



Green Procurement Guide

Public Procurement Agency



Newfoundland
Labrador

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Introduction

Green procurement is about minimizing the negative environmental and health impacts associated with purchases made by public bodies. It is about buying products and services that are more energy efficient, less toxic, and create less waste and overall life-cycle costs.

Buying 'greener' products and services helps minimize the environmental impact of public bodies' procurement activities, and in many cases provides better value. Comparing products and services may consider elements such as the use of raw materials, packaging, distribution, reuse, operation, maintenance, and the disposal process and requirements. Green procurement, at its core, is about getting better total value for taxpayers' money.

Upfront costs will always be a core part of assessing any proposal, but should be incorporated into the overall evaluation as part of life-cycle costing. Additionally, a number of other elements may impact 'best value', including environmental impacts.

While developing requirements and specifications for products and services that include green criteria may be viewed as a core activity, green procurement activities exist throughout the procurement process, including when determining needs and when engaging and selecting suppliers.

Green procurement is not just about buying the greenest possible product available. Instead, it's about ensuring that green issues are strategic priorities for public bodies and are sufficiently considered as part of overall procurement decisions.

Purpose of this Guide

This guide is designed to assist public bodies to effectively plan and implement green purchasing practices in their procurement activities by providing guidance and examples for public bodies to consider in their procurement activities. It explains possible approaches under the Government of Newfoundland and Labrador's Public Procurement Framework, and its purpose is to promote the inclusion of green considerations in the public procurement process in order to expand the availability and use of green options.

Why Buy Green?

Procurement spending by public bodies in Newfoundland and Labrador represents a significant amount of money flowing into the provincial economy each year. By leveraging this purchasing power to buy goods, services and construction that have reduced environmental impacts, public bodies can enhance their contribution to the achievement of local, provincial and national environmental sustainability goals. In addition, green procurement may facilitate the development of innovative solutions, new markets and the development of products and services with reduced environmental impacts.

Green procurement may also provide financial savings to public bodies, particularly when life-cycle costs are taken into account. For example, goods such as energy-efficient appliances may have an initial purchase price that is higher than other similar options, but the energy savings costs over time offset the additional up-front expense.

Green Procurement and Best Value

“Best value” as defined in the Public Procurement Regulations includes the best balance of cost, quality, performance and support, as achieved through a transparent, efficient and competitive procurement process using clear and fair evaluation and selection criteria. This approach allows for public bodies to factor in elements such as green considerations into their procurement processes. At times, it may be difficult to determine what green elements should be included in order to determine best value. This guide provides some core elements and examples to possibly include and consider when public bodies undertake their procurement activities.

Quick Start Checklist for Buying Green

The Quick Start Checklist has been developed as a simple tool to help you keep in mind the key steps involved in buying green. Use this checklist as a reminder of what is required to effectively integrate green considerations into the purchasing process.

What is Green Procurement?

Green procurement is about procuring goods and services with a reduced environmental impact. Green procurement is not a new method of purchasing, rather it refines the traditional approach to what public bodies purchase already. Officials responsible for procuring goods and services for public bodies should consider:

- The need the product or service fulfills
 - Can the need be met in another way?
 - Does the purchase need to be made at all?
- A product’s impact on the environment over its total life-cycle
 - Have all elements of the product life-cycle been considered, from manufacture to disposal?



Quick Start Checklist for Buying Green

Have you...

- **Clearly identified and quantified the need for a product or service to ensure that it cannot be fulfilled in another way (e.g. could it be bought or leased?)**
- **Correctly sized the order to avoid waste?**
- **Identified most likely environmental impacts of the product or service to ensure that possible environmental issues may be reduced?**
- **Developed minimum environmental specifications (such as an ecolabel certification)?**
- **Identified if there are likely to be any additional operating (e.g. energy or fuel consumption) or disposal costs that should be factored into a total life-cycle cost model?**
- **Considered if good could be rented rather than bought or leased?**
- **Developed green evaluation criteria?**

- The total cost of the product over its life-cycle
 - Has the total life-cycle cost been considered, not just the upfront purchase cost?
- Overall value for money for public bodies
 - Has quality, performance, price, environmental impact and availability been considered?



Examples of Green Products and Services

Green products and services are designed to have minimal or reduced impact on the natural environment and enhance workplace health and safety. Examples include:

- **Recycled paper**
 - Reduces amount of greenhouse gas emissions associated with harvesting trees and saves water and energy consumed through the manufacturing of non-recycled paper products
- **Green cleaning supplies**
 - Reduces/eliminates the use of toxic chemicals, reduce transportation emissions by shipping in ultra-concentrated formulas, and stop environmental contaminants from ending up in rivers and oceans
- **Products certified by ecolabels**
 - Identifies products that meet certain environmental requirements, such as energy efficiency or recycled content standards
- **Electric vehicles**
 - Electric vehicles, when operating on battery power, do not produce greenhouse gas emissions or other typical vehicular pollutants

Note that...

- Public bodies are able to apply environmental award criteria as long as those criteria:
 - Are connected to the subject-matter of the contract;
 - Do not provide the public body with the freedom to choose whichever bid they prefer;
 - Allow for a competitive environment;
 - Are explicitly outlined in the contract notice and solicitation documents, including scoring weightings; and
 - Are compliant with applicable trade agreements.
- Embracing an approach that considers the total life-cycle costs in award criteria by examining features such as energy use and efficiency, water use and efficiency, warranties, maintenance and disposal costs, amongst others, which may demonstrate that the greener option is less costly in the long term. Ecolabels and other forms of third-party certifications can help public bodies when developing specifications.

What is the Life-Cycle of a Product?

The life-cycle of a product refers to all the stages of a product's life from raw material extraction through materials processing, manufacturing, distribution, use, repair and maintenance, warranty time frames and ultimately, disposal.

Life-Cycle Costing

The price of a commodity is almost always one of the most significant factors when evaluating a bid, but defining the cost of goods and services should consider more than simply the upfront purchase price. Life-cycle costing requires that all costs related to the purchase, use and disposal of a product or service are considered. This includes:

- Initial purchase price, including costs related to delivery, set-up, etc.
- Operating costs, such as energy use, as well as maintenance costs and warranty quality; and,
- Disposal costs.

Fuel and energy use can comprise a significant amount of the overall cost of a product or service and its environmental impact. Including criteria that are aimed at limiting these impacts can make procuring goods and services both cheaper and greener over the course of the product or service life-cycle.

Often, green goods are initially costlier than comparable options. Sometimes, the greenest option is the one that does not require significant maintenance over its life cycle, for example, a product that uses higher quality materials compared to other alternatives.

When an immediate need to procure goods and services exists, it is often easy to forget or minimize the impact that disposal costs will have on the total life-cycle cost, simply because these costs won't be realized until much further into the future. Ultimately, at some point disposal costs will have to be paid, and these costs can be environmental as well as financial in nature. For commodities where significant difference in disposal costs is likely, public bodies may wish to consider including criteria relevant to these costs.

Life-cycle costs may also involve other negative environmental consequences such as pollution, habitat damage and loss, and greenhouse gas emissions. Practically, some of these consequences may be measurable, and others may not. However, it is important to consider these costs where possible, as well as the availability of trade-in, recycling or return programs, when evaluating options or developing specifications.

Public bodies must provide suppliers with the factors that will be included in your assessment of life-cycle costs. By using life-cycle costs as a measure of value, you will ensure that considerations not included in the upfront purchase price are factored into procurement decisions. This will often result in greener purchases that demonstrate better overall value compared to traditional alternatives.

Assessing life-cycle costs inevitably includes an element of unpredictability (for example, maintenance costs, energy consumption, as well as the product's actual lifespan). Therefore, requesting detailed supporting information for cost estimates provided by suppliers is important. In some cases, where future costs are within the control of the supplier (e.g. they are responsible for maintenance or disposal), you can build maximum future prices into your contract terms, giving greater certainty to your life-cycle cost calculations.

The frequency with which a product needs to be replaced will have a major impact on its cost, especially over a longer period. A cheap, poorly made product which needs to be replaced frequently may cost much more over the long term than a higher-priced, good quality product which lasts for many years and generates far less waste. This should be taken into account when determining over how many years you wish to make a life-cycle cost comparison.

When incorporating life-cycle costing in your bid evaluations, in order to ensure fairness and transparency, it is essential to provide potential suppliers with the criteria that will be included in your life-cycle costing calculation.

Saving Money with Green Procurement

Green procurement practices highlight that just because a product or service has a lower upfront or initial cost, does not mean that it will have the lowest total cost once you consider other factors, such as maintenance and replacement costs. The concept of life-cycle costing is important to keep in mind in order to ensure that the most efficient use of taxpayer money is being achieved. The table below provides an example of how you could consider the total cost of a similar product throughout its lifecycle, including use and disposal.



Life Cycle Cost Savings

LED lightbulbs may have higher up-front purchase costs, however, their energy savings over time makes their life-cycle cost lower than incandescent bulbs. Additionally, LED bulbs may last up to 50 times longer than traditional light bulbs, significantly reducing waste sent to the landfill.

