

# Zero Waste Demonstration Hub (ZWDH)

Supporting the Commercialization  
of Zero Waste Technologies

**Presentation to Pacific Energy  
Innovation Association (PEIA)**

**November 8, 2021**



# Agenda

1. Purpose of Presentation
2. Background
3. Concept
4. Survey Results
5. Insights
6. Recommendations
7. Next Steps



## For more information:

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**Website:**

[vancouver.ca/zero-waste-demonstration-hub](http://vancouver.ca/zero-waste-demonstration-hub)

# Purpose of Presentation

Provide summary of the Zero Waste Demonstration Hub (**ZWDH**) opportunity to date.

Engage with zero waste leaders to inform the future direction of the **ZWDH**.

# Background

-  **2016** - VEC identified lack of **industrial land** to demonstrate technology
-  **2017** - COV divested its residential recycling collection operation to RecycleBC to reduce costs for residents
-  **2018** - Council approved Zero Waste 2040 Strategic Plan, outlining support for waste technology research and incubation
-  **2020** – COV Engineering explored plan to develop former recycling receiving yard into a Zero Waste Demonstration Hub
-  **July to September 2021** – Market Sounding & analysis completed

# The Concept

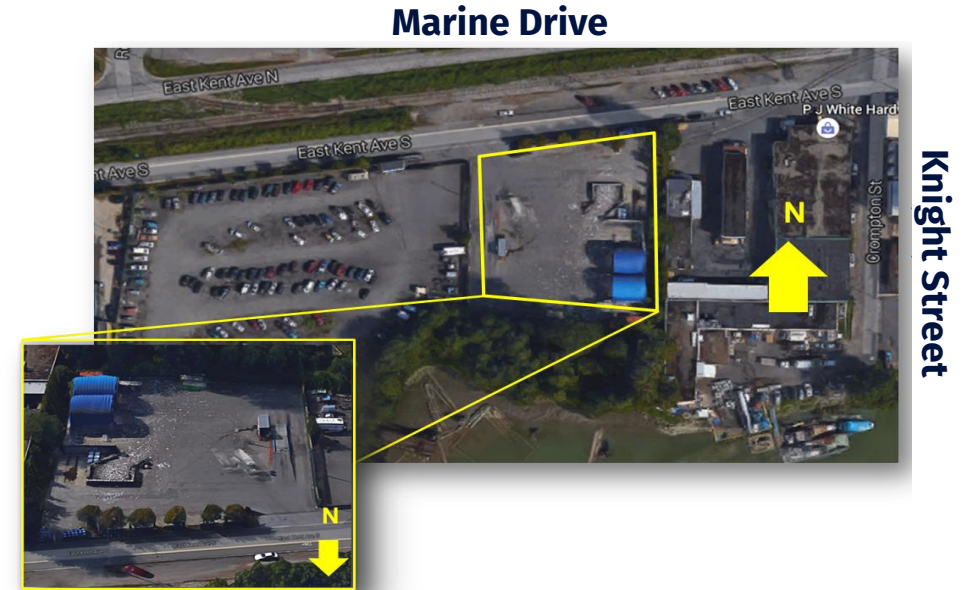
## What is it?

Co-location site for innovators to demonstrate zero waste solutions.

## Mission

To launch a demonstration hub for low footprint, high impact solutions to:

- Help enable zero waste technology;
- Help commercialize and scale new ventures; and
- Support zero waste, green jobs, and climate action targets.



**1198 East Kent Ave** (former Recycling Receiving Yard)

1.1 acre industrial site, paved, secured, fenced and lit

# The Results

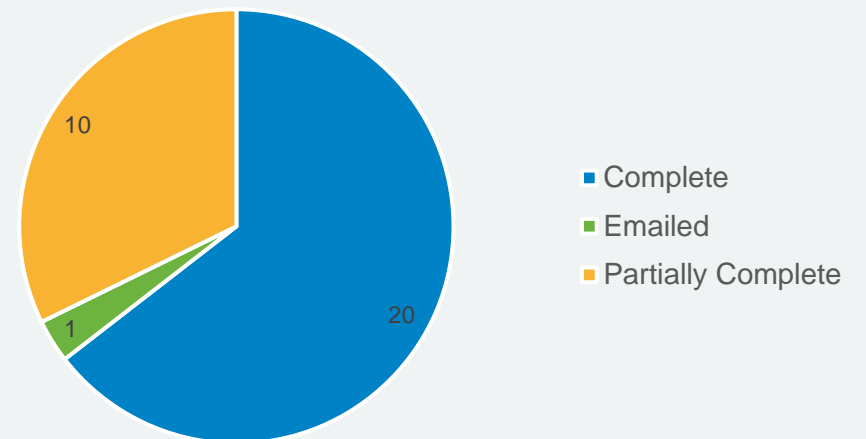
What was the interest in the concept?



**106** Signups for Info Session

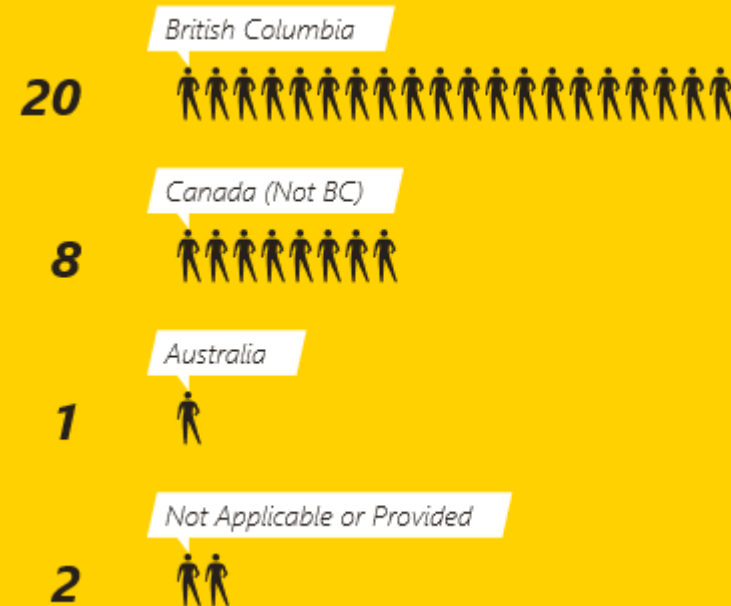
**80** Attended Info Session

**31** Filled out Online Survey (39%)



# Where were the respondents from?

Over 60% of respondents were from BC of which, 75% were from Vancouver.

