Solid Waste and Business Management Opportunities

Talking Points Prepared for:

KSU Renewable Energy, Food and Sustainability Seminar

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Personal Profile

• 1986-1990, University of Vermont
  – Vermont Student Environmental Program

• 1990-2001, Tellus Institute
  – Business and Sustainability & Sustainable Community Groups
  – Select clients: EPA, United Nations, Global Reporting Initiative, various businesses and municipalities

• 2001-2003, Tuck School of Business at Dartmouth
  – Tuck Biz and Sustainability Initiative

• 2003-Present, WMI Upstream
  – Director, Biz Dev and Strategy
  – Select customers: diversified manufacturers, food & beverage companies, cruise lines, pipelines, petrochemical, automotive companies.
Talking Points

• WMI at a Glance

• From Waste to Resource Management: Business Sustainability Trends

• Upstream Business Sustainability Services, Solutions, and Case Studies
WM at a Glance

• Fortune 200 company
• Nearly 50,000 employees
• Over 22 million residential and commercial customers
• Most Extensive Environmental Asset Base in North America:
  – Largest recycler in North America with nearly 120 facilities
  – 25,000 collection and transfer vehicles
  – 285 landfills
  – 17 waste-to-energy plants
  – Upstream Services

From everyday collection to environmental protection, Think Green™ Think Waste Management.
WM Sustainability Highlights

• Recycling assets and commitments
  – Largest recycler in North America ~ over 6MM tons recycled annually
  – Preventing the release of more than 3.4 million metric tons of greenhouse gas emissions
  – Triple current recycle rates by 2020

• Renewable energy assets and commitments
  – Largest national network of resource recovery facilities
  – Over 100 renewable energy projects throughout North America
  – Enough to power over 1MM homes
  – Double renewable power generation by 2020

• Other initiatives and commitments
  – Largest fleet of alternative fuel trucks in the nation (415 vehicles); increasing fleet wide fuel efficiency and decreasing emissions 15% by 2020.
  – Provide protected land for wildlife habitats; quadruple - from 24 to 100 - Wildlife Habitat Council certification sites and set asides.
  – Upstream and organic growth green innovations and investments
Sustainability is a business imperative…
Why are leading US companies pursuing sustainability?

- Reduce operating costs and improve efficiencies;
- Develop innovative products and services for access to new markets;
- Improve reputation and brand value;
- Recruit and retain excellent people;
- Gain better access to investor capital;
- Enhance the public value of the company;
- Reduce liabilities through integrated risk management.

Business Trends Affecting Waste ...

- Zero Waste
- Extended product responsibility
- Closed loop recycling – cradle to cradle
- Carbon reduction
- LEEDs certification
- Resource management
A growing Number of Companies Have Moved from Waste to “Resource Management”
Upstream provides resource management services to leading businesses that maximize economic, environmental, and regulatory efficiency.

**Customized Services**
Fully integrated offering that revolves around customer needs.

**Market Leader**
- ~135 Sites
- Automotive
- Chemical
- Cruise Lines
- Food and Beverage
- Malls
- Pharmaceutical/R&D
- Refining
- Metals
- Energy

**280 + Employees**
- Environmental Engineers / Project Managers / EH&S Staff / Business Development / Finance

**Cutting Edge Services**
- Managed solutions
- ISO 14001
- World Class Safety
- Best practice
- Continuous improvements
- Access to the largest enviro network in the US

*From everyday collection to environmental protection, Think Green.™ Think Waste Management.*
WM-Upstream Capabilities Help Businesses Achieve Sustainability Goals

- Sustainability Strategy
- Managed Solutions
- Customized Programs
- Environmental Management Systems
- Indemnification
- Strategic Sourcing
- Environmental Assets
- Financial Stability
- IT = Web Ordering, Tracking & Metrics
- Logistics
- Customized Services & Expertise
- Total Cost Reduction
- Achievement of Green Goals
- Long Term Value

From everyday collection to environmental protection, Think Green. Think Waste Management.
Waste Flow from Industry Value Chains

- Service providers: internal staff; brokers; consultants; logistics; maintenance and janitorial contractors; industrial cleaning, T&D companies
- Fragmented offering – many players, duplicative processes and procedures, high transaction costs

From everyday collection to environmental protection, Think Green. Think Waste Management.
Aligned Incentives Drive Resource Management Success

Commodity Offer: Conflicting Incentives

SERVICE PROVIDER

<table>
<thead>
<tr>
<th>Service: Disposal</th>
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<tbody>
<tr>
<td>Fee Driver: Volume</td>
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Wants service increase

CUSTOMER

Wants service decrease

Resource Management: Aligned Incentives

UPSTREAM

<table>
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<tr>
<th>Service: Resource Mgmt</th>
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<td>Fee Driver: Value</td>
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Wants service increase

CUSTOMER

Wants service increase

From everyday collection to environmental protection, Think Green. Think Waste Management.