Vehicle	Purchase Cost	Annual Operating Cost	Depreciation plus Maintenance Cost	Total Cost per km	Fuel Cost per Year	Greenhouse Gas Emissions over 5 years (kg)	Total 5 Year Cost
2021 Ford Escape SE 4D AWD	\$32,744	\$8,995	\$4,725	\$0.45	\$2,405	18,927	\$25,745
2021 Ford Escape Plug-In Hybrid SE 4D FWD	\$37,244	\$7,465	\$4,994	\$0.37	\$509	0	\$15,004

Data from the Canadian Automobile Association

In the example above, despite the plug-in hybrid version upfront purchase price being \$4,500 more than the gas version, the total five-year cost is almost \$10,000 less and eliminates almost 19,000 kg of greenhouse gas emissions.

Setting Priorities and Green Procurement Targets

Setting green procurement targets demonstrates public bodies' commitment to green purchasing, and demonstrates the progress that has been made in greening their procurement activities. Targets may not only include overall procurement goals, such as the percentage of procurement activities that include green criteria, but also operational targets such as green procurement training and policies.

Introducing green procurement practices is best achieved with a gradual, step by step approach. Public bodies may wish to start by selecting a few categories of products and services to focus on including green criteria in their purchasing activities.

When deciding upon which categories of products and services to focus on, consider choosing those that have clearly identifiable and measurable green options (e.g. recycled content, reduced energy use, etc.), have significant environmental impacts, or those that have noteworthy potential to impact the market demand for green products and services.

It is recommended that public bodies conduct research to identify areas where green alternatives are readily available. This research may also include identifying the presence, applicability and validity of ecolabels and other environmental certifications. It is important to assess the extent to which green alternatives will result in increased financial costs. It is important to calculate costs over the entire life-cycle of the product or service.

Training and Guidance

Ensuring that staff have the skills and knowledge to implement green procurement approaches is essential for successful implementation. Officials responsible for procurement should be provided with opportunities to gain the skills, knowledge and guidance on including environmental considerations and how to assess and verify green procurement claims, including how to assess life-cycle costs.

This guide seeks to provide an overview of core green procurement topics and general approaches for public bodies to integrate green purchasing practices into their current procurement activities. For further training, please contact the Public Procurement Agency or the Centre for Learning and Development.

Greenwashing

As consumers increasingly seek out greener options, a growing number of suppliers market their products or services as being “green”, “environmentally friendly”, or “sustainable” despite lacking objective evidence to support their claims – this is known as greenwashing. Suppliers may overstate their claims of energy efficiency, or emphasize a relatively insignificant green impact. In order to avoid these pitfalls, it is necessary to be informed of the environmental impacts of your intended purchase, prior to issuing your solicitation.

By ensuring that your technical specifications are based on an assessment of environmental impacts across the life-cycle of the product (e.g. from a third-party environmental label), and by requiring appropriate proof from the supplier for the environmental performance they claim, you can avoid greenwashing.

Below are some additional strategies to identify greenwashing practices:

Emphasis on a Single Factor

A supplier may emphasize certain features of a product or service while disregarding other environmental issues. For example, paper from sustainably harvested forests may also use harmful chemicals such as chlorine or bleach in their manufacturing processes. The trees may be sustainably harvested, but the processing of the raw materials is not environmentally-friendly and produces GHGs and other negative environmental impacts.

Lack of Independently Verified Proof

Some suppliers will create and use their own certifications that are not independently verified by a third party in order to give the impression of legitimate green claims. Recognized ecolabels or independently verified supporting information should be present for any green claims to be accepted. For example, UL ECOLOGO certification is a widely recognized and accepted standard for a variety of goods.

Ambiguous Claims

Poorly defined or broad claims can be easily misjudged for their validity. For example, words such as “natural” or “eco-friendly” do not have universally accepted definitions and cannot be used to verify environmental claims. Look for clear measurements, such as energy use in KWh.

False Labels

A product that uses descriptions or symbols intended to give the impression of a third-party endorsement where one is not present. For example, this may be present as self-reported “fair trade” certification, or “organic” claim that is not verified by a recognized third-party.

Irrelevance

A claim that may be true but is inconsequential or has minimal environmental impact. For example, stating that a product is free of a legislatively-banned substance.

Unsubstantiated claims

Sometimes, products or suppliers will make environmental claims that are completely false. For example, a product may falsely claim to be certified by a well-known ecolabel.

Identifying Environmental Impacts for Low Dollar Value Purchases

To keep things simple for identifying the environmental impacts of low dollar value purchases, start by focusing on the following green issues that may be relevant to the purchase:

Packaging

Means the amount of packaging that is used to transport and contain products and the type of packaging (e.g., cardboard, plastic, pallets, shrink wrap, Styrofoam), some of which can be difficult or costly to recycle. Specifying that packaging either be made of a recyclable material, that no double-packaging is used, packaging to product weight ratio, or that the packaging is returnable to the manufacturer are potential specification options.

End of Life Disposal

Means what happens with a product when its operational life has ended and whether it will end up in a landfill or if it can be recycled or refurbished.

Energy Efficiency

Means using less energy in comparison to other goods and services that meet the same operational requirements.

Recycled Content

Means a product is made from resources that have previously been used and collected in a recycling or reuse program, thereby saving natural resources.

Non-Toxic Ingredients/Pollutants

Means products that are made without micro plastics, poisonous or harmful chemicals or ingredients.

Greenhouse Gas Emissions (GHGs)

Means the amount of heat-trapping gases that build-up in the earth's atmosphere and cause climate change. The most noteworthy GHGs are carbon dioxide, methane, and nitrogen dioxide.

Sustainably Harvested Resources

Means raw materials that are harvested or extracted in a way that doesn't diminish or jeopardize their ongoing and future availability.

Water Consumption

Means the amount of water used or negatively impacted by the manufacturing process.

Supplier Environmental Practices

Means practices that suppliers have incorporated into their production and/or operations that reduce their environmental impact compared to traditional practices.

Other ways to enhance public bodies' green procurement approaches include:

Be a Green Procurement Champion

Talk to your coworkers and executive team about green procurement. Green procurement requires champions within organizations to take the lead on facilitating the consideration of green criteria when purchasing goods and services.

Make a Plan and Report on Progress

Develop an annual plan that identifies opportunities for green procurement and include targets where possible. Include measures and indicators for monitoring and reporting purposes.

Engage with Current Suppliers

Engage with suppliers to identify opportunities to enhance the environmental sustainability of products and services.

Identify Common Categories of Green Purchasing

Identify common categories of products that typically offer green alternatives. This may include, but not be limited to, construction and buildings (see Appendix A), landscaping, office supplies, paper products and vehicles

Identifying Environmental Impacts for Goods/Services in Solicitations

Identifying the environmental impacts of purchases conducted through solicitations is similar to that for low dollar value purchases. Start by considering that green impacts are possible – and then shortlist those, which are likely to be from both a positive (e.g. improving energy efficiency) and negative (e.g. using toxins) perspective.

When seeking to purchase goods and services, define the issue and technical specifications in a manner that considers the total life-cycle environmental impacts of the goods or services being procured. Where appropriate, include green criteria. Encourage potential suppliers to deliver even higher levels of environmental performance.

The following is a basic process that can be used to identify the potential and/or significant green impacts for a given procurement.

1. Engage with the End User

It is helpful to have some knowledge of the costs, availability and applicability of green options. When developing requirements solicitations, involve the end user from the beginning of the process. Sometimes, green solutions may seem easier or more difficult than they actually are. Discussing potential options will provide clarity on what is possible. Help suppliers to find solutions to their challenges through the use of greener products and services. Ask them about targets for reduced costs or challenges they may face to greening their products and services. Help them find green options, such as reduced packaging, to address their challenges.

2. Conduct Research

Research the environmental impacts of your desired product or service. Consider the impacts that elements such as shipping and transportation, waste, pollutants and recycled content, and others may have. You may also consult the product factsheets found in Appendix B of this guide for details on commonly procured products and use the recommendations to support your purchasing decisions.

3. Consult an Internal Expert

If your organization has an environmental, sustainability, or green team, consult these internal experts to get help thinking through the possible impacts of a product or service. Remember to also see what specifications have been successfully used before. You may also consult the Public Procurement Agency or the Office of Climate Change for examples of good practices from other departments and public bodies.

4. Ask Questions of Suppliers

Talk to suppliers or reach out to industry associations to access their knowledge of green products and services that the marketplace can deliver.

5. Identify any Possible Third-Party Certifications and Ecolabels

Look for the availability of ecologos such as EnergyStar. Labeling and certification programs set criteria for superior environmental performance compared to most conventional alternatives. The Ecolabel Index tracks ecolabels and environmental certification schemes around the world.

Advocating for a Green Procurement Approach

The most effective way to advocate for a green procurement approach is to emphasize the overall life-cycle savings. While price remains the prevailing factor in procurement decisions, it must be recognized that many goods and services involve additional costs that occur during use and disposal that should be factored into procurement decisions. Costs related to maintenance, energy use and disposal, amongst others, may significantly increase costs over the life of a product or service. Considering the total life-cycle costs of a green alternatives in comparison to more traditional options may reduce in overall cost savings and reduced environmental impact.

