 10). Annually, district schools recycle more than 500 tons of paper and cardboard and receive over $1,500 for the effort. Homes throughout SLC add insulation, making their homes more comfortable and efficient while saving energy and money, and reducing their carbon footprint!

Students and teachers put used paper in the recycling bins → GreenFiber collects the recycled paper → The paper is shredded to make home insulation → The insulation is installed in homes throughout SLC, making them more energy efficient and comfortable.


DO NOT PARK

IMPLEMENTATION

Achieving the goals and strategies set forth in the sustainability resolution will require short-term (immediate) attention to the top priorities identified in this planning process (Phase 1), followed by a coherent series of implementation phases through 2040 and beyond. We will use a continuous improvement framework to check our progress annually and to plan and execute each subsequent phase.

PHASE 1 IMPLEMENTATION PLAN

Of all the actions analyzed in this planning process, Phase 1 captures the top priority actions needed to jumpstart implementation and put the district on a feasible pathway toward 100% Renewable Electricity and Carbon Neutrality that is the most fiscally responsible. Figure 17 below summarizes the Phase 1 priority actions across the plan's six strategies :

Reduce Building Energy and Water Use by 20% by 2025.

- ✓ Complete District-Wide Energy Efficiency Upgrades
- ✓ Improve Irrigation and Culinary Water Efficiency
- ✓ Develop Building Standards for all New Construction
- ✓ Develop a Program to Educate District Faculty and Staff on Energy and Water Conservation Behaviors
- ✓ Install LED Lighting with Advanced Controls Throughout District

Provide 100% Electricity from Renewable Sources by 2030.

- ✓ Install On-site Solar
- ✓ Evaluate On-Site Energy Storage Opportunities

Transition Building Systems to All-Electric Equipment by 2040.

- ✓ Retrofit Two Pilot Schools to All-Electric Systems
- ✓ Create an All-Electric Appliance Policy
- ✓ Provide Controls Training for Maintenance Staff to Effectively Manage Building Energy Demand

Electrify School Buses, Light-duty Fleet, and Off-road Vehicles by 2040.

- ✓ Continue to Leverage Grant Funding to Electrify Bus Fleet
- ✓ Encourage the Use of Public Transportation
- ✓ Optimize Light Duty Fleet and Investigate the Option to Lease Vehicles

Provide Sustainability Education for All Students Through an Intentionally Designed PK-12 Curriculum Continuum by 2025.

- ✓ Implement a Sustainability Curriculum
- ✓ Provide Sustainability Education Opportunities for District Faculty and Staff
- ✓ Establish School Green Teams
- ✓ Expand Outdoor Learning Environments
- ✓ Engage the Community Around Sustainability

Standardize Best Practices in Creating a Safe and Healthy Learning Environment Across All Schools by 2025.

- ✓ Prioritize Local and Sustainable Food for School Meals
- ✓ Standardize Recycling Best Practices Across All Schools.
- ✓ Standardize Green Cleaning Practices Across All Schools
- ✓ Standardize IPM Best Practices Across All Schools
- ✓ Create Sustainable Procurement Standards to Guide All District Purchases
- ✓ Measurement and Reporting of Indoor Air Quality (IAQ)
- ✓ Plant Trees Strategically Across the District
- ✓ Create an Indoor Air Quality Procedure that Requires Regular Scheduled Reporting to Schools

PRIORITY FUNDING

The sustainability resolution provides the following guidance for funding the actions required to meet the resolution goals and make progress in each of the proposal areas:

- Exercise sound financial management
- Lower financial outlay by exercising sound purchasing decisions
- Responsible stewardship of public funds
- Achieve in stages
- Pursue outside funding partners and leverage incentives

These principles were used throughout the planning process, through a cross-cutting funding team that met periodically to review strategies emerging from the various planning teams against available funding sources.

Table 5 summarizes the proposed main funding strategy and other supporting funding sources for each of the plan strategies.

TABLE 5: FUNDING SOURCES BY STRATEGY

Strategy	Implementation Cost	Main Funding Source	Supporting Funding Sources
Improve Building Energy & Water Efficiency	Med	General Budget; TELP/ESPC	Utility incentives; capital budget; bond
Provide 100% Electricity from Renewable Sources	Med	General Budget; TELP/ESPC	Blue Sky; capital budget; bond; FEMA grant
Electrify Building Systems to All-Electric Equipment	High	General Budget; TELP/ESPC	Utility incentives; Capital budget; bond
Electrify School Buses and Light-Duty Fleet Vehicles	High	General Budget; Grant (VW for bus)	Budget; lease; foundation
Provide Sustainability Education for All Students	Low	General Budget	Foundation
Standardize Best Practices for Creating Safe and Healthy Learning Environments	Low	General Budget	Grants; foundation

In order to be successful in this plan, the Sustainability Task force will need support from the Board of Education to implement the strategies identified. This may include funding, supporting TELP financing, and/or additional personnel.

RESPONSIBLE PARTIES

Table 6 summarizes the primary group responsible for implementing each strategy, who they will be accountable to for providing resources and oversight in implementing the strategy, who they will consult to support their efforts, and the primary audiences that need to be informed of their work.

TABLE 6: RESPONSIBLE PARTIES BY STRATEGY

Strategy	Responsible – Strategy Lead	Accountable – Strategy Oversight and Leadership Support	Consulted – Strategy partners and supporters	Informed – Strategy audience and most affected groups
Reduce Energy & Water Use by 20% by 2025	Sustainability Task Force Building Efficiency Lead	Executive Director Auxiliary Services	ESCO Utility providers	Building occupants
Provide 100% Electricity from Renewable Sources by 2030	Sustainability Task Force Renewable Energy Lead	Finance	ESCO Rocky Mountain Power	
Transition Building Systems to All-Electric Equipment by 2040	Sustainability Task Force Building Electrification Lead	Executive Director Auxiliary Services	ESCO Rocky Mountain Power	Building occupants
Electrify School Buses and Light-Duty Fleet Vehicles	Sustainability Task Force Transportation Lead	Executive Director Auxiliary Services	Grantors Rocky Mountain Power Utah Clean Cities	Vehicle occupants, drivers
Provide Sustainability Education for All Students Through an Intentionally Designed PK-12 Curriculum by 2025	Sustainability Task Force Education Lead	Executive Director Auxiliary Services		Students
Standardize Best Practices in Creating a Safe and Healthy Learning Environment Across All Schools by 2025	Sustainability Task Force Learning Environments Lead	Executive Director Auxiliary Services		Building occupants

COMMUNICATIONS AND ENGAGEMENT

Developing this plan was a significant undertaking - with numerous students, teachers, staff, and community partners involved. One of the first implementation steps will be to develop a communications and engagement strategy to share the plan across the district and the community - to engage people in their implementation roles. The Climate Action task force will be responsible for developing and implementing the communications and engagement strategy.

LONG-TERM IMPLEMENTATION AND CONTINUOUS IMPROVEMENT

Recognizing the sustained effort, it will take to achieve and maintain carbon neutrality in the decades to come, implementation will be rooted in the four steps of a continuous improvement framework:

- Do: Execute the plan, taking sustained day-to-day steps through identified teams.
- Check: Take stock of the results and update tracking of key metrics and targets.
- Act: Use updated results to standardize best practices, scale successes, and take corrective action or improve the process.
- Plan: Update the plan to refine targets and strategies and evolve the implementation teams and systems.

