

Responsible Recycling Task Force

Meeting #7 – October 26, 2018



Agenda

- **10:00 – 10:05:** Welcome & Introduction
(Julie Colehour)
- **10:05 – 10:35:** Technologies: Renewlogy & Chemical Recycling
(Priyanka Bakaya)
- **10:35 – 11:05:** Recycling Systems: Oregon's Beverage Recycling Cooperative & BottleDrop Program
(Cherilyn Bertges)
- **11:05 – 11:15:** October 26 Recommendation
(Julie Colehour)
- **11:15 – 11:55:** Recommendations Review
(Julie Colehour)
- **11:55 – 12:00:** Wrap Up & Next Steps
(Julie Colehour)



Task Force Goals

- **Short Term Goal:** To help identify near-, mid- and long-term actions in response to reduction in export markets for mixed recyclable materials due to China National Sword policies.
- **Longer Term Goal:** To help establish commitment across the region to responsible recycling and domestic sorting/processing of curbside recyclables.
- **Outcomes:** Prepare a report with actionable items and recommendations for future action by all; if possible, develop interim tools for communications and other topics that are more immediately available.
- **Role of Task Force:** Not to make decisions, rather to learn about the problem, understand activities that are being implemented elsewhere and opportunities for change. They will provide guidance on next steps that will be brought back to county advisory committees and decision makers.

Revisit Previous Meetings

- Approve 9/19 Meeting Minutes



Technologies: Renewlogy & Chemical Recycling

Priyanka Bakaya

Renewlogy Founder & CEO

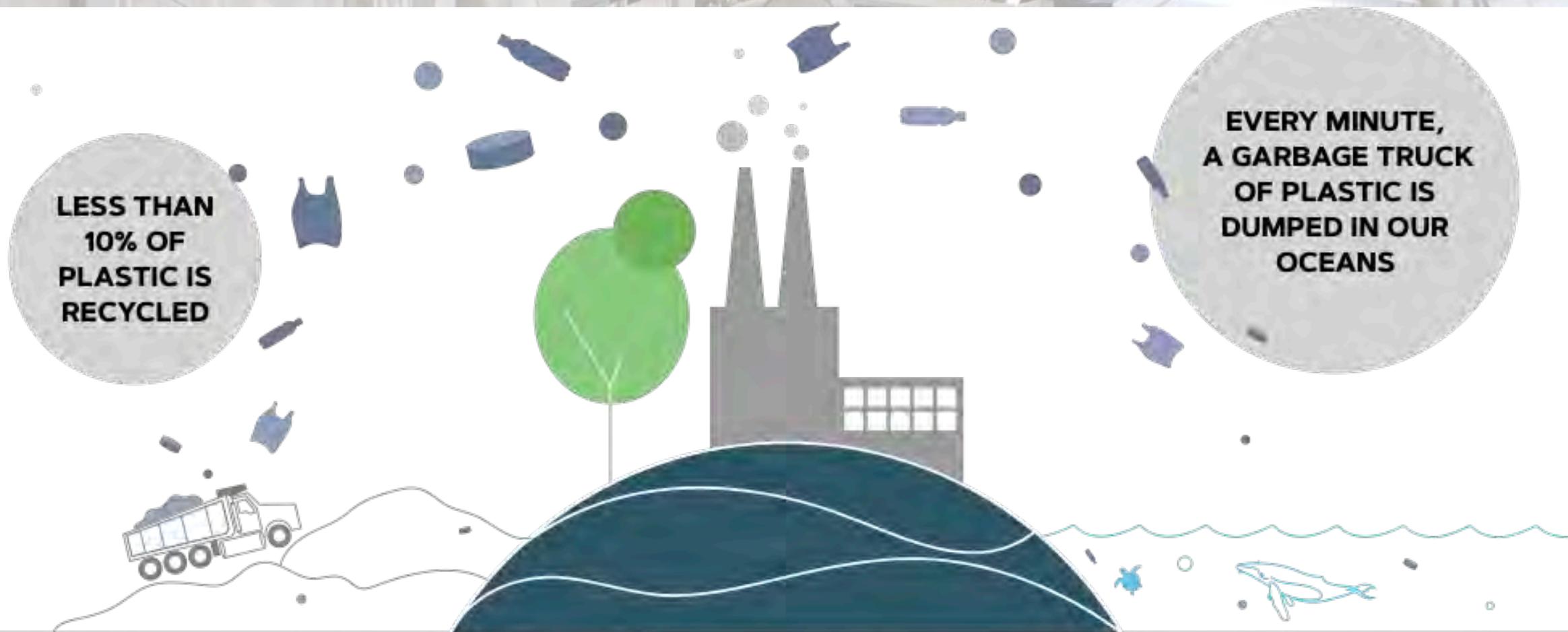




RENEWLOGY

CHEMICAL RECYCLING INTRODUCTION

U.S. PLASTIC RECYCLING COULD DECREASE FROM 9.1% (2015) TO 4.4% (2018) TO 2.9% (2019)