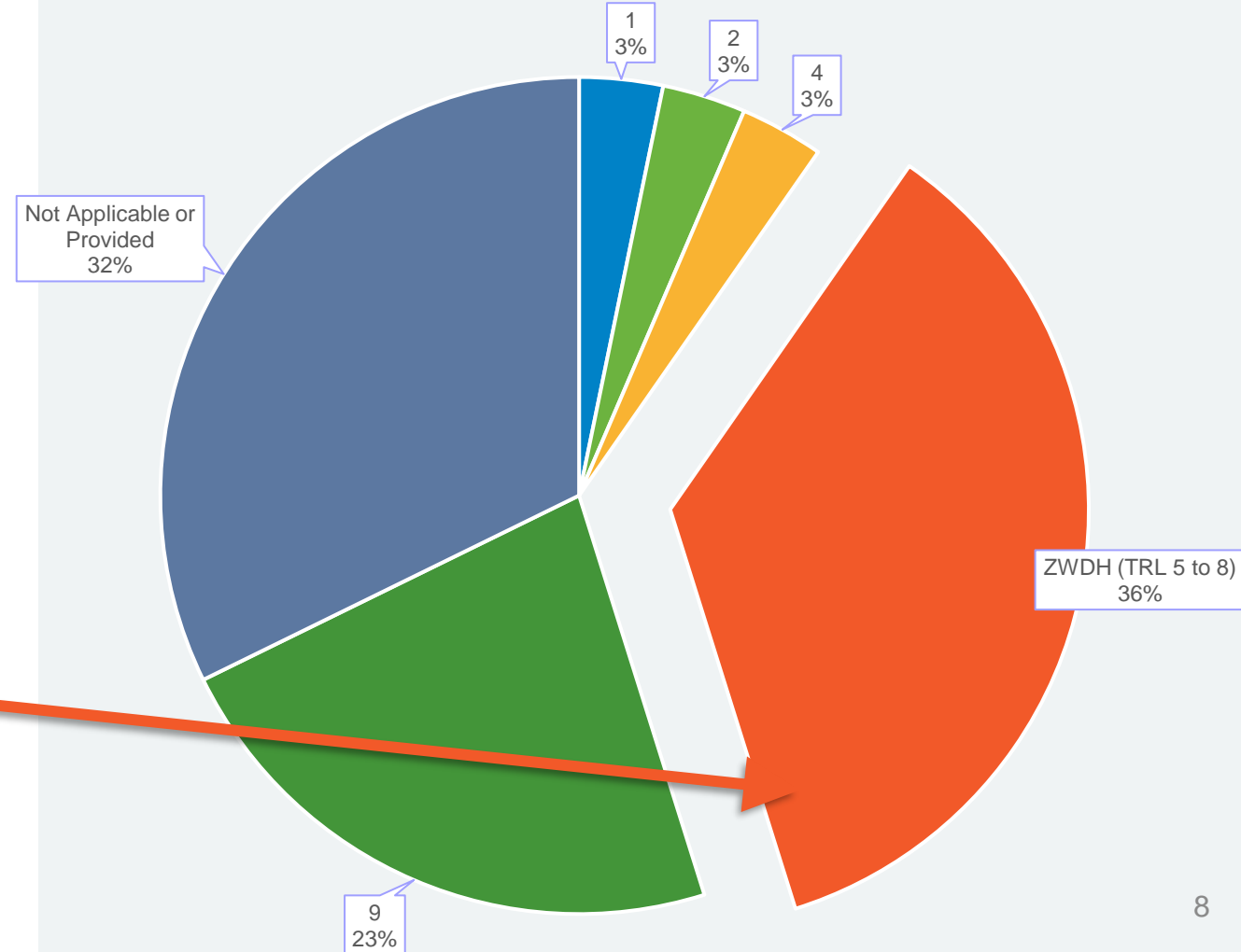




# Technology Readiness Level (TRL) of respondents.

Over **1/3<sup>rd</sup>** of respondents fit in with the ZWDH's requirements (TRL 5 to 8).

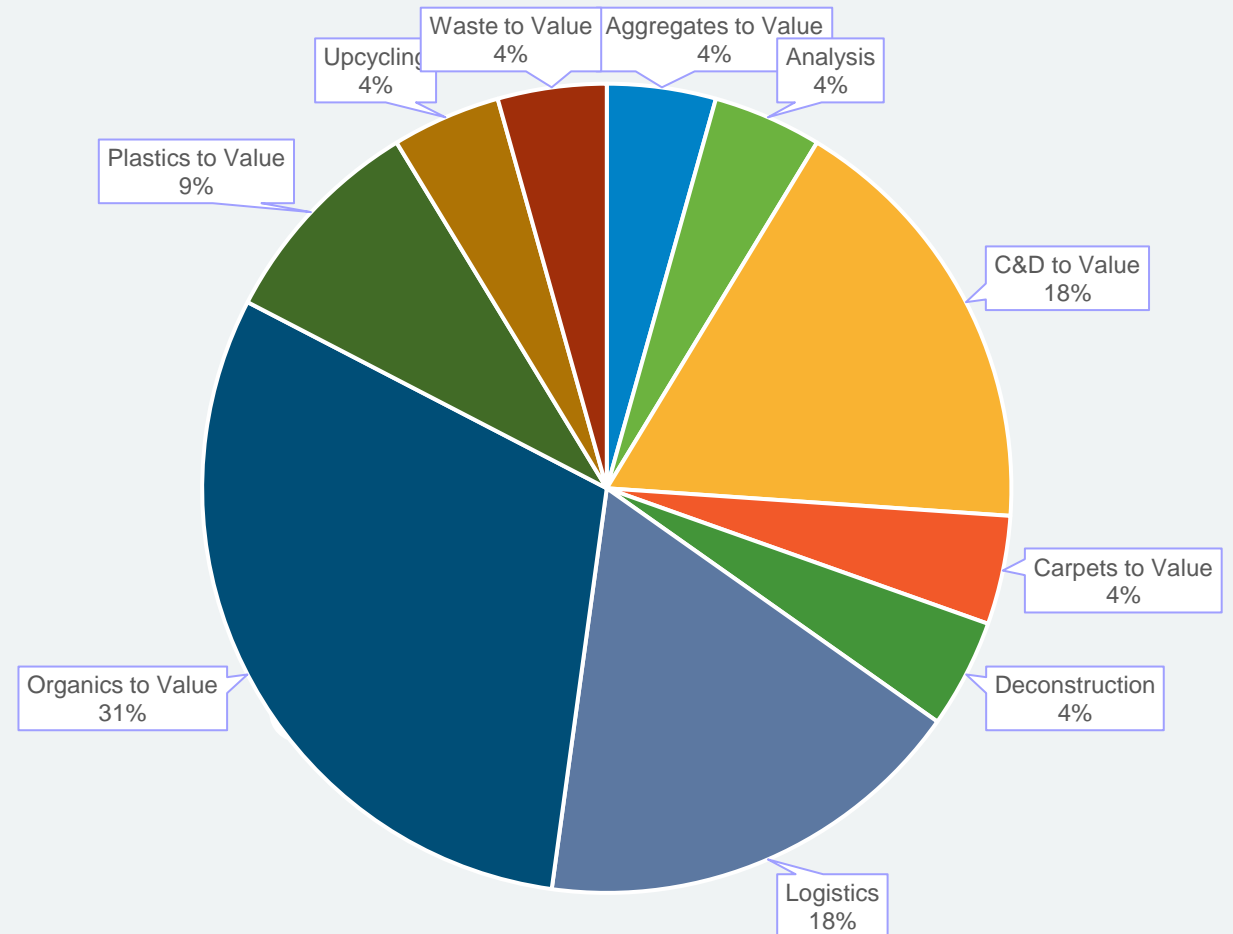
TRL 1 - 3	Idea, Analytical Validation or Proof of Concept
TRL 4	Prototype validated in laboratory environment
TRL 5 - 6	Technology developed and validated outside the laboratory
TRL 7	Pre-commercial technology demonstrated in an operational environment
TRL 8	Commercial product launched and qualified through test and demonstration
TRL 9	Commercial product proven through successful deployments