The various subject matter committees assembled to create this initial plan will be consolidated into a single sustainability implementation task force that meets regularly to oversee implementation, review annual tracking results, and create the next phases of work as priorities are accomplished. In this way, no actions from the original committees are lost, and are regularly prioritized and refined.

The task force will also be responsible for ensuring equity is infused throughout implementation, using the equity worksheet in Appendix B as a guide.

GLOSSARY OF TERMS

Term	Definition
Adaptation	Anticipating the adverse effects of climate change and taking action to prevent or minimize damage or maximize opportunities.
Beneficial electrification	Replacing direct fossil fuel use (e.g., natural gas, propane) with electricity in a way that reduces overall emissions and energy costs.
Carbon Dioxide Equivalents (CO_2e)	A unit of measurement used to standardize the climate effects of various greenhouse gases by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.
Carbon neutral energy	Energy that is generated without release of greenhouse gases (GHGs). GHGs are measured in carbon dioxide equivalents (CO_2e), which translates the global warming impact of other gases into the equivalent amount of carbon dioxide (CO_2).
Carbon offset	A certificate representing the reduction of one metric ton of carbon dioxide emissions.
Circular economy	A circular economy rethinks how we use our resources by designing out waste and pollution, keeping materials in use, and regenerating natural systems.
Clean electricity	Electrical power produced by methods that do not cause pollution, including photovoltaic solar, geothermal, wind, hydroelectric, and waste heat recovery technologies.
Clean heat	Another name for beneficial electrification, with an emphasis on clean energy replacing direct fossil fuel use for heating purposes.
Climate action	Activities to reduce greenhouse gas emissions and strengthen resilience and adaptation to climate-included impacts.
Climate change	A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. May be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use (IPCC, 2012).
Climate justice	The fair treatment of all people and the freedom from discrimination in the creation of policies and projects that address climate change, as well as in the systems that create climate change and perpetuate discrimination.
Demand side management (DSM) program	Modification of consumer demand for energy through various methods, including education and financial incentives. DSM aims to encourage consumers to decrease energy consumption, especially during peak hours, or to shift time of energy use to off-peak periods such as nighttime and weekends.

Term	Definition
Distributed renewable energy	Electricity that is generated from sources (often renewable energy sources), near the point of use, instead of through centralized generation sources from power plants.
Electric vehicle (EV)	A vehicle that uses an electric engine for all or part of its propulsion.
Energy Services Performance Contract (ESPC)	A budget-neutral approach to make building improvements that reduce energy and water use and increase operational efficiency. By partnering with an energy service company (ESCO), a facility owner can use an ESPC to pay for today's facility upgrades with tomorrow's energy savings—without tapping into capital budgets.
Energy Use Intensity (EUI)	A measurement of the energy efficiency of a building, that shows the total energy use (electricity and natural gas combined) per building area. Useful in comparing the efficiency of two buildings with similar uses. Measured in kBtu/sq. ft.
Equity	The state, quality or ideal of being just, impartial, and fair.
First/last mile	The beginning or end of an individual trip, most commonly by public transportation.
Food desert	An area that has limited access to affordable and nutritious food.
Food insecurity	Lack of access, at times, to enough food for an active, healthy life for all household members; and limited or uncertain availability of nutritionally adequate foods. Food-insecure households are not necessarily food insecure all the time. Food insecurity may reflect a household's need to make trade-offs between important basic needs, such as housing or medical bills, and purchasing nutritionally adequate foods.
Food security	Having reliable access to affordable nutritious food.
Geothermal energy	An energy source that comes from heat stored inside the earth's core and is considered renewable. Energy is provided to residential and business customers in the form of hot water pumped directly from the ground. Used primarily for heating buildings.
Greenhouse gases (GHG)	Gases in the atmosphere that absorb and emit radiation and significantly contribute to climate change. The primary greenhouse gases in the earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.
Green Building Code	A roadmap for builders and developers interested in incorporating sustainable, energy efficient components into their buildings beyond the minimum requirements of the current code.
Green power rate	An alternative to traditional electricity rates in which a utility provides interested parties with renewable energy at a contracted unit cost over time.

Term	Definition
Green stormwater infrastructure	A system designed to mimic nature and capture rainwater where if falls, reducing and treating stormwater at its source while also providing other community benefits.
Heat pump	An energy-efficient alternative to furnaces and air conditioners that collects heat from the outside air, water, or ground and concentrates it for use inside.
Heavy-duty vehicle	Commercial vehicles over a minimum Gross Vehicle Weight Rating (GVRW) of 8,500 lbs.
Hybrid electric vehicle (HEV)	Vehicle that contains both an electric motor and a gasoline engine. The gasoline engine powers a generator that charges the electric motor. No external battery charger is used. Runs at a constant speed, which increases fuel efficiency.
International Green Construction Code (IGCC)	A code that regulates construction of new and existing commercial buildings to meet sustainable, resilience, and high-performance standards.
Integrated Pest Management (IPM)	Effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. Uses current, comprehensive information on the life cycles of pests and their interaction with the environment.
Integrated Resource Plan (IRP)	The required planning process utilities undergo to estimate their future loads and determine what sources will be used to meet those loads.
Internal combustion engine (ICE)	A heat engine in which the combustion of fuel occurs with an oxidizer in a combustion chamber that is an integral part of the working fluid flow circuit.
International Panel on Climate Change (IPCC)	The United Nations body for assessing the science related to climate change.
kBtu/sq. ft.	Thousand British thermal units per square foot - a measurement to show the combined energy use of a building (electricity and natural gas) per building area.
Kilowatt (kW)	A measure of 1,000 watts of electrical power.
Kilowatt hour (KWh)	A unit of electricity consumption.
Leadership in Energy and Environmental Design (LEED)	A green building certification program.
LED	An acronym that stands for Light Emitting Diode, a technology used in high efficiency lights.
Light-duty vehicle	Passenger cars with a maximum Gross Vehicle Weight Rating (GVRW) of 8,500 lbs.
Megawatt (MW)	A unit of electric power equal to 1 million watts.