• CHINA BAN

• ENDS UP IN
LANDFILLS

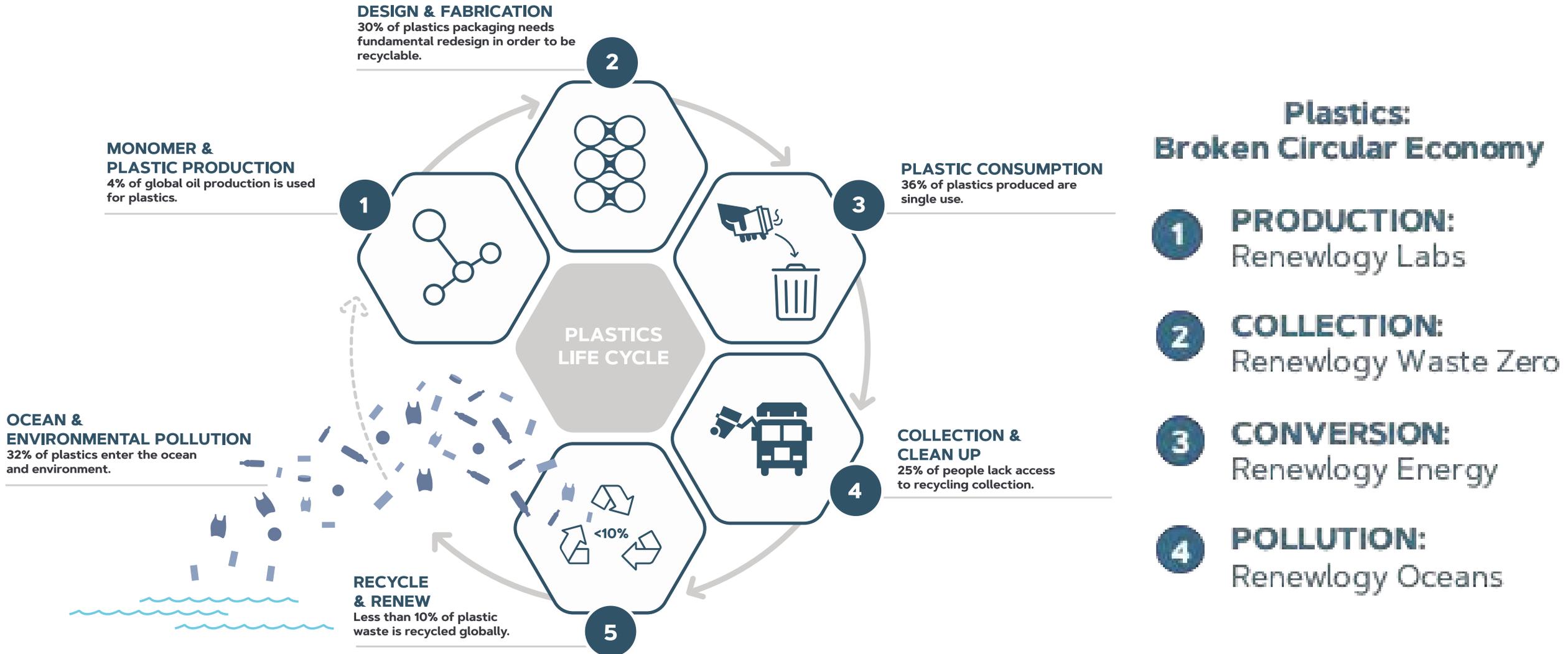
• 100's OF YEARS
TO DECOMPOSE

• IMPACTS
ISLAND
NATIONS

• HARMS &
KILLS ALL
MARINE LIFE

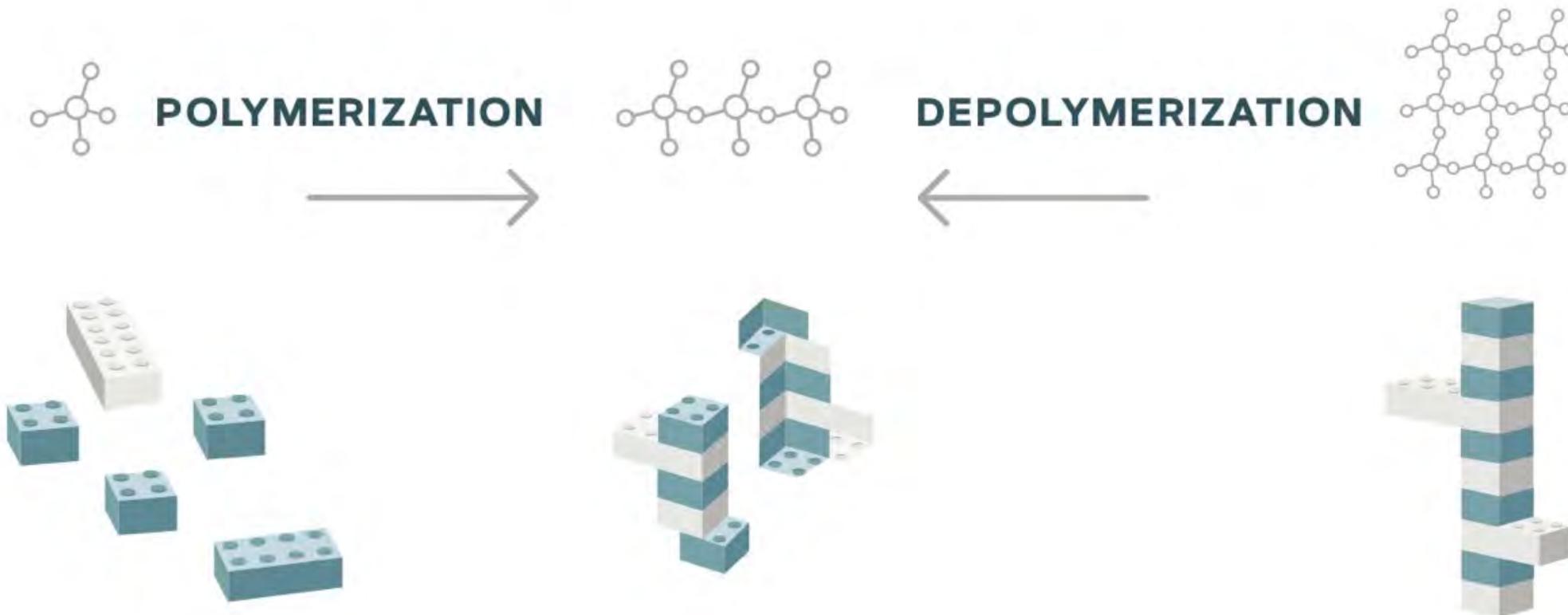
• ENDS UP
