

# Shaping Tomorrow's Low Embodied Carbon Public Procurement of Light-Duty Vehicles

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2023 CIPMM Fleet Management Workshop  
November 2, 2023

Public Services and Procurement Canada  
Acquisitions Program



Public Services and  
Procurement Canada

Services publics et  
Approvisionnement Canada

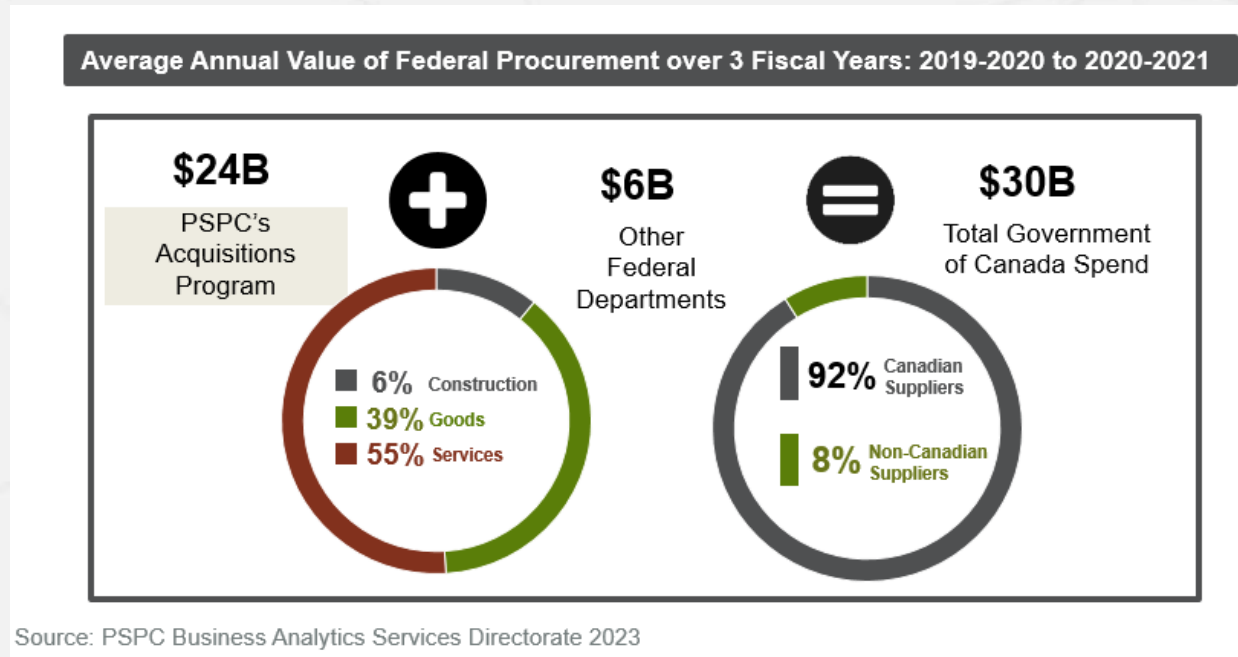
Canada

# Objectives

- 1 Introduce Public Services and Procurement Canada
- 2 Provide an overview of the Low Carbon Procurement Project
- 3 Present the methodology and tool for the light-duty vehicle category

# Public Services and Procurement Canada

- ◆ **Public Services and Procurement Canada (PSPC)** is the central federal purchasing agent and real property manager for the Government of Canada
- ◆ **Mission:** Deliver high-quality, central programs and services that ensure sound stewardship on behalf of Canadians and meet the program needs of federal institutions