Term	Definition
Metric tons of carbon dioxide equivalent (MTCO2e)	A unit of measure for greenhouse gas emissions. The unit "CO2e" represents an amount of a greenhouse gas whose atmospheric impact has been standardized to that of one-unit mass of carbon dioxide (CO2), based on the global warming potential (GWP) of the gas.
Mitigation	(of climate change) A human intervention to reduce the sources or enhance the sinks of greenhouse gases (IPCC, 2012). (of disaster risk and disaster) The lessening of the potential adverse impacts of physical hazards (including those that are human-induced) through actions that reduce hazard, exposure, and vulnerability (IPCC, 2012).
Net-zero emissions	Removal of all human-caused GHG emissions from the atmosphere through reduction and removal measures.
Net-zero-energy building	A building where the total amount of energy used by the building is equal to the amount of renewable energy generated on the site.
PM2.5	Tiny particles or droplets in the air that are two and one-half microns or less in width. These particles can travel deeply into the respiratory tract, reaching the lungs. Exposure to fine particles can cause short-term health effects such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath. Exposure to fine particles can also affect lung function and worsen medical conditions such as asthma and heart disease. People with breathing and heart problems, children, and the elderly may be particularly sensitive to PM2.5.
Power purchase agreement (PPA)	A financial agreement where the customer invests in a renewable energy project in exchange for a portion of the renewable energy credits (RECs) generated. The seller builds or installs the renewable energy generation project, and the buyer pays for the energy that is generated (on a per-unit basis) with the cost of the seller's investment factored in.
Resilience	The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation (IPCC, 2018).
Renewable energy	Energy generated from fuel sources that naturally regenerate over a short period of time. Examples of these fuel sources include sunlight, wind, moving water, biomass, and geothermal. New and existing energy sources that are generally non- reliant on fossil or carbon-based fuels including solar, wind, geothermal and new small-scale hydro-electric facilities. This list is not exhaustive, and other renewable energy technologies or practices may be considered on a case-by-case basis. In the future, this interpretation could be modified based on advances in energy technology, regulatory changes, or other relevant reasons.

Term	Definition
Renewable energy credit (REC)	Non-tangible property rights of electricity generated by renewable sources – the clean energy attributes - where 1 megawatt-hour of electricity is equal to 1 REC.
Renewable natural gas (RNG)	An alternative to conventional natural gas, that comes from sources such as wastewater treatment and agricultural or municipal waste streams. The gas that is generated from these processes can be upgraded for use in conventional natural gas equipment. These sources are considered renewable because the process of burning renewable natural gas is carbon neutral.
Societal cost of carbon	A measure of the economic harm from the impacts from emitting carbon dioxide in the atmosphere.
Tax-Exempt Lease Purchase (TELP)	A well-established financing vehicle for energy conservation and upgrade projects. A type of equipment lease designed for public borrowers. An alternative to issuing bonds to pay for equipment upgrades.
Solar photovoltaic (PV)	Solar cells/panels that convert sunlight into electricity (convert light, or photons, into electricity, or voltage).
Therm	A measurement of energy generally used to measure natural gas use in buildings.
Thermal energy	Energy that is used to heat, such as space heating, water heating, and cooking for homes and businesses, as well as process loads for industrial facilities. Natural gas and geothermal energy use generally fall into this category.
Time-of-Use Rate	An electricity rate that provides power at lower rates during certain times of the day. Lower rates are usually overnight but can vary by utility and season.
Utility-scale renewable electricity	Very large renewable electricity installations (e.g., greater than 1 MW) that are implemented by the utility and fed directly into the utility's electric grid. These installation projects do not require a utility customer to opt-in to receive electricity from these sources.
Vehicle miles traveled (VMT)	A measure of the amount of travel for all vehicles in a geographic region, over a given period (typically one year). The sum of all miles traveled by all vehicles.
Zero emission vehicles (ZEV)	A vehicle that never emits exhaust gas from the onboard source of power.
Zero emissions standard	A requirement for buildings to be designed and equipped so that all energy use on an annual basis is highly efficient and comes only from clean energy sources.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APPENDICES

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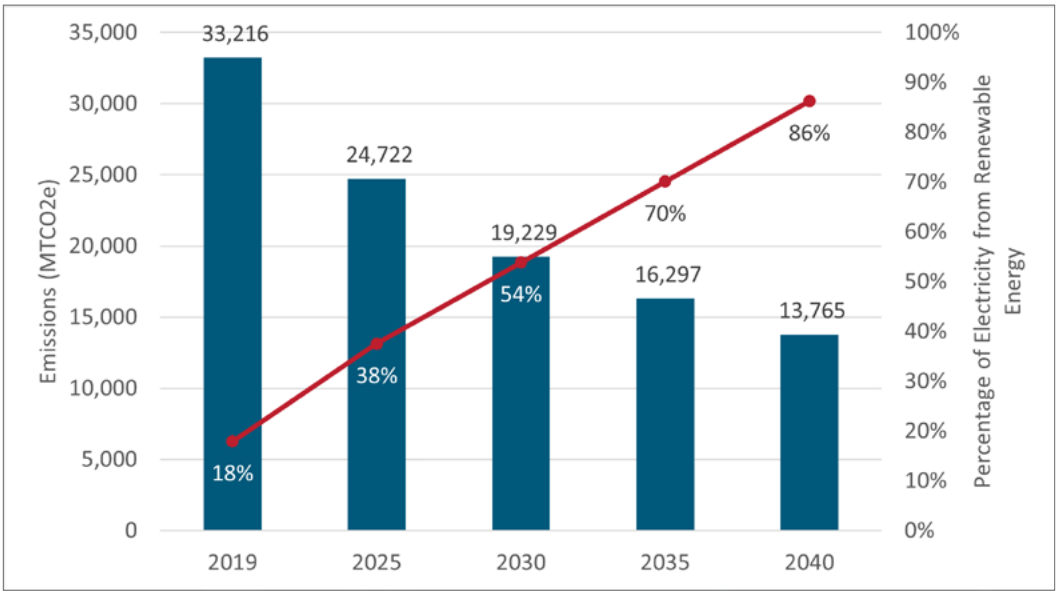
APPENDIX A: BASELINE DATA

BUSINESS AS-USUAL SCENARIO

This scenario shows the impact of continuing the sustainability actions the district has been engaged in over the last 10 years, at a similar rate for the next 20 years.