IN FOOD
CHAIN

WHY IS PLASTIC RECYCLING <10%?



WHAT IS CHEMICAL RECYCLING?

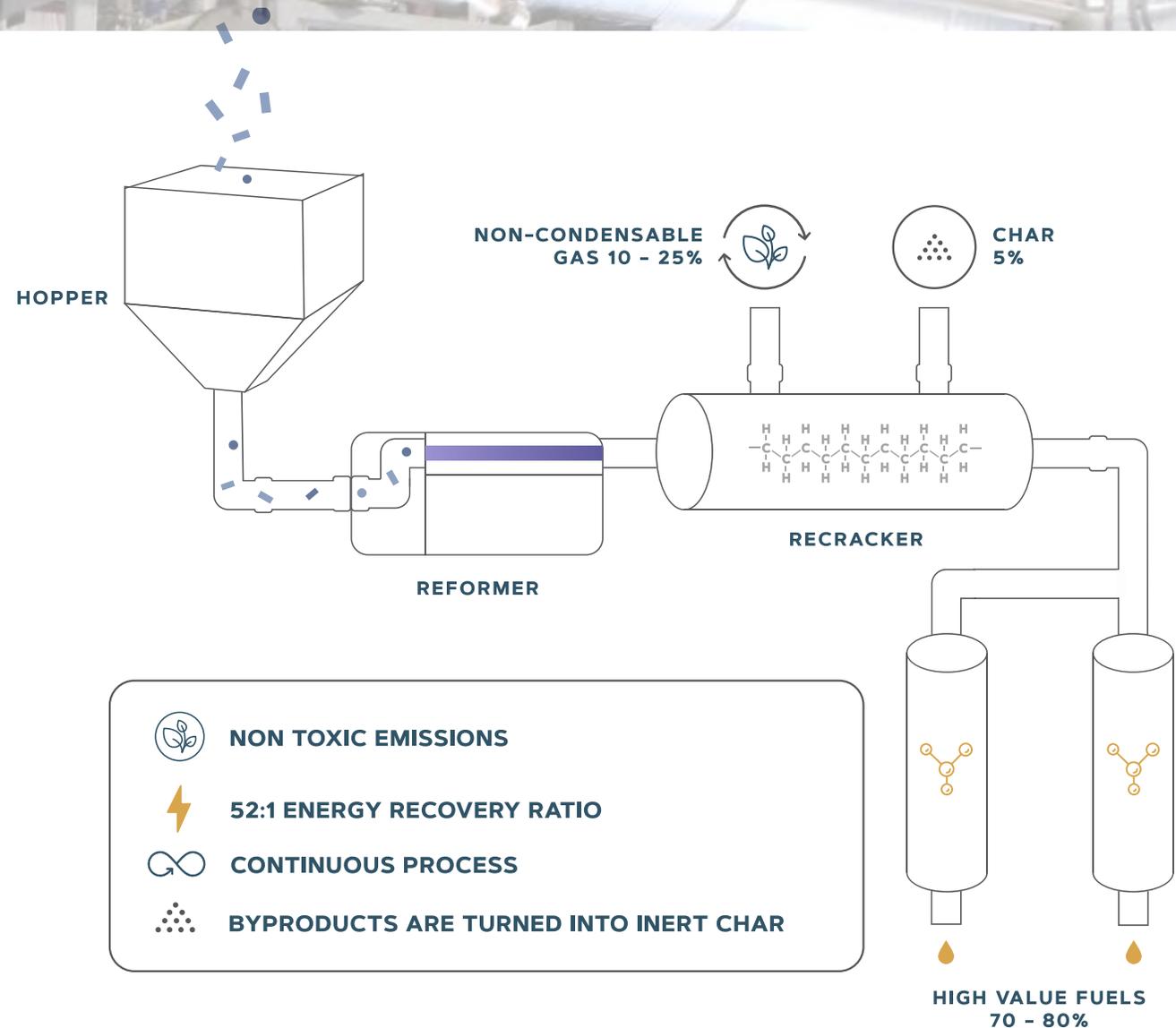
Chemistry is used to make plastics, so it makes sense to use chemistry to reverse the process.