Green Procurement Criteria

Green procurement criteria includes selection and award criteria, specifications and contract performance requirements. There are a number of sources of green procurement criteria, and knowing where to find such criteria is essential in incorporating green procurement into public body purchasing activities. You may wish to consult the Public Procurement Agency, examine other jurisdictions’ green criteria, or consult the chart below to get started.

Examples of Green Procurement Criteria

General Criteria	
Operational costs:	Such as energy or water consumed by the good over its life
Indirect costs:	Such as outdated and energy inefficient equipment, e.g. less energy efficient information technology equipment will produce more heat causing the building’s air conditioning system to work harder, and increase electricity costs
Investing up front to save costs later:	Such as specifying higher levels of insulation where the extra expenditure can be recovered from lower energy costs
Use of refurbished parts or products:	where possible
Recyclability:	Such as the ability to return and transform used items and waste into useful products
Cost of disposal arrangements:	Such as safe disposal of hazardous materials
Establishing minimum environmental performance standards	For commodities where there is a sufficient supplier base to support competition
Incentives:	Where the supplier base is limited, include incentives for meeting extra environmental performance criteria

Examples of Green Procurement Criteria

Use of contractual terms:	To define environmental obligations, such as packaging take-back, use of certified recyclers for e-waste
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Environmental Criteria

Existence of ecologos	Has the good/service been certified through an independent program, such as Energy Star?
Use of independent studies:	Have studies of the environmental attributes of the good been completed?
Refurbished goods/materials:	Are the goods/materials remanufactured, rebuilt or refurbished? Does the good include post-consumer recycled content?
Recycled goods/materials:	What type and what percentage are recycled materials? Is the good easily disassembled?
Resource/energy efficiency:	Does the good/service make efficient use of resources and energy throughout its life cycle? Does the good have any energy, water or fuel saving features?
Waste:	What waste mitigation/reduction measures are in place? Will all waste be source separated on site and recycled?
Life-cycle:	Are there measures to extend the useful life of the good; for example, re-use, refill, recharge, recondition? Does the supplier offer a non-hazardous replacement or alternative for this good?

Packaging

Minimum packaging:	Is packaging reduced to the bare minimum required to ensure that the good is delivered in perfect working condition? Can the good be acquired in bulk or concentrated form? Is the product reusable rather than single use?
Packaging removal:	Will the supplier remove the packaging from the site following installation? Does the supplier reuse or recycle the packaging?
Packaging recycling/reuse:	Is the packaging reusable, contain reusable parts or is it recyclable?
Use of post-consumer materials:	Does the packaging material contain post-consumer recycled materials?

Examples of Green Procurement Criteria

Delivery, Warranty and Maintenance

Recycling policy:	Does the good include a return for recycling policy?
Recycling availability:	Can the good be recycled locally? Will consumables (such as toner cartridges) be accepted for recycling?
Warranty:	How long is the warranty? Should you purchase an extended warranty?
Maintenance:	Are maintenance and replacement parts readily available and reasonably priced?
Ability to upgrade:	Is the good easy and cost effective to upgrade?

Other

Certification:	Does the supplier have a certification or registration (for example, ISO 14001 registration)?
Regulatory Violations:	Has the supplier received any regulatory environmental violations within the past five years?

Source: Public Services and Procurement Canada

Additionally, the European Union has developed a robust list of green procurement criteria for a wide range of categories of goods and services that are regularly reviewed and updated. Public bodies may wish to consult this resource for additional green procurement criteria. The criteria are found here: https://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm.

Developing Green Specifications for RFPs

The nature of the RFP process is that you have more flexibility in asking for criteria beyond the minimum specifications that might be used in a solicitation. This is the perfect opportunity to integrate green considerations into the specifications or scope of services and explore what the market has to offer.

Engaging in dialogue with suppliers is very important. You can inquire about the green practices of the supplier themselves. For example, are they implementing waste reduction and recycling in their operations? Are they actively promoting energy conservation? It is appropriate in an RFP to look above and beyond just the features of the product or service that a vendor may be providing.

Green procurement also applies to services. Consider possible ways to green service contracts. You may wish to focus on initiatives that promote energy conservation and efficiency.



Life Cycle Cost Savings

Imagine you are organizing a large meeting. If your office has a dishwasher, or your caterer can provide reusable dishes, that should be your preferred option over disposable dishes and cutlery.



Incorporating Lifecycle Costs into Solicitations

The Government of Newfoundland and Labrador is an environmental leader, and as a result, has recently purchased two electric vehicles for its fleet of vehicles that are available to employees to conduct their work in the provision of government services.

These vehicles demonstrate best value when considering total life-cycle costs, including the up-front costs and fuel consumption. There are fewer maintenance costs, no fuel costs, and costs associated with engines, such as oil changes, are eliminated. The vehicles do not consume gasoline, therefore there are no greenhouse gas emissions produced by their operation.

What a product is made of, how it is produced or how a service or work is performed, can form a significant part of its environmental impact, and may be considered when determining technical specifications. You may include requirements that the product you are purchasing:

- Be made from a specific material;
- Contain a certain percentage of recycled or reused content;
- Does not contain certain hazardous substances in the product;
 - For example, clothing and cleaning products are common product areas to apply these requirements
- That any production requirements are not proprietary;
 - Use of “or equivalent” language allows openness
- Life-cycle analysis of goods, services and construction will assist in determining appropriate specifications for materials and production specifications, including:
 - Consideration of the extraction of raw materials
 - Consideration of the manufacturing process
 - Consideration of other production stages
 - Consideration of storage and handling
 - Consideration of disposal methods and costs

Use the Green Product Factsheets in Appendix B

1. Appliances

2. IT Equipment

3. Copy Paper

4. Interior Lighting

5. Janitorial and Cleaning Suppliers

6. Light Duty Fleet Vehicles

7. Office Furniture

8. Waste Hauling and Recycling Services
9. Wood for Construction

10. Flooring

11. Architectural Paint

12. Office Supplies

13. Drinking Water

14. Food and Catering Services

15. Vehicle Consumables

End-users, specification writers and purchasing staff need time to work together to ensure that the green impacts identified are adequately considered and that the appropriate specifications are developed to address potential environmental risks or capitalize on green innovation opportunities. Your first step is to check and see if the product or service you are buying is already profiled in one of the Green Product Factsheets in Appendix B.

Evaluating Options and Selecting your Product or Vendor

When it comes to selecting products and services for low dollar value purchases, look for items that have an identifiable ecolabel. These logos provide assurance that a product has green features and benefits. The table below provides a list of characteristics to prefer and avoid, where possible, when evaluating options:

Prefer	Avoid
Certified Products (e.g. ecolabels such as EnergyStar, Canada Organic, etc...)	Uncertified products or services where a recognized certified alternative is available
100% recycled content	Non-renewable, non-biodegradable, synthetic and toxic materials
Organically grown/untreated	Chemically assisted/treated
Efficiently powered by renewable energy, energy efficient and low-level carbon emissions (e.g. hydro, solar, wind, wave, alternative fuels)	Powered by fossil fuels, energy inefficient and high carbon emissions (e.g. gas, diesel, natural gas, propane, etc.)
Durable and reusable	Disposable
Locally grown/produced	Grown/produced outside local area

What are Ecolabels?

Ecolabels are labels which identify that a product or service meets certain environmental standards. Contrary to self-styled green claims or symbols made by manufacturers and service providers, reputable ecolabels are awarded by an impartial third-party for certain products or services that meet transparent environmental criteria. As ecolabel certification becomes increasingly popular, it is important that public bodies ensure that the ecolabel requirements they are using are from a reputable party. For a current list of existing ecolabels, consult www.ecolabelindex.com. You may also wish to consult with PPA to determine what ecolabels other public bodies have required for similar purchases.

Many different types of ecolabels exist. The chart below indicates the characteristics of various categories of ecolabels:

Ecolabel Type	Characteristics	Example
Single Issue	<ul style="list-style-type: none"> Based on a single issue, such as energy efficiency Typically requires a minimum standard to be met (i.e., pass/fail) 	<ul style="list-style-type: none"> Energy Star Canada Organic
Multi-Criteria	<ul style="list-style-type: none"> Indicates overall environmental preference Criteria consider the entire product life cycle Based on multiple different criteria, including: <ul style="list-style-type: none"> Raw material extraction Production methods Material composition Distribution methods Disposal characteristics 	<ul style="list-style-type: none"> ECOLOGO
Sector-Specific	<ul style="list-style-type: none"> Apply to a single identifiable sector 	<ul style="list-style-type: none"> Best Aquaculture Practices (BAP Certified) Forest Stewardship Council
Graded	<ul style="list-style-type: none"> Graded according to environmental performance 	<ul style="list-style-type: none"> EU Energy Label

Why Use Ecolabels?

