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# Saskatoon Greenhouse Gas Emissions Targets

## Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the greenhouse gas emissions reduction target for the City of Saskatoon (corporate) be adjusted to utilize 2014 as the base year, specifically, a reduction of 40% below 2014 levels by 2023;
2. That the recommended reduction targets for the community proposed by the Saskatoon Environmental Advisory Committee be adopted; and
3. That the Administration apply to the Federation of Canadian Municipalities (FCM) Municipalities for Climate Change Innovation Program to develop a Climate Change Mitigation Business Plan to achieve these targets.

## Topic and Purpose

The purpose of this report is to summarize the implications of greenhouse gas emissions targets for the City of Saskatoon (City) and to adopt appropriate targets for emissions reduction.

## Report Highlights

1. Under the Covenant of Mayors commitment to climate change, Saskatoon must set emissions reduction targets. Nationally, Canada has adopted a short-term reduction target of 30% by 2030 and as an industrialized nation is required to achieve an 80% reduction in Canadian emissions by 2050.
2. The City has a corporate target to achieve a 30% reduction by 2023 from the 2006 baseline. The Administration recommends adjusting the corporate target to utilize 2014 as the base year; the new resulting target would be a 40% reduction by 2023.
3. Reductions in emissions in the energy consumption and transportation sectors can reduce carbon price liability expected to be implemented in 2018.
4. The Saskatoon Environmental Advisory Committee (SEAC), at its May 11, 2017, meeting passed a motion to recommend community-wide GHG targets of:
  - 15% emissions reductions below 2014 levels by 2023; and
  - 80% emissions reductions below 2014 levels by 2050.

The Administration supports these targets as both attainable and ambitious.

### Strategic Goals

This report supports the strategic goal of Environmental Leadership and the corporate performance target of reducing corporate greenhouse gas emissions by 30% below 2006 levels by 2023. The report also supports the strategy of creating new sources of green energy where feasible and the priorities of:

- Considering mitigation strategies for the impact of severe weather events on the City's infrastructure;
- Eliminating the need for a new landfill by eliminating waste and/or diverting waste for re-use in other projects;
- Promoting and facilitating city-wide composting and recycling to reduce the rate and volume of waste sent to the landfill;
- Communicating the financial benefit of environmental initiatives;
- Identifying opportunities to replace conventional energy sources with green energy technologies and finding alternate ways of generating capacity to support operations; and
- Continuing to implement the Energy and Greenhouse Gas Reduction Plan.

The report also supports the Asset and Financial Sustainability strategic goal by mitigating the effects of the carbon price mechanism that will be implemented in 2018 either by the provincial or federal government.

### Background

In 2015, the Saskatoon Environmental Advisory Committee (SEAC) recommended that the City complete a greenhouse gas emissions inventory and set reduction targets for the community. The Saskatchewan Environmental Society (SES) also submitted a letter to City Council that listed 21 recommendations for reducing emissions in Saskatoon with the first step being the completion of a community emissions inventory and target-setting exercise.

In November 2015, the City became a signatory to the Compact of Mayors, now the Covenant of Mayors for Climate and Energy, committing to address climate change by reducing greenhouse gas emissions.

In 2016, the Administration completed a Saskatoon Greenhouse Gas Emissions Inventory for the 2014 fiscal year. This was the first step in complying with the Covenant of Mayors for Climate and Energy agreement.

At its May 11, 2017, meeting, the Saskatoon Environmental Advisory Committee (SEAC) passed a motion recommending that the City support community-wide GHG targets of:

- 15% emissions reductions below 2014 levels by 2023; and
- 80% emissions reductions below 2014 levels by 2050.

### Report

#### Local Context

Emissions reduction targets for Saskatoon were last set by City Council in 2009 and were based on the Kyoto Accord using 1990 as the reference year. The 2014 Greenhouse Gas Emissions Inventory released by the City of Saskatoon in 2016 reported a 12.6% increase in community-wide emissions from the most recent 2003 Emissions Inventory, completed in advance of the 2009 target. Attachment 1 shows the calculated and estimated emissions produced in Saskatoon since 1990. The highest emitting sectors were realized in stationary (building) energy consumption and transportation, at 89.7% of total emissions.

