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# ESI Conference 2024

MANUFACTURING & THE NC CIRCULAR ECONOMY:  
A RECYCLER'S ROLE

**Day 1**  
**October 28th, 2024**

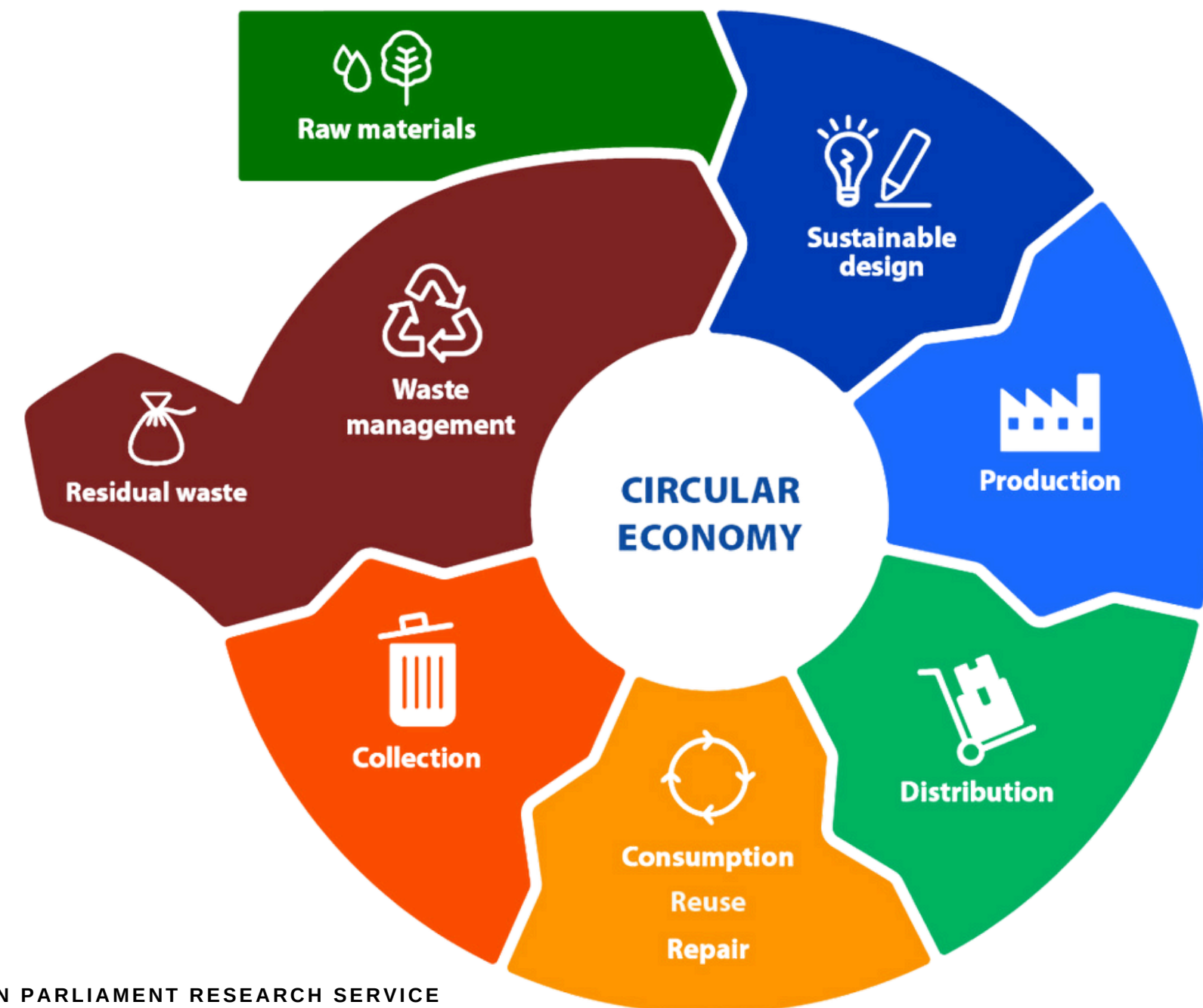
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PowerHouse Recycling Inc.