Ecolabels provide a convenient method to identify the environmental characteristics of a product or service. Ecolabels which use green criteria relevant to the good or service you are seeking to procure may also be used to design assessment criteria. Ecolabels can help to reduce the amount of technical analysis and/or verification of self-declared claims of the environmental implications of comparable products or services.

When May You Consider Using Ecolabels?

Ecolabels may be used in several ways, including using some or all of the criteria necessary to obtain the certification, and/or requiring the presence of the ecolabel certification. When requiring the presence of an ecolabel, public bodies should examine the requirements to receive the certification in order to ensure that:

- They only apply to criteria which are connected to the subject matter of the contract;
- They are grounded on empirically demonstrable and unbiased criteria;
- They are created using an open process in which all relevant stakeholders may participate;
- The ecolabel is accessible to all parties; and
- They are established by an unbiased entity over which the organization applying for the label cannot exercise influence.

If a label meets the requirements noted above, you may wish to include it as part of your contract specifications. Public bodies must ensure that labels that satisfy equivalent requirements are also accepted. Products or services that can establish that the same objective criteria are met must also be accepted.

Selecting the Green Requirements for your Solicitation

When identifying relevant green issues, it is important to conduct some basic product research in order to identify which green issues you will want to include in your solicitation. Where there is potential for significant impact (e.g. high energy use), you will want to ensure a specification or criteria is included for this issue. You may also wish to see if an impact is related to one of your organization's core environmental strategy areas and include this in your solicitation.

Common green issues that may be addressed include:

- Energy Use
 - What is the potential energy use of the product or service over its lifetime?
- Recycled Content
 - Is the product made from easily renewable materials?

- Product Recycling and Disposal
 - Can the product be easily recycled or returned to the manufacturer as part of a responsible disposal program at the end of its life?
- Packaging
 - Can the packaging be easily recycled or returned?
- Greenhouse Gas (GHG) Emissions
 - What is the level of GHG emissions in the making of the product/will it have a significant carbon footprint?
- Toxic/Hazardous Chemicals
 - Does the product contain toxic chemicals that could have a negative effect on human health and safety?
- Water Conservation/Air Quality
 - Will the product have negative impacts on water availability/quality? Air quality?
- Policies and Programs
 - What policies and programs does the supplier have in place to manage its environmental impacts (green plans, management systems, environmental standards, etc...)?

Monitoring Green Procurement

Measuring the efficacy and achievement of green procurement goals requires an effective monitoring framework. This requires public bodies to actively monitor contracts that include green criteria. The key goal of a monitoring framework is to track progress against the targets and commitments made by suppliers in procurement contracts.

To start, public bodies may wish to set a target related to the percentage of contracts that include green criteria annually. In order to limit the monitoring burden, it is recommended that, where possible, ecolabel requirements are used in order to reduce the need for technical analysis. Ecolabels may be used as a tool to create green criteria, verify that a product meets certain criteria, or as a standalone requirement. Involving stakeholders in the planning phases of the procurement process will also help identify areas where establishing and monitoring green criteria may be made more practical and efficient. Common goals in green procurement include:

1. Increase the procurement of green products compared to traditional alternatives
2. Reduce negative environmental impacts
3. Encourage suppliers to integrate green considerations and behaviours into their own organizations

Examples of green procurement indicators include:

- Percentage of contracts with green criteria;
- Existence of green procurement actions plans or policies within the supplier's organization;
- Amount of green products or services purchases;
- Green impacts of purchases (for example, the amount greenhouse gas emissions reduced compared to traditional alternatives);
- Financial value of contracts with green criteria included; and
- Number of engagement activities with suppliers on green procurement

Public bodies may wish to consider reporting their green procurement activities via their annual reports.

Appendix A: Buildings and Construction

Buildings are immovable structures that has a roof and walls and is designed to support, enclose or shelter person, animals or property.

Benefits of Green Buildings

Reducing Energy Consumption

Buildings consume significant amounts of energy, and making design decisions that are focused on energy efficiency can go a long way in reducing energy use.

Reducing Waste

Construction-related waste comprises a significant amount of Canada's total waste. Green buildings seek to incorporate recycled materials, use more durable materials, and select materials that are sustainably produced.

Reducing Water Use

Integrating design aspects such as low-flow toilets and alternative water collection methods can alleviate the amount of water consumed and contaminated by buildings.

Reducing Toxins

Ensuring that zero- and low-toxin containing products are used in the design of the building. For example, using low-emitting materials such as paints with zero volatile organic compounds will improve the indoor environment. Designing and constructing buildings in a way that creates healthy indoor environments maximizes our investment and optimizes our total cost of ownership.



Key Green Issues

Energy Efficiency

Using energy efficient materials and appliances, such as LED lighting and EnergyStar rated goods, will contribute to overall energy savings. Additionally, design elements, such as strategic location of windows to capture light and heat, can be incorporated to make buildings more energy efficient.

Specifying minimum energy performance targets or savings may help when purchasing buildings.

Reducing Harmful Waste

Requiring a construction waste management plan may be a contract consideration. Include any expectations around measures to prevent harmful waste, minimize construction waste, or divert waste.

Environmental Award Criteria

Consideration should be given to whether an environmental characteristic should be a minimum requirement (specification) or considered a criteria worthy of evaluation (such as in an RFP). By including environmental criteria into your evaluation, you are able to weigh them against other factors including cost, quality, etc.

Relevant Ecolabels

Ecolabel	Criteria	Importance
LEED	Water efficiency Energy efficiency Use of sustainable and environmentally friendly products Quality of indoor environment	Addresses many aspects of building design and construction to encourage sustainable buildings

The Government of Newfoundland and Labrador's **Build Better Buildings Policy** provides the requirements for LEED and can be found here: [Build Better Buildings](#).

We spend most of our time living and working in buildings. The average Canadian spends over 90% of their life indoors. Buildings and infrastructure should be designed and constructed in a way that creates healthy indoor environments and optimizes total cost of ownership.

Procurement decisions that integrate environmental considerations into new buildings can help public bodies:

- Design and operate energy efficient buildings and reduce GHG emissions
- Create healthy, clean workplaces for employees and the public
- Sustainably manage energy, water and natural resources
- Use materials efficiently to reduce waste during construction
- Reduce impacts on land use and traffic during construction
- Meet its objectives for improving energy conservation and efficiency, addressing climate change and the divert of waste from landfills
- Adapt to the impacts of climate change by choosing locations that are more resilient

Green Procurement Approaches for New Buildings and Retrofits

The design and construction of new buildings and retrofits are at times a complex combination of decision-making and procurement methods. Individual material, component or systems decision cannot be made in isolation because they can affect the overall performance of the building or infrastructure e.g. energy, water, waste, air quality. Green procurement approaches in building and construction projects aim to address both the overall impact of the project and the environmental characteristics of individual products, components or systems being specified.

Depending on the size and complexity of the project, a range of different procurement approaches can be used:

- Specify minimum energy performance targets or savings for an energy efficient new building retrofit including lighting, HVAC or controls improvement or retrofit
- Restrict the use of toxic or hazardous substances in building materials
- Specify the use of sustainably sourced timber and other natural materials recycled and reused materials and the recyclability of materials at their end-of-life
- Give importance to indoor air quality, low VOCs, occupant wellbeing and adequate ventilation
- Require the use of water-saving fixtures, encourage the reuse of grey water and rainwater and storm water management design
- Use reference standards such as LEED or the National Energy Code of Canada for Buildings to determine best practices and possible specifications
- Include contract clauses related to construction waste management to minimize waste going to landfills
- Include commissioning, measurement and verification for training users as part of retrofits or new building projects
- Include selection criteria for consultants, architects or engineers on experience in green building or retrofits
- Include selection criteria for contractors in applying appropriate environmental management measures such as pollution prevention or sediment run-off control.

These approaches may be a part of achieving a green building certification. Pursuit of these certifications can not only achieve higher levels of environmental performance, but also improve operating and management practices. Even if certification is not sought, implementing these approaches will reduce the environmental impact of construction activities.

Importance of Early Decision Making

Since buildings have a lengthy functional life, proper procurement, design and construction decisions are essential to achieve optimum total cost of ownership, minimize future costs of rework or change orders and optimum environmental performance. Early design decisions are the ones that have the greatest potential for environmental performance improvement and largely determine future cost of ownership. The later design decisions are made, the more costly the changes become to implement and the more waste is potentially created through physical rework, additional materials, components or systems.

Life Cycle Stages of a Building Project – Environmental Considerations

1. Project Planning
 - a. Energy audit
 - b. Establish environmental objectives and requirements (e.g. energy, waste, water use, toxic materials)
 - c. Determine environmental certification requirements
2. Procurement of Consultants
 - a. Select qualified experience design consultants (e.g., lighting, interiors, energy engineer)
 - b. Communicate environmental objectives
3. Design
 - a. Energy performance
 - b. Restrict toxic and hazardous materials
 - c. Sustainably harvested wood
 - d. Material specifications (e.g. recycled content)
 - e. Water conservation
 - f. Life-cycle costing
4. Solicitations for Construction
 - a. Environmental management measures
5. Construction
 - a. Recycling, waste, site and air quality management
 - b. Noise, transportation control
 - c. Waste minimization
 - d. Contract performance monitoring
6. Commissioning, Measurement and Verification
 - a. Performance measurement and verification
 - b. Performance monitoring
 - c. Operator training

Greening Contract Titles

If the environmental specification or requirement is a significant component of the overall terms of reference for new buildings and building retrofits/improvements, or perhaps is of high importance to the public body, the title of the contract should clearly state this requirement. For example, appropriate titles for solicitations that will supply environmentally preferable solutions include:

- Supply of low VOC architectural coatings
- Tender for the supply of energy efficient lighting
- Supply of sustainably harvested timber

Note: The title cannot include the name of any third party environmental or ecologo certification that may be discriminatory to suppliers.