#### Canadian and International Context

Internationally, it has been determined that in order to limit global temperature to an increase of no more than 2 degrees Celsius from pre-industrial standards, as agreed in the United Nations COP21 Paris Agreement, greenhouse gas emissions in industrialized nations have to decline by approximately 80% by 2050. The Canadian federal government has so far adopted a target to reduce emissions at the national level by 30% below 2005 levels by 2030.

Canadian provinces and municipalities have set similar targets to support the obligation. Attachment 2 summarizes the targets set by some municipalities, as compared to the target required to keep global temperature below 2 degrees above pre-industrial levels.

The federal government announced a plan to implement a price for carbon effective in 2018. The price will set an estimated \$10 per tonne of CO<sub>2</sub>e on corporate emissions. The Price mechanism is expected to affect both Saskatoon's stationary (building) energy consumption and transportation sectors.

#### Establishing Community-Wide Targets for Saskatoon

If the City were to follow the global commitment on reduction targets, the target of 80% reduction would have to be realized by 2050. The last 10% of reduction will be more difficult to achieve than the initial reduction, and mitigation initiatives take a period of time for the effects to be realized. Consequently, as shown in Attachment 2, many regions are opting to have higher mitigation targets at the beginning of the timeline to account for the time and effort lag at the end of the timeline.

The Administration supports the Saskatoon Environmental Advisory Committee (SEAC) recommendations for community-wide GHG targets as both attainable and ambitious:

- 15% emissions reductions below 2014 levels by 2023; and
- 80% emissions reductions below 2014 levels by 2050.

When compared to the last emissions targets established for Saskatoon, these new community targets are equivalent to a 23% increase and 69% decrease, respectively,

from 1990 levels.

Setting targets for community emissions is the first step in providing support to the community to engage in mitigation activities that will contribute to the emissions reductions committed to by the Federal government, and decrease the carbon price obligation that will be implemented in 2018. If the community is able to reduce emissions by 15% by 2023, the carbon price obligation for the community might be decreased by \$2.5M.

### Re-establishing a Baseline Corporate Target for the City of Saskatoon

The City's (corporate) target was adopted in 2015 and requires a 30% reduction by 2030 from 2006 levels. This is the equivalent of a 10% reduction from 1990 levels.

The Administration notes SEAC is recommending basing targets using the 2014 Inventory as the baseline. This is a more transparent and reliable base year to use for targets because the methodology and inventory are the most robust the City has produced and should provide a solid foundation for future mitigation efforts. The Administration, therefore, recommends adjusting the corporate target to utilize 2014 as the base year. The new resulting target is 40% by 2023.

### Implications of Reducing Emissions

There are additional implications to the City by implementing emissions reductions initiatives. Some additional benefits include improved land use, lower consumer and commercial utility bills, and improvements on individual and public health. Attachment 3 identifies some benefits of reducing emissions, as well as some risks to achieving reduction targets.

The Saskatoon community will realize positive effects to reducing emissions from a Carbon Pricing perspective. The Canadian Federal government released a Technical Paper on the Federal Carbon Pricing Backstop report in May 2017, to be applied in jurisdictions that have not developed and implemented a specific carbon pricing system (such as Saskatchewan). A summary of the report can be found in Attachment 4. Reduction of fossil fuel consumption in the community may reduce the effects of carbon price in Saskatoon.

### Achieving Targets for Saskatoon

To establish a context for the recommended community-wide targets, Administration has prepared a list of emissions reduction initiatives that are currently underway or could be readily initiated. A summary of this list is provided in Attachment 5 and highlights an opportunity to reduce total community emissions by 15% below 2014 levels by 2023.

### **Options to the Recommendation**

City Council may choose to maintain the current corporate target and/or adopt a

different set of targets for the community. To remain compliant with the Global Covenant of Mayors for Climate and Energy agreement, a target must be set in 2017.

City Council may also choose to abandon target-setting and drop out of the Covenant of Mayors.

### **Public and/or Stakeholder Involvement**

Based on the commitments under the Covenant of Mayors on Climate and Energy, the role of the City is to set the targets for the community and then establish a plan to achieve these targets. The Administration recommends engaging the community at multiple levels and in multiple sectors. Engagement will utilize a variety of tactics to identify constraints and opportunities, establish the anticipated role of the City in facilitating emissions reductions, garner community support, and build a sense of shared-responsibility by residents, businesses and other stakeholders to take action to meet Saskatoon's community-wide targets.

