

# Developing a Sustainable Organics Recovery Sector

A Forum for Sharing Strategies and Building Toward a Regional Consensus



June 25, 2018



Thank you for coming. We hope that today's interactive format supports interesting dialogue in what looks to be a continuing conversation.

I have the pleasure of kicking things off with a framing presentation. This presentation will do two things: (1) offers some starting point for conversation and our efforts to date in strategic planning, and (2) provide an orientation about the structure of today's event.

To open, two things:

(1) We are open. We are at the start of a big undertaking, and our hope is to share strategies and work together as co-designers to build a mutually beneficial regional consensus. We value the expertise in the room and look forward to engaging you in a spirited, civil exchange of ideas.

(2) What do we mean by an organics recovery strategy? We mean (A) our framing and narration of the challenge, (B) the principles guiding our exploration and development of ways to address it, and (C) our priorities moving forward.

## Developing a Sustainable Organic Recovery Sector

*Waste*



For example, the title on the previous page refers to an “organics recovery sector.” We could call it our “organic waste recovery sector.”

# Developing a Sustainable Organic Recovery Sector *Resource*



Alternatively, we could call it an “organic resource recovery sector.”

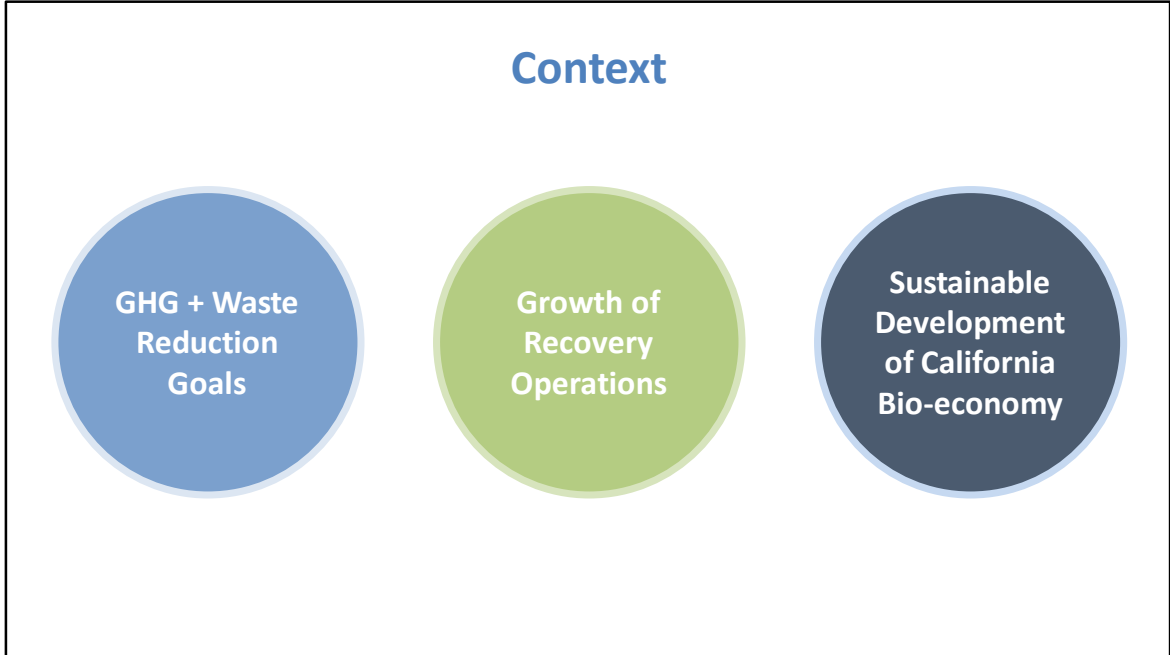
## Developing a Sustainable Organics Recovery Sector



For present purposes, we forward the idea of calling this an “organics recovery sector.” Accordingly, we refer to our co-design work as an “organics recovery strategy.”

The word “co-design” and your presence in this room brings us to the objectives for today’s convening:

- To introduce our developing organics recovery strategy
  - e.g., To offer an early concept on our rules, etc.
- To solicit review of the issues we have identified
  - e.g., Are these the right issue buckets? Are we missing anything?
- To get input on direction and components of our strategy
  - e.g., Do you see solutions that we don’t?
- To facilitate collaborative troubleshooting
  - i.e., big goals; short timeframe – let’s learn together



What is driving our strategy?

- GHG Reduction and Waste Diversion Goals
  - State: SB 32 (GHG↓ 40% by 2030) and SB 1383 (methane↓ 40% by 2030) + (waste↓ 50% by 2020 and 75% by 2025)
  - BAAQMD: Clean Air Plan (GHG↓ 40% by 2030) + (tighter landfills) + (organic waste↓) – BOTH CH<sub>4</sub> and N<sub>2</sub>O
  - Proximate goal here: assurance of CH<sub>4</sub> and N<sub>2</sub>O reductions; support for waste diversion.
- Growth of recovery operations
  - We are seeing growth of recovery approaches: composting, co-digestion, anaerobic digestion, pyrolysis, gasification, etc.
  - These facilities are an important part of the organics handling infrastructure.
  - CalRecycle anticipates that we will need the equivalent of 1-2 dozen more medium/large facilities to achieve 75 diversion target

- We are facing these questions: How can we best fit these kinds of facilities into our airshed and still attain regional air quality standards?
- How can we encourage these facilities to site locally and still protect neighborhood air quality?
  
- Sustainable Development of California Bio-economy
  - Support for bio-recovery: (1) avoided “waste” of bio-material, (2) production of renewable, bio-based resources (e.g., biochar, biogas), and
  - Support for nutrient cycling: (i) land application that returns nutrients to soil, and (ii) land application that sequesters carbon
  - Design challenges: (A) Facilitating economic growth, (B) Encouraging local infrastructure to constrain GHGs (i.e., from transportation), and (C) Right-sizing facility sizes for local siting and community benefits (i.e., lower cost, learning opps, resource depots)

## Motivators

Health  
Protection

Knowledge  
Growth

Sustainable  
Design

Policy  
Consistency

**In this context we are driven by the following motivations:**

- **Health Protection:** creating equitable access to nuisance-free, healthy air around the Bay Area
- **Knowledge Growth:** the capacity to characterize emission sources, model the implications for ambient air quality standards, and navigate life-cycle accounting
- **Sustainable Design:** to support diversion effectiveness + efficiency for cities and counties and to build capacity to make this a value-added part of a renewable, circular economy
- **Policy Consistency:** to assure smooth coordination across State, regional, and local jurisdictions