# Setting the Stage

DEFINING A CIRCULAR ECONOMY

A CIRCULAR ECONOMY IS A MODEL OF PRODUCTION AND CONSUMPTION THAT AIMS TO REDUCE WASTE AND RESOURCE USE BY REUSING, REPAIRING, AND RECYCLING MATERIALS AND PRODUCTS. THE GOAL IS TO KEEP MATERIALS IN THE ECONOMY FOR AS LONG AS POSSIBLE, RATHER THAN EXTRACTING NEW RESOURCES TO REPLACE THEM, CREATING JOBS AND INDUSTRY.



SOURCE: EUROPEAN PARLIAMENT RESEARCH SERVICE

EST. 2023 BY SECRETARY ELIZABETH BISER

# Setting the Stage

NC CIRCULAR  
ECONOMY COUNCIL

## MISSION

NC CIRCULAR ECONOMY COUNCIL

GROW NORTH CAROLINA'S CIRCULAR ECONOMY TO ENSURE THAT VALUABLE MATERIALS ARE NOT BURIED IN LANDFILLS, BUT USED AS MANUFACTURING FEEDSTOCK, CREATING JOBS, ECONOMIC INVESTMENT, AND POSITIVE ENVIRONMENTAL OUTCOMES.



# Setting the Stage

NC CIRCULARITY  
COUNCIL



## CIRCULAR COUNCIL GOALS

**INCREASE** THE QUALITY AND QUANTITY OF RECOVERED MATERIAL

**GROW AND EXPAND** MATERIAL RECOVERY CAPACITY THROUGH INFRASTRUCTURE IMPROVEMENTS AND RECYCLING BUSINESS DEVELOPMENT & RECRUITMENT

**IDENTIFY AND INCREASE** FUNDING AND SUPPORT FOR CIRCULAR ECONOMY INITIATIVES

**STRENGTHEN** PUBLIC KNOWLEDGE AND CONFIDENCE IN RECYCLING IN NC

**EXPAND** PARTNERSHIPS WITH ORGANIZATIONS AND INDUSTRIES TO FOSTER THE GROWTH OF NC'S CIRCULAR ECONOMY

# Setting the Stage

NC CIRCULARITY COUNCIL

## CIRCULAR COUNCIL FINDINGS

NC CIRCULAR ECONOMY...