GOAL: *infinite recycling, no molecule left behind*

THERMAL PROCESS

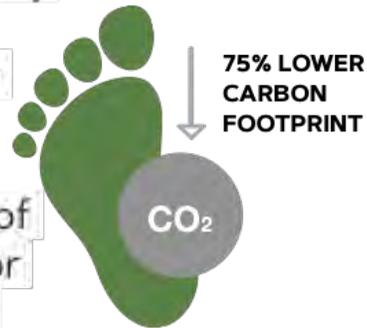
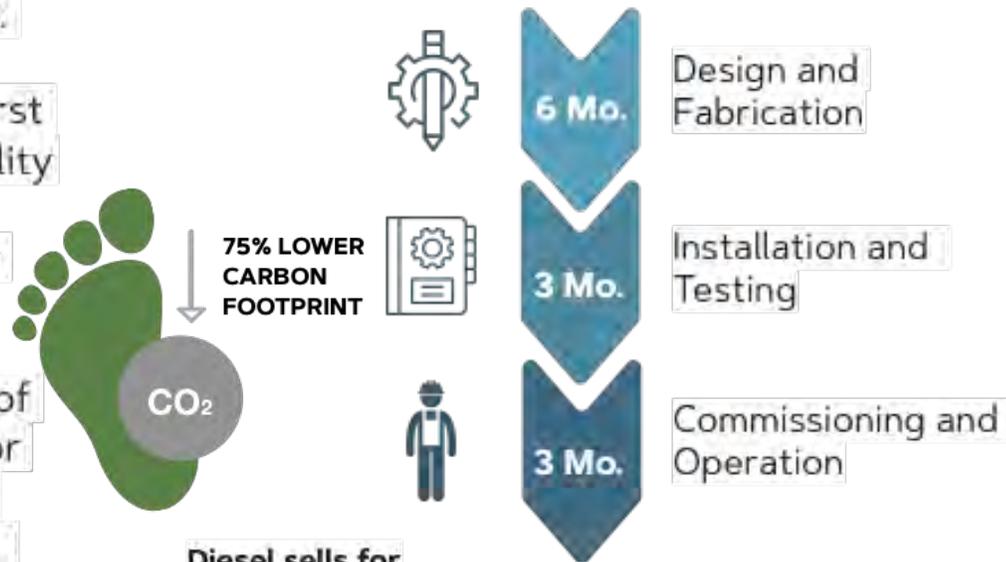
- The **Hopper** stores and feeds plastic to the system.
- The **Reformer** melts and reforms plastic before it is fed into the recracker.
- The **Recracker** chemically transforms liquid plastic into hydrocarbon vapors. Non-condensable gas is recycled back as heat and a small amount of byproduct is separated out as dry, inert char.
- The Renewlogy System produces high value fuels, **Refuel** and **Relite**, which are similar to diesel and naphtha.



RENEWLOGY CO-LOCATED MODULAR SYSTEMS

- **Renewlogy** was founded at MIT in 2011, and operated a successful pilot at the University of Utah from 2012 to 2013.
- **Renewlogy** has been operating its first commercial scale demonstration facility in Salt Lake City, Utah since 2014. It received financing from both the city and state.
- **Renewlogy** completed construction of a 12 ton per day processing facility for a Canadian waste company, Sustane, which received backing from Canada.
- **Renewlogy** is now sequencing the deployment of its next systems globally.
- **Renewlogy's** modular design allows the system to easily scale.