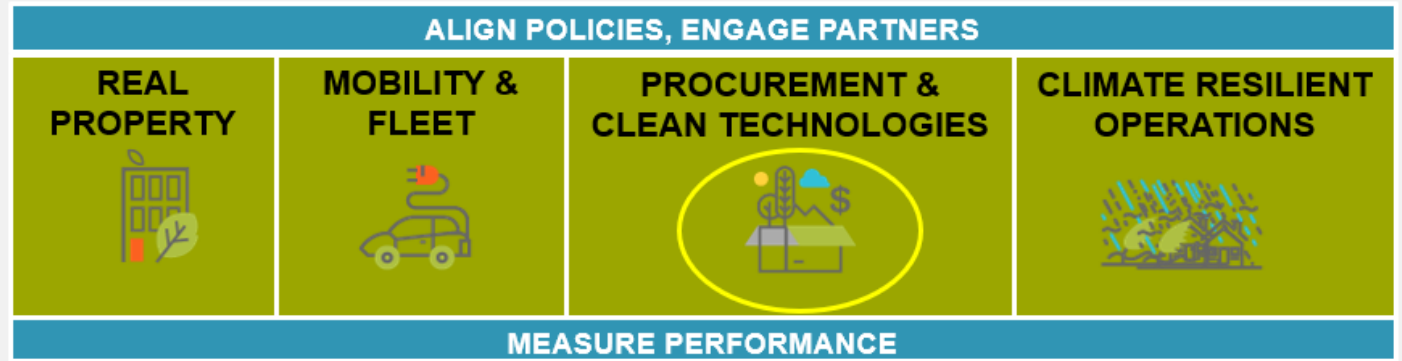


# Greening Government Strategy and Procurement

**Objective:**  
In-line with  


❖ 40% reduction of real property and conventional fleet emissions by 2025  
❖ Net-zero emissions overall by 2050  
❖ Overall green & climate resilient government operations

**Strategy to get there:**



**Implementation:**

- TBS providing direction, guidance
- Expert depts. providing support (TBS/NRCan/PSPC/NRC/ECCC)
- DEPARTMENTS TAKING ACTION

**Performance:**

38.6% reduction in GHG emissions to date (real property and conventional fleet)

# Government of Canada's Fleet

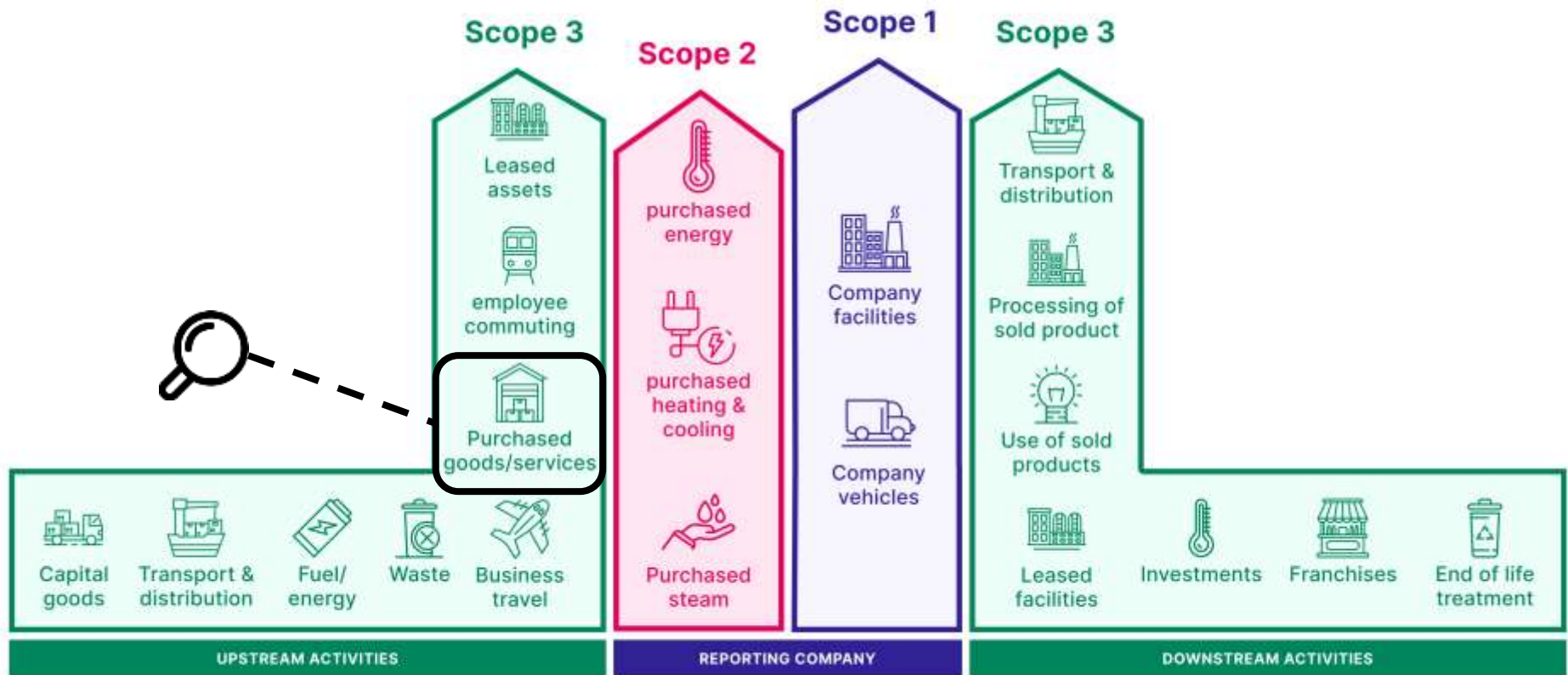
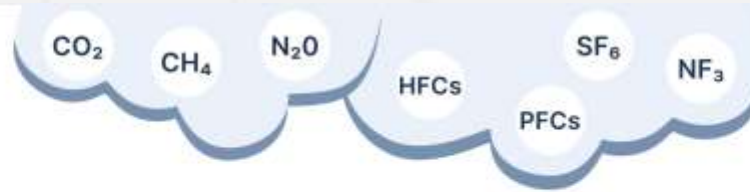