The Waste Diversion Communications and Engagement Administrative Report, submitted in June 2017, requests approval for an Engagement Consultant, who will be overseeing the engagement for the Waste Diversion Plan, the Greenhouse Gas Mitigation Plan, the Green Infrastructure Strategy, and the Growth Plan where possible. Details on the engagement plan for Greenhouse Gas Emissions Mitigation will be provided in August.

### **Communication Plan**

A Communications Plan will be prepared in order to build a sense of shared responsibility on addressing climate change, showcase a vision for the future, and highlight how and why to take action to reduce greenhouse gas emissions. Results of the 2014 Greenhouse Gas Emissions Inventory and the next steps required to achieve Saskatoon's community-wide emissions reduction targets will also be communicated. Target audiences will include residents and stakeholders from the Industrial, Commercial and Institutional (ICI) sector.

The Administration is currently preparing a Communications Plan with activities set to begin as early as summer 2017.

### **Financial Implications**

The Administration intends to apply to the FCM Municipalities for Climate Change Innovation Program to develop a Climate Change Mitigation Business Plan to achieve the targets outlined in this report. There is currently \$100,000 remaining in Capital Project 2183, which would be sufficient to cover the City's 20% share of the costs to complete the Business Plan as well as the 20% share of the costs for the Natural Capital Asset valuation and Climate Adaptation Strategy (the other major requirement under the City's commitment to the Covenant of Mayors).

There is no source of funding for the Natural Capital Asset valuation and Climate Adaptation Strategy unless the City can leverage its existing capital funding as suggested here. Administration plans to apply for the Natural Capital Asset Valuation and Climate Mitigation Business Plan projects immediately and then apply for the Adaptation Strategy project in the fall once it knows whether these are approved.

### **Environmental Implications**

A 15% reduction in community emissions is estimated at approximately 580,000 tonnes of CO<sub>2</sub>e (total) or an average of 64,500 tonnes annually until 2023. This is equivalent to every person in Saskatoon reducing their emissions by over 2.3 tonnes each annually, assuming no increase to population or emissions activity. Attachment 6 provides examples of activities and corresponding emissions reductions that can be adopted by residents to put these reductions into perspective.

### **Other Considerations/Implications**

There are no policy, privacy or CPTED implications or considerations

### **Due Date for Follow-up and/or Project Completion**

To fulfill the next steps under the Covenant of Mayors commitments, Administration is preparing the following reports for the Standing Policy Committee on Environment, Utilities and Corporate Services:

- Engagement Plan – August
- An update on the Climate Change Mitigation Business Plan, including whether the City was successful in its application to FCM Municipalities for Climate Change Innovation Program – October

### **Public Notice**

Public Notice, pursuant to Section 3 of Public Notice Policy No. C01-021, is not required.

### **Attachments**

1. City of Saskatoon Community-Wide Emissions: 1990-2014
2. Emissions Targets for Canadian Municipalities
3. Implications of Emissions Reduction
4. Federal Carbon Pricing Backstop
5. Emissions Reduction Initiatives in the Community
6. Options for Residents to Reduce Emissions