## **Stakeholders for Regional Convening**

**36:** Owners / operators of facilities

**26:** City and county government

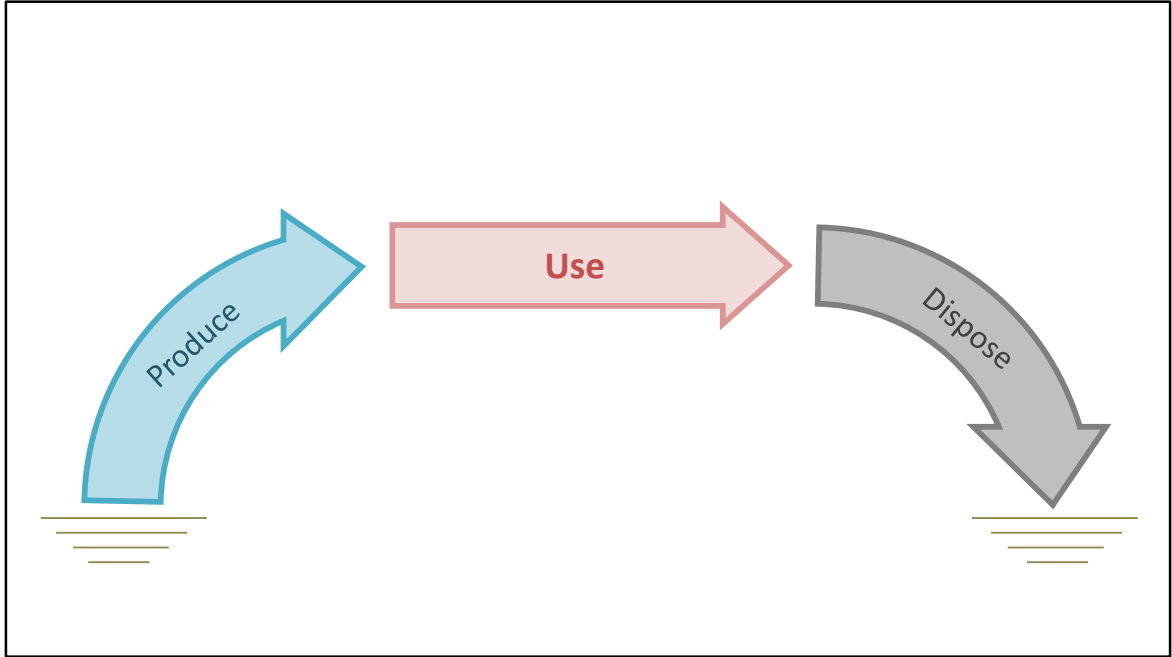
**15:** Practice Leaders / Consultants / Trade Associations

**13:** Public Interest and Community-based Groups

**12:** Regionwide and State Agencies

Based on RSVPs

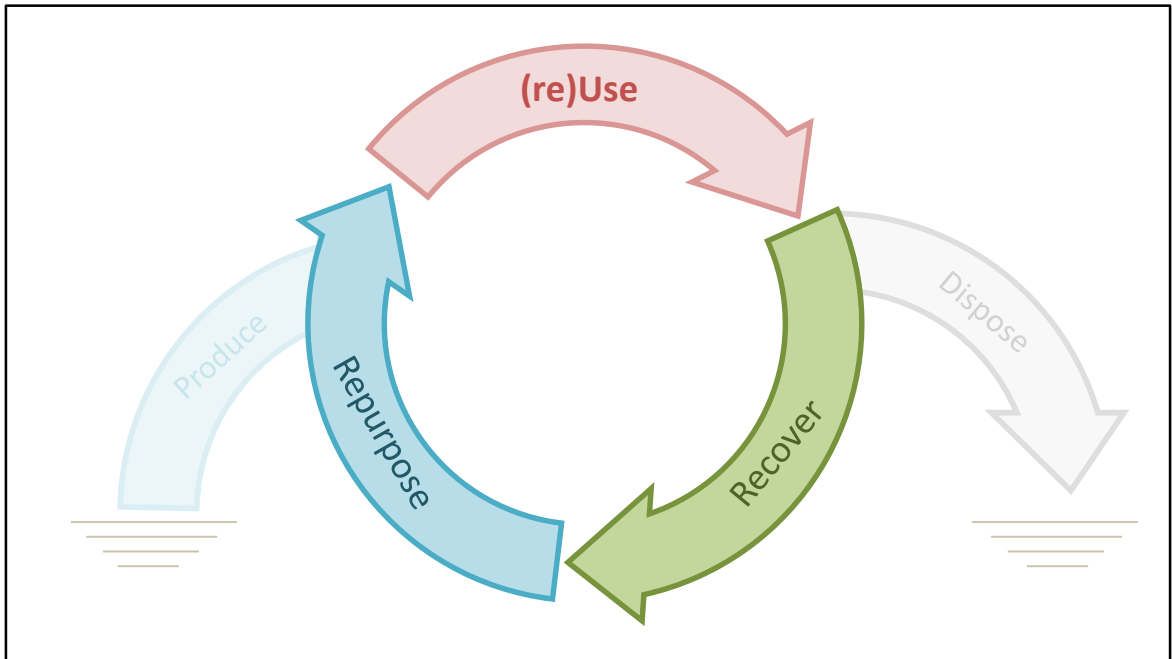




That said, let's turn now to the foundations of our strategy work. My goal here is to paint with broad strokes. The details will come in the hour and a half after my presentation.

My starting point for doing so is the ways that we have been drawing on ecological metaphors and systematic and holistic thinking to design our approach.

We started this process by applying life-cycle lens to the process of recovering organics. That meant looking beyond a pass-through economy...

