

Solid Waste and Business Management Opportunities

Talking Points Prepared for:

KSU Renewable Energy, Food and Sustainability Seminar

Prepared by:
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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.

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Talking Points

- WMI at a Glance
- From Waste to Resource Management: Business Sustainability Trends
- Upstream Business Sustainability Services, Solutions, and Case Studies

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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

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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

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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.

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Source: KPMG International Survey of Corporate Responsibility Reporting.



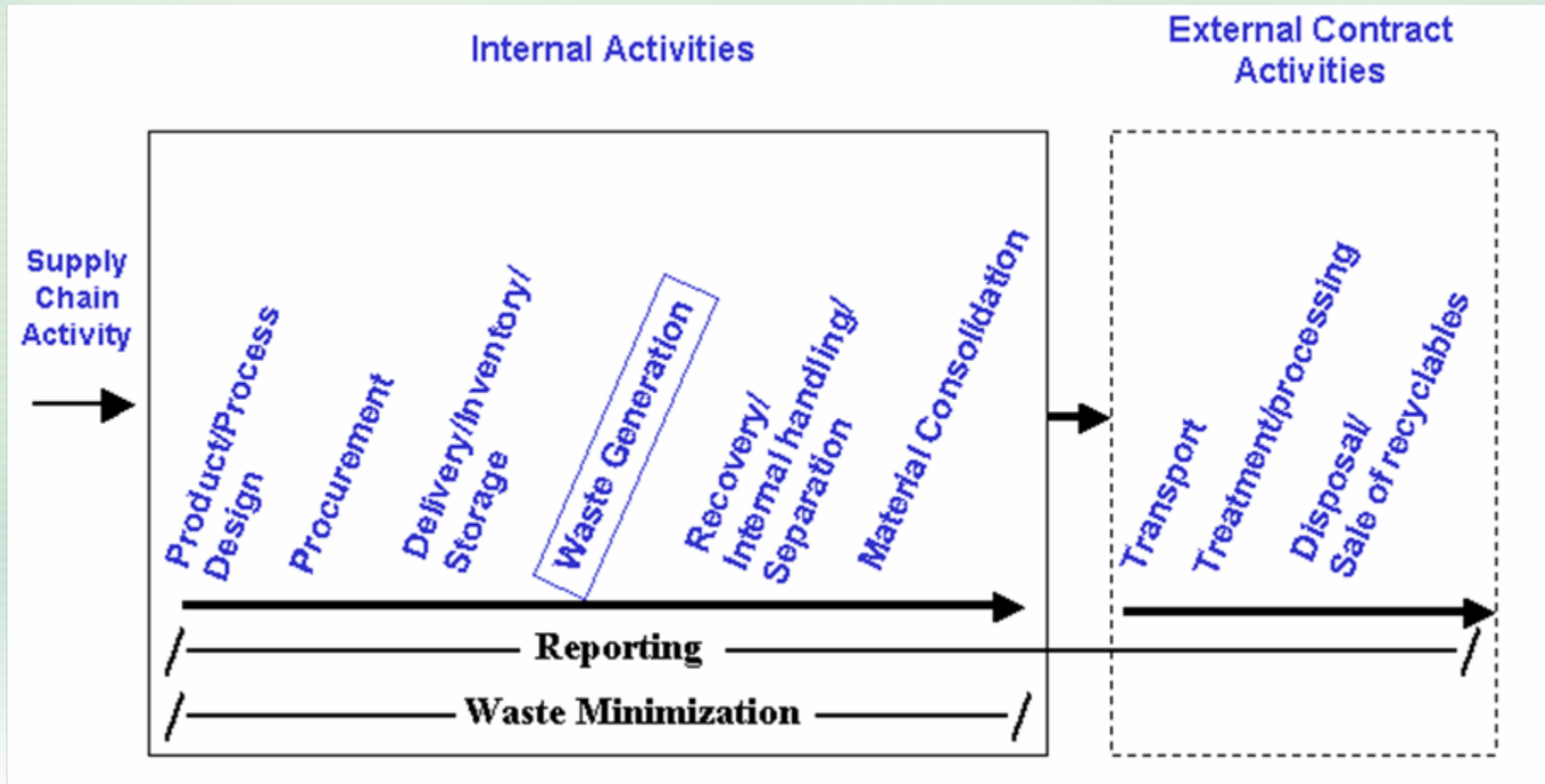
Business Trends Affecting Waste ...