## Saskatoon Greenhouse Gas Emissions Targets

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### Report Approval

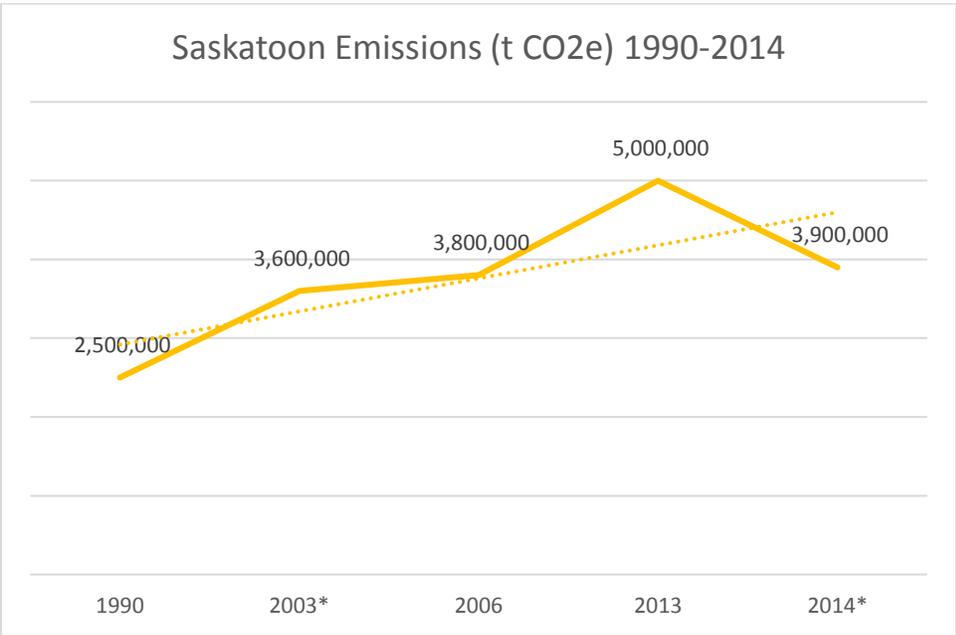
Written by:           Nasha Spence, Environmental Accounting Manager  
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Reviewed by:        Brenda Wallace, Director of Environmental and Corporate  
                              Initiatives

Approved by:        Jeff Jorgenson, Acting General Manager, Corporate Performance  
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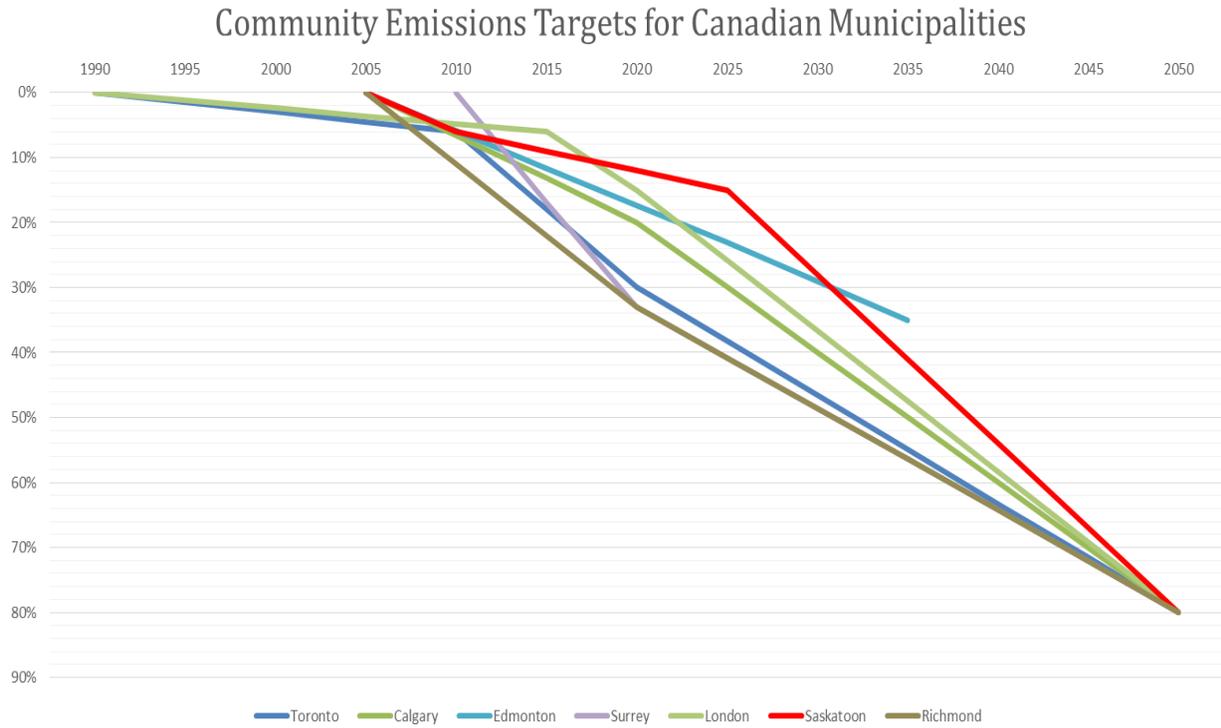
### City of Saskatoon City-Wide Emissions 1990-2014



\* denotes an inventory, all other emissions reports produced have been estimates

The 2006 and 2013 results were estimates based on activities and growth at the City of Saskatoon. The 2013 result was particularly conservative, based on the carbon footprint analysis conducted that year. Improvements to the methodology from the 2003 inventory produced a more reliable report. Reporting emissions from additional sectors in the future will also produce an inventory that becomes more comprehensive. If the 2003 Inventory utilized the methodology of the 2014 Inventory, and if all the years present included all sectors that produce emissions, the graph would likely depict a more linear and sharper increase.