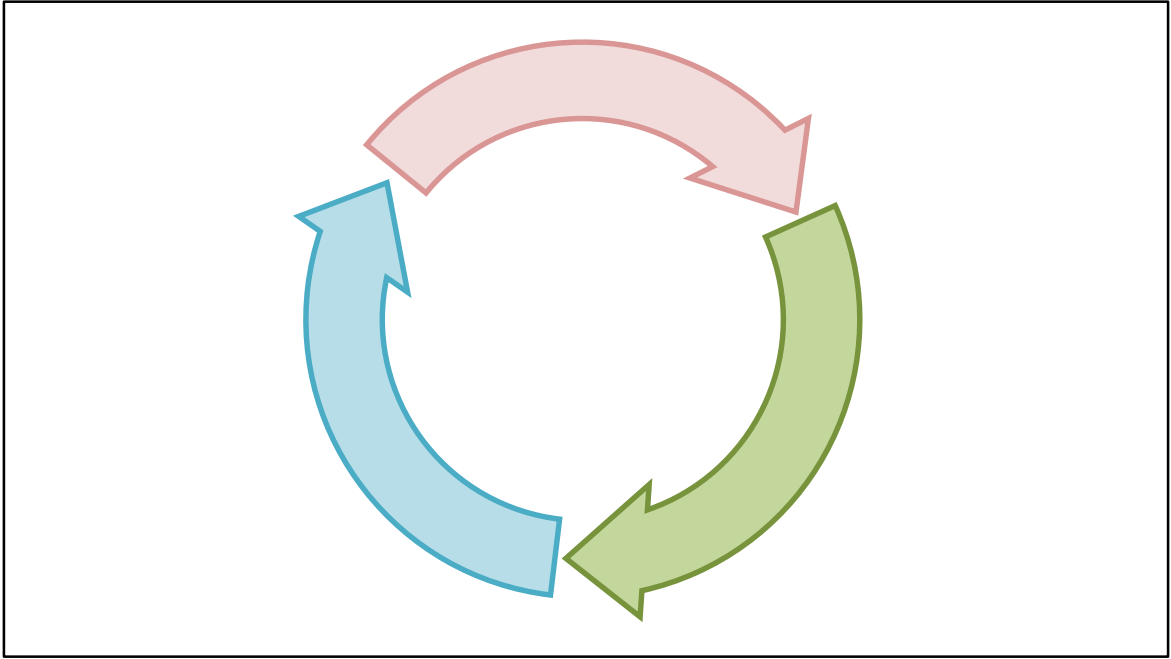


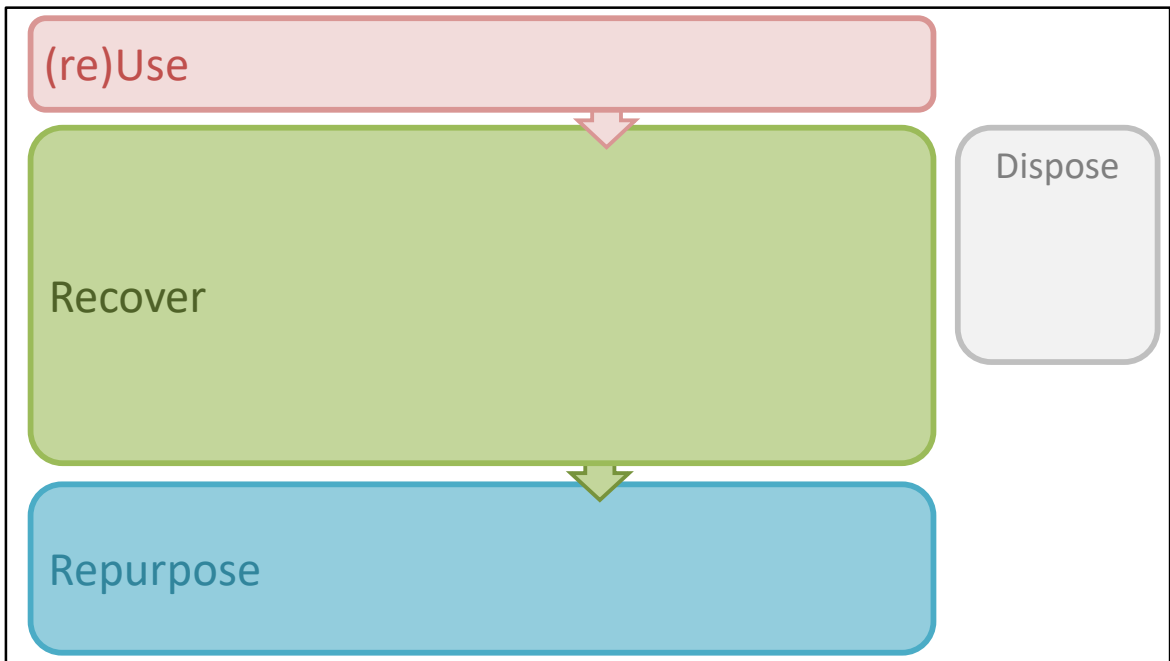
And toward a more circular economy.

With this concept as an underpinning and the green arrow here as the part of this system that we are working to build, we started trying to understand the constitution of that arrow better.

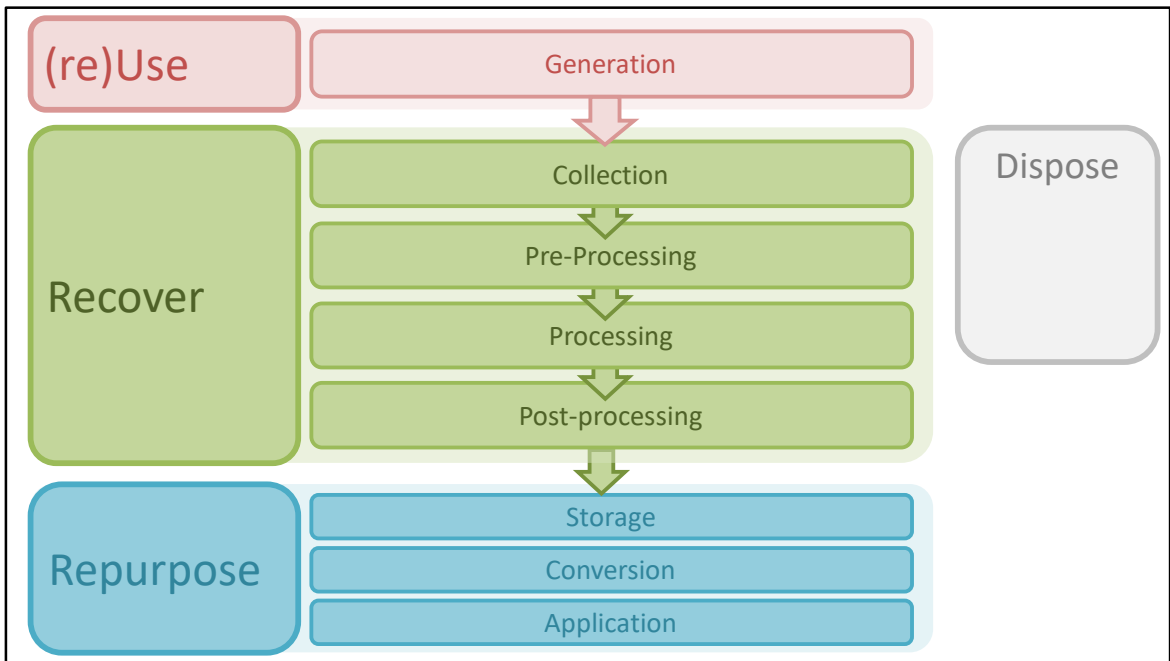
We have been working to reduce the arrows into their constituent elements, which allows us to examine at a scale that matches our management process/decision making approaches.