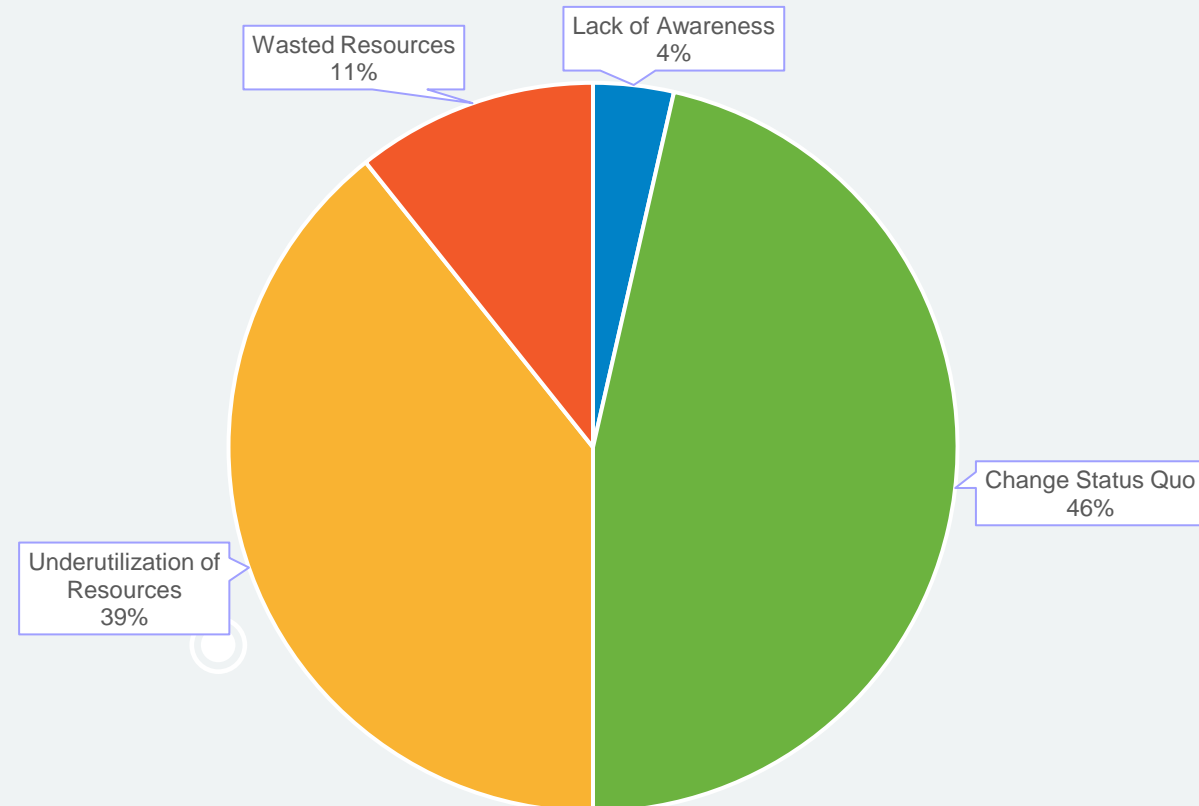
# Types of technologies from respondents.

1. Organics to Value
2. Logistics & C&D to Value
3. Plastics to Value



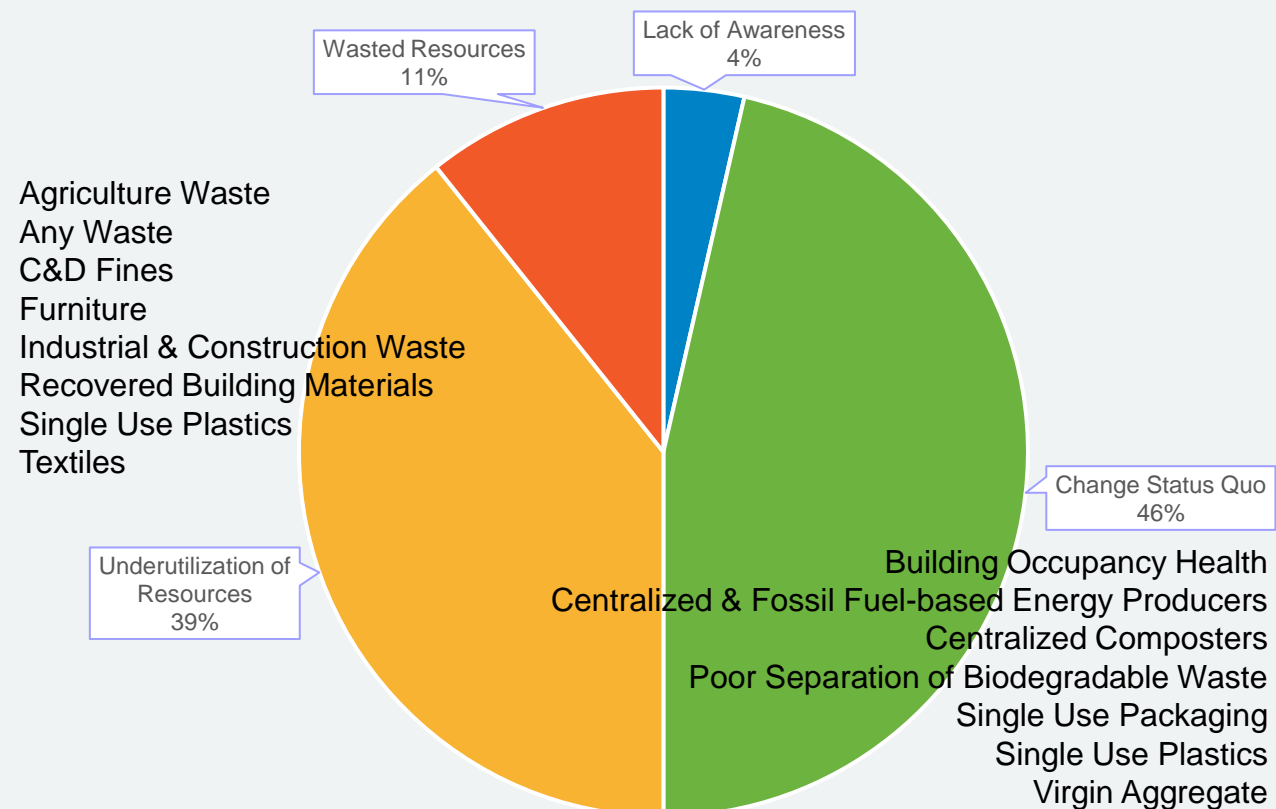
# Industry pain points.