- ◆ **Federal commitment:** 100% of the fleet to be Zero-Emissions Vehicles (ZEVs) by 2030
- ◆ **PSPC's actions:** PSPC is modernizing its shared procurement instruments to increase access to ZEVs and charging stations
- ◆ **Gap:** ZEVs have zero DIRECT emissions but have INDIRECT emissions.

[Federal Vehicles and Fleets \(canada.ca\)](https://www.canada.ca)

# Scope 1-2-3 GHG Emissions

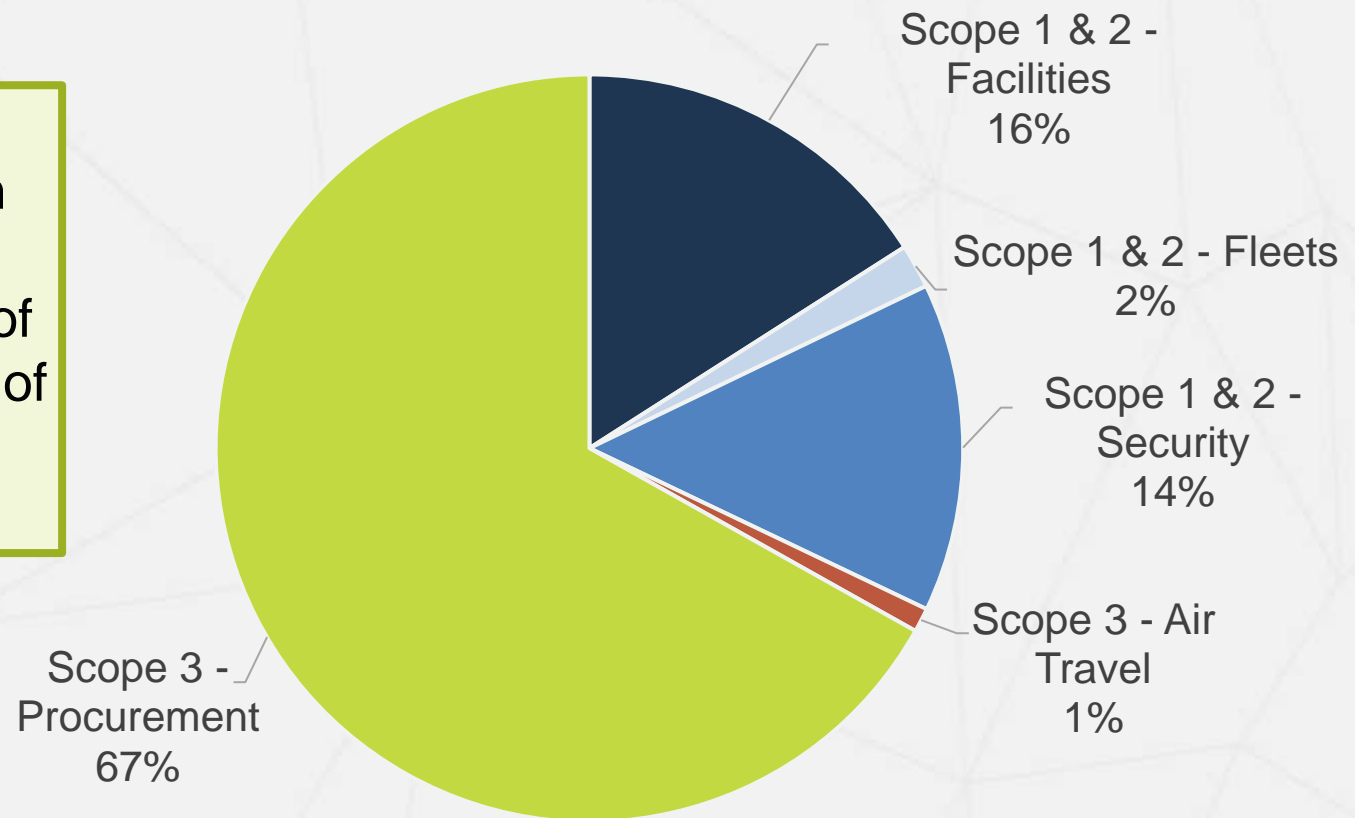
The GHG Protocol



# Government of Canada GHG Emissions

Scope 1, 2, 3 GHG emissions of the Government of Canada for fiscal year (FY) 21-22

Scope 3 GHG emissions from procurement account for **2/3** of the Government of Canada GHG emissions



[Government of Canada's Greenhouse Gas Emissions Inventory - Canada.ca](https://www.canada.ca/en/government/public/government-greenhouse-gas-emissions-inventory)

# Overview of the Low Carbon Procurement Project (LCPP)



- ◆ Led by the Green and Clean Technology procurement team in PSPC's Acquisitions Program.

- ◆ **Objectives:**

- enable the inclusion of greenhouse gas (GHG) emission calculations and targets into the procurement decision-making process, and
- allow the Government of Canada to leverage its buying power to quantify and reduce GHG emissions throughout the procurement supply chain.



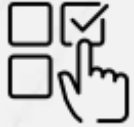
- ◆ **Methodological approach:** Life Cycle Assessment – a technical procedure carried out for quantifying the life cycle environmental impacts of a product or a service – and Scope 1, 2 & 3 emissions from the GHG Protocol.



[Publications and resources for green procurement - Canada.ca](https://www.canada.ca/en/government/department/procurement/procurement-publications-resources-green-procurement.html)



# Key steps of the LCPP



1. Based on studies of GHG quantification standards and Canadian data availability, **identify three final procurement categories for methodology development.**



