

A new approach to urban mining, materials reclamation and business/job creation.

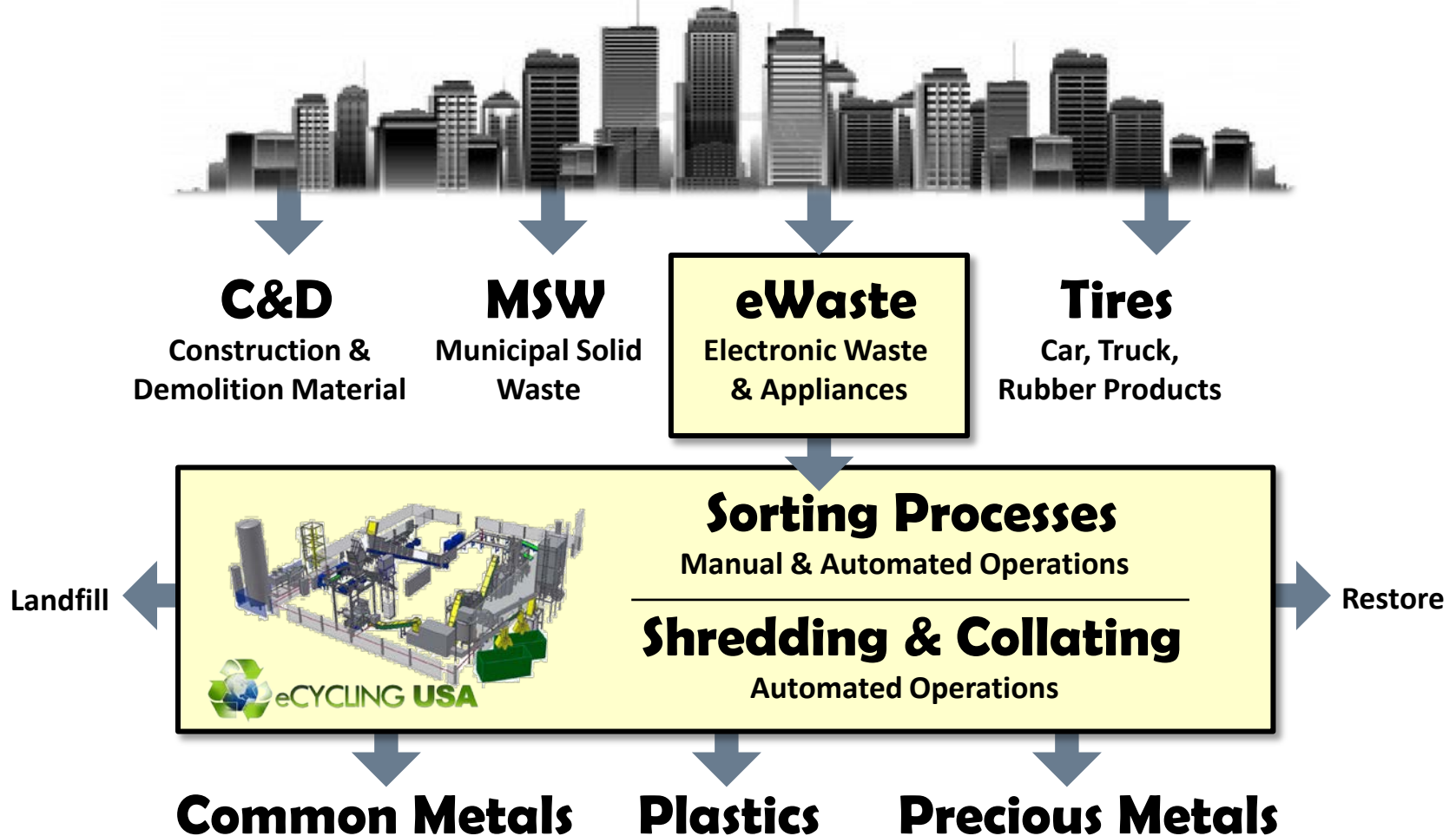
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Jobenomics Urban Mining Initiative



Urban Mining Goal: Monetize Urban Waste Streams



As part of the Urban Mining Initiative, Jobenomics created eCyclingUSA to help municipalities monetize waste streams.



- eCyclingUSA has partnership agreements with leading European manufacturers for building and implementing turnkey US eWaste Materials Reclamation Centers (formerly called recycling MRFs).
- Over 100 state-of-the-art European plants are operational.
- eCyclingUSA provides local communities the ability to shred, granulate, collate and reclaim their locally-generated eWaste-related raw materials without toxic emissions into the environment.
- eCyclingUSA envisions 50, locally-owned and operated, highly profitable, plants that employ up to 200 direct personnel.