1. Change the Status Quo
2. Underutilization of Resources
3. Wasted Resources

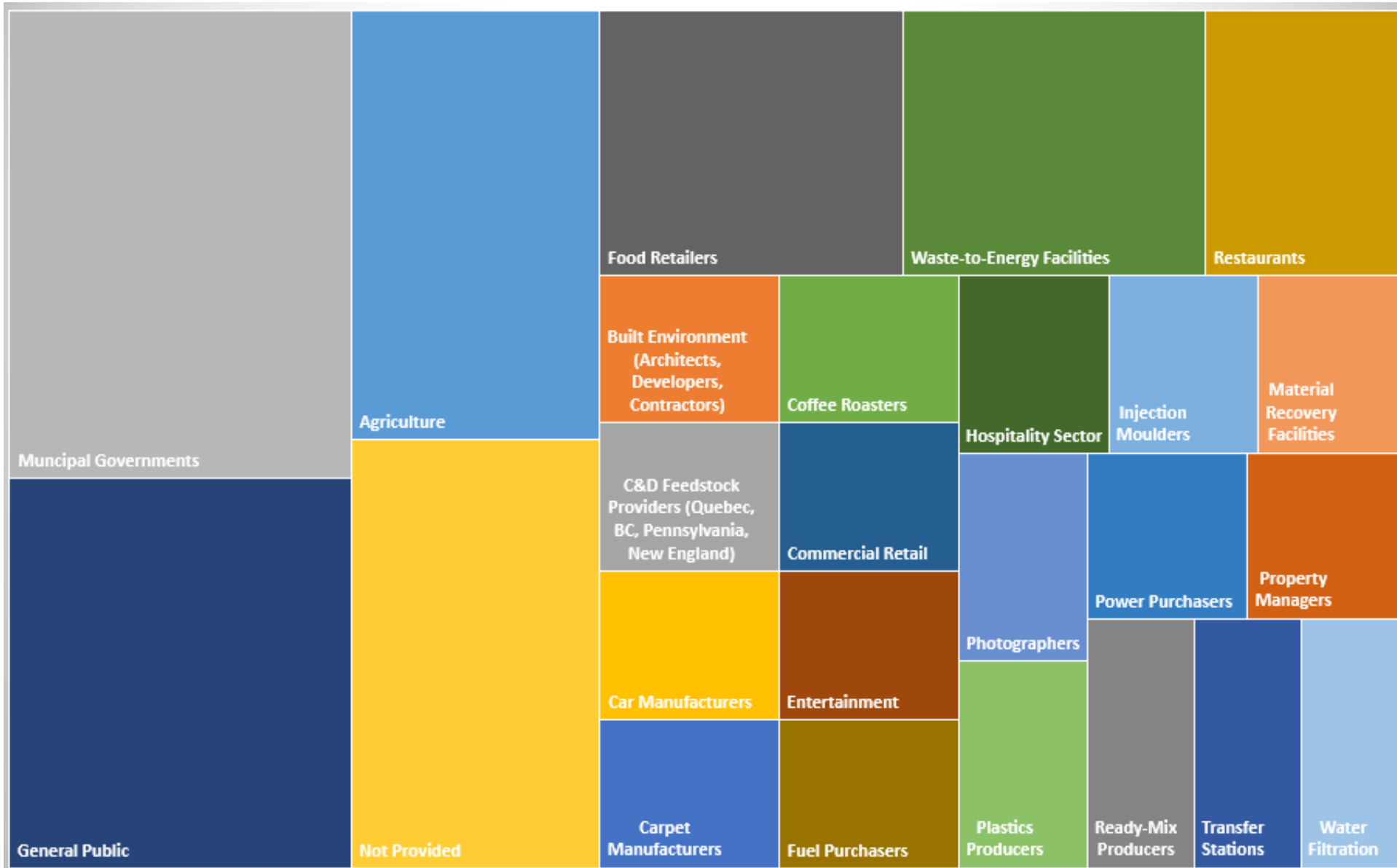


# Pain points respondents are addressing?

1. Change the Status Quo
2. Underutilization of Resources
3. Wasted Resources



# What markets are they pursuing?



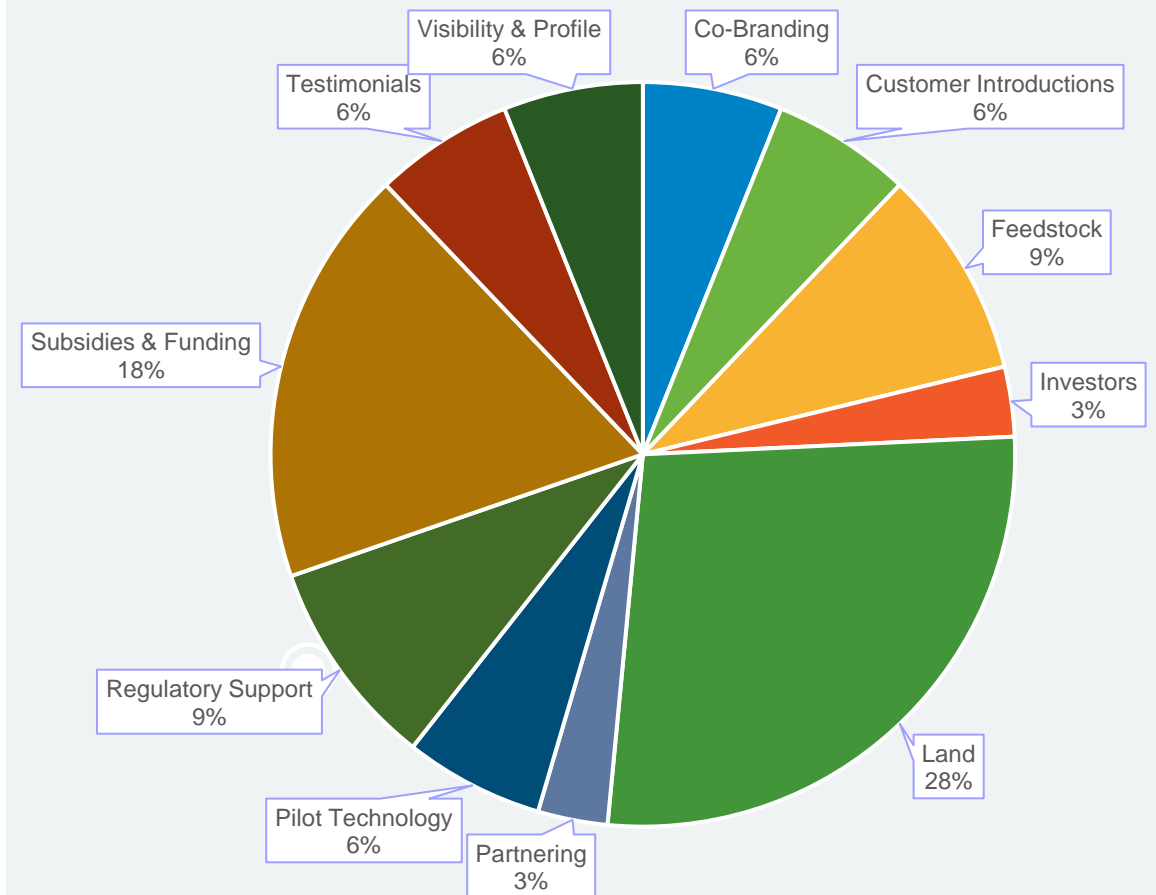
1. Municipal Governments
2. General Public
3. Agriculture

# Areas of support respondents require

Note:

1. Feedstock includes all waste streams (City-received and others)

1. Land, Space
2. Subsidies & Funding
3. Regulatory Support, **Feedstock** (See Note 1)

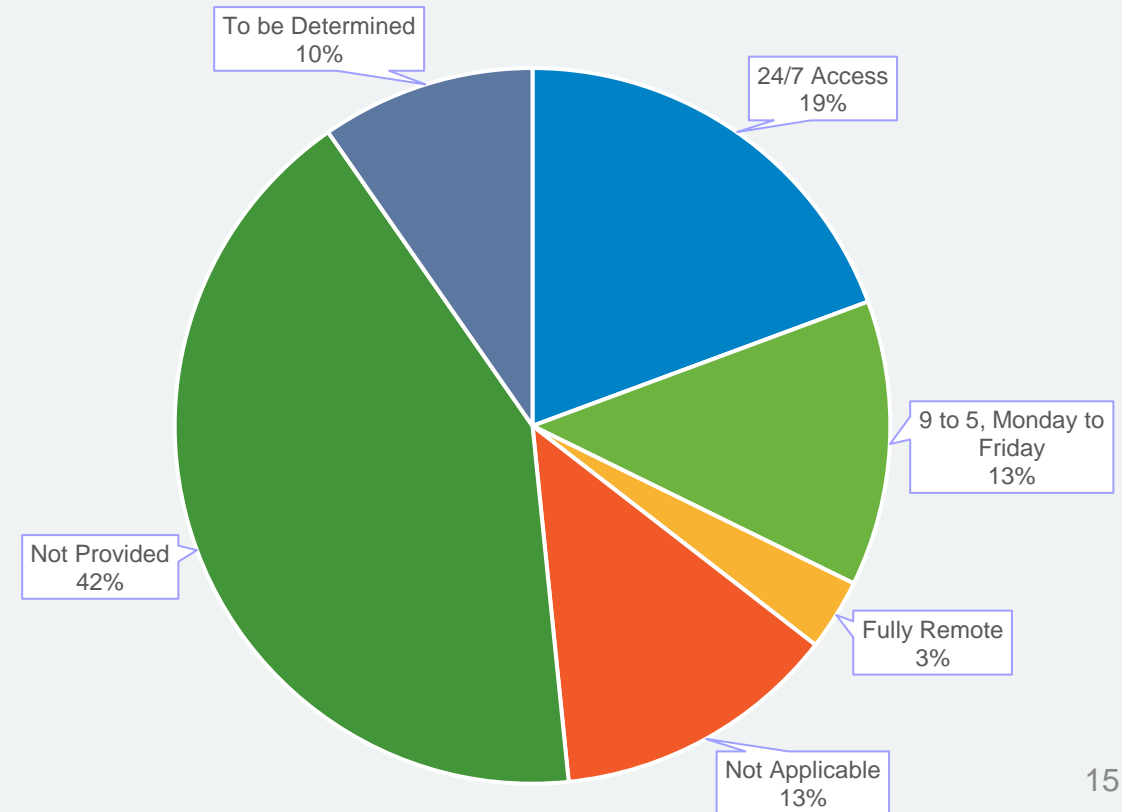


**How many  
respondents  
looking for new  
corporate  
partners?**

**100%**

# How would the respondents' plants be operated?

- Some respondents would need full access to the site at all hours
- Likely not a conventional operation with set hours





# Respondents' end products.

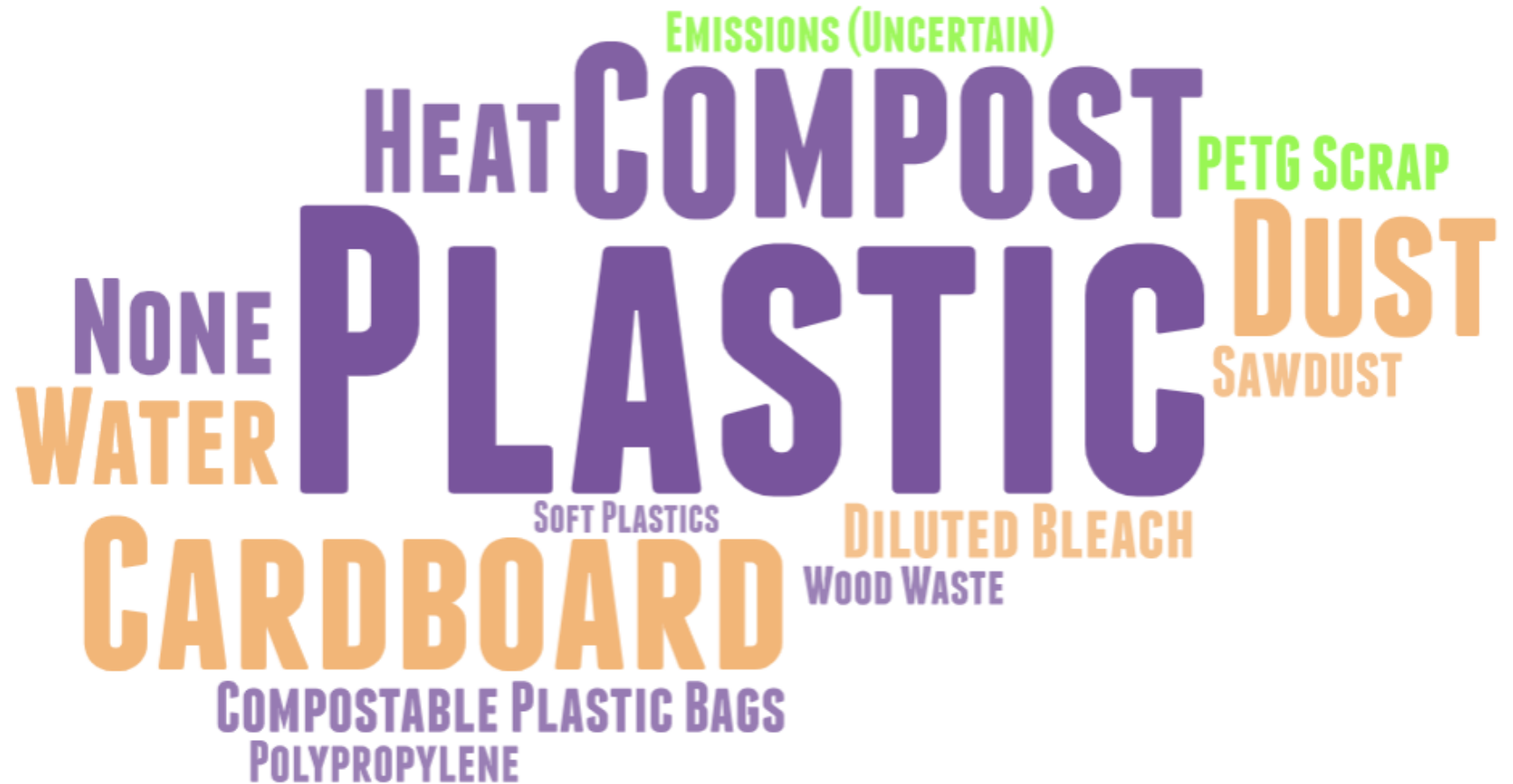
1. Compost & Fertilizer
2. Biofuel
3. Package-Free Groceries