2. For each selected category, **develop comprehensive science-based methods and tools for calculating emissions.**



3. **Test, review and analyze** the methods and tools with stakeholders and industry.



4. **Develop effective criteria** and tools on how to quantify and reduce GHG emissions in the federal procurement process.

# Original rationale for each category



## Office Furniture

- ✓ Standardized carbon footprint methodologies
- ✓ Mandatory Supply Arrangement
- ✓ PSPC's mandate to advance sustainability in federal real property
- ✓ Prominent net-zero green building initiatives (whole building LCA, LEED buildings, etc.) being advanced by PSPC and the marketplace more broadly



## Light Duty Vehicles

- ✓ ZEV target
- ✓ Embodied carbon of batteries is significant
- ✓ Mandatory Standing Offer
- ✓ No standardized carbon footprint methodology
- ✓ Many automotive manufacturers already conduct LCAs



## Professional Services

- ✓ Large volume of spend
- ✓ Mandatory Standing Offer
- ✓ No standardized carbon footprint methodology
- ✓ Aligns with the recent US and UK announcements to require high value suppliers to measure, reduce and disclose GHGs

# Development of a carbon footprint methodology for light-duty vehicles

1



## Light Duty Vehicle Carbon Footprint Model

- Task led by the National Research Council Canada (NRC)
- **Sub-Objectives:**
  - Develop a scientific model to quantify life cycle GHG emissions of light-duty vehicle; and
  - Estimate baseline life cycle GHG emissions of the federal fleet of light-duty vehicles.

2



## Request for Information to vehicle manufacturers

- **Sub-objective:** Assess data availability and accessibility for vehicle manufacturers to develop life cycle GHG emissions estimates.