To do so, we have linearized this picture.

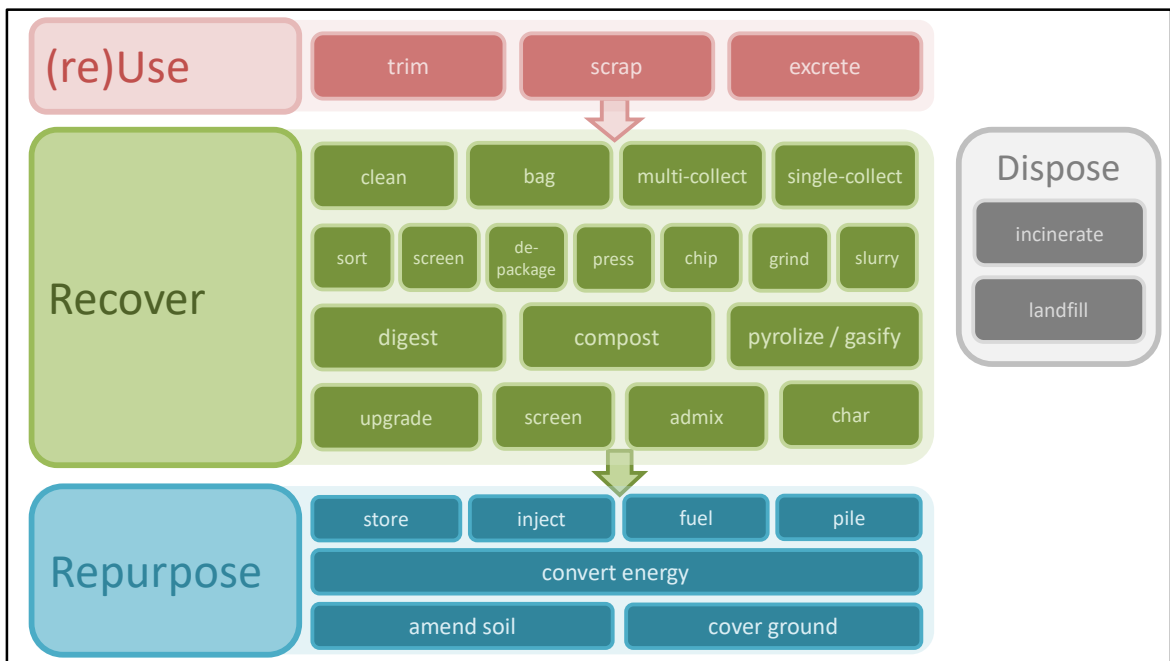




This diagram reimagines the arrows as process steps in a value/design/supply/recovery chain.



We have been working to increase the resolution of this picture. Here is an intermediate step that is helping us to group process steps and generalize processes for planning purposes.



If we want to get to the level of process steps, the diagram begins to look more like this. Here is the most comprehensive list of generalized organics recovery process steps that we have generated to date.

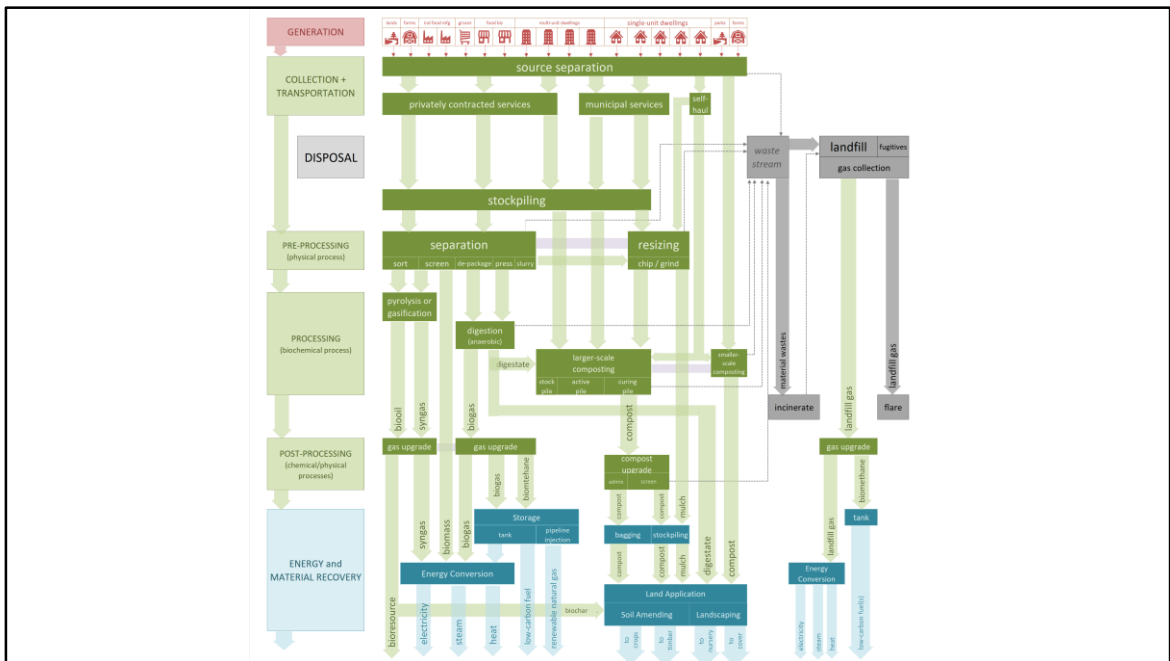
Obviously, this diagram is complicated. It is too much to take in quickly. So, we have included a copy of this diagram in the welcome packet you got at registration. (If you did not get one, raise your hand.)

Looking at the process steps helps us understand the building blocks of organics recovery. It helps us to identify emission sources and assess their emission potential. Most importantly for present purposes, it helps us identify connections and synergies that can help us develop a strategy for bringing organics recovery into our air basin.

[NOTE: this supply chain rendering only identifies stationary source emissions. Mobile source emissions are also part of the picture, just not our emission control.]

Ideally, it will also help us understand the systems dynamic for an organics recovery sector as well. We see this as useful in several ways:

- Helping the system develop more quickly and cost-effectively,
- Putting policies in place that enable the greatest value addition and cost efficiency, and
- Assuring that we get the GHG reduction that we are pursuing here, without significant rebound effects and unintended consequences.