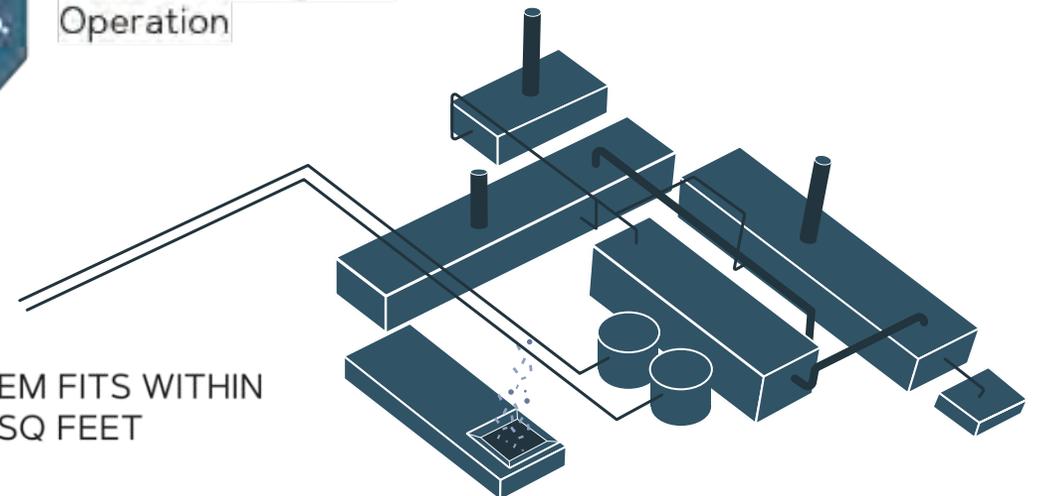
PROJECT TIMELINE: 12 MONTHS



Diesel sells for roughly \$85 / BBL

Renewlogy Operating cost = \$30 / BBL

10 TON SYSTEM FITS WITHIN 3000 SQ FEET



COLLECTION: ENERGY BAG

- The **EnergyBag** is an example of a new mechanism to capture “non-bottle” plastics.
- Renewlogy received **250,000 lbs** of EnergyBag material from Boise and Omaha in July-August 2018.
- From this material, Renewlogy could generate roughly **20,000 gallons** of fuel.
- Renewlogy is working with Hefty on a test pilot to add “**smart tags**” to the bags



COLLECTION: DROP OFFS

- The **Plastic Muncher** is a reverse vending machine for plastics, which can be placed in grocery stores and office buildings. Grocery stores, brands and businesses can sponsor the machines, and have their branding featured on the machine, on the envelopes, and in the app.
- Renewlogy receives numerous inquiries from citizens who are aware of the challenges facing recycling plastic through conventional streams, and who would love to drop off their plastic at a collection point.



AMERICAN CHEMISTRY COUNCIL

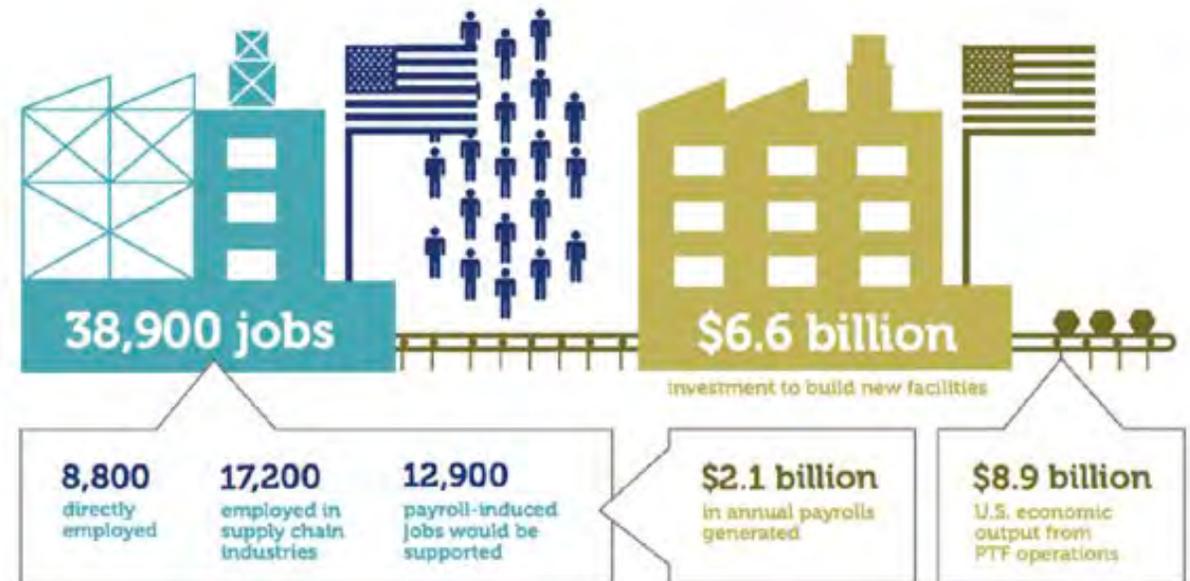
- The American Chemistry Council estimates that the US can sustain **600 x 30 Ton Per Day Facilities**.
- This would result in \$7 Billion of total US investment and **\$9 Billion of annual revenue**.
- Further work to be done on establishing these processes in **EPA waste hierarchy** and evaluating the relative energy of each process (initial LCA done).

**Opportunity to increase
Plastic Recycling from <10% to 30%+**



Plastics-to-Fuel and
Petrochemistry Alliance

**"100% of plastics
packaging is recyclable or
recoverable by 2030"**





BottleDrop[®]
Oregon Redemption Center

Oregon's Bottle Bill

A Cooperative Approach

Cherilyn Bertges
BottleDrop Give Program Manager
Oregon Beverage Recycling Cooperative
CBertges@obrc.com
October 26, 2018



Brief History of the Oregon Bottle Bill

1971

Signed into Law

2009

Bottled water + brand acceptance

2011- 2020

BottleDrop Redemption Center
statewide rollout

2017

Increase to 10 cents

2018

Expansion includes energy drinks, teas,
coffees, and juice.



Oregon Beverage Recycling Cooperative

- 1.3 billion containers/year
- 108 Members
- 400 Oregon employees
- Eight processing plants
- 2,600+/- Retail collection points

- Budget \$34+ million
- Builder and Operator of BottleDrop
- Partner in ORPET
- ZERO taxpayer dollars



Our flagship:



Indoor, clean and fast!