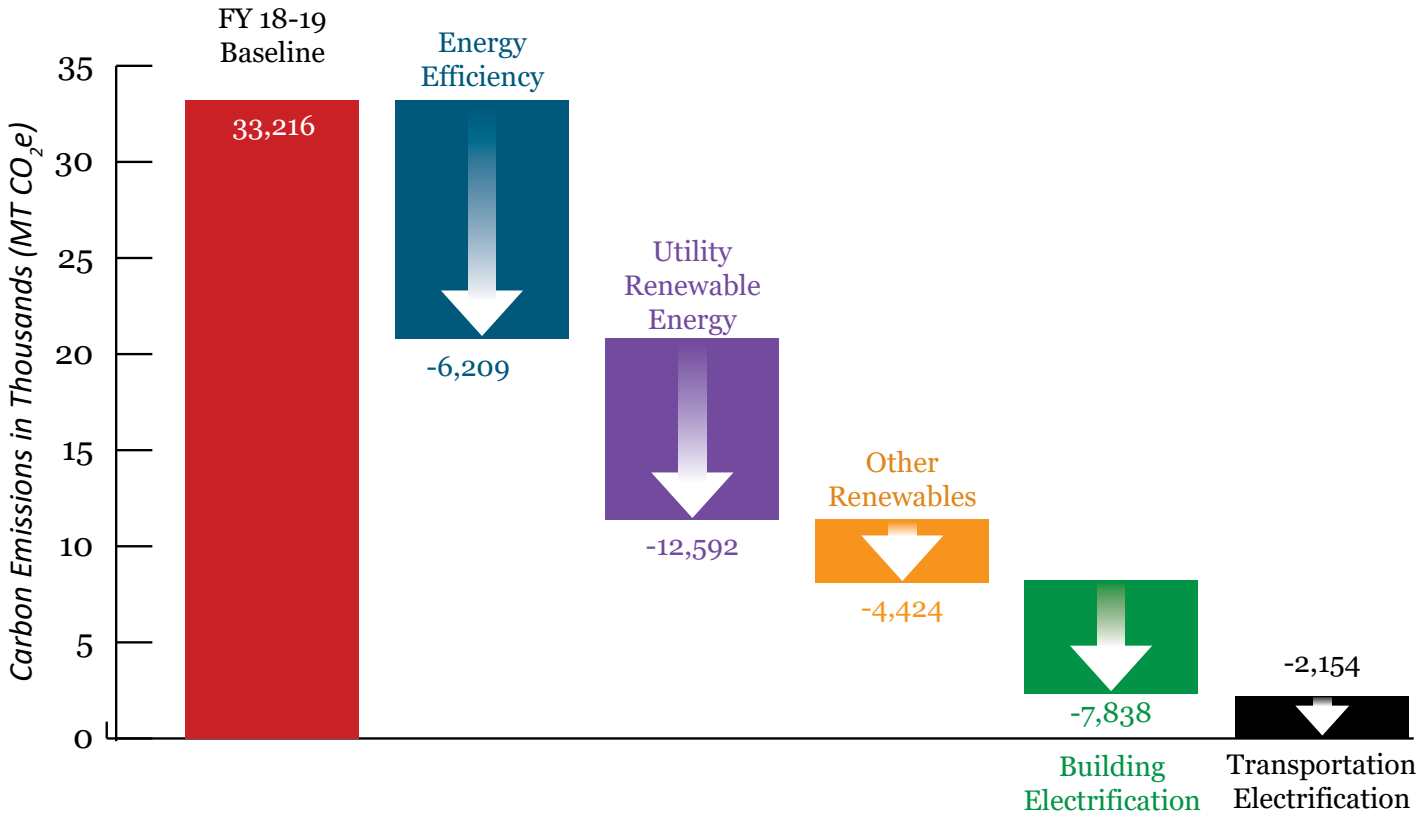


ASSUMPTIONS:

1. Annual average natural gas savings from energy efficiency: 1.6%
2. Annual average electricity savings from energy efficiency: 1%
3. Energy efficiency improvements cannot improve school performance beyond the targets set by the National Renewable Energy Laboratory (NREL) in their report on zero energy schools (National Renewable Energy Laboratory, 2016)
   - Primary school: 23.2 kBtu/sq. ft.-year
   - Secondary school: 20.4 kBtu/sq. ft.-year
4. Energy efficiency improvements are limited to 30% of baseline, based on energy efficiency rules of thumb published by the Environmental Protection Agency (EPA) (Environmental Protection Agency, 2016)
5. Average annual onsite solar PV installation: 12 kW
   - Annual production estimated at 1,369kWh per kW, based on performance of existing systems
   - 50% of renewable energy credits generated by these systems will be sold to the utility in exchange for grant money to help cover installation costs
6. No building electrification
7. Replace 2 buses per year with electric vehicles
8. Replace 2 sedans in the light duty fleet with electric vehicles each year
9. No change in backup diesel generators at each school

CARBON-NEUTRAL SCENARIO

This scenario shows the level of effort required to meet the goals outlined in the sustainability resolution.



ASSUMPTIONS:

1. Energy efficiency improvements based on school audit data, averaging about 20% improvement in energy efficiency across all schools
2. Renewable energy onsite installation based on solar analysis, totaling about 13.8 MW with REC retained
3. All building systems electrified
4. Replace all buses with electric vehicles
5. Replace light-duty fleet with electric vehicles
6. Replace backup diesel generators with solar and battery systems at each school

FY18-19 ENERGY USE AND EMISSIONS BY SCHOOL

Building Name	School Type	Building Area (sq. ft.)	Student Enrollment	Electricity Use Intensity (kWh/sq. ft.)	Natural Gas Use Intensity (therm/sq. ft.)	Energy Use Intensity (kBtu/sq. ft.)	Building GHG Emissions (MT CO2e)	Emissions per Student	Percent of total District Emissions
Administration Building	Admin	66,591	n/a	11.9	0.67	103.26	714.7	n/a	2.5%
Support Services Facility	Admin	60,888	n/a	17.0	0.30	87.95	803.1	n/a	2.8%
Backman Elementary	Elementary	73,760	452	7.9	0.39	66.44	553.4	1.22	1.9%
Beacon Heights Elementary	Elementary	73,588	477	7.8	0.35	61.46	528.5	1.11	1.8%
Bennion Elementary	Elementary	64,181	188	8.2	0.46	73.64	514.8	2.74	1.8%
Bonneville Elementary	Elementary	74,513	485	6.2	0.23	43.89	404.6	0.83	1.4%
Dilworth Elementary	Elementary	73,682	556	8.4	0.38	67.05	573.5	1.03	2.0%
Edison Elementary	Elementary	87,684	408	6.8	0.30	53.31	546.5	1.34	1.9%
Emerson Elementary	Elementary	71,157	596	7.1	0.36	60.54	482.1	0.81	1.7%
Ensign Elementary	Elementary	89,171	349	6.1	0.43	63.86	573.7	1.64	2.0%
Escalante Elementary	Elementary	77,866	404	6.9	0.36	59.18	513.2	1.27	1.8%
Franklin Elementary	Elementary	73,770	394	7.8	0.39	65.14	541.6	1.37	1.9%
Hawthorne Elementary	Elementary	63,013	413	7.0	0.43	66.77	445.2	1.08	1.5%
Highland Park Elementary	Elementary	81,644	628	7.9	0.33	60.25	585.7	0.93	2.0%
Indian Hills Elementary	Elementary	77,864	418	7.6	0.41	66.65	571.6	1.37	2.0%

Building Name	School Type	Building Area (sq. ft.)	Student Enrollment	Electricity Use Intensity (kWh/sq. ft.)	Natural Gas Use Intensity (therm/sq. ft.)	Energy Use Intensity (kBtu/sq. ft.)	Building GHG Emissions (MT CO2e)	Emissions per Student	Percent of total District Emissions
Liberty Elementary + CLC	Elementary	94,490	404	6.9	0.33	56.48	609.2	1.51	2.1%
Mary Jackson Elementary	Elementary	102,876	434	4.4	0.26	41.52	453.6	1.05	1.6%
Meadowlark Elementary	Elementary	84,344	410	9.3	0.45	76.88	735.0	1.79	2.5%
Mountain View Elementary	Elementary	71,460	570	7.2	0.39	64.17	502.6	0.88	1.7%
Newman Elementary	Elementary	69,310	337	8.7	0.39	68.45	553.5	1.64	1.9%
Nibley Park Elementary	Elementary	114,941	428	4.7	0.30	45.61	548.7	1.28	1.9%
North Star Elementary	Elementary	77,064	487	9.0	0.35	65.59	616.8	1.27	2.1%
Parkview Elementary	Elementary	72,814	285	8.4	0.41	69.48	575.5	2.02	2.0%
Riley Elementary	Elementary	70,464	279	8.0	0.44	71.28	549.9	1.97	1.9%
Rose Park Elementary	Elementary	74,428	326	7.7	0.29	55.46	506.4	1.55	1.7%
Uintah Elementary	Elementary	59,306	470	8.1	0.52	79.54	491.2	1.05	1.7%
Wasatch Elementary	Elementary	78,220	444	5.3	0.32	50.03	414.6	0.93	1.4%
Washington Elementary	Elementary	72,100	262	7.4	0.31	56.67	483.9	1.85	1.7%
Whittier Elementary	Elementary	84,190	560	7.3	0.32	56.54	561.0	1.00	1.9%
Bryant Middle School	Middle/ High	105,000	393	7.8	0.53	79.42	851.5	2.17	2.9%
Clayton Middle School	Middle/ High	118,624	755	6.6	0.22	44.60	674.8	0.89	2.3%