- Zero Waste
- Extended product responsibility
- Closed loop recycling – cradle to cradle
- Carbon reduction
- LEEDs certification
- Resource management

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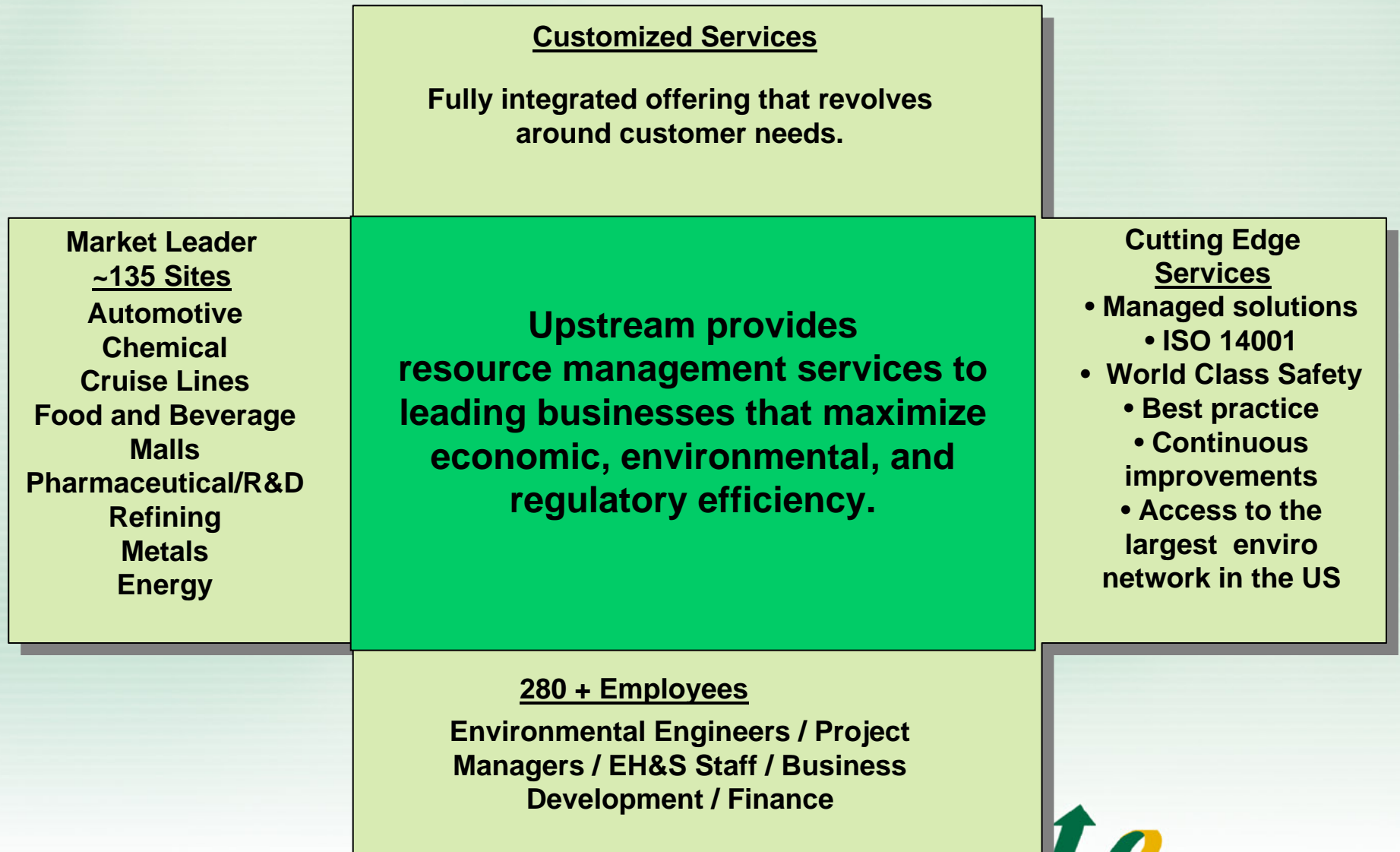
A growing Number of Companies Have Moved from Waste to “Resource Management”