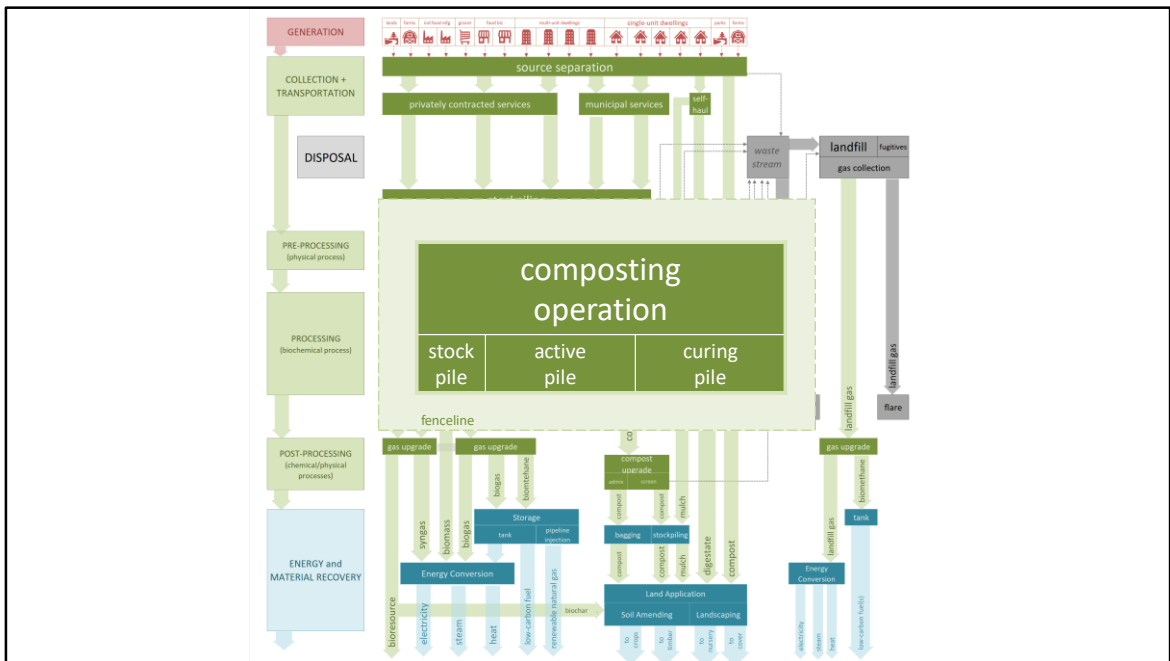
Getting to those systems dynamics means linking the process steps together into a flow diagram like this one. Here we have drawn in relationships and material flows between process steps.

Doing so increases the sophistication of the model -- but also its complexity of the process steps, material flows, and relationships.

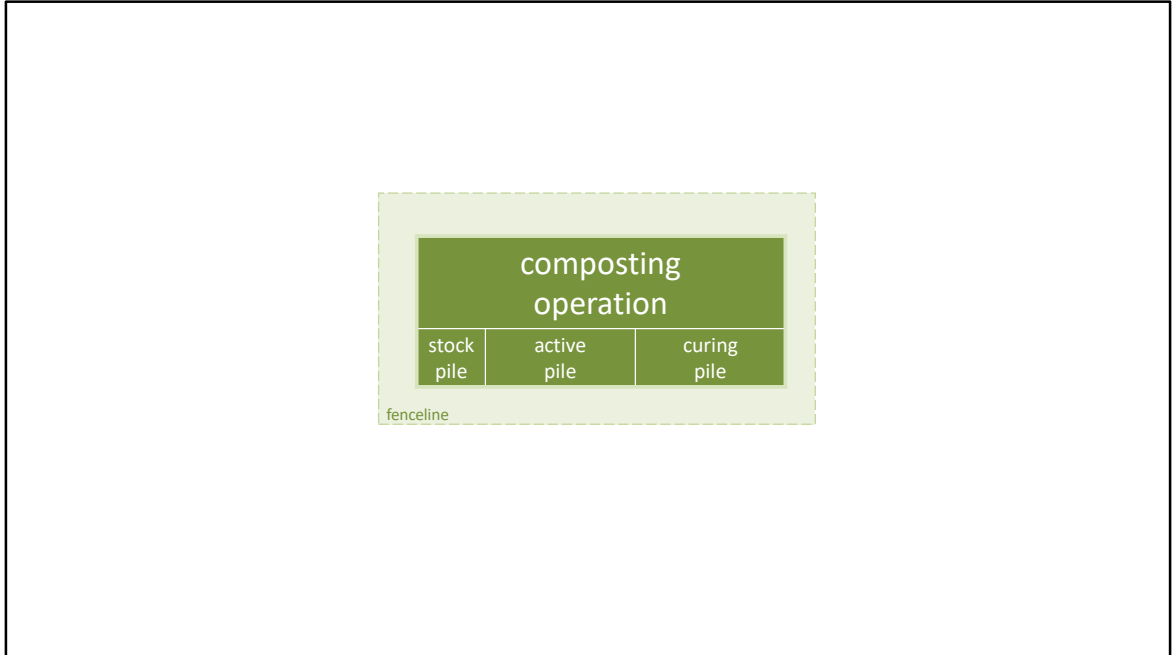
This level of detail is too much to review here. So, we are just flashing it up here to make the following points:

- This is complex.
- We are working to understand the pieces and their interrelationships.
- This is our first draft. We know that it is not complete We welcome your insights.
- Each of you have a copy of this diagram in your welcome pack, and you will see it on posters. Write on the posters. Write on your sheets. Tell us what could make this better. Tell us how this could be useful for you too.



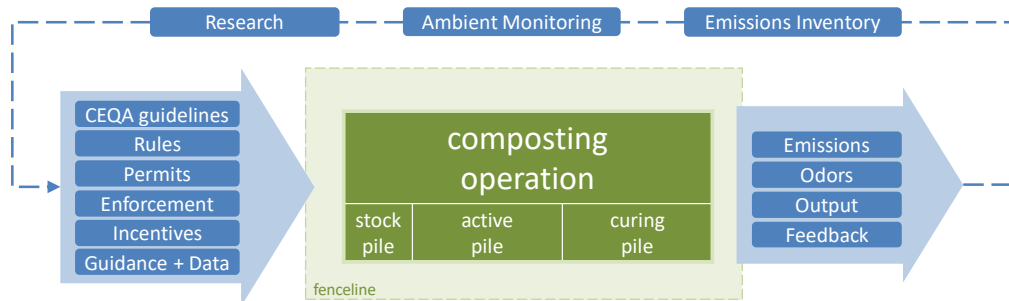


I am now going to zoom in on the composting operation in the middle of this diagram and some of its constituent pieces.