Compost	Biofuel	Biocomposite External Insulation Panels	Data	Dimensional Lumber	Fibres	Fill Material
		Biochar	Hydrogen	Nucleating Agents	Photo Prints	Pillows, Cushions
Fertilizer	Package-Free Groceries	Chemicals	Needs Clarification	Renewable Natural Gas	Sanitized Containers	Syngas
	Aggregate (Asphalt, Concrete)	Concrete Additives	Not Provided	Restored Furniture	Textiles	Wood

# Respondents

# Byproducts

(In no order of size)

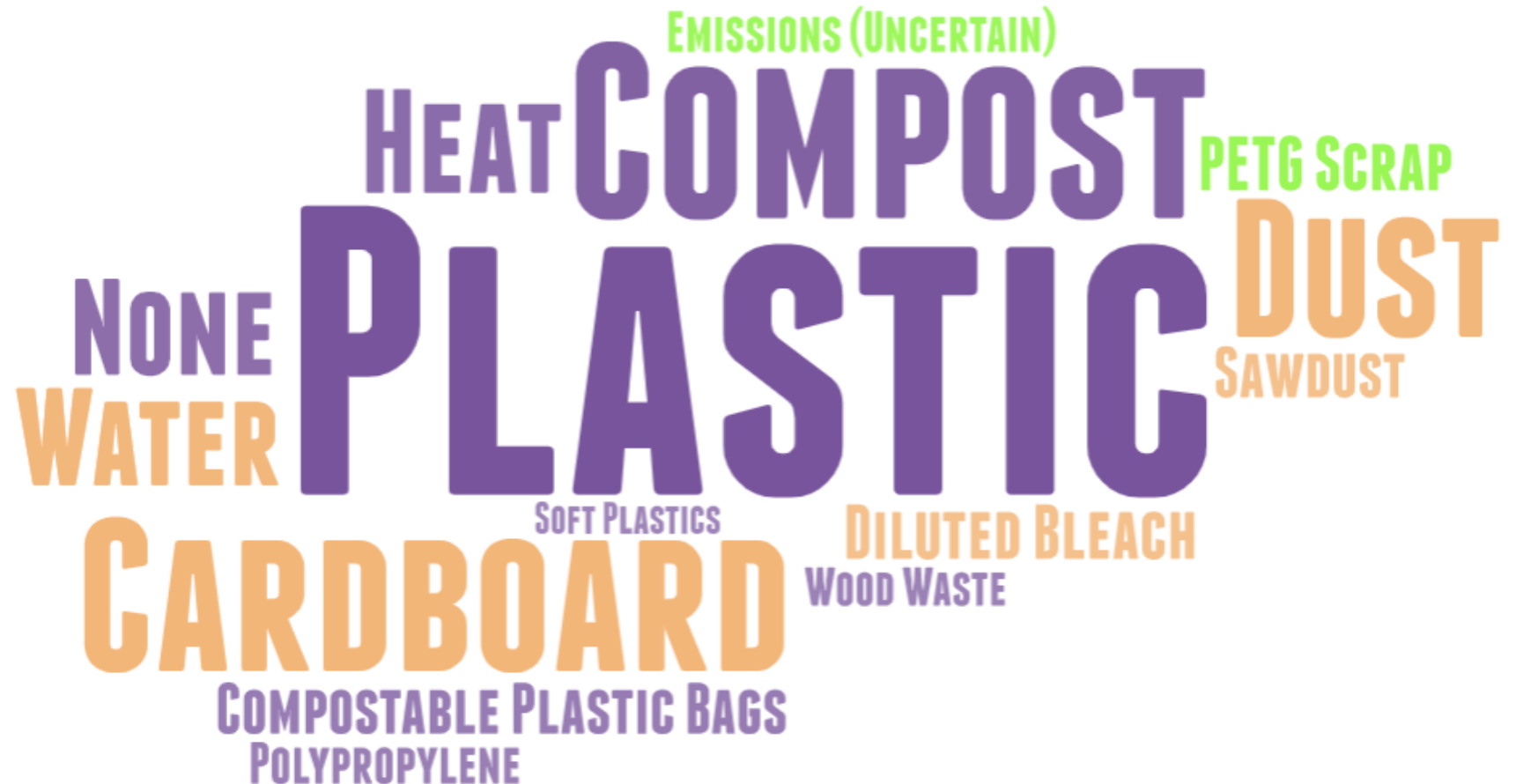


# Respondents

# Byproducts

(In no order of size)

- Some byproducts need to be confirmed due to potential environmental concerns (e.g. emissions, water)
- Some byproducts may have further value (e.g. sawdust to nearby biofuel producer for pulp and paper mills)