Assessing Your Needs and Requirements

A crucial step before starting the procurement process is to assess your needs in light of the potential environmental impact of the building or construction project. Proper feasibility, energy audits and business case development should involve end users to reveal and verify needs (more efficient lighting, enhanced air quality, improved ventilation, control of heating, repair or replacement of materials, components or systems). Public bodies should thoroughly determine their needs and requirements in order to ensure environmentally conscious decision are integrated from the start and throughout the procurement process. The various needs and requirements can range from an improvement in energy performance, lighting levels, air quality, ventilation, water conservation, etc.

Identifying the Key Environmental Issues

Impact/Issue	Approach
Consumption of energy for site selection, heating, cooling, ventilation, hot water and electricity and resulting carbon dioxide emissions	<ul style="list-style-type: none"> • Ensure energy efficiency standards and targets are met or exceeded • Ensure appropriate site selection and orientation • Use performance based contracts for energy service companies • Include commissioning and measurement and verification for larger projects
Consumption of natural resources	<ul style="list-style-type: none"> • Encourage the use of sustainably harvested resources • Encourage material efficiency in design • Set waste diversion targets and ensure proper construction waste management

Consumption of water for cooling and occupant use

- Encourage water efficiency standards and targets
- Specify water efficient fixtures

Emissions of toxic substances during production or disposal of building materials leading to air and water pollution

- Encourage the use of:
 - Non-toxic building materials, furniture and fixtures
 - A life cycle assessment for building materials

Negative health impacts on contractors and building users due to building materials containing toxic substances

- Encourage the use of non-toxic building materials, furniture, fixtures, adhesives and finishes

Environmental Specifications

Once you have defined the need and requirements for the new building or improvement project, a set of environmental specifications have to be developed.

Specification describe to vendors the nature of the contract as well as the measureable requirements against which solicitations can be evaluated. You can develop environmental specifications in terms of:

- Environmental performance used for a particular material, product, service or work
 - Develop environmental specifications that relate to the characteristics of the product, material or service
 - May include things such as energy-use, toxic or hazardous materials, pollutant emissions, or water use
- Material or production processes used for a product, service or work
 - What a building material/component or system is made of, how it is produced or how the construction work is performed, can form a significant part of its environmental impact
 - Materials and production methods can explicitly be taken into account when defining technical specifications
 - Only include requirements which are related to the production of the building material/component or system being procured
- Performance of the end result or output
 - Develop performance-based functional specification that describes the end result and which outputs (in terms of quality, quantity or reliability) are expected, including how they will be measured
 - Do not prescribe the inputs or the way in which the supplier is to achieve the specified level of performance – the supplier is open to propose the most appropriate solution

Requirements for Consultants and Suppliers

You can also develop requirements related to the capability or management practices suppliers are required to perform as a service (e.g. design, engineering)

Technical Capability

A critical success factor for building and construction projects is the quality of consultants required, such as designers, engineers, contractors and supervisors need to have relevant knowledge, experience, skills and references. The project requirements can help inform the criteria to use in procuring consultants throughout the project life cycle – from business case development, feasibility studies to the architect, engineer or lighting designer and general contractor. Specific technical capabilities you may ask from suppliers includes:

- Does the company employ or have access to personnel with the relevant knowledge, experience, skills, educational and professional qualifications to address the environmental requirements of the contract?
- Does the company own or have access to the necessary technical equipment for environmental protection (e.g. asbestos removal equipment)?
- Does the company have the means to ensure the quality of the environmental performance aspects of the contract (e.g. access to relevant technical bodies)?
- Does the company have demonstrated experience in at least three projects of similar scope, size and budget (supported by client references)?
- Can the company identify the key environmental risks and opportunities for the project and show how they should be managed (e.g. storm water management)?

Environmental Management

For new buildings or building improvement contracts you can ask about the environmental management measures that the company will be able to apply in performing the contract. You can only ask for this when the company's management practices are related to the subject matter of the contract.

For example, you can ask that vendors demonstrate their technical capacity (either by having the expertise within the company or by cooperation with experts) to put in place environmental management measures that meet the following requirements:

- Ensuring effective protection of fauna and flora in the building/construction area and its surroundings (where construction takes place in an environmentally sensitive area)
- Measures to prevent any harmful waste, toxic or hazardous substance flows that may adversely impact air quality, soil or watersheds
- Environmental management measures aimed at minimizing construction waste, respecting noise regulations and avoiding traffic congestion

Evaluation – Environmental Award Criteria

Consideration should be given to whether an environmental characteristic should be a minimum requirement (specification) or considered a criteria worth of evaluation (such as in a RFP). By including environmental criteria into your evaluation, you are able to weigh them against other factors including cost, quality, etc.

In tenders, you should set a minimum level of performance in the technical specifications, and then evaluate on price. In RFPs, you can set minimum levels of performance in the technical specifications and then allocate extra points for even better performance to be evaluated. This may be particularly useful when the environmental performance or impacts of the project are significant or have implications on life-cycle cost and value for money.

To determine an appropriate weighting for environmental criteria in RFPs, you should consider:

- How important the environmental objectives are for the contract, relative to other considerations (e.g. cost, quality)?
- To what extent these considerations are best addressed in award criteria, either in addition to, or instead of, in specifications and contract performance clauses?
- How many points/marks you can allocate to green factors. This depends on the product/service and the market conditions. For example, if you anticipate low variations on price, but high variability for environmental performance from suppliers, it makes sense to allocate more points to evaluate green characteristics.
 - Consider how easily it can be measured
 - Is the measure reliable and stable over time?
 - Is there variance expected between vendors on this dimension?

Using Environmental Management Systems

In some cases an environmental management system may also serve as evidence during evaluation. At award stage, you can also assess how a contract will be performed, and therefore the supplier's approach to carry out certain measures in accordance with such a system may be relevant. However, you should not duplicate any requirement for an environmental management system you may have placed as a minimum requirement.

Contract Performance and Monitoring

Environmental considerations can be included in contract performance clauses that prescribe how a contract is to be carried out. Note that departments may exclude vendors who do not agree to the contractual clauses. However, there are some guiding principles that should be followed:

- Contract clauses should be linked to the performance of the contract
- Compliance with the contractual clauses should only be monitored during the execution of the contract

- Contract clauses may include specific commitments which have been made part of the procurement process

Examples of possible contract performance clauses include:

- How the work is performed
 - Application of specific environmental management measures
 - Minimization of waste associated with the contract
 - Efficient use of resources such as electricity and water on site
- Training of contractor staff
 - Require that vendor staff are trained in the environmental impact of their work and the environmental policy of the buyers organization
- Transport of materials, products and tools to the site
 - Require the use of reusable containers or packaging to transport materials or products
- Disposal of used products or packaging
 - Require that all packaging be taken away for reuse, recycling or appropriate disposal by the contractor

Monitoring Contract Compliance

Having environmental contract clauses is only effective if vendors/contractors are properly monitored. Monitoring can take several different forms:

- The vendor is requested to supply evidence of compliance
- The contracting authority/public body may carry out spot checks
- The contracting authority hires a third party to monitor compliance

Appendix B-1: Appliances

Appliances include refrigerators, freezers, ovens, dishwashers, washing machines, dryers and combination washer dryers.

Benefits of Green Appliances

Reducing Energy Consumption and Resources

An ENERGY STAR certified washing machine uses 25% less energy, on average, than a standard model, and 33% less water.

Advanced top-load models flip or spin clothes through a stream of water (rather than filling up the entire washer), which requires less water and less energy to heat the water. Efficient motors spin clothes two to three times faster during the spin cycle to extract more water. Less moisture in the clothes means less energy used by the dryer.

Reducing Water Consumption and other Natural Resources

An ENERGY STAR certified dishwasher uses 12% less energy and 30% less water on average, than a standard model. Dishwashers with the ENERGY STAR Most Efficient designation save more energy than standard models.

Reducing Unnecessary Waste and Recycling

The Refrigerant Management Canada Program is a voluntary industry-led extended producer responsibility program across Canada to ensure the collection and environmentally sound destruction of ozone-depleting substances from commercial stationary refrigeration and air conditioning equipment that have reached their end of life.

An ENERGY STAR certified fridge (refrigerator) uses 10% less energy, on average, than a standard model.



Key Green Issues

Energy/Water Consumption

The major life cycle impact of appliances is not the design and manufacture of the product, but the energy and water consumed during its use.