IS ROBUST IN MATERIALS ABLE TO BE RECYCLED,

HAS THE ABILITY TO INNOVATE QUICKLY FOR NEW WASTE STREAMS SUCH AS SOLAR PANELS,

PROVIDES VALUABLE FEEDSTOCK TO IN-STATE MANUFACTURERS AS WELL AS NATIONAL & GLOBAL,

COORDINATED INFRASTRUCTURE TOURS OF NC RECYCLERS

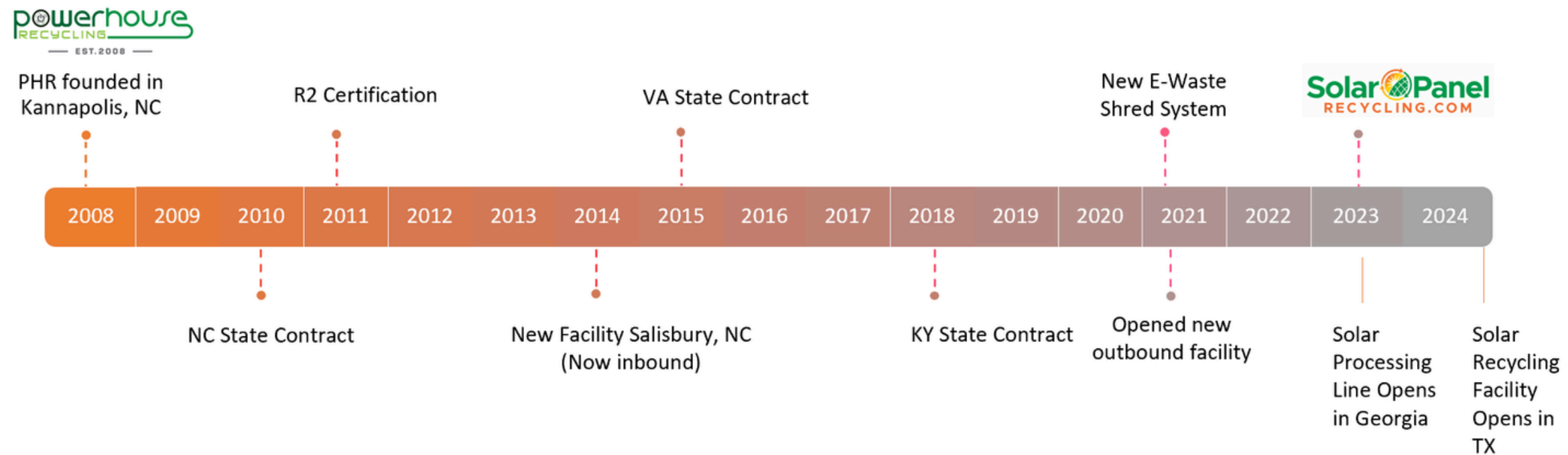


# Setting the Stage

PHR/SPR  
BACKGROUND



## BACKGROUND



## PHR/SPR IN NORTH CAROLINA

200+ EMPLOYEES

250,000 SQ FT

\$40M IN ASSETS

NC BASED FLEET OF 40+ TRUCKS &  
100+TRAILERS

**RAPID GROWTH RATE ALL BASED ON  
CIRCULARITY**



# Recycling

PHR'S ROLE IN  
CIRCULARITY

## ELECTRONIC WASTE BY THE NUMBERS

**61m metric tons**

Electronic waste continues to be the fastest-growing waste stream in the world.