- Here is a single facility. We focus on a facility because that is a core design tenet of air quality law and regulation.
- So is the fenceline around the facility, which establishes a boundary for our analysis of process steps.
- If it helps, imagine that this is a stand-alone composting facility on the larger end of the spectrum (e.g., 500-1,000 tpd of processing capacity).

## “Well-designed and Properly-functioning Facilities”



Our job as air quality professionals is to produce “well-designed and properly-functioning facilities” by properly structuring process steps like this one.

To understand how, I want to model our work using an input-output diagram for this process step.

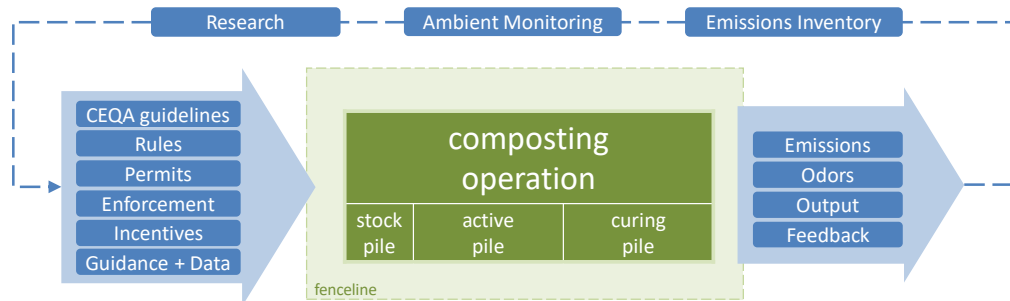
- The inputs are the things that we as an Air District do to assure a well-designed and properly-functioning facility. We have a variety of tools in our toolkit: (i) CEQA guidelines, (ii) rules, (iii) permits, and (iv) enforcement powers. These are our rule-of-law tools or regulations. We also have (v) incentive programs, including our recently launched TIO. Rounding out these inputs are the guidance and data that we produce to support stakeholder navigation and decision making.
- The outputs are the things that we track coming out of the facility: any emissions, any odors, any product output, and any feedback we receive from stakeholders.
- Ideally, this is a recursive input-output system, with a learning algorithm

represented by this return dotted line.

- Here we highlight three things that we do as an Air District to feed back to our tools: inventory emissions, monitor the air, and conduct research and analysis to model causal relationships.

This learning loop is how the attenuating nature of regulation.

## “Well-designed and Properly-functioning Facilities”



- 1 Policy Toolkit
  - CEQA guidelines
  - rules, permits, enforcement
  - incentives
  - guidance + information

- 2 Life-cycle Thinking
  - supply chain assessment
  - process flow estimation
  - net GHG emissions analysis
  - resilience planning

- 3 Collaborative Design
  - neighbors / cities + counties
  - agencies / cities + counties
  - operators / cities + counties
  - markets / cities + counties

Our strategic efforts are grounded in (1) our policy toolkit, represented here in the input arrow to the diagram.

To build our organics recovery strategy, we are working to add:

- (2) life-cycle thinking and the vision of a more circular, sustainable economy (i.e., #2).
- (3) a process of collaborative design and development, as evidenced by the diverse stakeholders in the room and the occupational communities that you represent. You are neighbors, agencies, operators, and market actors. You are our water and solid waste colleagues, and we are reaching across the media-fragmented environmental policy landscape to work together.

So, that’s our apparatus and a window into our strategy-building process. You will see this diagram on display again at a couple of the discussion stations for this event.



Now let's turn to our strategy.

We are thinking about ways to fulfill our mission as an air quality protection agency. We are thinking about ways to support the development of organics recovery as a climate protection agency. And we are thinking about ways to function as part of a larger sustainability governance apparatus for the State.

We have done so by engaging in a goal-setting exercise. We have developed the following rallying goals:

- 1: To get behind the State goals to divert 50% of organic materials by 2020 and 75% by 2025 and to support their translation to the Bay Area.
- 2: To pay attention to the goal here of GHG control, we wanted to assure CH4 reduction but also assure no rebounding CO2 impacts.
- 3: To assure our mission in air quality and public health, we want to help co-design a system that does not degrade regional or neighborhood air quality

- 4: To support development of infrastructure that enables local economic activity, reduces transportation footprints, and that makes the supply chain resilient against supply and overproduction shocks.
- 5: To create an ongoing learning community through partnership, recognizing that the solution requires many of us.



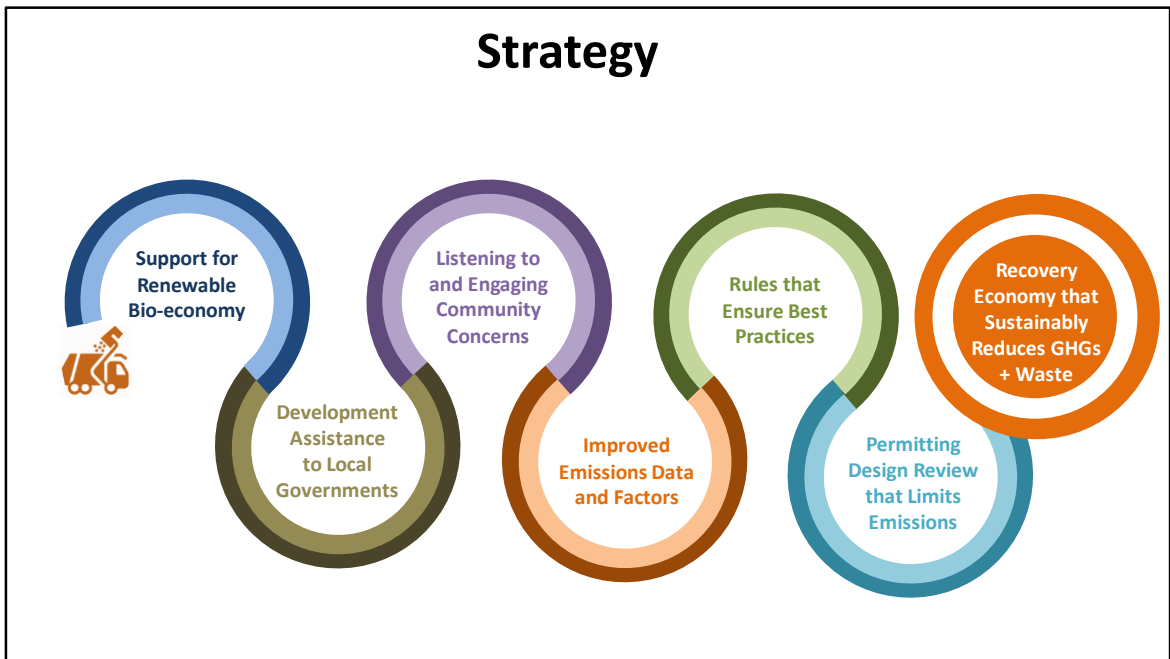
Blending these things together, our vision is to help develop a recovery economy that sustainable reduces waste.