Resource Consumption

Washing machines and dishwashers naturally use water for the cleaning process.

Hazardous Substances

Ozone depleting substances found in refrigerants, such as Chlorofluorocarbons (CFCs), also known as Freon, are used as coolants in older refrigerators, freezers, and air conditioners in buildings and cars.

Waste and End of Life

Large appliances have long lives. When the useful life of an appliance is over, the materials are still valuable, particularly the steel for scrap.

Appendix B-2: IT Equipment

IT equipment includes all desktop computers and monitors, tablets, copiers, printers and fax machines.

Benefits of Green IT Equipment

Reducing Energy Consumption

An ENERGY STAR certified computer uses 25% – 40% less energy, on average, than a standard model. Desktops, integrated desktops, laptop computers, workstations, small-scale servers, and thin clients are all eligible to earn the ENERGY STAR.

Consider purchasing laptops in place of desktop computers where possible. Laptops can save up to 90% of the energy used by traditional desktop computers.

Reducing Resource Consumption

Buying green IT equipment from manufacturers who recycle or reuse components reduces the demand for new natural resources. Buying durable and upgradable computers increases their lifespan, reducing the frequency of replacement.

Reducing Unnecessary Waste

Resale or redeployment of computers through surplus sales and recycling programs will divert computers from landfills. GNL seeks to reuse IT assets where possible for functional IT equipment. Alternatively, computers may be donated to the Computers for Schools NL program. If no other reuse avenue is available, IT equipment may be disposed under the provincial e-waste program.



Key Green Issues

Energy Consumption

Computers and other office electronics consume immense amounts of electricity.

Durability and Resource Use

Users often replace electronics rather than have them repaired, and the production of these electronics is resource-intensive.

Air Quality and Human Health

Computer components sometimes contain compounds that can “off-gas” and impact air quality and human health

Waste and End of Life Management

When computers and other electronics are disposed, the resulting waste stream contains toxic materials.

Appendix B-3: Copy Paper

IT equipment includes all desktop computers and monitors, tablets, copiers, printers and fax machines.

Benefits of Green Copy Paper

Reducing Carbon Emissions and Air Pollutants

By using recycled paper, the amount of GHG emissions associated with harvesting of trees is reduced. Using 100% post-consumer waste recycled paper reduces total GHG emissions by 38%.

Reducing Resource Consumption

Recycled paper saves trees, water and energy consumed through the manufacturing non-recycled paper products. One metric tonne of recycled paper saves about 19 trees, 29,000 liters of water, 175 liters of oil, and 4,500 kWh of electricity.

Reducing Unnecessary Waste

Although a significant amount of paper products are recycled in Canada, these items still comprise about 34% of solid waste in Canadian landfills.

Improving Water Quality

Unbleached paper diminishes or eliminates the use of chlorine, which then reduces potential



Key Green Issues

Energy Consumption

The production of paper requires significant amounts of electricity. Paper manufacturing comprises 11% of U.S. manufacturing energy consumption, the vast majority of which relies on fossil fuels.

Waste

Paper accounts for more than 33% of Canada’s waste. 6 million tonnes of paper and paperboard are discarded annually. Only 25% of Canada’s waste paper is recycled.

Resource Consumption and GHG emissions

50% of the trees that are cut down are used for making paper. It takes 300 – 400 liters of water to produce 1Kg of paper.

Pollutants and Toxins

Conventional copy paper is bleached using chlorine, which can result in harmful chemicals and carcinogens being released.

hazards from the manufacturing and handling of chemicals, emissions during production, and effluent.

Relevant Ecolabels

Ecolabel	Criteria	Importance
<p>ECOLOGO – assures that the paper has been evaluated for its lifecycle environmental impacts</p> <p>Green Seal – assures performance and environmental health requirements</p>	Paper is made of at least 30% post-consumer waste recycled content	Saves resources, energy and emissions
<p>Forest Stewardship Council</p> <p>Sustainable Forestry Initiative</p> <p>CSA Group Sustainable Forest Management System Standard</p>	Paper must be made from sustainably harvested wood	Assures sustainable forest management
Chlorine Free Products Association	Paper is process-chlorine free	Fewer environmental impacts as it contains recycled content produced without elemental chlorine or chlorine derivatives

Appendix B-4: Interior Lighting

Interior lighting covers a wide range of lamps, fixtures and lighting controls installed inside buildings.

Benefits of Green Lighting

Reducing Climate Change, GHG Emissions and Air Pollutants

Energy efficiency gains in lighting products over the past couple of years has resulted in household lighting comprising 3.6% of the energy used in the average Canadian home. This increased efficiency has occurred despite an increase in the number of fixtures in homes.

Improved Indoor Environments

Lighting upgrades and retrofits often improve the quality and illumination in the working environment. This improves the ability for staff and employees to perform their work and enhances job satisfaction, productivity and safety.

Reducing Hazardous Waste

LED lamps can last up to 50,000 hours, significantly reducing the need to replace lamps and limits the amount of hazardous waste found in other types of lighting.



Key Green Issues

Energy Consumption

Lighting accounts for approximately 13.5 of the energy used in commercial and institutional settings.

Resource Consumption

Lamps and fixtures are often constructed using steel, aluminum, glass, copper and plastics. Each requires energy, water and other resources in their production.

Climate Change, GHG Emissions and Air Pollutants

Energy efficient lighting in buildings can play a role in reducing remissions and climate change, as well as improving local air quality.

Hazardous and Non-Hazardous Waste

Older T12 fluorescent lamps and ballasts contain mercury and are considered hazardous waste upon their removal from a building.

Appendix B-5: Cleaning Supplies

Cleaning supplies include all-purpose hard surface cleaners, industrial cleaners, toilet bowl cleaners, floor cleaners/degreasers, dishwasher detergents, floor strippers, disinfectants, glass, carpet and upholstery cleaners and spot/stain removers.

Benefits of Green Cleaning Supplies

Improving Human Health and Safety

Reducing or even eliminating the use of toxic cleaning products creates a safer workplace for staff and contractors by reducing the incidence of diseases, such as occupational asthma and cancer that are related to chemical exposure. In the case of public schools or hospitals, it can also affect students, patients and other people who would be exposed to toxins.

Reducing Emissions and Improving Air Quality

Concentrated green cleaning materials, which reduce the amount of cleaning supplies necessary, reduce transportation emissions and reduce the amount of toxins released into the environment.

Reducing Energy and Natural Resource Use

By using cold water for diluting solutions, energy can be saved by avoiding the need to heat water – which is energy intensive. Using bio-based cleaners reduces the demand for petroleum-based ingredients.

Improving Water Quality

Using non-toxic cleaning products stops environmental contaminants from going into aquatic and marine ecosystems. This is the most effective form of pollution prevention.

Reducing Unnecessary Waste

Green cleaners have minimum and recyclable packaging. Using concentrated cleaners that can be diluted with cold water, reduces the amount of packaging and waste. Purchasing bulk supplies and refilling containers can further reduce waste.



Key Green Issues

Human Health and Safety

Many cleaners contain toxic ingredients that after continuous exposure pose a health hazard to cleaning staff. These ingredients can include carcinogenic chemicals, endocrine-disrupting chemicals, and chemicals that may trigger allergic reactions.

Water and Air Quality

Cleaning detergents disposed into sewer systems can contaminate local freshwater supplies.

Energy Use and Emissions

In many cleaning products, petroleum based solvents, bleach and chlorine-based ingredients are used, which are mostly still produced by methods based on a high consumption of energy.

Relevant Ecolabels

Ecolabel	Criteria	Importance
ECOLOGO Green Seal	All cleaning products used in cleaning services, by government staff or contractors, must be ECOLOGO or Green Seal certified and come with a complete list of chemical ingredients on their third party Material Safety Data Sheet (MSDS).	Substituting conventional with green cleaners is one of the most effective ways to reduce or eliminate exposure to chemicals that pose environmental and human health risks. ECOLOGO and Green Seal have used the environmentalist approach to pollutant assessments and provide science-based environmental certification standards that are credible and help purchasers make responsible procurement choices.
ECOLOGO Green Seal	Products shall not contain toxic chemicals: Volatile organic compounds, EDTA, NTA, APE, phosphates, chlorine, petro-chemicals, triclosan, 2-butoxyethanol, and powdered silica.	Eliminating the most toxic chemicals from used cleaning supplies will reduce human health and environmental risks substantially.

Appendix B-6: Light Duty Vehicles

Light duty fleet vehicles are any vehicles that are primarily used as a means of transportation for government personnel.



Key Green Issues

Benefits of Green Light Duty Fleet Vehicles

Reducing Resource Use

Environmentally preferable cars are designed to have high fuel economy, which is key way to reduce total fuel consumption and costs. Increasingly, electric vehicles are being purchased to eliminate GHG emissions from driving light duty fleet vehicles.

Reducing Emissions and Improving Air Quality

Environmentally preferable cars are also designed to have reduced carbon emissions and operate on alternative energy sources in order to reduce GHG emissions, smog and global warming. Alternative fuel vehicles improve air quality and demonstrate lower maintenance costs due to the cleaner-burning properties of their fuel. This also reduces human health issues such as asthma, respiratory diseases, cancer, heart disease, birth defects and brain damage.