Upstream Best Practice Savings Breakdown

Total Savings > ~$40MM To Date
Closing the Loop: RM Services for An Aluminum Manufacturer

- Savings of over $1.43 M over 3 years
- Material Re-use
  - Clean-up debris & aluminum waste – 1,550 tons re-used
- Beneficial Use
  - Carbon, brick & ore – 2,000 tons recycled
- Reclamation of Materials
  - Methyl Naphthalene, caustic liquids & antifreeze
- Increased Recycling rates
  - East Plant 2.0% - 76%
  - West Plant 0.3% - 86%
- Recycling Revenues now Exceed Waste Costs
Direct Reuse of Clean-Up Debris

• Designed screening system to allow alumina to be recovered and reused
• Cost savings realized in disposal cost avoidance and recovered material cost
• Estimated Annual Savings = $300,000
Resource Management Program Results at a Major Automotive Assembly Plant

• Successfully implemented new operating model with 14 employees staggered over 2 shifts.
• Identified award winning recycling innovations throughout all operations.
• Annual savings of over $1 million.
• Reduced total solid waste cost per vehicle by 91% (excluding labor)
RM Services Drive Down Product Cost
Total cost for Trash, Cardboard, and Pallets (including rebates)
Zero Waste Supply Chain Services for a Large Beverage Manufacturer

- Created national network of certified full goods recycling outlets
- Provide Order Management: Centralized service requisition – web, phone, fax, email
- Single point of contact for full goods recycling scheduling, tracking, and support
- Logistics support (e.g., transport and operations support)
- Provide IT for scheduling, tracking and reporting
Zero Waste National Beverage Recovery Network
Zero Waste Supply Chain Results

- Cost-effective recovery of all off-spec product
  - Includes liquid and packaging recycling
- Enhanced management and logistics control
  - Reduces tracking and transactions costs
  - Reduced product liability
- Enhanced value and reduced cost of service
  - 10% savings ’07 vs ’06
Closing the Retail Green Gap

“America is experiencing an environmental awakening. However, a 'green gap' still exists between consumer awareness and action. Americans want to do the right thing, but lack of information, cost and questions around the true impact of current green products are contributing to their reluctance.” *

* Kathy Sheehan, senior vice president with GfK Roper Consulting
# Green Squad℠ Service Offering

<table>
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<tr>
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<th>Status</th>
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<tr>
<td>Waste Audits</td>
<td>Offering in Ontario</td>
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<tr>
<td>Energy Audits</td>
<td>Development &amp; Trial</td>
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<tr>
<td>Water Audits</td>
<td>Development</td>
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<tr>
<td>Small Qty. Recycling</td>
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<td>LEED EB Certification</td>
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<td>I Think Green Certification</td>
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<tr>
<td>LEED Project Services</td>
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Closing thoughts…

• Most environmental problems result from market and/or political failures…

• Leading companies recognize that sustainability is a business imperative not a PR sideline…

• Businesses will play a major role in addressing society’s sustainability challenges…

• There are no waste streams, only wasted resources…

From everyday collection to environmental protection, Think Green® Think Waste Management.
In 2006, we recycled 6,047,449 tons of cardboard / paper; 1,214,959 tons of plastics; and 27,959 tons of aluminum.

The recycling of this quantity of packaging and raw materials avoided their manufacturing and disposal, thereby conserving:

- **136,102,800 Mature Trees**
  This represents enough saved timber resources to produce more than 1,686 trillion sheets of newspaper!

- **33.687 Billion Kw-Hrs of Electricity**
  This is enough electricity to fulfill the annual electricity needs of more than 2,807,000 homes!

- **30,282,500 Cubic Yards Of Landfill Airspace**
  This represents enough airspace to fulfill the municipal waste disposal needs for 38,890,000 people for one year!

- **54,715,000 Barrels of Oil**
  This provides enough energy to heat and cool more than 11,380,400 homes for one year!

- **145,138,700 Gallons of Gasoline**
  This represents enough gasoline to drive more than 4.064 billion miles!

- **33.687 Billion Kw-Hrs of Electricity**
  This is enough electricity to fulfill the annual electricity needs of more than 2,807,000 homes!

- **42.332 Billion Gallons of Water**
  This represents enough fresh water to meet the fresh water needs of more than 18,810,000 people for a month!

- **Avoided 4,797,972 Metric Tons (MTCE) of GHG Emissions**
  The recycling of these materials prevented these GHG emissions!

1 The environmental benefits shown here represent the difference in natural resource consumption and GHG emissions that result from using recycled inputs versus virgin inputs. MTCE = metric tons of carbon equivalent.

For Additional Info…

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• www.wmupstream.com
  – Links and related references
  – Case studies

Thanks for your time!