3



## Stakeholder Engagements

- **Sub-objective:** Engage with internal GoC stakeholders and external experts to discuss the framework, the request for information and to assess impact of methodology incorporation in procurement process.

# 1. Light Duty Vehicle Carbon Footprint Model

## Scope of the model



### Procurement data

- Goods and Services Identification Number (GSIN) codes provide generic product descriptions for PSPC's procurement activities
- Relevant GSINs identified: GSIN 2310 (passenger vehicles)

### Vehicle categories represented in the model

#### Vehicle size

- Passenger car
- Pickup truck (PUT)
- Sport utility vehicle (SUV)

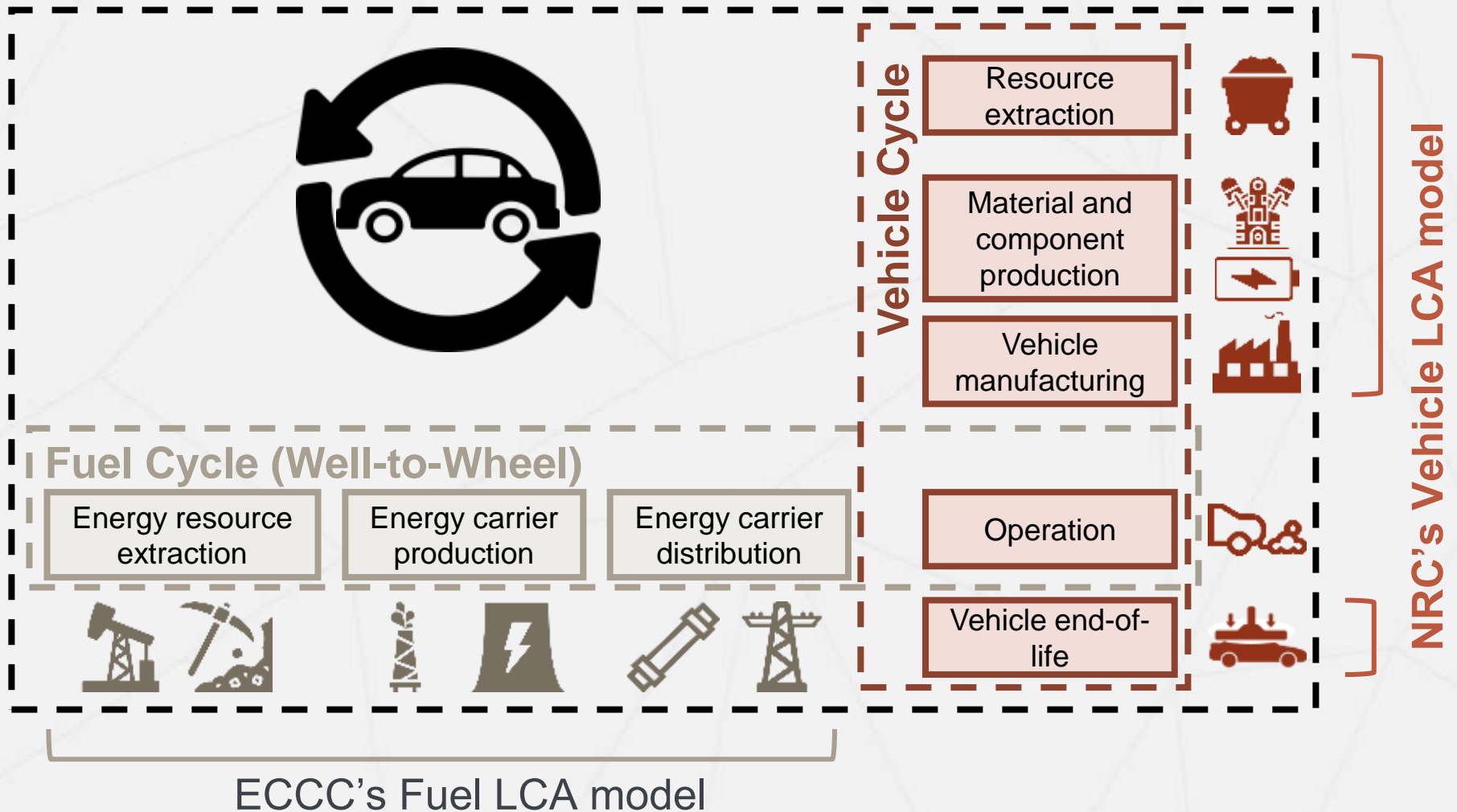
#### Vehicle powertrains

- BEV: Battery electric vehicle
- FCEV: Fuel cell electric vehicle
- HEV: Hybrid electric vehicle
- ICEV: Internal combustion engine vehicle
- PHEV: Plug-in hybrid electric vehicle



