WHY CONSIDER ORGANICS & FOOD SCRAPS?

- Citizens want recycling & diversion options
- Jobs – 10:1 recycling; 4:1 compost*
- Environmental impacts:
  - USCC says composting 25 million tons of food is the GHG equivalent of removing 7.8 million passenger cars from the road!
- FW largest item remaining in stream – next step

*B(Estimates ILSR)

BUT BEYOND THAT – FOOD ISSUE:

- In 2010, **219 pounds of food per PERSON** to disposal
  - 21.6% of discarded MSW
- 2014: **38 million tons** of FW generated
  - Only **5% diverted** from LF & Incinerators
- 2010: Food loss was **31% of food supply**
  - 133 billion pounds valued at $161.6B
  - 42 million Americans live in FOOD insecure households
- LFs are **20% of US Methane**
  - Addressing food key to address climate change
  - FW Composting avoids 0.25 MTCE/Ton of food scraps (lower for yard trimmings and organics)

BEYOND THE BASICS

- Smart Choices and more from existing programs
- Optimization
- Impacts and cost effectiveness
- Changes that can be made now
- Collection Efficiencies
- Getting more for the same $
OVERVIEW OF PRESENTATION

Residential Programs
- Optimization and route efficiencies

Commercial Programs
- Incentives
- Readiness strategies

Mandates/Outreach
- Political
- Will

Metrics
- Multiple Goals
-问责

PROGRAM EVOLUTION

Drop-offs, voluntary added fee recycling, education

Embedded recycling, MF and commercial ed., assistance, expanded D/O

PAYT with embedded rates, yard waste, commercial programs, continued ed.

Add Res. Food scraps, mandates/bans, address MF recycling, hauler incentives, PAYT+

Every-other-week MSW, mandatory commercial and MF, EPR, zero waste

Education Crosses All Levels

SURVEY OF EXISTING FOOD-WASTE PROGRAMS

- Hundreds of programs identified in US
  - EPA says about 2.4% of US population served by C/S food collection programs in 2014
  - WA, MN, CA, OH, VT, IA, MA, OR, ME, etc
  - Mostly suburban, then urban, rural; also college & tourist; some only at schools/university campus/isolated

- Most curbside; Some drop-off
  - Mostly co-collect streams (some food only)
  - Sizes range from 170 to over 1 million

- EPA notes FW BANS in CT, VT, MA, CA, elsewhere.
  - Cities include: SF (2009!), NYC, Seattle, Portland, …
**RESIDENTIAL STRATEGIES**

- READY NOW

---

**CONCEPT OF OPTIMIZATION**

- In choosing among strategies...
  - More (or ALL) isn’t always better
    - Diminishing returns: 80/20 rule
    - Optimum point
  - Costs & benefits At The Margin
    - Increase in cost to get ONE MORE TON

---

**PAYT NOT OPTIMIZED LEAVING TONS ON THE TABLE**

- Source: Econservation Institute and SERA

---

**PAYT OPTIMIZATION**

- **Can Size & Frequency**
  - Meaningful differential
  - 32 gallon option
  - **Mini or micro can**
    - Well-established, years
    - Successful, integrates

- Source: SERA
### Optimizing Collections

<table>
<thead>
<tr>
<th>Low Cost / Month</th>
<th>More Diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 stops/week</td>
<td>Trash 2x/week</td>
</tr>
<tr>
<td></td>
<td>Recycling 1x/week</td>
</tr>
<tr>
<td></td>
<td>Organics 1x/week</td>
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<tr>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1 stop/week</td>
<td>Diversion???</td>
</tr>
</tbody>
</table>

See SERA article in Resource Recycling

### Consider Organizing Collection - Options

- Economies of scale / Control / mandates
- Fewer trucks...Substantial savings...
  - but...

### Allocating Total Collections

**Add Organics by reducing other collection to EOW**
- EOW = half as many trucks (& staff)...
- Lose little in recycling (1-3% percentage points)
- Gain double digit stream (15% plus)
- Nearly "free" – only tip fee change (and large containers)
- Cost / ton better & total tons better...
  - and it "keeps".

**Consider EOW Trash (& weekly organics)**
- Get more FW – drives reluctant people to divert food
- Vancouver (47%) – optional EOW, Monthly (16% choose)
- Portland (54%=>70%) – citywide, trash down 38%
- Renton: +25% R; +44%O; -20%G

Source: Skumatz Economic Research Associates, Inc. analysis

### How Much Do You Save? And Get?

<table>
<thead>
<tr>
<th>Coll’ns/hr</th>
<th>Wkly vs. EOW</th>
<th>Tip Fee</th>
<th>Coll’n Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>20% worse</td>
<td>10-15% more cost</td>
<td>20-40% recy costs; lose 1-3% points</td>
<td>10-25% from not splitting collections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trash ~70%; 125% swing ($21 / $65 / $100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Container ownership =2-5%</td>
<td>Tradeoffs see table</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trash &amp; Recycling EOW 20-25%+</td>
<td>Contracting / franchising savings</td>
</tr>
</tbody>
</table>

Source: SERA research – for sample communities
OTHER ADVANCED RESIDENTIAL STRATEGIES

- “No bin no barrel”
- Higher rate if you DON’T set out recycling or organics
- Opt Out vs Opt In

Source: SERA

INTEGRATED DECISIONS – AFFECTED BY...