**22% recycled**

BY 2030

**32% rise in waste**

**82m metric tons**

# Recycling

PHR'S ROLE

GENERATE CLEAN COMMODITIES TO  
RE-INTRODUCE INTO THE SUPPLY  
CHAIN

GOLD/COPPER/PALLADIUM/SILVER  
STEEL/ALUMINUM/PLASTICS

THROUGH HIGH VOLUME  
COLLECTIONS VIA SERVICES







# TECHNOLOGY

TO OBTAIN CLEAN  
COMMODITIES

SHREDDING & SEPARATION  
OPTICAL SORTING  
EDDY CURRENTS  
CROSS MAGNETS  
SCREENING

MANUAL DISASSEMBLY

REFURBISHMENT/RE-USE

# Recycling

PHR'S ROLE

EXAMPLE:  
MANUFACTURING SUPPLY CHAIN SERVED

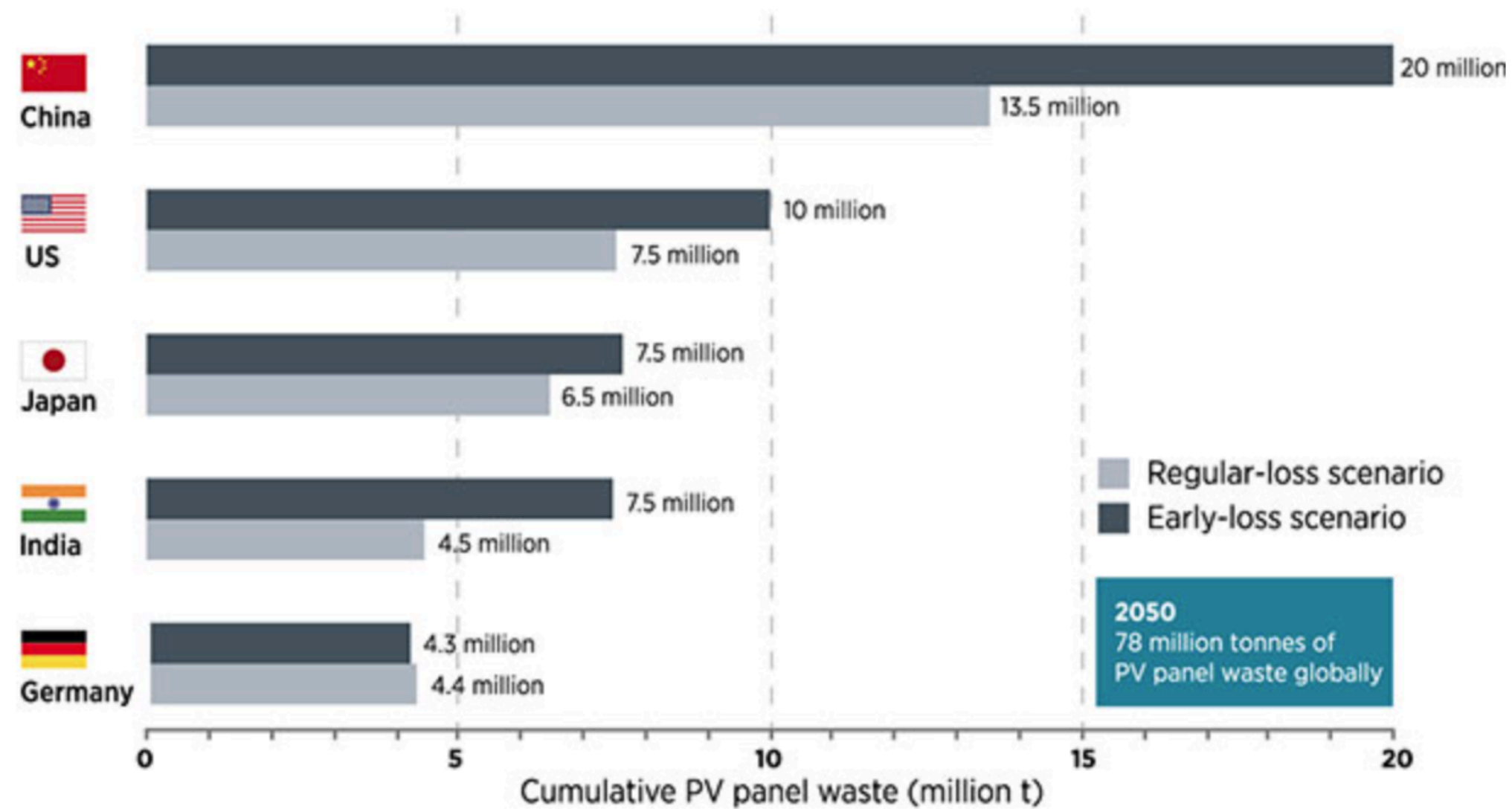
REBAR IN CAROLINAS



# Recycling

## SOLAR PANEL VOLUME

BY 2030 (USA): 1 MILLION TONS  
BY 2050 (USA): 10 MILLION TONS



CREDIT: IRENA & IEA-PVPS

# Recycling

SOLAR PANEL  
VOLUME

BY 2030 (USA): >1 MILLION TONS  
BY 2050 (USA): >10 MILLION TONS

SPR ANTICIPATIONS  
FASTER TIMELINE

11

AVG YEARS  
UNTIL EOL  
(SPR)