Building Name	School Type	Building Area (sq. ft.)	Student Enrollment	Electricity Use Intensity (kWh/sq. ft.)	Natural Gas Use Intensity (therm/sq. ft.)	Energy Use Intensity (kBtu/sq. ft.)	Building GHG Emissions (MT CO2e)	Emissions per Student	Percent of total District Emissions
East High School	Middle/ High	439,734	1,956	6.0	0.32	52.90	2565.8	1.31	8.9%
Glendale Middle School	Middle/ High	149,430	820	6.4	0.37	58.74	946.9	1.15	3.3%
Highland High School	Middle/ High	389,376	1,832	6.2	0.47	68.30			
Hillside Middle School	Middle/ High	120,390	591	7.3	0.30	54.90	791.3	1.34	2.7%
Horizonte Alternative School	Middle/ High	103,110	258	9.0	0.39	69.54	844.1	3.27	2.9%
Northwest Middle School	Middle/ High	155,129	723	7.3	0.36	61.45	1075.0	1.49	3.7%
West High School	Middle/ High	448,537	2,851	7.6	0.45	70.58	3384.2	1.19	11.7%
Mt. View Community Learning Center	Other	28,600		3.8	0.37	50.49	131.4	n/a	0.5%
Open Classroom	Other	61,594	323	6.4	0.38	60.25	394.1	1.22	1.4%
SL Center for Science Ed	Other	123,600	392	4.0	0.54	67.74	690.8	1.76	2.4%
Transportation	Other	18,355	n/a	16.8	0.49	106.01	257.9	n/a	0.9%

FY18-19 UTILITY COST BY SCHOOL

Building Name	School Type	Building Area	Student Enrollment	Utility Costs (elec., nat. gas, water, sewer)	Utility Cost per sq. ft.	Utility Cost per Student
Administration Building	Admin	66,591	N/A	$114,423	$1.72	N/A
Support Services Facility	Admin	60,888	N/A	$122,953	$2.02	N/A
Backman Elementary	Elementary	73,760	452	$96,348	$1.31	$213.16
Beacon Heights Elementary	Elementary	73,588	477	$88,184	$1.20	$184.87
Bennion Elementary	Elementary	64,181	188	$95,212	$1.48	$506.45
Bonneville Elementary	Elementary	74,513	485	$81,462	$1.09	$167.96
Dilworth Elementary	Elementary	73,682	556	$190,995	$2.59	$343.52
Edison Elementary	Elementary	87,684	408	$93,166	$1.06	$228.35
Emerson Elementary	Elementary	71,157	596	$109,846	$1.54	$184.31
Ensign Elementary	Elementary	89,171	349	$112,540	$1.26	$322.46
Escalante Elementary	Elementary	77,866	404	$100,925	$1.30	$249.81
Franklin Elementary	Elementary	73,770	394	$139,801	$1.90	$354.82
Hawthorne Elementary	Elementary	63,013	413	$116,437	$1.85	$281.93
Highland Park Elementary	Elementary	81,644	628	$110,616	$1.35	$176.14
Indian Hills Elementary	Elementary	77,864	418	$84,333	$1.08	$201.75
Liberty Elementary + CLC	Elementary	94,490	404	$122,632	$1.30	$303.54
Mary Jackson Elementary	Elementary	102,876	434	$78,911	$0.77	$181.82
Meadowlark Elementary	Elementary	84,344	410	$113,701	$1.35	$277.32
Mountain View Elementary	Elementary	71,460	570	$95,530	$1.34	$167.60
Newman Elementary	Elementary	69,310	337	$98,672	$1.42	$292.80
Nibley Park Elementary	Elementary	114,941	428	$117,056	$1.02	$273.50
North Star Elementary	Elementary	77,064	487	$143,530	$1.86	$294.72
Parkview Elementary	Elementary	72,814	285	$105,450	$1.45	$370.00
Riley Elementary	Elementary	70,464	279	$114,621	$1.63	$410.83
Rose Park Elementary	Elementary	74,428	326	$93,645	$1.26	$287.25
Uintah Elementary	Elementary	59,306	470	$91,773	$1.55	$195.26
Wasatch Elementary	Elementary	78,220	444	$80,148	$1.02	$180.51
Washington Elementary	Elementary	72,100	262	$81,029	$1.12	$309.27
Whittier Elementary	Elementary	84,190	560	$110,293	$1.31	$196.95
Bryant Middle School	Middle/High	105,000	393	$139,665	$1.33	$355.38
Clayton Middle School	Middle/High	118,624	755	$119,204	$1.00	$157.89
East High School	Middle/High	439,734	1,956	$392,100	$0.89	$200.46
Glendale Middle School	Middle/High	149,430	820	$165,958	$1.11	$202.39
Highland High School	Middle/High	389,376	1,832	$377,803	$0.97	$206.22
Hillside Middle School	Middle/High	120,390	591	$127,310	$1.06	$215.41
Horizonte Alternative School	Middle/High	103,110	258	$142,774	$1.38	$553.39
Northwest Middle School	Middle/High	155,129	723	$157,851	$1.02	$218.33
West High School	Middle/High	448,537	2,851	$577,701	$1.29	$202.63

Building Name	School Type	Building Area (sq. ft.)	Student Enrollment	Electricity Use Intensity (kWh/ sq. ft.)	Natural Gas Use Intensity (therm/sq. ft.)	Energy Use Intensity (kBtu/sq. ft.)
Mt. View Community Learning Center	Other	28,600	n/a	$42,001	$1.47	n/a
Open Classroom	Other	61,594	323	$81,011	$1.32	$250.81
SL Center for Science Ed	Other	123,600	392	$105,563	$0.85	$269.29
Transportation	Other	18,355	n/a	$38,340	$2.09	n/a