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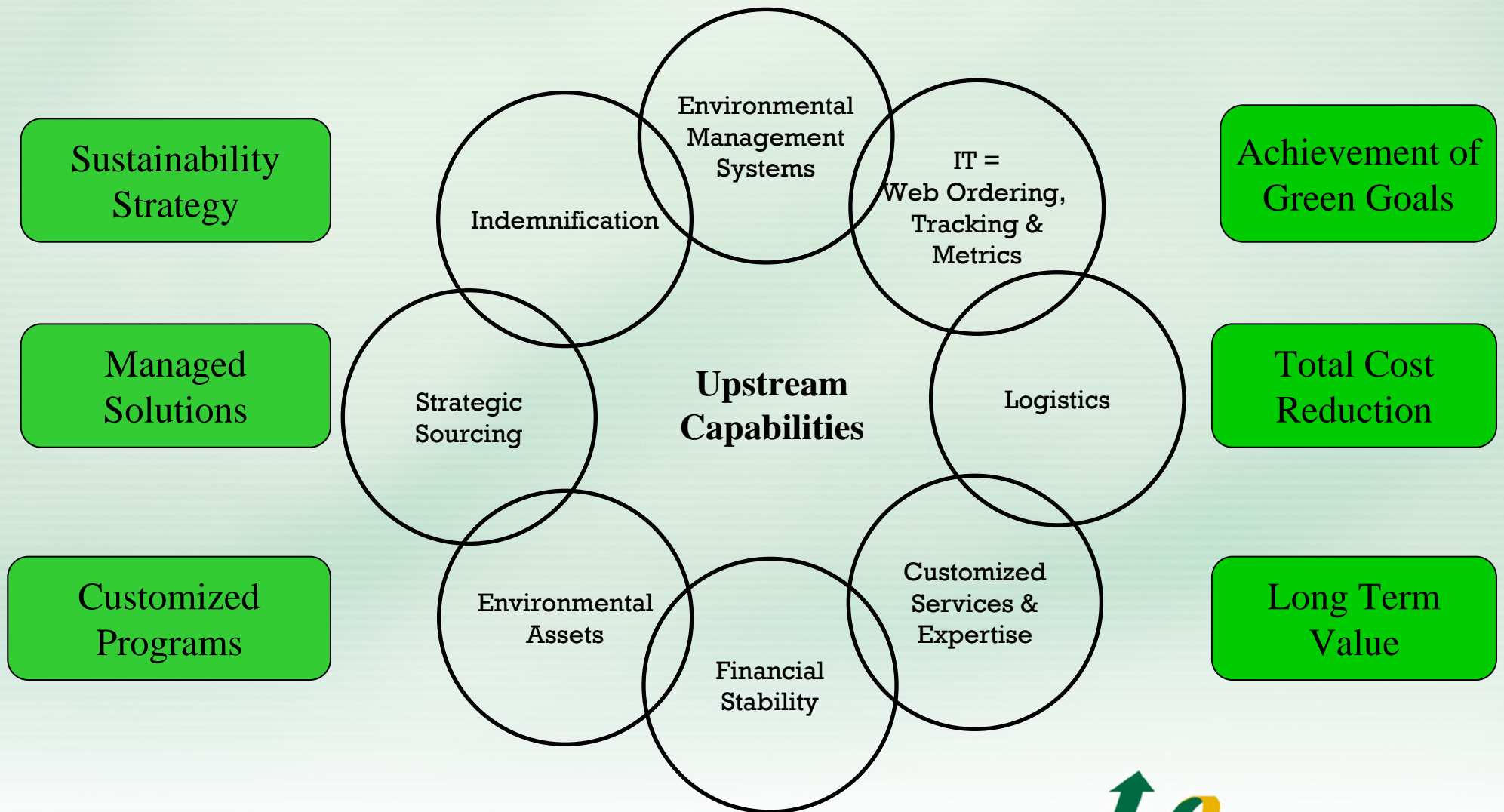
WM Upstream Overview