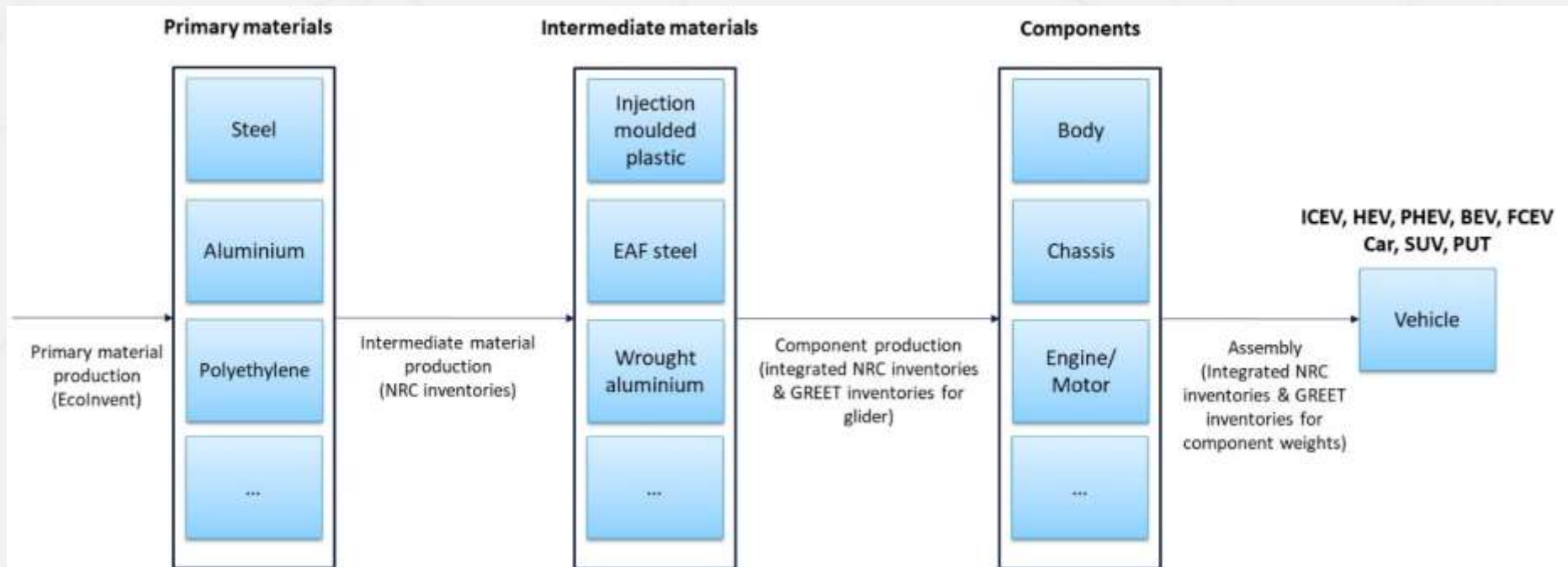
# 1. Light Duty Vehicle Carbon Footprint Model