FY18-19 WATER USE BY SCHOOL

Building Name	FY18-19 Water Use (gallons)
Administration Building	1,241,018
Backman Elementary	5,281,247
Beacon Heights Elementary	3,648,998
Bennion Elementary	2,302,504
Bonneville Elementary	2,404,239
Bryant Middle School	4,929,663
Clayton Middle School	4,814,463
Dilworth Elementary	2,626,411
East High School	22,838,776
Edison Elementary	4,560,125
Emerson Elementary	2,550,109
Ensign Elementary	5,253,569
Escalante Elementary	5,521,372
Franklin Elementary	3,457,496
Glendale Middle School	10,802,619
Hawthorne Elementary	2,840,353
Highland High School	7,953,289
Highland Park Elementary	1,027,075
Hillside Middle School	4,972,302
Horizonte Alternative School	3,152,291
Indian Hills Elementary	5,498,182
Liberty Elementary + CLC	434,618
Mary Jackson Elementary	3,785,143
Meadowlark Elementary	3,387,928

Building Name	FY18-19 Water Use (gallons)
Mountain View Elementary*	0
Mt. View Community Learning Center	3,990,857
Newman Elementary	4,313,268
Nibley Park Elementary	2,799,959
North Star Elementary	5,623,107
Northwest Middle School	8,978,120
Open Classroom	1,151,252
Parkview Elementary	5,846,026
Riley Elementary	4,850,369
Rose Park Elementary	3,221,112
Rosslyn Heights Elementary	4,812,219
SL Center for Science Ed	4,670,089
Support Services Facility	785,455
Transportation	1,276,925
Uintah Elementary	3,252,530
Wasatch Elementary	2,480,540
Washington Elementary	2,501,486
West High School	16,716,718
Whittier Elementary	2,389,278
Total	194,943,099

** Indicates water use is included in Glendale Middle School's water use.*

APPENDIX B: EQUITY WORKSHEET

The Equity Worksheet is a list of questions designed to help Salt Lake City School District (SLCSD) implement the Sustainability Action Plan in a way that addresses systemic inequity. It is important to remember that equity is not a checkbox, but an approach requiring daily practice.

The Equity Worksheet can be used by any staff member, teacher, student, or community member and should be used at the beginning of any new initiative identified in the Sustainability Action Plan. Consider referencing the Equity Considerations call-out boxes next to the plan strategies to help start the conversation.

WHAT IMPACTS DOES THE INITIATIVE HAVE?

- *How are students who live in underserved communities affected by this initiative? Does the initiative generate burdens (e.g., costs), either directly or indirectly, to students who live in underserved communities?*
- *How are the benefits of this initiative dispersed among students (e.g., improved air quality)?*

WHO IS THE INITIATIVE IMPACTING?

- *How will students living in underserved communities be impacted by this initiative? Negative/positive outcomes?*
- *What criteria did you use to identify underserved communities and how did you ensure it was unbiased and fact driven?*

WHAT BARRIERS EXIST TO ACCESSING BENEFITS FROM THIS INITIATIVE?

- *What are the existing barriers to students accessing the benefits of this initiative?*
- *How could SLCSD remove barriers to accessing these benefits?*

HOW CAN WE PRACTICE EQUITY?

- *How may the initiative ensure benefits and impacts of this initiative are equitably distributed across schools and among the student population?*
- *What mechanisms will you use to reduce historical or current disparities (e.g., higher levels of service, capacity building)?*

HOW WILL WE KNOW THIS IS WORKING?

- *How will you know that your initiative has positively impacted underserved communities?*
- *How will you communicate progress to all stakeholders in a manner that communicates information in a meaningful and comprehensive way?*

APPENDIX C: STRATEGY LIBRARY

Listed below are the actions not identified by the working groups as a priority for the first round of implementation. As the task force reviews progress and identifies the next actions for implementation, they can pull from this library as needed.

BUILDING EFFICIENCY

Action Name	Action Description
Establish an Energy and Water Use Tracking and Reporting System	1) Energy and Sustainability Manager will track, measure, and report on a quarterly basis: energy consumption, cost, and C02 data vs. 2019 baseline. 2) Create a messaging and behavioral program that informs building occupants, administrators, and other stakeholders of energy and water reduction goals, and report quarterly progress. Display progress toward school energy reduction goals vs. 2019 baseline. 3) Energy and Sustainability Manager will track, measure, and report on a quarterly basis: water consumption and cost data vs. 2019 baseline.
Provide Training for Building Maintenance and Custodial Staff	Create a procedure that assures annual building operator certification training for maintenance and custodial staff.
Implement Indoor Water Savings Improvements in Existing Buildings	1) Evaluate custodial cleaning strategies that require less water. 2) Implement low-flow equipment to reduce volume from toilets, urinals, and faucets.
Install LED Lighting and Lighting Controls Throughout the District	Identify any areas where fluorescent or incandescent light fixtures remain and prioritize replacement. Be sure to install daylighting and occupancy controls where appropriate.
Evaluate and Update the Building Automation System (BAS)	Ensure the existing BAS has the functionality required to appropriately control and monitor building systems to optimize building performance. Upgrade systems or controls as needed. This will become increasingly important as buildings are electrified to manage demand charges.
Optimize Building Setpoints	Create a procedure that assures building temperature set points are managed in a way that maximizes efficiency while providing sufficient occupant comfort.

RENEWABLE ENERGY

Action Name	Action Description
Install On-Site Solar and Battery Storage	1) Triple current solar generating capacity to 1 MW (from 335kW to 1000kW). 2) Implement pilot projects, at 2 schools, that incorporate large solar rooftop systems and on-site battery storage. 3) Build out rooftop solar systems so combined on-site production and renewables delivered from the grid bring the district to 100% electricity from renewable sources.
Establish a Renewable Energy Tracking and Reporting System	1) Set up submeters at all district buildings that have solar panels - for reporting and aggregation of production data as possible - and allow dashboard access to teachers, students, and the community for educational and awareness purposes. 2) Energy and Sustainability Manager will track, measure, and report on a quarterly basis: energy production, cost savings, and C02 footprint reduction. 3) Introduce district faculty to the software that allows them to use real-time and historical renewable energy data related to our district solar systems.
Explore Funding Opportunities for Renewable Energy and Battery Storage	1) Apply for grants and consider the ramifications regarding REC assignment as it relates to our carbon neutrality goal. 2) Keep an eye on Utah HB411 and Rocky Mountain Power renewable energy generation and rate tariffs and calculate amount of clean energy they are putting onto the grid. 3) Continue to evaluate cost and benefits of battery storage.

BUILDING ELECTRIFICATION

All actions identified for building electrification were included in the priority actions.