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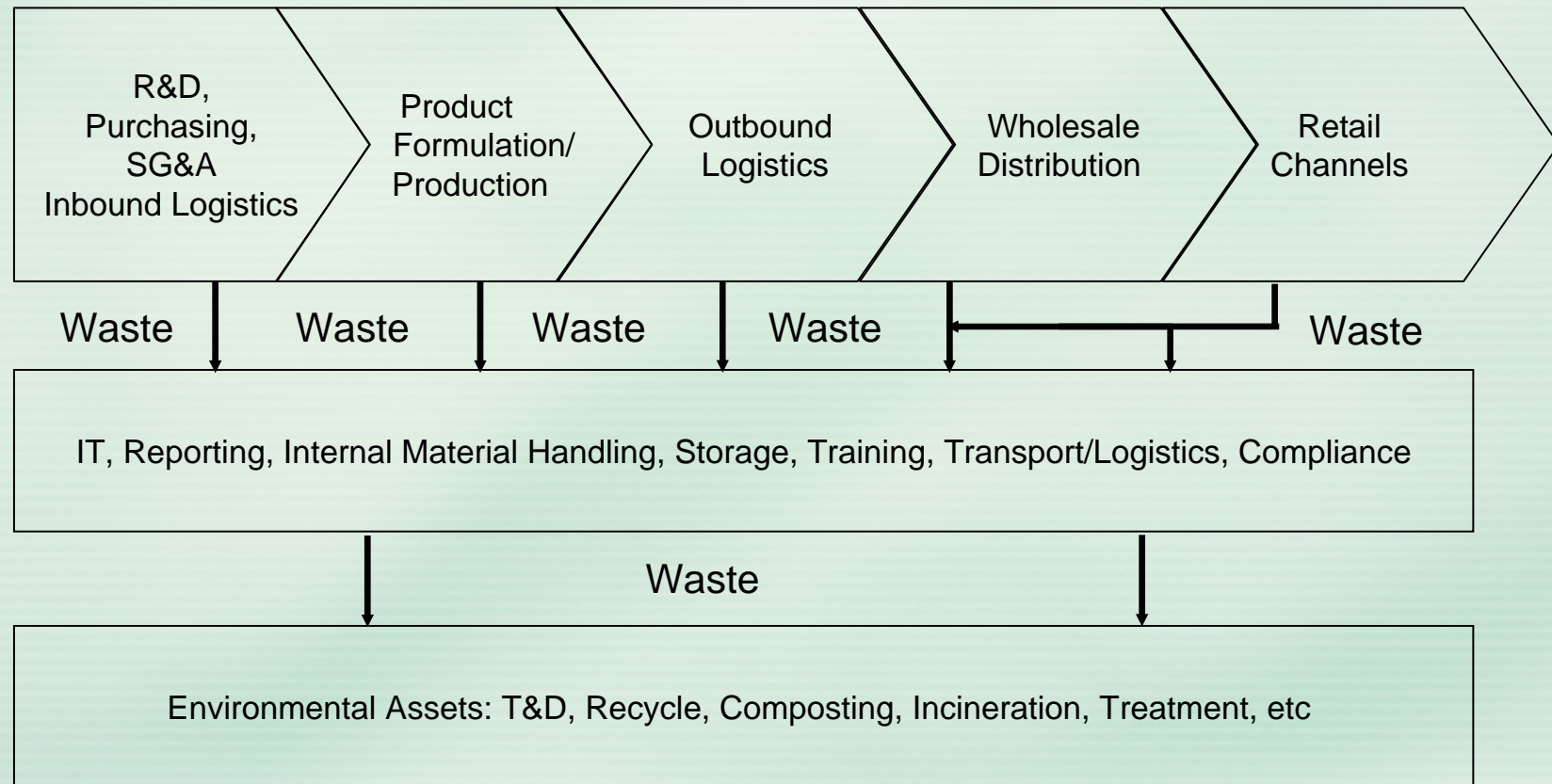
WM-Upstream Capabilities Help Businesses Achieve Sustainability Goals



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Waste Flow from Industry Value Chains



