

DYNAMIC LIFECYCLE INNOVATIONS
ENVIRONMENTALLY RESPONSIBLE SOLUTIONS:
SOLAR PANEL RECYCLING

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WE ARE DYNAMIC



Founded in 2007 in La Crosse, WI with two current locations:

- Onalaska, WI [HQ] 380,000 ft.
- Nashville, TN 50,000 ft.



208,319,733
LBS. OF MATERIAL
HANDLED



12
YEARS OF INDUSTRY
EXPERIENCE



7
SAFETY & COMPLIANCE
CERTIFICATIONS



0
PROCESSED MATERIALS
PLACED IN LANDFILLS

OUR STANDARDS

CERTIFIED, QUALIFIED, TRANSPARENT

- R2 and e-Stewards certified
- ISO 9001 and ISO 14001 certified
- OHSAS 18001 certified
- ITAR compliant
- NAID AAA certified
- No Landfill policy
- NIST SP 800-88, 5220.22 M
- Thorough downstream management
- \$10M cyber risk and \$10M pollution liability insurance
- Customized risk management services



WHERE ARE SOLAR PANELS COMING FROM?

Manufacturers

- Modules damaged during the manufacturing and distribution process

Waste Management Organizations

- Modules brought in for disposal from both residential and corporate generators

Solar Installers

- Modules being replaced by newer models



Why are WMOs and Installers seeing these?

- Modules no longer efficient and getting upgraded
- Weather-related damage
- Problems with the module itself (i.e. hot spots, delamination, etc.)

RESOURCE RECOVERY PROCESS

SOLAR PANELS



SHREDDER



EDDY CURRENT SEPARATOR



METAL SORTER



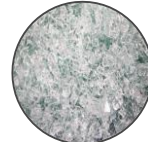
OPTICAL SORTER



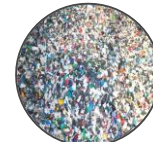
NON-FERROUS
FINES



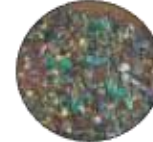
STEEL



GLASS



PLASTIC

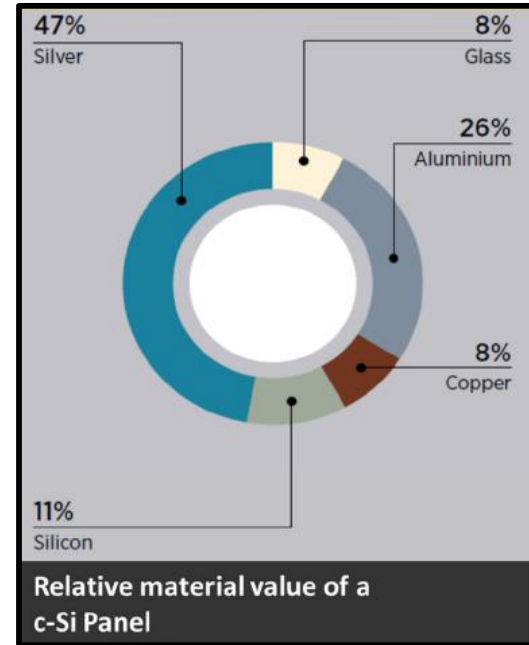
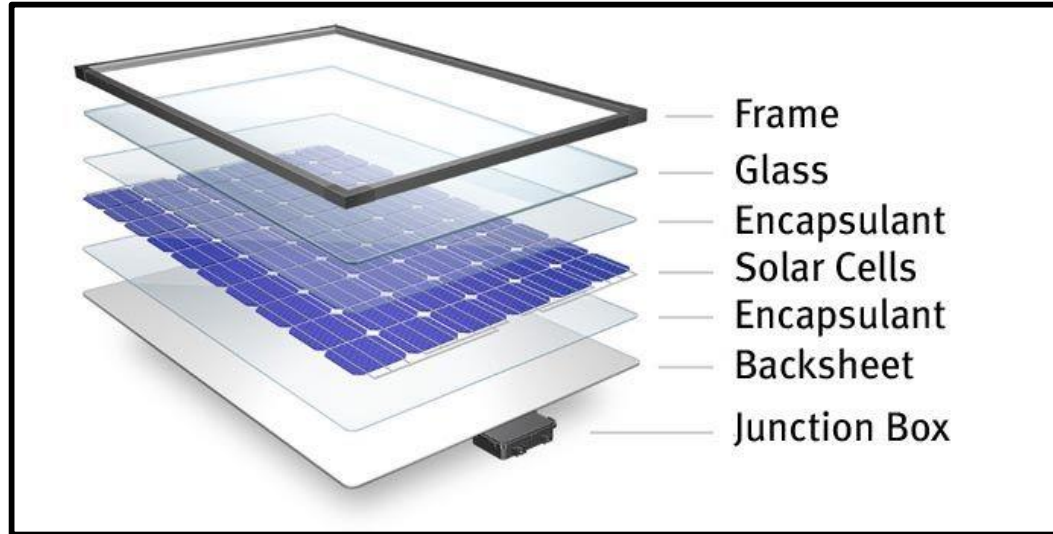


COPPER &
OTHER



ALUMINUM

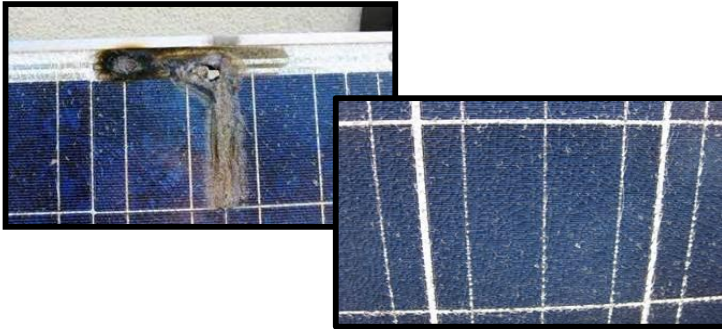
CONTENTS OF A SOLAR PANEL



REFURBISHMENT & REUSE

Tips:

- Visually inspected for integrity
 - No sunspots, cracked glass or back sheeting (small chips in glass OK), minimal denting to frames, etc.
- Identifying qualified modules on the front end allows recycler to offer greater value



Markets:

- Most Manufacturers do not offer warranties on resold units
- Many charitable projects available
- Strong secondary markets in China, Middle East and Africa
- Peripherals can be resold (i.e. Inverters) but typically scrapped if sent through recycling stream at end of life

SCRAP MARKET: WHAT ISSUES ARE WE FACING AND WHAT DO WE SEE FOR THE FUTURE?

Plastic

- Chinese National Sword policy essentially eliminated plastics from entering the country
- Domestic companies are acquiring equipment to sort and separate different types of plastic
- Future forecast: likely to see more material processed and recycled domestically

Aluminum

- Still an oversupply vs. demand
- Uncertainty whether price of aluminum has bottomed out or if the downtrend will continue

Glass

- Traditionally difficult to manage as it needs to be a clean, pure product
- Requires a pure liberation of all commodities