So, that's our vision. Let's imagine moving it over to the right a bit out of reach.

Let's imagine that we are this little truck trying to figure out how to get there.



How do we get to this target on the right from our starting point on the left.

The conversation today invites your co-navigation on this journey, and it does so by showing our envisioned path for getting there.

Here is our path. We believe that the complex journey ahead as multiple bends. So, it illustrated as a windy path. The bends are a metaphor for reflexivity in thinking and approaches needed to make this work.

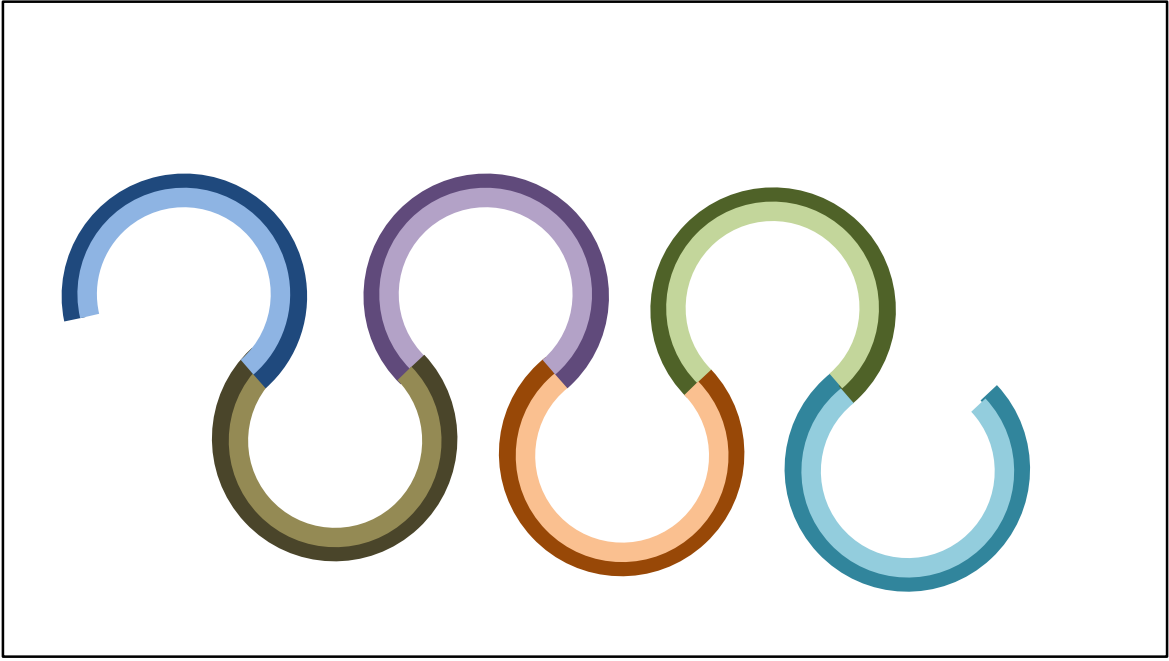
They areas inside each bent represent building blocks of our developing strategy.

They are:

- Support for Renewable Bio-economy – developing a narrative and initiatives that enable supply chains to create products and value
- Assistance to Local Governments – providing planning guidance on rightsizing, siting, and developing facilities safely

- Listening to and Engaging Community Concerns – assuring that our community engagement and response systems address concerns; also build public consensus and support for organics recovery
- Improved Emissions Data and Factors – so that we can better anticipate where emissions of concern occur along the supply chain and work to resolve them.
- Rules that Ensure Best Practices -- develop rules thinking not just about individual facilities, but the way that the pieces fit together to create supply chains and a recovery sector, and
- Design Review that Limits Emissions – permitting facilities in a way that consistently and smoothly restrains emissions and prevents nuisances.

One might think of each of these building blocks as a force— a centripetal force – keeping our truck on a path toward a sustainable recovery economy.



## Event Structure: Six Discussion Stations



We have organized this event around these six themes. Each theme has its own table or “discussion station.”

A discussion station is a 30-minute conversation that you join at a table.

Building a  
Renewable  
Bio-economy

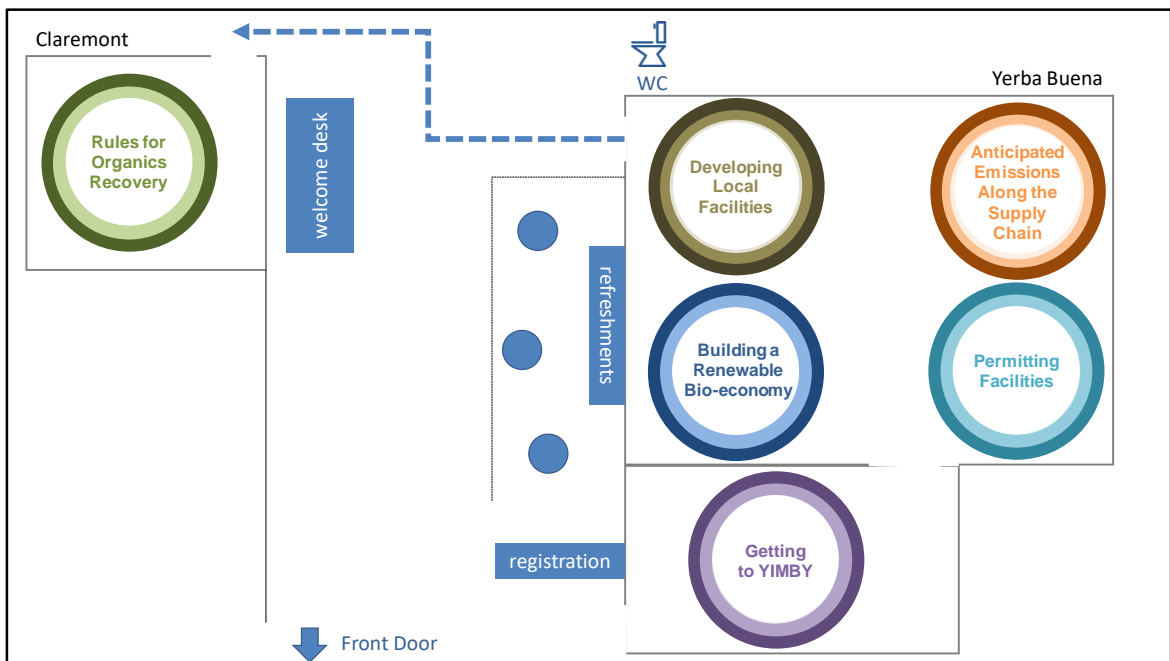
Getting  
to YIMBY

Rules for  
Organics  
Recovery

Developing  
Local  
Facilities

Anticipated  
Emissions  
Along the  
Supply  
Chain

Permitting  
Facilities



Here is the layout of the room.