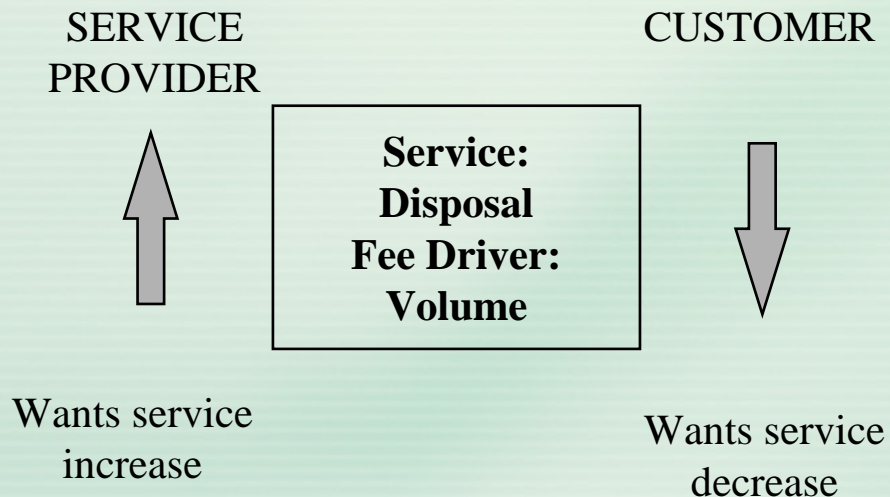
- Service providers: internal staff; brokers; consultants; logistics; maintenance and janitorial contractors; industrial cleaning, T&D companies
- Fragmented offering – many players, duplicative processes and procedures, high transaction costs

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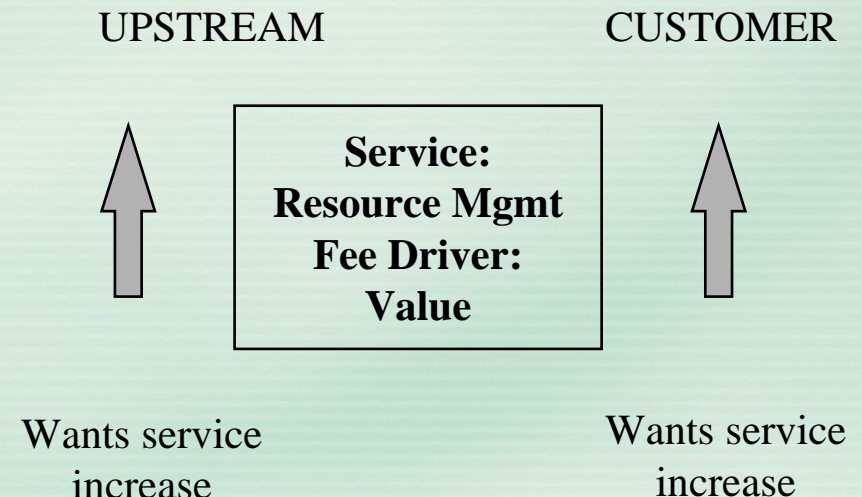