Electric cars that operate entirely on electricity burn no gasoline or diesel and produce no tailpipe greenhouse gas emissions or pollution. Life-cycle greenhouse gas emissions directly related to battery electric vehicles are lower than those produced by internal combustion engines.

Reducing Unnecessary Waste and Recycling

Up to 75% of a vehicle's content by weight can be reused or recycled. Ensuring vehicle fluids (oil, lubricants, antifreeze, batteries) are collected, recycled, and/or properly disposed of is key to prevent hazardous materials from going into the waste stream and damaging the environment.

Service Cost Considerations

While electric vehicles are becoming increasingly more common, service and maintenance capacity may be a challenge in some areas. As these vehicles require specialized maintenance, it is important to consider the availability and cost of electric vehicle service in the area of operation.

Fuel and Resource Consumption

The vehicle market is still dominated by traditional gasoline- and diesel-powered vehicles. The trend to bigger overall fleets and generally larger and more powerful vehicle sizes in the past decade has resulted in increased fuel consumption as well as increasing emissions.

Air Quality and Human Health

Gasoline vehicles are a significant source of air pollutants including carbon monoxide, nitrogen oxide, non-methane organic compounds, and particulate matter that cause smog and unhealthy air conditions.

Greenhouse Gas (GHG) Emissions

Gasoline vehicles are also a major source of the main global warming pollutant, carbon dioxide. In 2009, road transportation accounted for 19% of Canada's total GHG emissions.

Waste and End-of-Life

The disposal of end-of-life vehicles can pose a threat to the environment, largely because of hazardous materials contained in end-of-life vehicles.

Appendix B-7: Office Furniture

Office furniture included chairs and other types of seating, as well as desks, tables, systems furniture, filing, storage cabinets and their associated components designed for use in office environments.

Benefits of Green Office Furniture

Reducing Natural Resource Use

Buying furniture made of certified wood products helps reduce the potential impacts associated with forest harvesting and promotes watershed protection and biodiversity.

Furniture containing a high amount of recycled materials and/or rapidly renewable materials instead of new wood or other materials will reduce the amount of natural resources needed for production.

Modular furniture can be easily adapted to changing work environments, which will save time and costs. Durable furniture will also save resources required to replace broken or outdated furniture when it breaks or becomes outdated.

Reducing Emissions and Improving Air Quality

Furnishing offices with options that have low levels of volatile organic compounds in their coatings, and low or no levels of other harmful chemicals can immediately improve the quality of the air that you and your colleagues breathe. Less chemical exposure and cleaner air mean more productivity from healthier employees – and potentially fewer missed workdays from illness. Consolidating delivery schedules through efficient transportation logistics during product delivery will minimize GHG emissions and solid waste production.

Reducing Unnecessary Waste and Recycling

Green office furniture is more durable and lasts longer, preventing frequent disposal and reducing accumulation in landfills. Look for vendors who provide a minimum warranty of 5 years on chairs



Key Green Issues

Resource Consumption

Office furniture made from wood that was sourced through poor forest harvesting practices often leads to soil erosion, deterioration of watersheds and loss of plant and animal species. The use of exotic woods like teak and mahogany has led to the destruction of habitat and a loss of biodiversity. Deforestation impedes ecosystems' ability to store carbon dioxide, and is therefore one factor in human-induced climate change.

Emissions, Indoor Air Quality and Human Health

Indoor air quality can be 3 to 4 times more polluted than outdoor air. A series of air pollutants are associated with furniture, both during furniture manufacturing and its use.

Waste and End-of-Life

Recycled-content, recyclability and design for disassembly are key issues to consider when selecting office furniture.

and interconnecting panels, and a minimum of 10 years on workstations and filing cabinets. Modular furniture is designed to be adaptable to new spaces and styles to prevent frequent replacement and waste issues. Green office furniture avoids excessive and non-recyclable packaging, which reduces the need for the user to dispose of packaging materials.

Relevant Ecolabels

Ecolabel	Criteria	Importance
Greenguard	Provides assurance that the furniture will not contribute to any indoor air quality issues associated with the types of adhesive, blowing agents, and furniture coatings	Office furniture with this certification is certified to not negatively affect indoor air quality and reduce impacts on human health
SCS Indoor Advantage	Gives assurance that furniture will not contribute to any indoor air quality issues	See above
ECOLOGO	Gives assurance on resource conservation, reduction in disposal, and reduction in volatile organic compound emissions	See above
Cradle to Cradle Certified	Gives assurance on material health, reutilization, renewable energy and carbon management, water stewardship and social fairness	Office furniture with this certification is certified to responsibly harvested and managed

Appendix B-8: Flooring

Flooring includes indoor carpets, finished concrete, hardwood, linoleum and vinyl.

Benefits of Green Flooring

Improving Health and Human Safety

Selecting a flooring material that has low or no VOCs and uses low VOC adhesives or non-toxic materials, finishes and cleaners will protect human health.

Materials such as finished concrete offer lower maintenance and lower total cost of ownership because of their ease of cleaning and durability.

Reducing Emissions and Improving Air Quality

A flooring material that reduces the need for adhesives or chemically intensive cleaning solutions will improve air quality during installation and use.

Carpet tiles and finished concrete use either minimal or no adhesives at all, making installation easy while also having minimal impact on indoor air quality.

Reducing Energy and Natural Resource Use

Carpeting that is made with natural and bio-based materials, recycled materials or hardwood from sustainably managed forests will help reduce energy and resource use.

Hard surface flooring such as finished concrete, hardwood, linoleum and vinyl are less energy, water and detergent intensive to clean and maintain. Some manufacturers of vinyl flooring use pre-consumer and post-consumer recycled content as well as sustainably sourced materials.

Reducing Unnecessary Waste

Carpet tiles and finished concrete have minimal installation waste. Recycling of nylon carpet and use of post-consumer or –industrial recycled



Key Green Issues

Human Health and Safety

Carpet can harbor mold, dirt and dust mites within the fibers and backing that can lead to allergies and skin reactions. Some toxic chemicals and shampoos used in cleaning can affect the health of staff.

Indoor Air Quality

Carpet seam sealants, carpet padding and especially adhesives contribute to volatile organic compounds (VOCs) off gassing. Anti-static, anti-soil, anti-stain, and anti-microbial coatings can also contribute to poor indoor air quality.

Waste and Durability

Carpet can be significant contributors to construction and demolition waste going to landfills.

Material/Energy Use and Emissions

Production of nylon-based carpets is energy and water intensive. Dyeing by wet methods, steam fixing and drying consumes additional energy and water and result in wastewater releases to the environment.

material in their manufacture can also reduce waste. Many carpet manufacturers have carpet take back programs. Ensure with the supplier that the carpet contains greater than 20% recovered material content, preferably as post-consumer recycled content.

Relevant Ecolabels

Ecolabel	Criteria	Importance
CRI Green Label	Carpet and cushion meet the requirements by the CRI Green Label Testing Program, which assures low VOC emissions and improved indoor air quality	Substituting conventional carpets with green options is one of the most effective ways to reduce or eliminate exposure to chemicals that pose environmental and human health risks
Forest Stewardship Council (FSC) Sustainable Forestry Initiative (SFI) Canadian Standards Association (CSA) Group Sustainable Forest Management System	Gives assurance about the environmentally friendly management of forests as a source for the wood	Sustainable forest management addresses key environmental forest values – from water quality and biodiversity to harvesting and regeneration
Greenguard	Low or no VOC finishes	Reduces impacts on indoor air quality and ensures a product has met some of the world's most rigorous and comprehensive standards for low emissions of VOCs into indoor air

Appendix B-9: Architectural Paints

Architectural paints are coatings intended for on-site application to interior and exterior surfaces of institutional buildings.

Benefits of Green Architectural Paints

Reducing Energy Use and Toxins

Substituting a petrochemical-based solvent (alkyd) with a water-based solvent (latex) or choosing paints with lower amounts of petrochemical-based solvent reduces the energy and materials used. Reducing VOCs may also reduce negative downstream health and environmental effects.

Reducing Unnecessary Waste

Recycled paint uses leftover paint in place of new materials, thus reducing the need for the further extraction of materials. Recycling paint can also mitigate the high cost of end-of-life management and keep waste out of the landfill. Evaluating the need for paint and also ensuring that only the required amount of paint is purchased will reduce leftover paint that has to be disposed of.

Reducing Costs

Switching to environmentally preferable paints can yield savings by reducing the handling and disposal costs of hazardous materials. Using paints with little tint can also save on operating and maintenance costs. Use of colorants often reduces the durability of the applied coating. Lighter colours require less maintenance because they are more abrasion resistant and require fewer coats.



Key Green Issues

Energy Consumption and GHG Emissions

The energy consumed in the process of manufacturing pigments is one of the most significant environmental impacts associated with paint. Latex and oil-based paints are both formulated with petrochemicals and hazardous substances such as organic solvents. The latex used in water-based latex paint is synthesized from petroleum, i.e. crude oil, and oil-based paints are thinned with petroleum distillate solvents.