## Emissions Targets for Canadian Municipalities



\*80% emissions reductions are required to meet the global target of no more than 2 degrees (Celsius) temperature increase above pre-industrial levels.

City	Community Target
Burnaby	5% below 2007 levels
Calgary	"new" target of 20% below 2005 by 2020; 50% below 2005 by 2036; 80% below 2005 by 2050.
Edmonton	6% below 1990 by 2010; "new" target of 35% below 2005 by 2035
Gatineau	6% below 2009 by 2020
Halifax	20% below 2002 by 2012
Hamilton	10% below 2006 by 2012; 20% below 2006 by 2020
Kitchener	6% below 2010 by 2020
London	6% below 1990 by 2014; 15% below 1990 by 2020; 80% below 1990 by 2050
Longueuil	7.3% by 2020
Markham	net zero emissions by 2050
Montréal	30% below 1990 by 2020
Ottawa	20% below 1990 by 2012

City	Community Target
Regina	6% below 1990 by 2012
Richmond	33% below 2007 by 2020; 80% below 2007 by 2050
Saskatoon	6% below 1990 by 2013;* 15% below 2014 by 2023 (proposed); 80% below 2014 by 2050 (proposed)
Surrey	33% below 2007 by 2020; 80% below 2007 by 2050 (per capita)
Toronto	6% below 1990 by 2012; 30% below 1990 by 2020; 80% below 1990 by 2050
Vancouver	33% below 2007 levels by 2020
Vaughan	10% below 2011 by 2020 (per capita)
Winnipeg	6% below 1998 by 2019

\*target not met

## Implications of Emissions Reduction

### Benefits of taking action to reduce GHG emissions

Solutions to reduce greenhouse gas emissions have been shown to produce a number of societal, economic, cultural, and environmental co-benefits, including:

- Improved land-use planning and development patterns
- Improvements to individual and public health
- Economic development
- Increases in innovation
- Lower consumer and commercial utility bills
- Enhanced social capital and community cohesiveness
- Smaller ecological footprint
- Increased equity and quality of life benefits
- A safer, healthier, and more accessible city
- Strategic regional planning
- Quieter environment
- More access to natural, recreational, cultural, and educational spaces
- Improved protection and enhancement of natural and naturalized areas
- Decreased the burden on future generations

### Opportunities to link climate mitigation to local and global strategies

The co-benefits of pursuing initiatives to reduce greenhouse gas emissions opens up many opportunities to link climate action to our community's social, economic, cultural, and environmental priorities. In addition, but by positioning GHG reduction priorities and initiatives within a broader sustainability framework, City Council priority areas and the United Nations Sustainable Development Goals<sup>1</sup> are supported. Taking a more holistic perspective has been documented to reveal opportunities that would not exist when considering GHG mitigation, economic development, land-use, transportation or other strategic actions on their own.

As the Administration works on a Climate Change Mitigation Business Plan to achieve the proposed emissions reduction targets, co-benefits will be used as a lens for prioritizing recommendations.

### Challenges to Achieve Emission Reduction Targets

There are a number of factors that could make it challenging to achieve GHG targets and climate action goals, the implications of which could undermine the efforts of the City and community and reduce the beneficial impacts of our actions. Plans will need to identify these potential barriers so that “negative impacts can be mitigated or reversed by policy design that considers not only GHG emissions but also health and equity impacts.”<sup>2</sup>

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<sup>1</sup> <https://sustainabledevelopment.un.org/>

<sup>2</sup> City of Toronto, Sustainability Solutions Group, whatIf? Technologies (2017). *TransformTO: Climate Action for a Healthy, Equitable, Prosperous Toronto*.