Aligned Incentives Drive Resource Management Success

Commodity Offer: *Conflicting Incentives*



Resource Management: *Aligned Incentives*



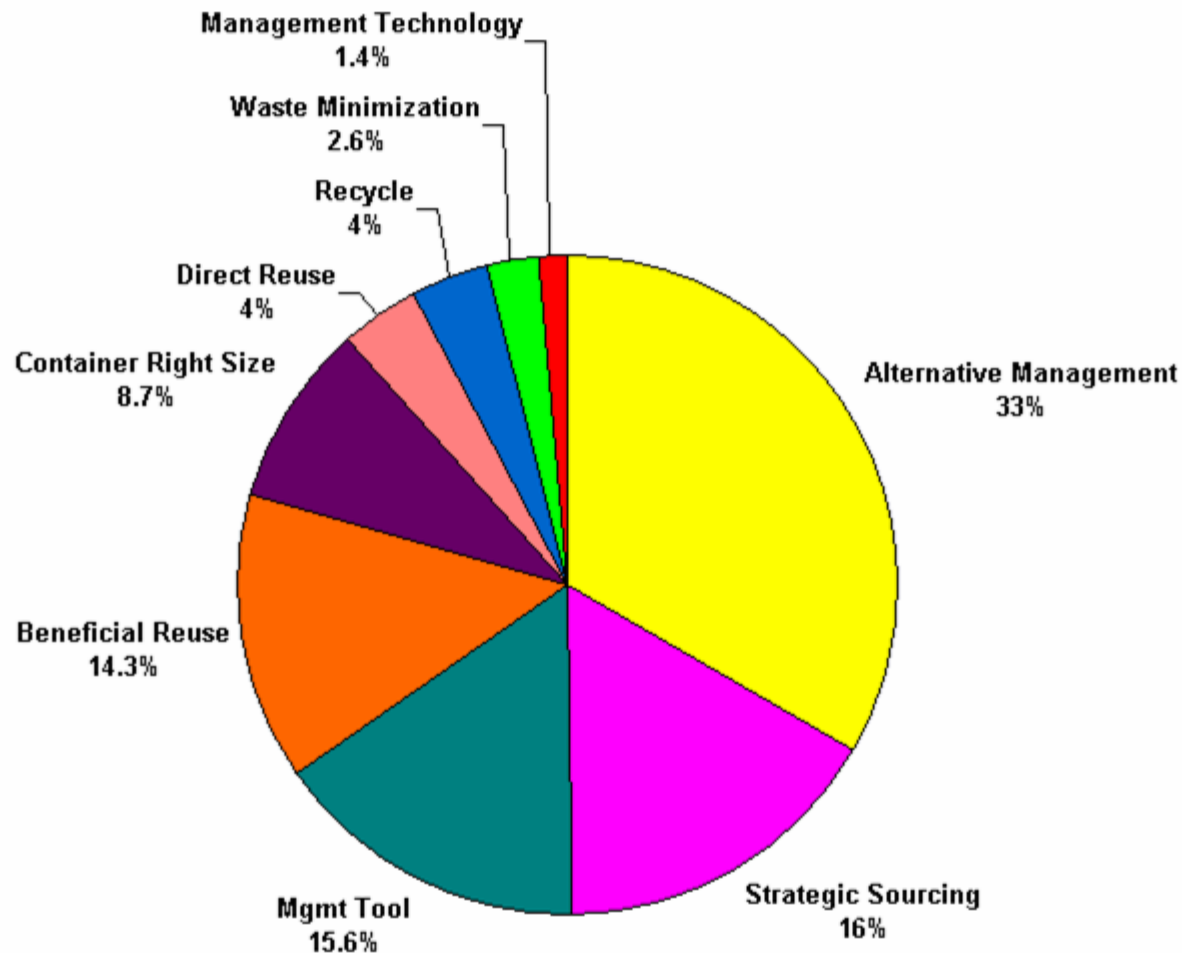
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Based on: Ligon and Votta, Tellus Institute. *From Waste to Resource Management*, 2003.



Upstream Best Practice Savings Breakdown

Total Savings > ~\$40MM To Date



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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

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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



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Resource Management Program Results at a Major Automotive Assembly Plant