Hand Count



Self Serve



BottleDrop Account

"Green Bag" Program



10 Cents Sparked Huge Demand

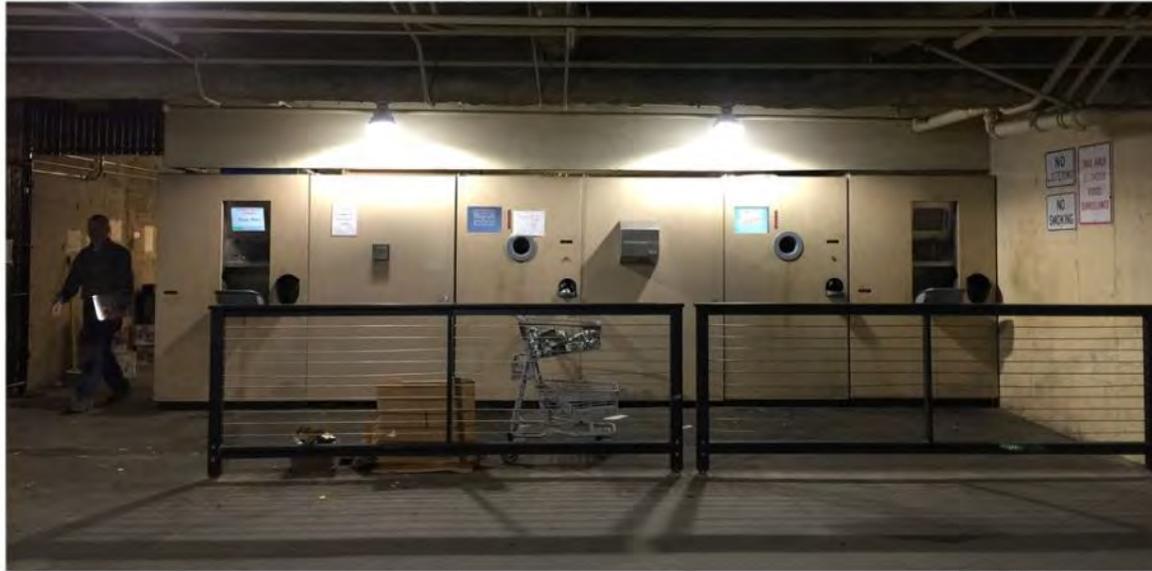


Expansion



↑ Volume







BottleDrop[®]
GIVE





BottleDrop
REFILL



WIDMER
BROTHERS
BREWING