TRANSPORTATION

Action Name	Action Description
Centralize White Fleet Management	Create a central fleet of vehicles available for checkout rather than assigned vehicles (excluding school lunch vehicles)
Incorporate EV Considerations into White Fleet Policies	Incorporate EVs into fleet policies, including leases and take-home compensation
Inventory EV Funding Options	Inventory options to fund EV purchases and related costs
Install EV Charging Infrastructure	Install EV charging infrastructure for white fleet and public use as follows: 1) Main charging at Facilities parking lot 2) Charging for driver's education vehicles at schools (6-10 per school) 3) Public charging at District Office and schools
Install Bus Charging Infrastructure	Install bus charging infrastructure at bus depot
Optimize Bus Fleet	Optimize bus fleet (make smaller or eliminate routes no longer used)

EDUCATION

Action Name	Action Description
Launch Comprehensive School Gardens Education Program	Link K-12 instruction to a garden experience by 1) Establishing a Garden Sustainability Task Force, in partnership with Wasatch Community gardens and Child Nutrition, to coordinate education with garden expansion (see Heath Strategy) 2) Ensure that every garden has a space dedicated as an outdoor classroom or learning environment for classes to utilize 3) Tie in health components, including education on the purpose of Fresh Fruit Program 4) Tie in a science component by grade level 5) Establish agricultural internship with Utah State University or Westminster 6) Develop entry-level agricultural college course (summer) for high school / college credit hours 7) Grow foods native to Utah to encourage education about people and plants native to Utah

Action Name	Action Description
Prioritize Sustainable Use of SLCSD Green Spaces	Prioritize sustainable uses of SLCSD green spaces: 1) Identify and map green spaces 2) Identify interdisciplinary uses for green spaces 3) Work with Auxiliary Services to locate areas to transition into sustainable use 4) Work with community stakeholders: Salt Lake City Parks, Trails and Natural Lands
Hire Faculty and Staff to Support Sustainability Efforts	Consider hiring the following positions to support sustainability initiatives: 1) Sustainability Science Coach 2) Sustainability Team at each site/department 3) Wasatch Community Gardens Paras 4) SLCSD Green Council 5) Sustain Utah! Youth Council and Roundtable

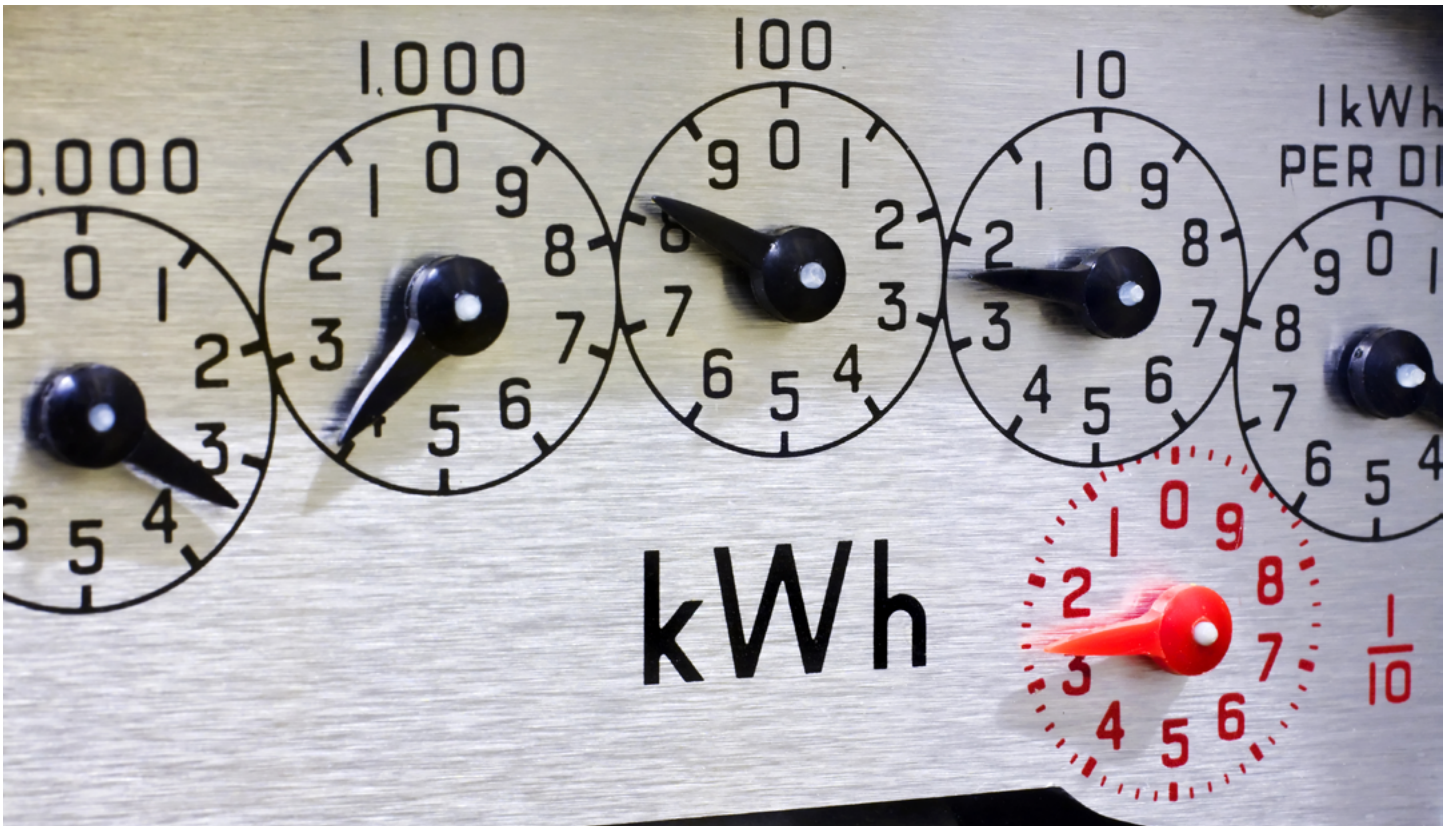
LEARNING ENVIRONMENT

Action Name	Action Description
Monitor Building Indoor Air Quality	Add real-time monitoring devices on all utility meters and sensors to measure Indoor Air Quality (IAQ).
Conduct Recycling Infrastructure Assessment	Determine equipment and infrastructure needs on a school-by-school basis. Research and acquire funding for recycling stations and marketing (signage) for every school, based on amount needed.
Establish Recycling Tracking and Reporting System	Measure appropriate metrics - to report to all stakeholders on a quarterly basis through annual waste audits and hauler reports.
Educate District Faculty and Staff on SLCSD's Recycling Practices	Educate SLCSD staff on existing recycling practices by: 1) Implementing an annual training schedule for elementary and secondary custodial staff. 2) Presenting annually to faculty, with custodial participation.
Establish District Recycling Committee	Establish District Recycling Committee that involves Custodial staff at elementary, middle, and high school level.
Evaluate Composting Program	Monitor effectiveness and costs related to third-party composting with Wasatch Resource Recovery, to inform expansion of composting efforts.

Action Name	Action Description
Reduce Cafeteria Waste	Facilitate collaboration between Custodial and Child Nutrition to reduce cafeteria waste by: 1) Reducing food packaging or replacing with completely recyclable or compostable packaging 2) Replacing milk cartons with a milk dispenser and reusable cups 3) Educating students on how to reduce food waste 4) Encouraging composting 4) Using food waste for renewable energy using anerobic digestion in all schools
Establish Reuse and Hard-to-Recycle School Recycling Programs	Engage teachers, administrators, and students in establishing reuse and recycling programs in their schools - for hard-to-recycle items - with support and oversight from district.
Provide Recycling at Sporting Events	Implement recycling stations to capture plastic and metal beverage containers at Sporting Events at secondary schools.
Establish an IPM Tracking and Reporting System	Re-institute IPM tracking system and develop monthly summary reports to increase transparency and promote IPM achievements to students, staff, and the public.
Provide IPM Training for Custodial and Grounds Staff	Provide opportunities for Head Custodians and Grounds staff to obtain non-commercial pesticide licenses.
Educate District Faculty and Staff on SLCSD's IPM Practices	Educate SLCSD staff on existing green cleaning practices by: 1) Requiring quarterly training or continuing education for teachers, administrators, food service, maintenance, transportation, and nurses. 2) Presenting IPM program in New Hire Teachers Orientation. 3) Developing a YouTube module video training.
Educate the Community on SLCSD's IPM Practices	Use social media, school website, or community newsletters to provide education, communication, and updates on SLDSD’s IPM program, including progress toward targets, links to recent incidents, and summary IPM reports.
Establish Sustainability Clubs	Establish sustainability clubs at all high schools. Be sure to provide the necessary transportation and other support to ensure all students are able to participate.