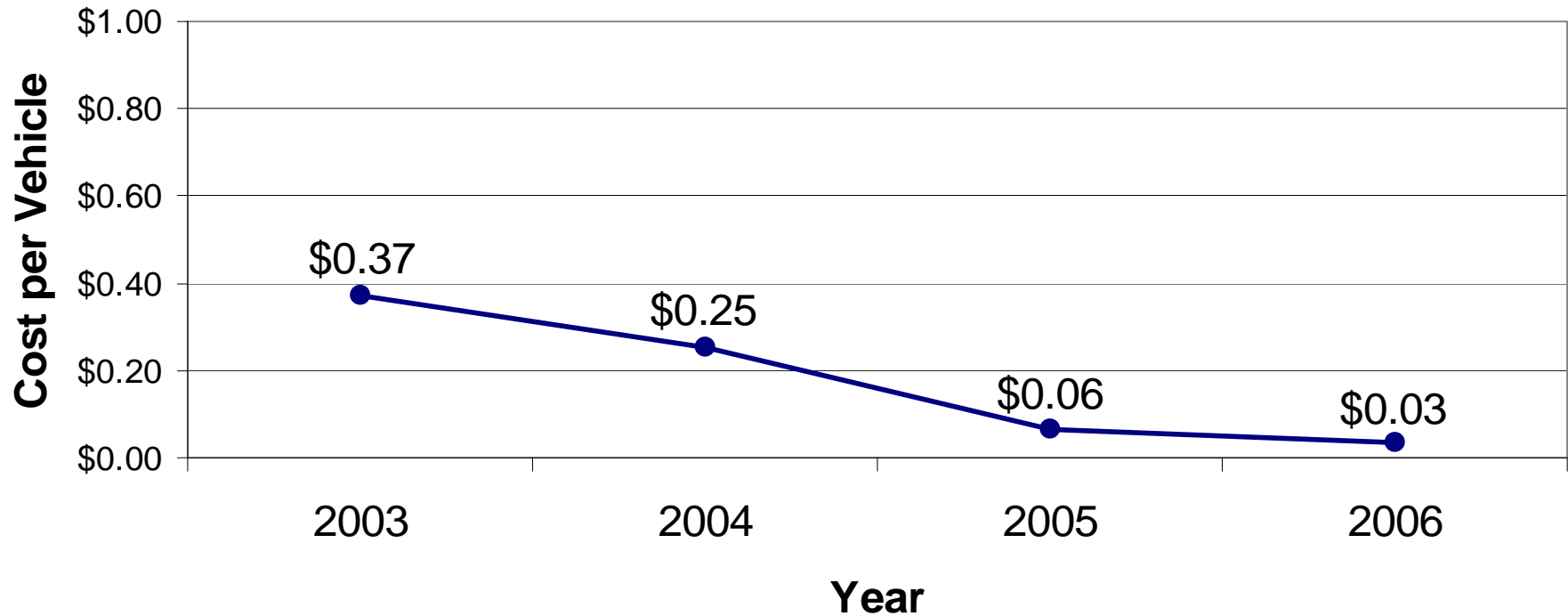
- Successfully implemented new operating model with 14 employees staggered over 2 shifts.
- Identified award winning recycling innovations throughout all operations.
- Annual savings of over \$1 million.
- Reduced total solid waste cost per vehicle by 91% (excluding labor)

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RM Services Drive Down Product Cost

Total cost for Trash, Cardboard, and Pallets (including rebates)



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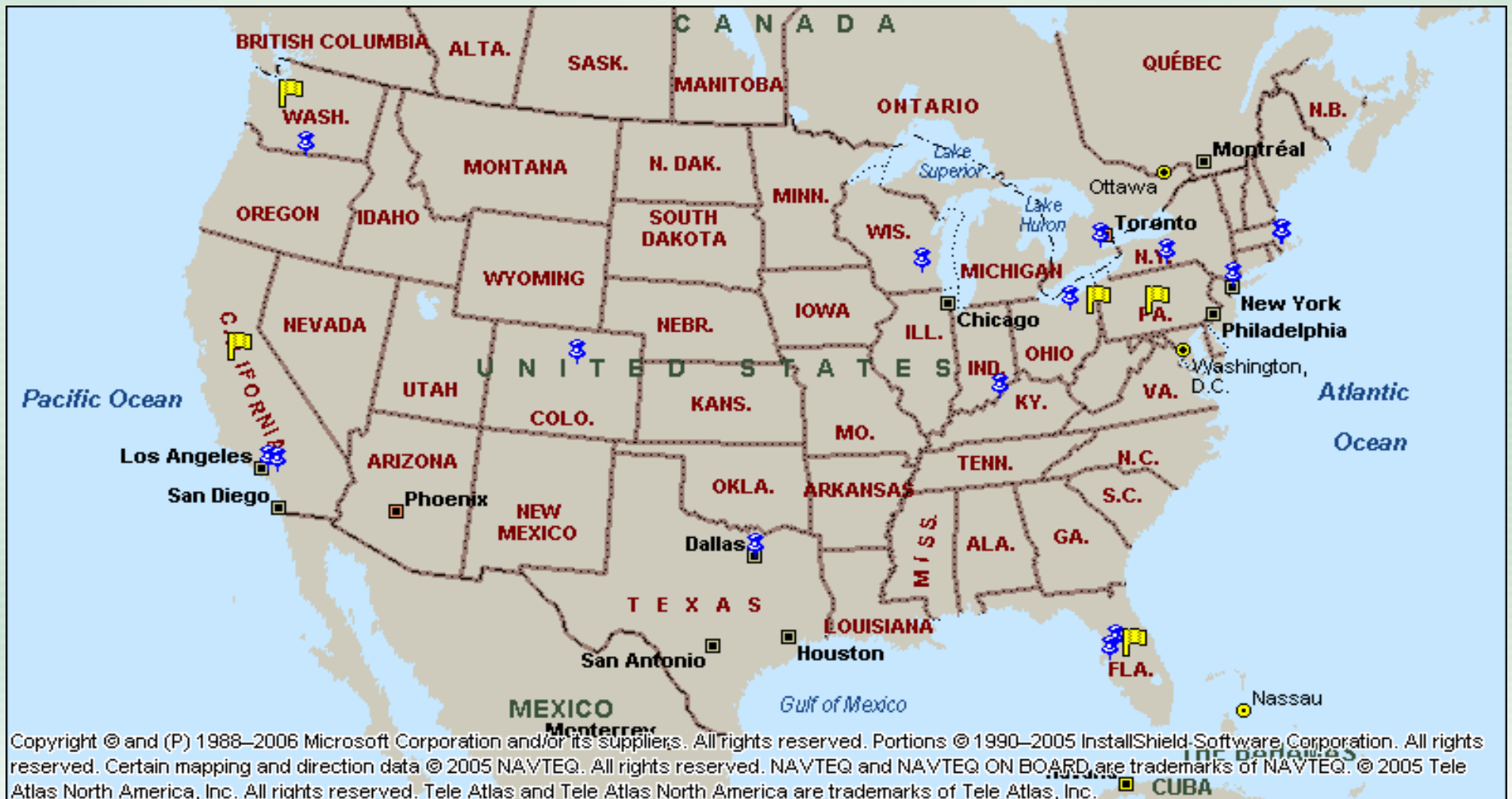
Zero Waste Supply Chain Services for a Large Beverage Manufacturer