- Are trucks flexible?
  - Fully-automated helps... easily shift between materials
  - Don’t have to bring materials to same location like split trucks
- Recycling processing
  - Single stream (B large containers) helps... one collection, large containers that can wait
  - Can do dual stream by alternating material weeks
- Organics processing essential
  - Either NOT classified / undefined (not sure process), OR classified as MSW (and stringent application process)
  - Has stopped investment / facilities in many places that are “ripe”
- Education concerns
  - Which week? Very manageable
- Perception & containerization
  - Opt In / Opt Out / Mandatory
- Health departments & regulators
  - For every other week collection
  - For food scraps composting

COMMERCIAL STRATEGIES

- #1 PAYT
  - Mandate recycling cost embedded in trash fee (50%-150% of trash size)
  - Organics embedded
  - Small commercial
  - Eliminates barrier of ‘recycling adds avoidable cost’
  - Space / screening issues
KEY COMMERCIAL STRATEGIES

- Tip Fee Incentives
  - Surcharges; tax forgiveness
  - SERA Research on uptake of programs

- ABC Law / Targeted Customers

- Invoicing / bidding improvements for recycling uptake & savings
  - Barrier
  - Invoice & contract issues
  - Encourage bidding / education / website

BIG BANG EFFICIENCIES:

- Mandates and bans
  - Cost-effective & big tonnage impact
  -Addresses 'Chicken and egg'
  - Never first pick by stakeholder groups...

- Differential tip fees for incentives (cities, haulers)

- What’s the barrier?
  - Political will
  - Spend political capital wisely

INCENTIVES / MANDATES

- SERA Research on uptake of programs

- ABC Law / Targeted Customers

- Invoicing / bidding improvements for recycling uptake & savings

- Barrier

- Invoice & contract issues

- Encourage bidding / education / website

CURRENT STATE ACTIONS– VERMONT LEGISLATION

- Phased in for all sectors

- Act 148 Passed 2012 (impl 7/12) with bans- generator requirements, and hauler requirements (among others)

- Bans: 2015- recyclables; 2016- Yard debris; 2020- Food

- Commercial Gen: Similar to CT (facil within 20 mi; 104TPY in 2014, halved each year; by 2020 all com’t, no mileage)

- Haulers: Res PAYT & embedded recy 2015, Yard separated 2015; food 2017
MAKING EDUCATION & OUTREACH MORE EFFECTIVE

- Traditional outreach (awareness focus).
- Self-efficacy
- Market what motivates
- Social marketing ROI (CBSM)

NEW METRIC FOR SETTING GOALS

READY NOW

GOALS – TO REFLECT IMPACTS

- Successful diversion of recyclables
- Successful diversion of organics
- Source reduction
- Diversion of HHW
- Cost-effectiveness
- Toxics reduction
- Satisfaction, participation, set outs, indirect
- Sustainability
- Triple Bottom Line (TBL)

THE DIFFICULTIES: METRICS CRITERIA...

- Reflects goals
  - Variety multiple metrics confusing?
  - What is enough?
- Comparable over time
  - Reflect changes in what you want to reflect
  - Affected by economy? Material changes?
- Comparable to other towns
  - What's included;
  - Varied sophistication levels
- Affordable
  - Avoid too much expensive data (or costs)
  - Be replicable, timely and informative
- Include Multiple haulers / facilities
  - Data collector, authority
  - Estimations
- Support next steps / causal
  - Actionable recommendations
  - Informative
WHAT CAN WORK?

- We were working on projects in several state – very different
- What is practical in very different locations? What do we always have?
- Realized, back to basics.
  - One stream we have access to
  - What is the behavior / environmental impact we want to measure?
  - Informational / actionable

- Sort the trash and ID if (target) Recoverables remain. Reflects Behavior; immune to economy; immune to waste stream.
- % MAY BE IRREAL, BUT... HAVE I GOTTEN WHAT I'M CURRENTLY AFTER? OR HIT NEXT STREAM?

NEW METRIC

- PRR – Percent Recoverables Remaining (or “Good Stuff Left”)
  - Data from 1 source / reporting issue
  - Tracks what you asked for
  - Tells you what to do next
  - Flexible
- PRR-G (GHG)
- PRR-V ($)
- Add to list; measurement protocols...
  - See SERA article, Resource Recycling last summer

"RECOVERABLES REMAINING / RR" & METRICS CRITERIA

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflected goals</td>
<td>Program progress; measures behavior(s) asked; Easily sector-based info; (info for goals).</td>
</tr>
<tr>
<td>Comparable over time</td>
<td>Immune to economics, waste stream changes; Changes in materials affect performance; stability</td>
</tr>
<tr>
<td>Comparable to other towns</td>
<td>Region with similar list; Your list elsewhere; Simple &quot;standard&quot; list???</td>
</tr>
<tr>
<td>Affordable</td>
<td>One stream sort; Don't need 30+ categories, so affordable?</td>
</tr>
<tr>
<td>Multiple haulers / facilities</td>
<td>Data collection, authority; Can-based sample</td>
</tr>
<tr>
<td>Supports next steps / causal</td>
<td>DIRECT and powerful for guiding programs</td>
</tr>
</tbody>
</table>

Source: Skumatz SERA 2014

SERA BEST PRACTICES RESEARCH
TONS & COST ANALYSIS –

Source: SERA 1996-2005
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**TAKEWAYS**

<table>
<thead>
<tr>
<th>Residential</th>
<th>Commercial</th>
<th>Mandates / Outreach</th>
<th>Metrics</th>
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<tbody>
<tr>
<td>PAYT</td>
<td>Incentives</td>
<td>Political Will</td>
<td>Multiple Gaps</td>
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<tr>
<td>Organics</td>
<td>Embedded</td>
<td></td>
<td>Measurable to help achieve next steps</td>
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<tr>
<td>Collections</td>
<td>Programs</td>
<td></td>
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</tbody>
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**Thank You!**

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