Action Name	Action Description
Evaluate Green Cleaning Practices	Evaluate green cleaning practices on a regular basis to identify opportunities for improvement by: 1) Developing a bi-annual process to evaluate the economical use of less toxic cleaners. 2) Conducting a water waste audit on how much water is used to strip and re-coat waxed floors. 3) Continuing to explore alternative options for green cleaning, including UV lighting, standalone air purifiers, Air Handler Unit (AHU) purification, and wastewater recycling.
Provide Green Cleaning Training for Custodial Staff	Develop a certification process for custodians that targets cleaning for health and combating pathogens, using the least toxic chemicals and best practices.
Educate District Faculty and Staff on SLCSD's Green Cleaning Practices	Educate SLCSD staff on existing green cleaning practices by: 1) Developing YouTube training videos. 2) Providing training session on cleaners, recycling, and Integrated Pest Management (IPM) as part of new teacher orientation. 3) Working with school leadership to provide regular (e.g., quarterly) in-person trainings for teachers at staff faculty meetings and professional development days. 4) Placing flyers in breakrooms and other key locations.
Educate the Community on SLCSD's Green Cleaning Practices	Use social media, school website, or community newsletters to provide education, communication, and updates on SLCSD’s green cleaning programs, procedures, and testing results to maintain transparency.
Prioritize Local and Sustainable Food for School Meals	Prioritize local and sustainable food for school meals by: 1) Partnering with local farms to give students insight into where food comes from. 2) Using school garden vegetables. 3) Including alternative vegan or vegetarian meal options, including soy milk, on every menu.

Action Name	Action Description
Expand School Garden Network	Establish school garden (or similar outdoor space) at every elementary and secondary school, as feasible, to provide opportunities for hands-on education, exploring alternative career pathways, and food sampling for students. Consider the following during expansion process: 1) Establish a Garden Sustainability Task Force in partnership with Wasatch Community gardens and Child Nutrition to coordinate garden expansion with garden education (see Education strategy) 2) Conduct greenhouse/garden audit 3) Focus on elementary school gardens before adding secondary school gardens and green houses 4) Identify keys to success, looking at model schools (like Emerson) 5) Encourage a diverse range of crops for biodiversity and soil health 6) Compost food from school lunchroom to use as fertilizer in gardens as well as education on life cycle processes



APPENDIX D: DRAFT NEW BUILDING AND MAJOR RENOVATION DESIGN GUIDELINES

Below are some draft sustainability guidelines recommended for all new construction and major renovation, to help the district meet its sustainability goals developed by the new construction focus group. These recommendations should be reviewed, adjusted, and adopted by the district as part of the building energy efficiency strategy.

OVERALL STRATEGIES

- Energy modeling of building performance at schematic design, targeting a maximum EUI 30 kBtu/sq. ft. by 2030 and a maximum EUI 25 kBtu/sq. ft. by 2040.
- Develop strategies and training for staff and maintenance, to educate on building components and how to reduce energy consumption.
- Recommend every building is recommissioned a year or two after occupancy.
- Create a procedure that requires all maintenance disciplines to participate during planning stage before architecture and design-build process.

BUILDING ENVELOPE

- Design standard to meet RMP incentives for building envelope, cool roof, roof & wall insulation R-values, and window R-value and solar heat gain coefficient.
- Consider building orientation, to actively manage solar heat gain and the benefits of natural daylighting.
- Conduct a building envelope plan review.

MECHANICAL

- Design HVAC system suitable for Net Zero Strategy as defined by the Department of Energy in the construction of new buildings.
- Conduct soil conductivity test for using ground coupled geo-thermal applications. If utilizing, install central system with ground source heat pump and cooling tower; using displacement ventilation is the preferred methodology in new buildings.
- For mechanical system upgrades in existing facilities, conduct study on a case-by-case basis to determine best heating and cooling option utilizing most of the existing system IE Central fan units and Variable air volume (VAVs). Design the highest energy efficiency system using the most cost-effective resources available at the time of design. The study should also include measures to decrease the building's energy demand. If determined through soil testing, if conditions allow, some form of ground coupled geo-thermal design is the preferred method to decrease the carbon footprint and achieve the sustainability resolution's goals. High efficiency condensing boilers, air source heat pumps, and electric boilers are options to consider if geo-thermal is not achievable.
- Sub-meter real time consumption of natural gas, electricity, and water while capturing generation from renewable energy sources. This data could be captured through a software program or the building management system (BMS).

ELECTRICAL

- Lighting power density (LPD) is defined as watts of lighting per square foot target range 0.40 - 0.64. Goal target - to reduce by at least 10% by 2030.
- Size electrical distribution for increased future demands for technology advancements.
- The majority, if not all, lighting fixtures will be LED. Design to a lower foot-candle standard.
- Utilize plug load control in offices, conference rooms, training rooms, vending machines, drinking fountains - areas where turning off outlets after occupants leave a space or after the building is normally occupied makes sense.
- Enhanced primary and secondary daylight zones. Recommendation to tour existing facilities and spaces with similar size and structure to evaluate not over lighting a space.
- Continue use of Renewable Energy Sources (RES), solar arrays, and other solar advancements as they become available.
- Commit to enhanced electrical commissioning and measuring current consumption against energy model.
- Manual "On" occupancy control at 50% output in classrooms, offices, conference/training spaces and work rooms. Automatic-off when a space is not occupied.
- Continue design practices that are required by IECC IE Daylight zone control, exterior lighting control, light reduction controls, and occupancy sensor or timer switch controls.
- Install electric infrastructure for future electric vehicle (EV) charging stations.

WATER CONSERVATION

- Continue use of Weather TRAK sprinkler clock, master valve, two-wire system with decoders. Install second water meter dedicated to irrigation only.
- Utilize xeriscape landscaping and install native plants in a limited number of decorative beds with drip irrigation.
- Consider the use of artificial turf to reduce the amount of grass requiring irrigation.
- In building interior, install water sense fixtures meeting low-flow requirements of IPC.
- Develop a training program for Grounds Department and assign conservation responsibilities in job description.
- Require Grounds Department to report on water use making use of WeatherTrak reporting capabilities.

APPLIANCES AND COPIERS/SCANNERS

- Install only Energy Star-rated appliances and copy machines. Limit appliances to break rooms, faculty rooms, and conference rooms.
- Create a procedure and/or policy that provides guidance as to acceptable and unacceptable personal appliance use in schools/classrooms.

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