- 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

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Zero Waste National Beverage Recovery Network



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Zero Waste Supply Chain Results

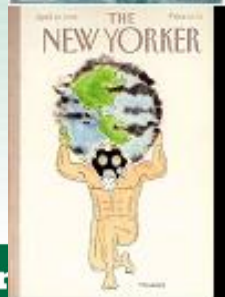
- Cost-effective recovery of all off-spec product
 - Includes liquid and packaging recycling
- Enhanced management and logistics control
 - Reduces tracking and transactions costs
 - Reduced product liability
- Enhanced value and reduced cost of service
 - 10% savings '07 vs '06

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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.” *



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* Kathy Sheehan, senior vice president with
GfK Roper Consulting

Green SquadSM



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Green SquadSM Service Offering

	Service	Status
Green Audit	Waste Audits	Offering in Ontario
	Energy Audits	Development & Trial
	Water Audits	Development
Green Services	Small Qty. Recycling	Pilots in CA/TX
	Energy Conservation	Pilots in CA
	Small Qty. Haz / Universal	Pilots in TX
Certification	LEED EB Certification	Advanced Planning
	I Think Green Certification	Advanced Planning
LEED	LEED Project Services	Advanced Planning

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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...

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Waste Management Recycle America 2006 Recycling Benefits

136,102,800 Mature Trees

This represents enough saved timber resources to produce more than 1.686 trillion sheets of newspaper!



54,715,000 Barrels of Oil

This provides enough energy to heat and cool more than 11,380,400 homes for one year!



Avoided 4,797,972 Metric Tons (MTCE) of GHG Emissions

The recycling of these materials prevented these GHG emissions!

33.687 Billion Kw-Hrs of Electricity

This is enough power to fulfill the annual electricity needs of more than 2,807,000 homes!



In 2006, we recycled 6,047,449 tons of cardboard / paper; 1,214,959 tons of plastics; and 27,959 tons of aluminum.

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!



The recycling of this quantity of packaging and raw materials avoided their manufacturing and disposal, thereby conserving ¹:



145,138,700 Gallons of Gasoline

This represents enough gasoline to drive more than 4.064 billion miles!



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!

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. Sources: U.S. Environmental Protection Agency, International Aluminum Institute, National Association for PET Container Resources, Institute of Scrap Recycling Industries, Earth Works Group Recycler's Handbook, One Earth Recycle, National Recycling Coalition, and Waste Management.

For Additional Info...

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 - Links and related references
 - Case studies

Thanks for your time!

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