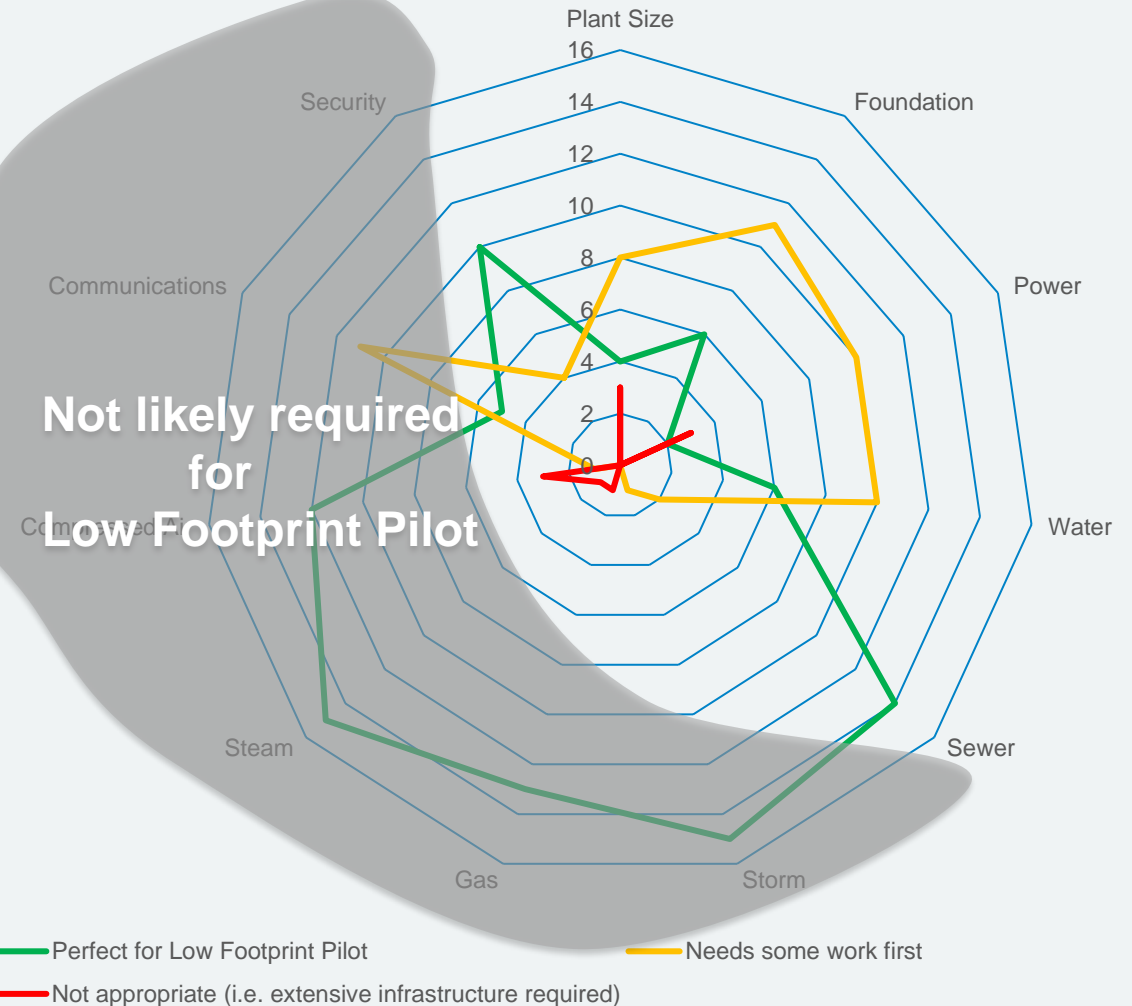


# What was identified as important infrastructure for the site?



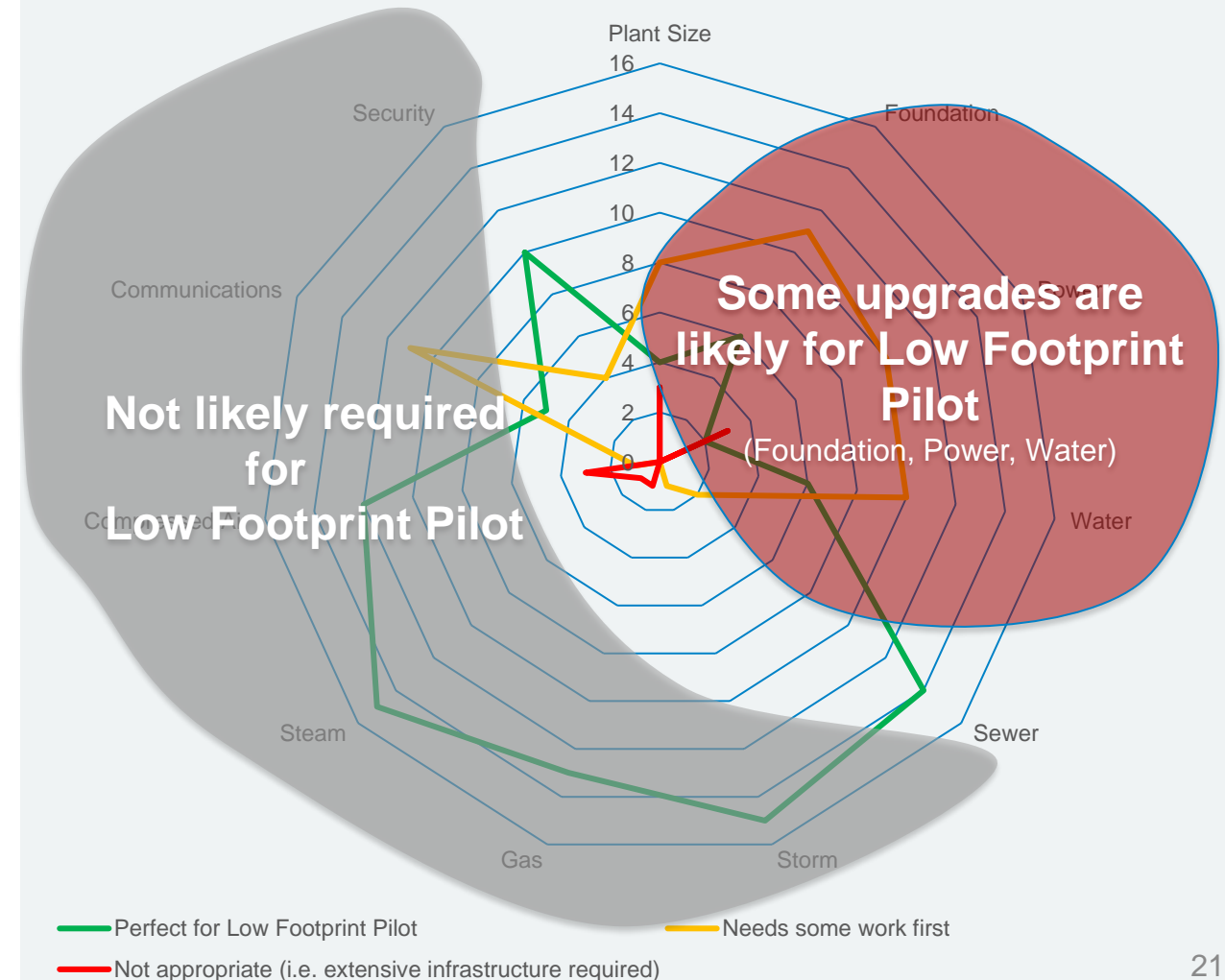
— Perfect for Low Footprint Pilot — Needs some work first  
— Not appropriate (i.e. extensive infrastructure required)

# What was identified as important infrastructure for the site?



# What was identified as important infrastructure for the site?

- Most plants are low footprint.



# Qualitative Survey Results



- *“We're grateful for this opportunity and thank the CoV for prioritizing Zero Waste innovation in the region.”*
- *“...love to be a part of it, but until we can address **affordability** (rent) I cannot see a path forward.”*
- *“...we need permitting support...”*
- *“... we're excited to see the movement on behalf of the City and would like to support in any way we can!”*
- *“...it would make the company progress forward at a faster pace towards commercialization...”*



# Insights

- Site needs to cater to a diverse range of needs and companies
- Some companies were not “innovative” technologies but rather good practices (e.g. reusable containers, wood salvage)
- Smaller companies may need financial support to nudge them into the space
- Matchmaking, profile by association (COV), and regulatory support are significant ways that the City and VEC can also help the zero waste ecosystem

# Next Steps

1. Proceeding with a low-footprint pilot (minimal infrastructure required, i.e. water and power self-supplied) selecting participants using **Project Greenlight**
2. Allows us to iron out any regulatory requirements (e.g. development & building permits, environmental certificates, zoning, legal requirements, tenancy agreements) and identify infrastructure upgrades.
3. In parallel, gain market feedback (workshops, presentations on site) adopting a flexible approach as we build out the site.