Indoor Air Quality, Pollutants and Toxins

All oil-based, most water-based, and some natural paints contain toxic organic solvents to disperse and bind other paint components. Many paints use Volatile Organic Compounds (VOCs) as solvents, which pollute the air and lower indoor air quality.

Water Quality

Water-based latex paints generally contain fewer toxins and VOCs than oil-based paints but are still ecologically hazardous. When equipment is washed with water, waste paint is washed into waterways and ground water, and can damage aquatic life with toxins that accumulate over time.

Waste

Leftover architectural paint represents between 40%-60% of all material collected at household hazardous waste facilities. Both steel and plastic paint cans are recyclable. The maximum recycled content in steel cans is 30%-35%, while plastic containers can be made from 100% post-consumer materials.

Relevant Ecolabels

Ecolabel	Criteria	Importance
ECOLOGO	Interior non-flat paints shall not exceed 150 VOC g/L; and interior flat paints shall not exceed 50 VOC g/L. Also ensures reduced or zero quantities of various undesirable chemical components.	Provides assurance that paint has been thoroughly evaluated for its lifecycle environmental impacts, including a reduced amount of materials and energy use; minimal health impacts, as well as product performance and use.
Green Seal	See above	Provides assurance on performance requirements and environmental health requirements such as recovered and post-consumer material, and reduced toxicity.
Greenguard	See above	Certification provides assurance that paints designed for use in indoor spaces meet strict chemical emissions limits, which contribute to the creation of healthier interiors.
MPI Extreme Green Performance Standard	See above	Ensures adherence to performance requirements, chemical component restrictions and a maximum allowable limit of 50g/L of VOCs.

Appendix B-10: Office Supplies

Office supplies are supplies regularly used in offices by organizations. They include small, daily use items such as paper clips, post-it notes, staples, staplers, binders, writing utensils such as pens and pencils as well as ink and toner cartridges for printers, fax machines, photocopiers and multifunctional devices.

Benefits of Green Office Supplies

Reducing Energy, Resource Use and Toxins

Binders and File Folders:

Recycled cardstock binders with either no cover or a low VOC recycled plastic cover reduce resource use and health affecting emissions. Replaceable covers will increase the lifespan of the metal binding should the raw cardstock ever wear out.

Pens and Pencils:

There are a variety of green options on the market made from everything ranging from wood to recycled post-consumer plastic. Pens and pencils may use non-toxic ink, which improves indoor air quality and human health. These pens reduce the consumption of petroleum products used to create energy for the extraction of the materials that are used to make instruments. They also reduce the depletion of other natural resources used to construct instruments such as rubber, metal, trees and petroleum.

Reducing Unnecessary Waste

Pens and Pencils:

Purchasing recycled, biodegradable, refillable or reusable products will reduce accumulation of used instruments in landfills.



Key Green Issues

Resource Use and GHG Emissions and Toxins

Binders: Office binders are often covered in polyvinyl chloride (PVC or vinyl) plastic. PVC is the most toxic plastic for both human health and the environment. No other plastic contains or releases as many dangerous chemicals, including dioxins, phthalates, vinyl chloride, ethylene dichloride, lead and cadmium, which are linked to diseases such as cancer, asthma, birth defects, reproductive harm, learning disabilities and developmental disabilities.

Ink and Toner Cartridges: Toner cartridges placed in photocopiers, fax machines and multifunction devices have significant environmental implications with respect to resource and energy consumption during their production. The process of manufacturing cartridges is considered energy intensive, with up to 3 liters of oil used to manufacture the cartridges plastic casing alone.

Pens and Pencils: Writing instruments can contain hazardous wastes including toxins found in plastics, metals and inks, which have environmental and human health costs. Petroleum-based solvents used in many types of ink are VOCs, which off-gas when drying causing problems for indoor air quality.

Toner Cartridges:

Recycling end-of-life cartridges and producer take back programs keep cartridges out of the landfill and also enable remanufacturing of used cartridges, reducing the material and energy used for new ones.

Waste

Ink and Toner Cartridges: Used cartridges contribute to landfill waste. 350 million cartridges are disposed of annually in North America while some of the toner in these cartridges goes unused. Plastic cartridge casings can take up to 450 years to decompose in landfills. The toner inside cartridges is toxic and can damage the environment by contaminating soil and ground water.

Relevant Ecolabels

Ecolabel	Criteria	Importance
ECOLOGO	Binders are made from recycled corrugated cardboard, paperboard and recycled plastic with at least 25% post-consumer recycled content and are PVC free.	Post-consumer recycled content increases resource efficiency and decreases waste. Being PVC free reduces health risks.

Appendix B-11: Food Catering Services

Food and catering services are food related services provided outside the home, e.g., for meetings, events or functions in office environments or meals provided in schools, universities or hospitals.

Benefits of Green Food and Catering Services

Reducing Energy Use and Toxins

Food:

Purchasing food produced through sustainable farming methods which protects the soil and keeps the land fertile for an extended period of time, ensures adequate diversity and resistance to pests and diseases, and reduces water use through the capturing and conservation of rainwater. Procurement of sustainable food contributes to achievement of existing building certifications, such as LEED Canada.

Reducing Unnecessary Waste

Food Service Ware:

The best way to reduce waste is to avoid generating it in the first place. Thus, buying and using durable service ware is the best way to achieve this. If that is not possible, replacing conventional disposable service ware with compostable service ware will reduce landfill waste and chemicals leaching into the environment.

Improving Health:

Studies show increased mineral content in organic foods, including significantly increased levels of Vitamin C, iron, magnesium and phosphorus.



Key Green Issues

Resource Use and GHG Emissions

Food: The industrial agriculture system contributes between 17% and 32% of all human induced GHGs. The livestock sector generates 14.5% of the world's GHG emissions. A quarter of the world's agricultural land is required for the production of animal feed.

Food Service Ware: A large portion of conventional single serve food ware materials are made from expanded polystyrene foam, which is derived from petroleum.

Pollutants and Toxins

Food: One-crop monoculture reduces soil productivity and requires massive irrigation and application of fertilizers. Excessive uses of pesticide in industrial farming have polluted waterways and affected wildlife, and have resulted in many negative human health effects.

Food Service Ware: Styrene, which is found in many foam food ware products, is a potential human carcinogen and neurotoxin that can leach into food and be consumed by food ware users.

Waste

Food Waste: About 40% of all the food produced in Canada goes to waste, amounting to about \$31 billion a year.

Food Service Ware: Because food service ware is usually heavily contaminated with food residue after use, it is difficult to recycle.

Appendix B-12: Vehicle Consumables

Vehicle consumables are goods that need to be regularly replaced because they wear out or are used up, as the vehicle is used over time. They include, but are not limited to, oil filters, windshield wiper blades, power steering fluid, transmission fluid, tires and air filters.

Benefits of Green Vehicle Consumables

Reducing Energy, Resource Use and Toxins

Tires:

Improved tire design and proper inflation reduces rolling resistance and leads to direct improvements in fuel economy and thus cost savings.

Fluids:

The fluids required to maintain and operate vehicles (such as lubricants, oils and antifreeze) substituting materials within these fluids to more nature-like substances reduces negative environmental impacts. Recycling and re-using engine oil helps preserve crude oils. It takes around 3.7 liters of used oil to create around 2.3 liters of engine oil, compared to about 155.4 liters of crude oil needed to create the same 2.3 liters.

Reducing Unnecessary Waste

Tires:

Used tires should be disposed of properly, typically directed to the scrap tire market where they can be recycled into other useful products or burned in combustion turbines for energy recovery. Newfoundland and Labrador has a Used Tire Recycling Program for tires from all passenger vehicles, to light and medium trucks that allows used tires to be returned to any tire retailer or other designated locations, at no cost.



Key Green Issues

Resource Use and GHG Emissions

Fluids: Oils, lubricants, and antifreeze that disperse in the air or are improperly disposed of (e.g. poured into the sewer) enter into the environment, break down, and lead to the accumulation of carbon dioxide or phosphorus.

Tires: The manufacture of a new light-duty tire requires 26 to 30 liters of oil. 95% of a tire's energy consumption occurs during use.

Pollutants and Toxins

Tires: Process emissions include volatile organic compounds (VOCs) and hazardous air pollutants, and are most problematic with large-scale facilities.

Water Pollution

Tires: Zinc is one of the most significant pollutants resulting from rubber processing and is released largely due to improper handling in processing facilities and disrupts drinking water and aquatic ecosystems.

Relevant Ecolabels

Ecolabel	Criteria	Importance
Green Seal Standard for Re-refined Engine Oil	Products adhere to environmental health requirements such as re-refined oil content, reduced toxicity of additives and reduced toxicity in packaging.	Re-refined motor oil is recovered from used product and rejuvenated for reuse as an alternative to new oil products, thus reducing resource use.
ECOLOGO	Product is toxin-free	Assures reduced health and environmental impacts




Newfoundland
Labrador