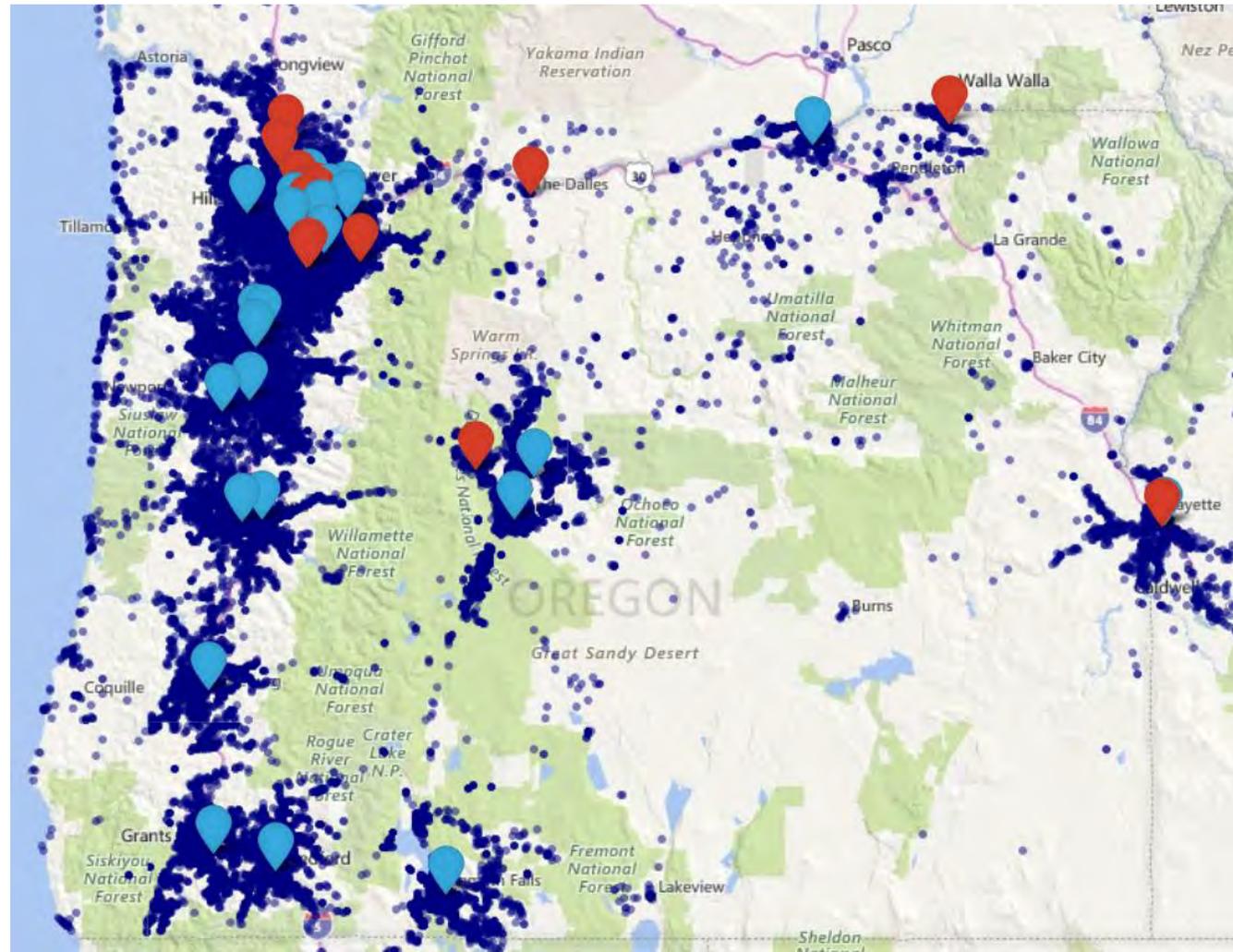


GIGANTIC
THE BEER COMPANY



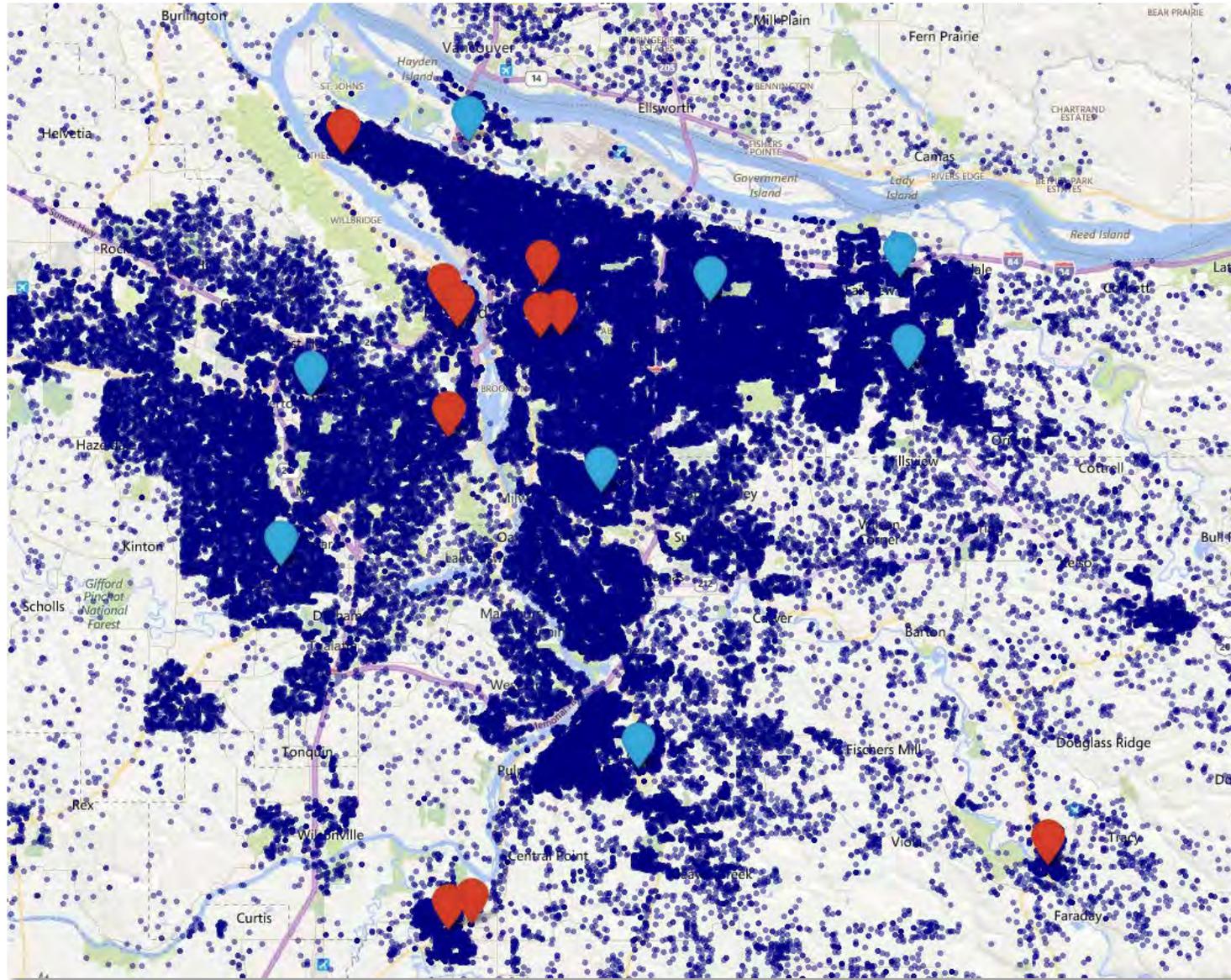


Measurements of Success





BottleDrop
Oregon Recycling Center





✓ More than 60% of containers coming through 24 BottleDrop Centers & 16 Express locations.