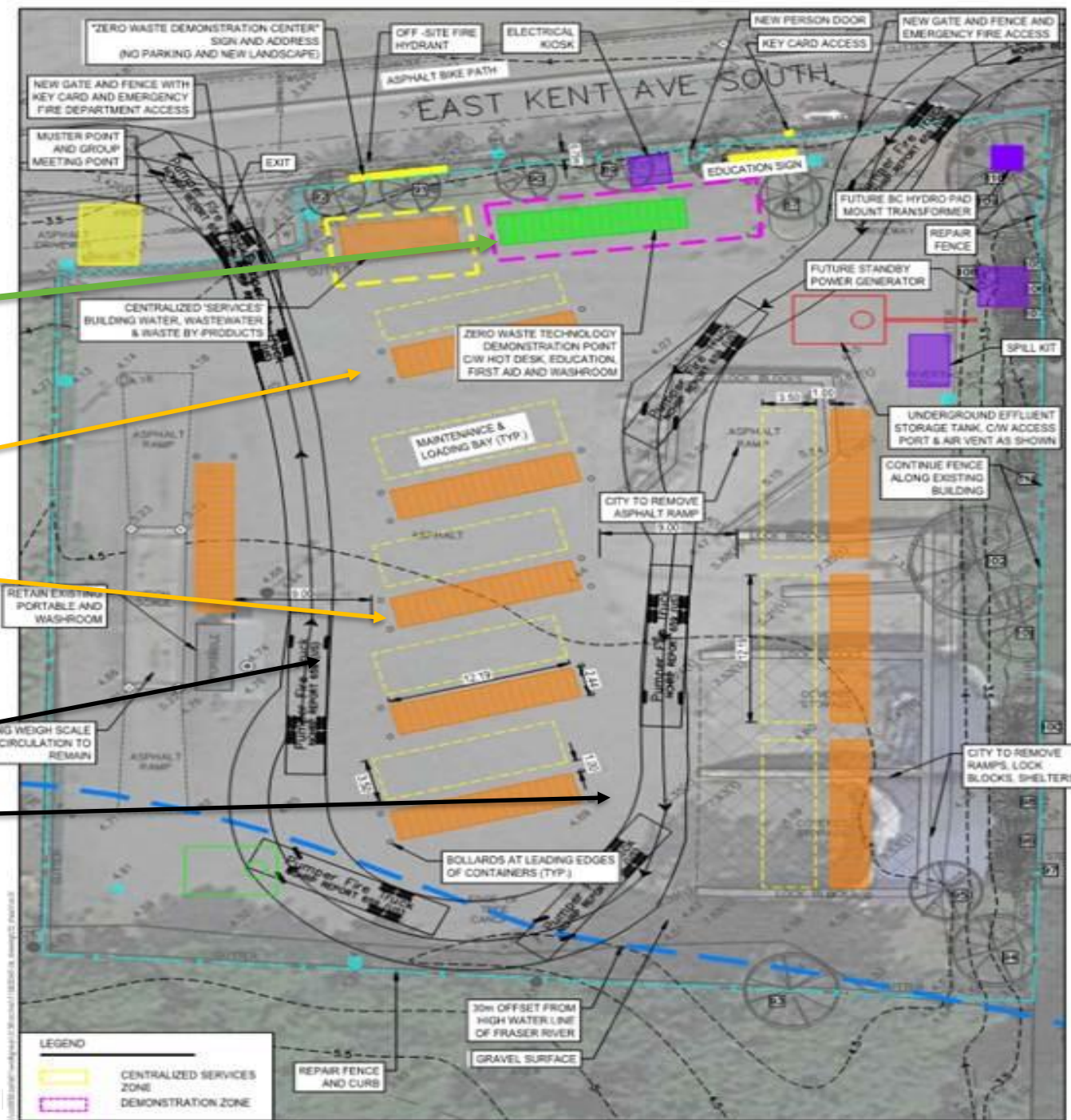
# Proposed Concept

On-site trailer(s) that could be used as flexible workspaces

## Pilot Plant Footprints

(Based on the size of a shipping container)

Ring Road used for dropping off and picking up technologies and waste materials.



# Project Greenlight

Issue a similar targeted call for pilot participants



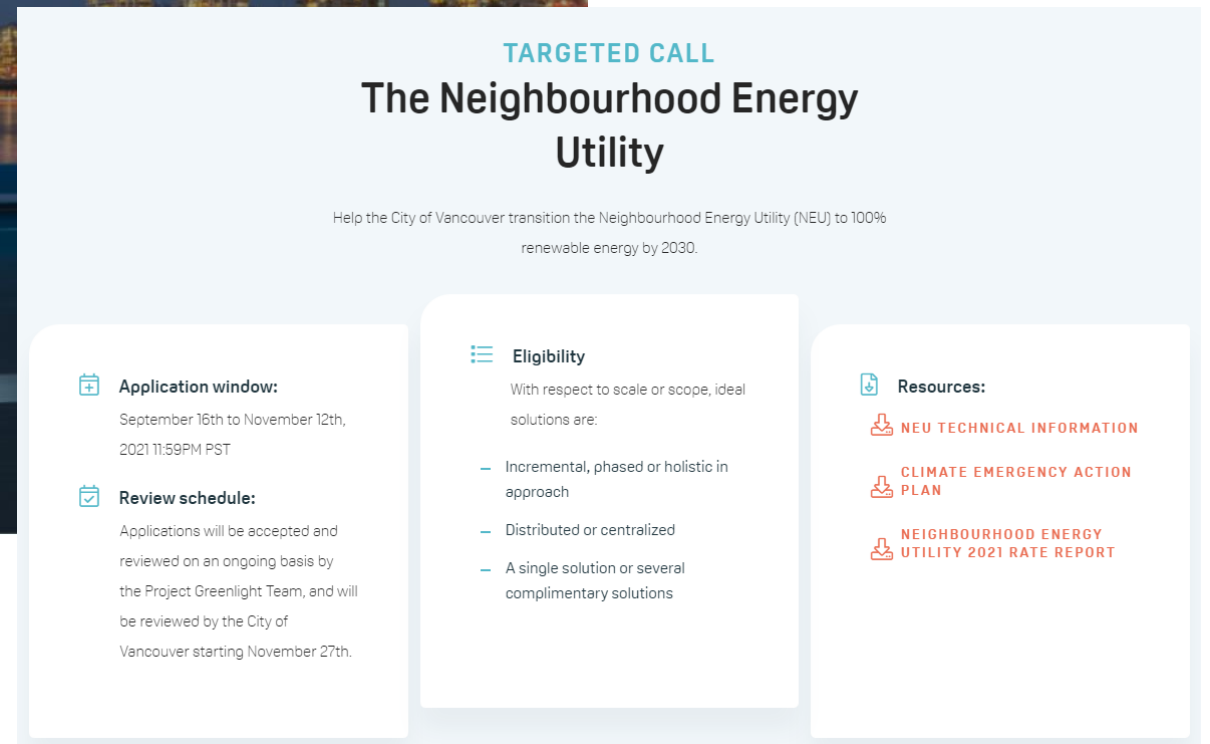
**Project Greenlight**

Open Challenges ▾ For Innovators For Members Contact Login

MEMBERSHIP

## Dip into a rich innovation ecosystem to solve your toughest challenges

Project Greenlight is a membership-driven demonstration platform that matches public and private enterprises (“members”) with pre-screened smart and sustainable solutions. As a member, you directly access innovative solutions and pilot proposals to solve long standing business challenges, reduce environmental impacts, and maximize asset value.



### TARGETED CALL

## The Neighbourhood Energy Utility

Help the City of Vancouver transition the Neighbourhood Energy Utility (NEU) to 100% renewable energy by 2030.

- Application window:**  
September 16th to November 12th, 2021 11:59PM PST
- Review schedule:**  
Applications will be accepted and reviewed on an ongoing basis by the Project Greenlight Team, and will be reviewed by the City of Vancouver starting November 27th.
- Eligibility**  
With respect to scale or scope, ideal solutions are:
  - Incremental, phased or holistic in approach
  - Distributed or centralized
  - A single solution or several complimentary solutions
- Resources:**
  - NEU TECHNICAL INFORMATION
  - CLIMATE EMERGENCY ACTION PLAN
  - NEIGHBOURHOOD ENERGY UTILITY 2021 RATE REPORT



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