**Climate change risks expected to impact Saskatoon**

Climate change is increasing the severity and number of naturally occurring events. As a result, Saskatoon could experience: more extreme weather events; property and infrastructure damage; loss of habitat and biodiversity; increases in pests and invasive species; exacerbated issues of poverty, hunger, and health; and poorer water, air, and soil quality; amongst others.

In addition to the Climate Change Mitigation Business Plan, Administration continues to work on an Adaptation Strategy to address climate change risks.

## Federal Carbon Pricing Backstop

The Canadian Federal Government released a report in October, 2016, that committed to implementing a carbon price for all provinces and territories in Canada. This carbon price commitment is effective in 2018, and provides all provincial governments to determine a carbon price program that best suits their geographical area and economy. The carbon price is meant to influence high emitting activities, and encourage efficiency, innovation and reduced consumption to reach an emission target that meets global standards for emissions reduction.

The Canadian Government released a supplementary report in May, 2017, for all jurisdictions that did not create a carbon price program for their province/ territory.<sup>1</sup> The Technical Paper on The Federal Carbon Pricing Backstop reports a general guideline for a “carbon pricing levy” for these jurisdictions, of which Saskatchewan is one.

The levy will be applied on liquid, gaseous and solid fossil fuel consumption at a rate of \$10/ tonne in 2018 and increasing annually to \$50/ tonne in 2022. The levy applies to all registered fuel distributors, registered fuel importers, registered fuel users, and output based industrial consumers (i.e., those that produce a level of emissions that are over a certain threshold). Some exceptions to application of the levy will be recognized, such as consumption of gasoline and diesel for certain farming activities, and some fuels used in manufacturing with specific guidelines.

Based on the intent of the carbon pricing initiative, corporations and large users are expected to pass on the additional cost of operating onto the consumer. For example, if a large fuel provider is required to pay the carbon levy for gasoline sales at the retail level, the additional cost of providing service is expected to be passed on to the consumer (i.e., the driver). Personal vehicle usage, then, will simultaneously decrease an individual residents’ personal expenses and decrease emissions for the community.

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<sup>1</sup> <https://www.canada.ca/content/dam/eccc/documents/pdf/20170518-1-en.pdf>

## Emissions Reduction Initiatives in the Community

The following emissions reduction initiatives listed by sector are initiatives that are being implanted, initiatives that are in the planning phase, and initiatives that have yet to receive funding. These are not the only emissions reducing initiatives in the corporation, but provide a general overview to the potential for reduction based on current discussion at the Committee and Council level.

Sector	Affect on emissions (tonnes CO2e)	% Reduction on community emissions
Energy (e.g., energy performance contracting, landfill gas expansion project)	326,000	-8.5%
Waste (e.g., recycling programs, organics programs)	89,000	-2.3%
Transportation (e.g., alternative transportation programs)	70,000	-1.8%
Asset management (e.g., land use strategies, natural asset strategies)	17,000	-0.4%
<b>TOTAL</b>	<b>502,000</b>	<b>-13.0%</b>

## Options for Residents to Reduce Emissions

Activity	Tonnes of emissions reduced	Description
Water Conservation	3,000	Total tonnes of reduction if each home used 50% rainwater for their outside water use, and all homes built prior to 1980 converted toilets to high efficiency.
Personal vehicle travel	218,000	Tonnes of emissions reduced if 50% of commuters found alternate modes of transportation (i.e., carpool, public transit, bike, and walk)
Waste reduction	151,000	Tonnes of emissions reduced by appropriately disposing of recycling and organics at single unit residential homes and multi-unit residential buildings.
Energy conservation	10,000	The tonnes of emissions reduced by every resident turning off the lights in a room for one hour per day in one year.
Planting trees	20,000	Total emissions sequestered when tree reaches maturity if each resident plants 2 trees per year.

Additional Options	Description
Use energy efficient lightbulbs	Energy efficient lightbulbs decrease energy usage per kWh, decreasing the need for electricity.
Install a programmable thermostat	Programmable thermostats can be set to reduce power consumption while residents are away from the home.
Use cold water to wash clothing	Cold water eliminates the need for power consumption to heat the water.
Unplug appliances that are not being used	Even appliances that are turned off consume a small amount of energy.
Drink tap water	Eliminates waste and energy usage in production.
Buy local and seasonal foods	Buying local and seasonal foods reduces the cost of transportation for shipping.