✓ 300,000 BottleDrop Accounts before 2019.

✓ Average increase in volume of 20% over grocery store redemption.

Private Sector Efficiency





To Find Out
More Visit...

www.BottleDropCenters.com

www.OBRC.com

Draft October 26 Recommendation



- Review suggested recommendation:
 - **Topic:** Building Local Resiliency
 - **Recommendation:** *Recycling should support the local economy and build resiliency in the system by prioritizing local sorting and reprocessing services which, in turn, will create local jobs, minimize greenhouse gases from transportation, and increase the ability to document and measure real recycling.*

Finalized Recommendations: Review



Meeting	RRTF Recommendation	Term	Responsible Recycling Framework Relevance
#1: Task Force Kick-off (4/30/18)	The region should make a commitment to responsible recycling and domestic sorting/processing of curbside recyclables.	Overarching	All Framework Elements
#2: What's in the bin? (6/1/18)	All regional curbside programs should remove plastic bags and shredded paper from the blue bin.	Short-Term	Quality vs. quantity Regional Policy Alignment Harmonized Messaging
#3: Contracts, Waivers & Surcharges (6/18/18)	The region should have a coordinated and consistent approach to waivers.	Short-Term	Regional Policy Alignment Recycling is Not Free Harmonized Messaging

Recommendations Under Review



Meeting	Original Recommendation	Proposed Revision	Term	RR Framework Relevance
<p>#4: Domestic Processing Infrastructure (7/18/18)</p>	<p>Local governments and their service providers should prioritize that sorting and processing take place domestically, in the United States and Canada, to ensure that the materials generated for use as feedstock in new products are clean and suitable for remanufacture. If there are no sorting and/or processing facilities located domestically, the next priority should be in countries that are members of the Organisation for Economic Co-operation and Development (OECD) that have worker health and safety and environmental regulations comparable to those in the US and Canada.</p>	<p>Efforts should be made to protect worker health, safety and the environment from negative impacts that result from the sorting and reprocessing of recycled materials generated in the region. This can be done through contractual and policy decisions that mandate that materials only go to facilities that meet worker health and safety and environmental standards</p> <p>Definitions:</p> <ul style="list-style-type: none"> • Sorting: taking mixed recyclable materials and separating them into specific commodities that can be sent to a processor. For the commingled recycling system, sorting takes place at a Materials Recovery Facility. • Processing/Processor: transforming a material into a new material or feedstock. For example, a paper bale is turned into pulp for sale to the paper manufacturer or a plastic PET bale is turned into plastic pellets or flakes for sale to the plastic product manufacturers. • Domestic: The United States or Canada. 	<p>Mid-term</p>	<p>Domestic Processing and Markets</p>

Recommendations Under Review



Meeting	Original Recommendation	Proposed Revision	Term	RR Framework Relevance
#5: Working with Producers (8/24/18)	Recycle BC's province wide, coordinated program is worth studying in further detail, specifically to understand how a statewide, systems approach might be applicable to our operating environment here in the Northwest.	Washington State should include a product stewardship policy approach as a key component to creating a responsible recycling system in Washington.	Mid-term	Regional Policy Alignment Recycling is Not Free Quality vs. Quantity
#5: Working with Producers (8/24/18)	Engaging producers in recycling solutions is recommended in order to achieve a system of sustainable and responsible recycling.	The region should engage producers in recycling solutions in order to achieve a system of sustainable and responsible recycling. Definitions: <ul style="list-style-type: none"> Region: means in Washington and Oregon state. 	Mid-Term	Quality vs. quantity Regional Policy Alignment Harmonized Messaging
#6: Policy Approaches in Support of Responsible Recycling (9/19/18)	The region should continue to evaluate and put forth local and statewide policy and legislation that is consistent with helping establish a responsible recycling system.	The region should support local and statewide policy and legislation that is consistent with helping establish a responsible recycling system. Definitions: <ul style="list-style-type: none"> Region: means in Washington and Oregon state. 	Mid-term	Regional Policy Alignment Demand for Recycled Feedstock Recycling is Not Free Domestic Processing and Markets

Wrap Up & Next Steps

- Action items and next steps
 - Final outcome report draft

- Next meeting:

Date: November 15, 10:00am – 12:00pm

Location: Bothell City Hall, 18415 101st Ave NE, Bothell, WA 98011

Parking: Parking is available in the garage, on the streets surround City Hall, and in the nearby neighborhoods

Room: Council Chambers Room

Future Meeting Schedule

Date	Topics Covered
April 30	<i>Task Force Introduction; Responsible Recycling Framework</i>
June 1	<i>What's in the Bin?</i>
June 18	<i>Contracts, Waivers, Surcharges</i>
July 18	<i>Domestic Processing Infrastructure: Fiber & Plastics</i>
August 24	<i>Working with Producers</i>
September 19	<i>Policy Approaches in Support of Responsible Recycling</i>
October 26	<i>Recycling Systems and New Technologies</i>
November 15	Creating Demand; Recommendations and Final Outcome Draft Review
December 14	Final Outcome Document Review