Most municipalities landfill or export their eWaste, instead of earning as much as \$40M annual profits by processing eWaste locally.

eCyclingUSA & Partner Locations



Much of Europe has a zero landfill policy. The rest of the world is beginning to recognize the value of their waste streams.

Types of eWaste

■ Household Electronics

- IT-Related Products (EPA definition)
- Consumer Electronics
- Large Appliances
- Small Appliances
- Cleaning/Power Tools
- Entertainment Systems
- Toys & Other Electrical Items

■ Business

- Computers, Servers, Peripherals
- Hardware, Cabling, Ducting, Racks
- Vending Machines & Other Items

■ Government (Federal, State, Local)

■ Educational, Medical & Industrial

■ Construction & Demolition Materials



eCyclingUSA plant can process these items quickly and cleanly.

IT-Related eWaste (EPA Definition)



- EPA reports that 75% of US IT-related eWaste goes to landfills and 25% is recycled. Of the amount recycled, EPA states that 80% is shipped to foreign countries.

- US IT-related eWaste Sources:

- Homes & businesses
- Equipment manufacturers
- Major retailers
- Non-profits
- Exports ----->
- Government agencies
- Landfills
- Scrap yards and recyclers
- Construction & demolition



- 25 states, plus NYC, now restrict eWaste in landfills. Federal government is beginning to restrict eWaste exports.

IT-related eWaste is the fastest growing and most lucrative waste stream and will grow due to the emerging digital economy.

Types of Reclaimed Raw Materials



eScrap & Electronics

Waste Electrical and Electronic Equipment



Copper **Plastics** **Aluminum** **Iron** **Gold** **Silver** **Palladium & Other Precious Metals**

Refrigerators, Air Conditioners

Containing Air Polluting Refrigerants



Copper **Plastics** **Aluminum** **Iron**

TV/PC Tubes

Cathode Ray Tubes



Glass **Metals** **Plastics**

Including Lead & Mercury

eCyclingUSA systems are world-class in materials reclamation, and meet or exceed U.S. EPA standards.

eCyclingUSA Reclamation Processes



eWaste & Appliances



CFC Appliances (Refrigeration)



Televisions & CRTs



Components/Boards/Wiring



eCyclingUSA uses state-of-the-art materials reclamation technology.

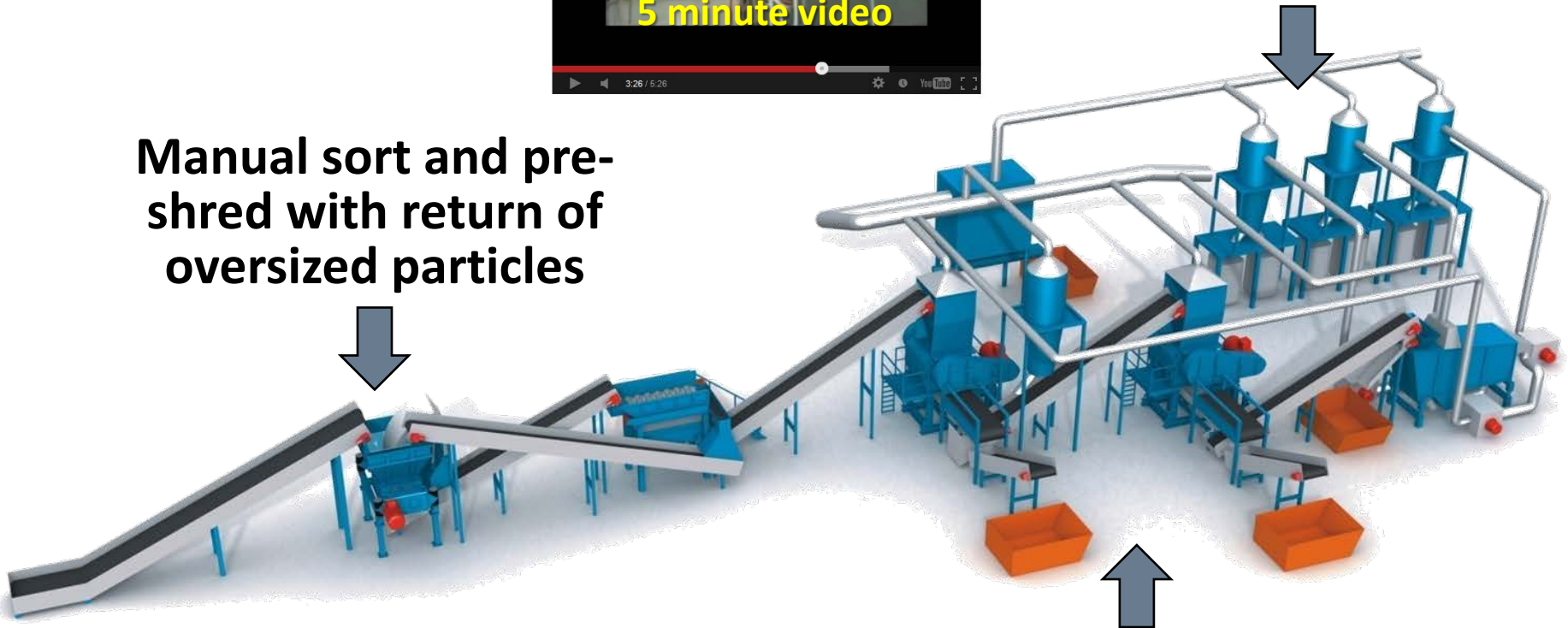
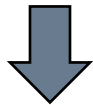
Basic Operation