- You have a copy of this in your handouts.
- We will keep this up on the screen over the next hour and a half.
- **We encourage you to decide which tables you want to visit now, if you have not done so already.**

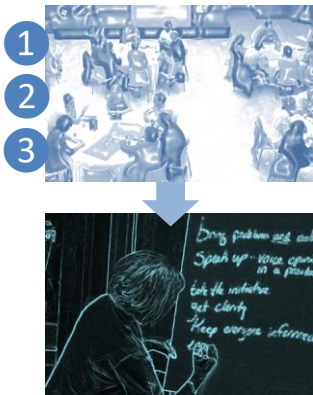
This is the format of the discussion stations.

- A staffer from the Air District will convene the discussion. Each thirty minutes, that convener will open with initial remarks. Then she or he will invite conversation on the topic.
- After 25-minute we will ring a bell that lets everyone know that there are five minutes left in the session. This is a notice that it is time to wrap up conversation and move to your next session.
- There are three 30-minute sessions. So, we will rotate twice.

- A few notes:
  - We think that this event will work better if people join a discussion and stay for the entire 30 min. However, you may leave a station if you want.
  - If you need to use the bathroom or want to get a bite or have a side conversation, we encourage you to leave a station early rather than show up late.
  - We ask that you arrive at a table before the hour or the half hour so that we can start promptly. To keep this event time-efficient, we have a tight schedule. Help us stay on it.



## Event Schedule



1:30 Welcome + Presentation

2:00 Discussion Session (🔔 at 2:25)

2:30 Discussion Session (🔔 at 2:55)

3:00 Discussion Session (🔔 at 3:25)

3:30 Report Back + Plenary Discussion

4:00 Planned Adjournment

We are going to shift from our presentation now to the core of this convening: the set of three 30-minute “discussion sessions.”

Participating in a discussion means choosing a table from the six options and joining its conversation for 25 minutes. Every half hour we will ring a bell. That is your signal to finish up your conversations and choose the discussion station that you will attend for the next round. There are six discussion stations. You will have time to attend three of them.

After three sessions, we will come back into plenary. After a short report back from Air District staff at each of the tables, we will open the floor for comments and questions.

We plan to adjourn at 4pm, but we do not expect to cut off the conversation prematurely if we are still humming along.

## Rules of Engagement

- Please help us balance participation across tables. If a table fills up, please try next session. (If need be, pull up a chair.)
- Please share your perspective. We are here to hear it, not judge it.
- Please be respectful of everyone else's perspectives. We are here to hear them too.
- Please speak at a modest volume to keep the din down in this room.
- Please be thoughtful about the length of your comments so that discussion happens.
- Please take side conversations into the atrium. (There are treats out there.)
- **Be REGIONable.** Please think about way to help this system work overall.

Here are our ground rules for today's discussion.

**If this all runs smoothly,  
no one need notice.**

**If there are hiccups,  
please help us adjust.**

## Six Discussion Station Options (Choose up to three)

Table	Description	What You Should Learn	What You Should Share	Goals
<b>Getting to YIMBY:</b> Building public consensus around organics recovery	This highly interactive station starts with a map of Bay Area organics recovery infrastructure and encourage you to share your perspectives about it.	Air District community engagement and compliance/enforcement commitment.	Your perspectives as a community member about organics recovery infrastructure.	<ul style="list-style-type: none"> <li>Identify common community concerns about organics sites</li> <li>Explain our nuisance response efforts</li> </ul>
<b>Developing Local Facilities:</b> Rightsizing, planning, and siting facilities in your community	This station discusses the need for new organics recovery facilities in the Bay area and ways to plan their integration to minimize vehicle miles traveled.	Estimates of Bay Area organic diversion needs, number of facilities, facility types, and integration examples.	Your strategic perspective about rightsizing facilities and create compatible land uses in Bay Area communities.	<ul style="list-style-type: none"> <li>Express support for local facility development</li> <li>Socialize the idea of facility rightsizing and savvy siting</li> </ul>
<b>Building a Renewable Bio-economy:</b> Strategies that help organics recovery supply chains create products and value	This station takes a birds-eye view of recovery operations to contemplate how what we send down a supply chain can achieve its highest use.	A layered view of organic resource recovery and synergies that might maximize the aggregate value of recovered organics.	Your knowledge about market forces and thermodynamics that shape recovered organic products.	<ul style="list-style-type: none"> <li>Think about organics recovery in terms of regional economy</li> <li>Strategize product and market development</li> </ul>
<b>Rules for Organics Recovery:</b> A preview and discussion of our developing regulations	This station provides an overview of our conceptual framework for organic material tracking, handling and composting. It relates these to our overall Methane Strategy. If needed, it provides a "Rule Development 101" overview.	A little about the Rule Development Process and where we are headed on the Composting front.	Your ideas and opinions on what we should emphasize in our Rule making efforts	<ul style="list-style-type: none"> <li>Receive feedback on our regulatory concepts</li> <li>Help align our rules with those of CalRecycle and CARB</li> </ul>
<b>Permitting Facilities:</b> Ensuring air quality goals and consistency for recovery operations	This table engages participants in discussion about some of the key questions involved in permitting organics recovery facilities.	Current permit requirements and opportunities for public participation. Impacts of differing permit circumstances. Our data gaps.	Suggestions for permit exemptions, assuring real emissions reductions, and for collaboration with other agencies.	<ul style="list-style-type: none"> <li>Agree on the value of early information sharing (i.e., during CEQA review).</li> <li>Identify areas of partnership with other permitting agencies.</li> <li>Discover ways to fill data gaps</li> </ul>
<b>Anticipated Emissions Along the Supply Chain:</b> A review of what we know	This station looks across the value chain to reflect on anticipated emissions at each step and the state of our estimation of them.	A more detailed view of emissions and emission sources along the organics recovery supply chain.	Your knowledge about emissions, emission data, and source tests.	<ul style="list-style-type: none"> <li>Improvements in the combined knowledgebase about emissions along organics recovery supply chains.</li> </ul>

TAKE POLL

ASK Air District Staff to stand and wave.



# Questions?

(clarifications only please)