## System boundaries



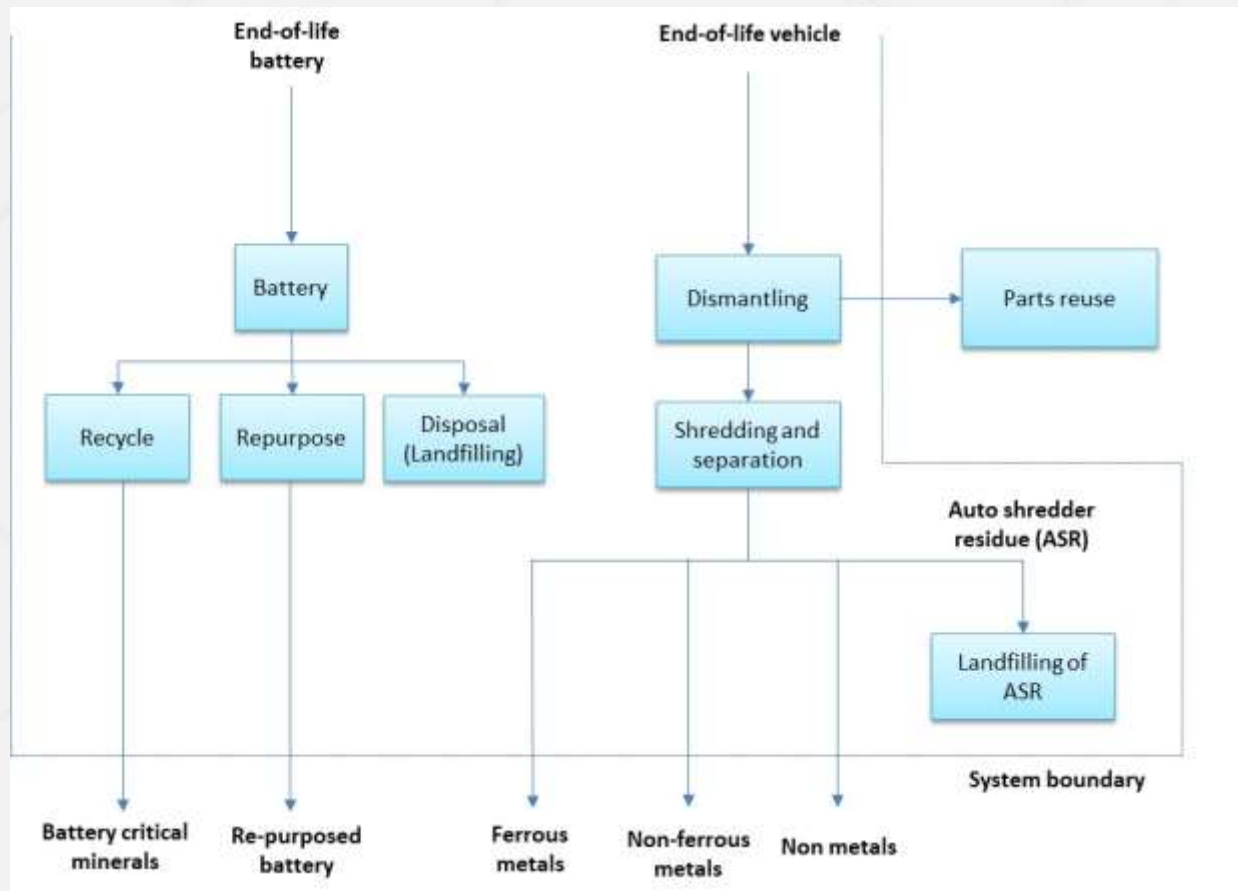
# 1. Light Duty Vehicle Carbon Footprint Model

*Overall structure of NRC's vehicle LCA model*  
*Vehicle production*






# 1. Light Duty Vehicle Carbon Footprint Model







*Overall structure of NRC's vehicle LCA model*  
*Vehicle end-of-life*



# 1. Light Duty Vehicle Carbon Footprint Model

## Platform and parameters

Platform		
 <b>ecoinvent</b>		
Ecoinvent: Life cycle inventory database for background processes	openLCA: Life cycle assessment software	NRC OpenLCA Collaboration Server: Collaborative environment

Current Parameters		
 <b>KG</b>	 Lifetime	 Fuel share
 Battery weight	 Fuel consumption	 Battery replacement



# Questions and Comments

The PSPC Acquisitions Program Green & Clean Technology Procurement Technical Team:

- Stefanie Bowles, Green and Clean Technology Procurement Technical Team Manager
- Dr. Julian Cleary, LCPP Project Manager, LCA Expert and Sn. Analyst
- Dr. Alexandre Milovanoff, LCA Expert and Policy Analyst

[SPAC.PAAchatsEcologiques-  
APGreenProcurement.PSPC@tpsgc-pwgsc.gc.ca](mailto:SPAC.PAAchatsEcologiques-APGreenProcurement.PSPC@tpsgc-pwgsc.gc.ca)