**Purification and
environmental
protection**



**Manual sort and pre-
shred with return of
oversized particles**



**Granulate, separate, collate, and reclaim
raw material by type or color**

eWaste is processed in a environmentally closed system.

Typical eCyclingUSA Plants



■ Two Line 10 Ton/Hour Plant:

(Refrigeration & eScrap Separate Lines)

- Equipment ≈ \$20 Million
- 40,000 square foot facility
- 10 to 15 acres

■ Combination 10 Ton/Hour Plant:

(Refrigeration & eScrap Shared Post Processing)

- Equipment ≈ \$13 Million
- 35,000 square foot facility
- 5 to 10 acres

■ eScrap Only 3 Ton/Hour Plant:

- Equipment ≈ \$5 Million
- 8,000 square foot facility
- 1 to 2 acres

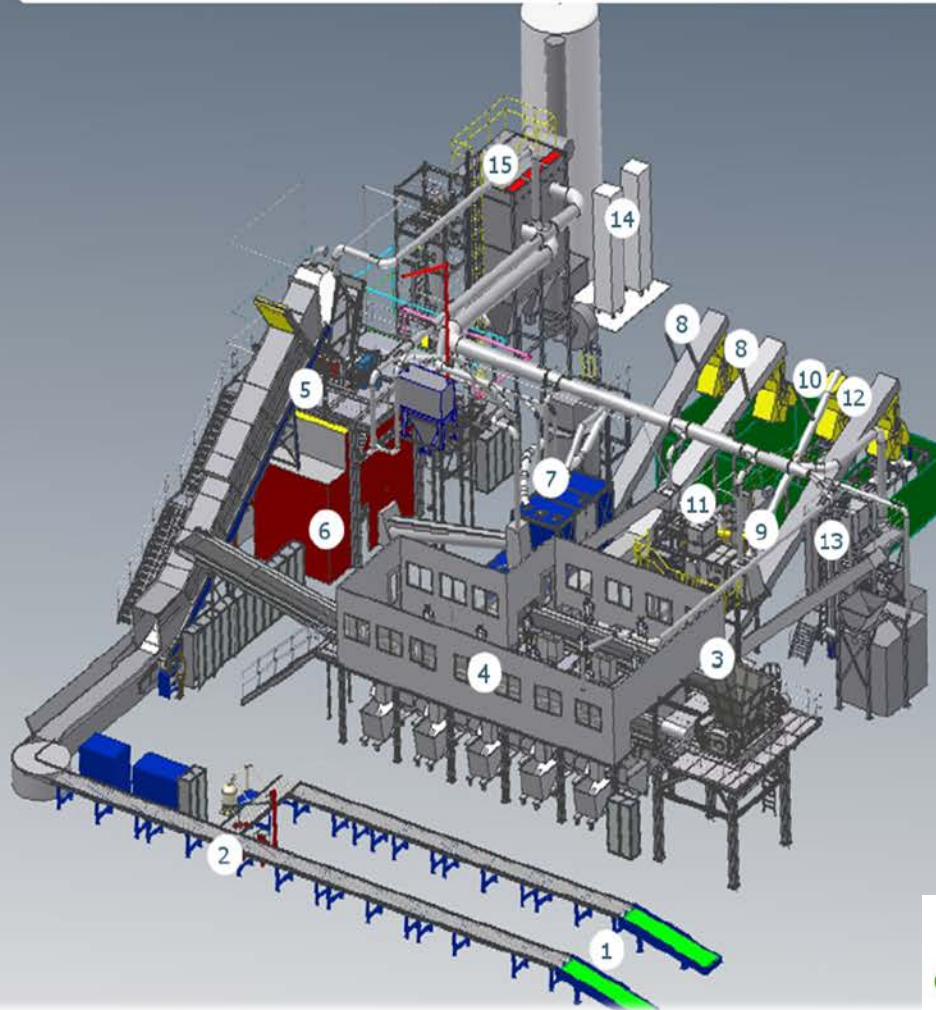
eCyclingUSA can implement a turnkey plant within 12 months and arrange financing for up to 70% of equipment costs.



Typical Layout

Recycling plant for refrigerator and e-scrap Chema WW/ES

- 1 charging transport belt
- 2 suction cooling circuit
- 3 pre-crusher
- 4 sorting cabinet
- 5 rotary shear
- 6 granulator
- 7 PUR & FE separation
- 8 discharge iron
- 9 pelletizer
- 10 discharge PUR-pellets
- 11 NE separation
- 12 discharge plastics
- 13 aluminum/copper separation
- 14 exhaust air abatement
- 15 dust filter



features of the recycling plant:

input material:	refrigerator old electrical appliances
troughput:	50 refrigerator/hour 5 t/hour
power supply:	approx. 1.800 kW

This plant layout is ideal for communities with 300,000+ people.

eWaste Feedstock Calculations

■ Computers or refrigerators per ton.

- 100 personal computers (20 pounds each) = 1 ton
- 6 refrigerators (350 pounds each) = 1 ton

■ Transportation capabilities.

- 40' shipping container and semi-trailer truck = 20 tons
- Railroad boxcar = 140 tons
- Waterway barge = 1,500 tons



■ Feedstock for a 5 ton/hour plant.

- 1 shift (8 hours) = 40 tons per day = 2 shipping containers or semi-trailer truck loads per day
- 3 shift (22 hours) = 110 tons per day = 5.5 containers per day

US generates enough annual eWaste to support several hundred materials reclamation centers.

eWaste Plant Employment

(10 ton/hour plant operating 1 to 3 shifts)

- **Direct employees \approx 42 to 200**

		Employees			3 Shift Operation	
		Shift 1	Shift 2	Shift 3	Minimum	Actual*
Combination eWaste (WEEE)-Large Appliance (CFC) for 10 Ton/Hour System		33	25	21	79	99
Optional Equipment	TV/CRT System	11	11	11	33	41
	Flat Screen/Thin Film Dismantling	2	2	2	6	8
	Mobile or Remote Preprocessing	8	8	8	24	30
	Smelting Unit	3	3	3	9	11
	Cable/Wire Shredder/Separator	3	3	3	9	11
		14	14	14	42	200

* Includes vacation, sick and absentee allowances

- **Direct employees \approx 200.** Jobenomics Business Generator programs: transportation, logistics, warehousing, demolition, construction, remediation, energy audit, weatherization, solar panel installation
- **Indirect employment \approx 5x ratio** per light-industrial metrics.

Does not include new manufacturing-related jobs.

Revenue & Profit Projections



(10 ton/hour plant operating 3 shifts)

For Rough Estimating Purposes Only

10 ton/hour plant operating 3 shifts per day for 300 days per year

Feedstock: Computers, Consumer Electronics, Small and Large Appliances

Metal/Material	% of Feedstock	\$s per Metric Ton*	\$/Ton (2204 pounds)	Total \$/Year (10 ton/hour x 23 hour/day x 300 days/year)
Iron/Steel (Fe)	40%	\$ 350	\$ 140.00	\$ 9,660,000
Copper (85% Recovery)	5%	\$ 3,879	\$ 193.95	\$ 13,382,688
Aluminum (Al)	10%	\$ 1,499	\$ 149.87	\$ 10,341,168
ABS Plastics	25%	\$ 1,675	\$ 418.75	\$ 28,893,750
Other Plastics	25%	\$ 287	\$ 71.75	\$ 4,950,750
Computer Components	5%	\$ 2,082	\$ 104.10	\$ 7,182,900

Source: Jobenomics, eCyclingUSA

110%

Revenue**

\$ 74,411,256

Cost of goods sold

\$ 30,238,000

Operating expenses

\$ 5,780,000

Net Income

\$ 38,393,256

EBITDA

52%

*** Scrap prices as of 11 November 2017**

****Does not include grants, tax incentives or tipping fees**

Additional income can be derived from tipping fees, grants and carbon credits. eCyclingUSA has detailed spreadsheets available.

Why Now In The USA?



- America is becoming more environmentally-friendly. Environmental savings include:
 - Significant pollution and climate change savings: Energy 75%, Air Pollution 86%, Water Pollution 76%, Water Use 40%, Mining Waste 97% (*source EPA*)
 - Reduced landfilling and transportation costs.
- Over the last three decades, US landfills have declined 80% while US recycling has increased 400%.
- Today, the US landfills or exports 95% of its eWaste.
- New materials reclamation technology makes eWaste reclamation available at the local level thereby producing much needed local revenue and business and jobs creation.

Since waste is generated locally, it should be reclaimed locally, and the profits used for local business and job creation.

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