YEARS TO EOL

EXPECTED PANEL LIFE

25-30

REPOWER/TECH  
UPGRADES

10-15

WEATHER EVENTS/O&M

1-30

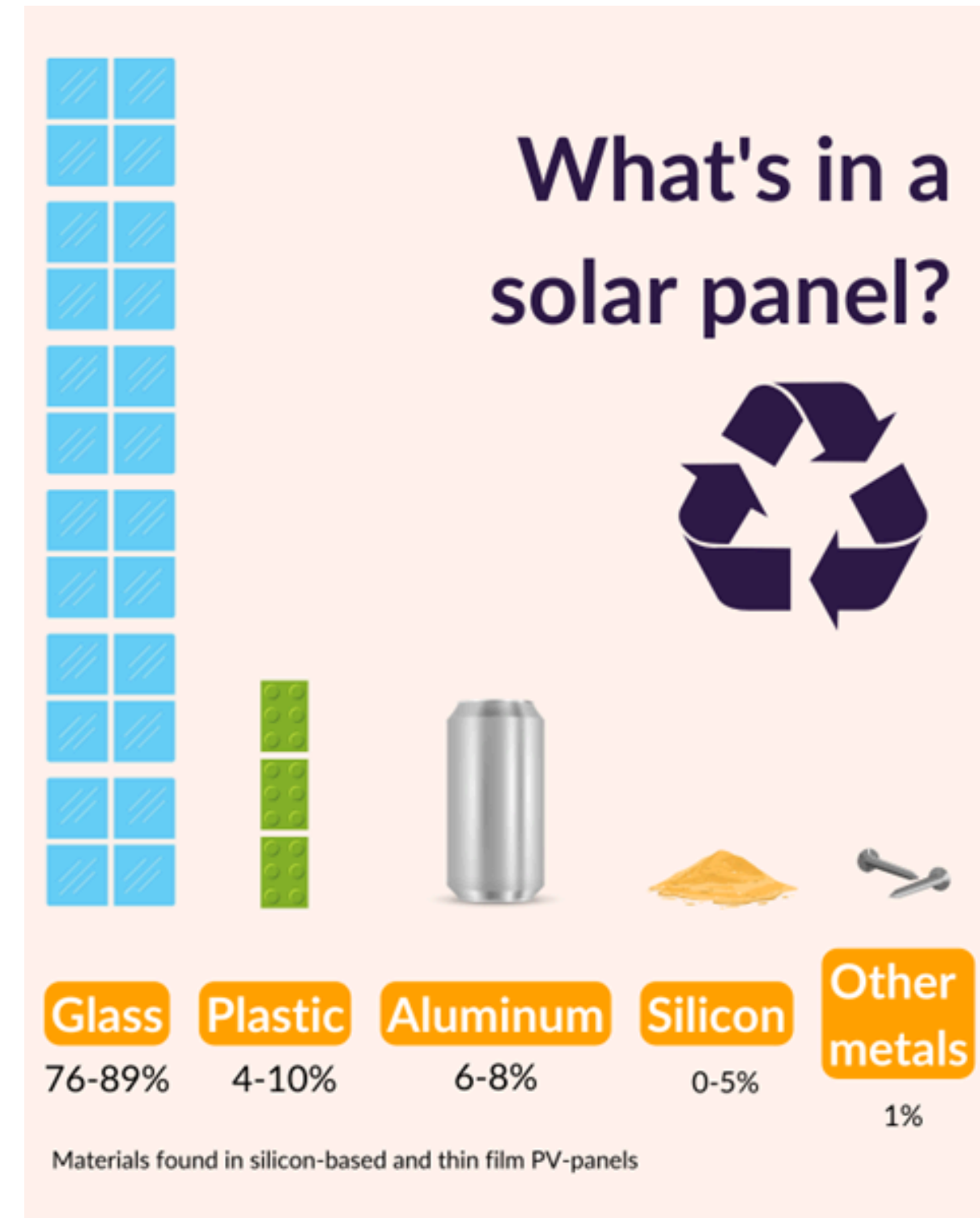
TRANSPORTATION &  
CONSTRUCTION  
BREAKAGE

0

# Circularity

## TRUE SOLAR PANEL RECYCLING

THE CLEAN SEPARATION AND RECOVERY OF ALL MATERIALS WITHIN A PV MODULE, INCLUDING ALUMINUM, GLASS, SILICON, METALS, AND PLASTICS TO BE RE-INTRODUCED IN THE SUPPLY CHAIN.





TECHNOLOGY

TO OBTAIN CLEAN  
COMMODITIES

MECHANICAL  
THERMAL  
METALLURGICAL

HIGHER PURITY=MORE APPLICATIONS

SPR TECH  
RAPID ADVANCES

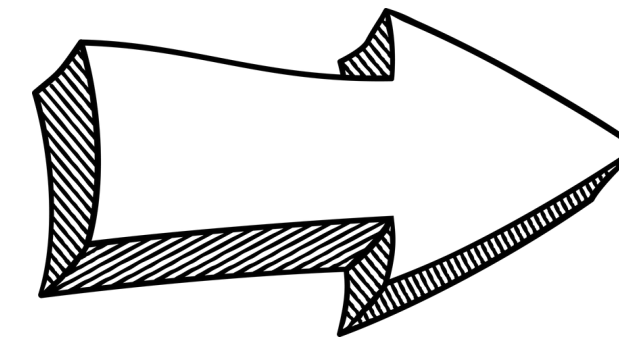
# SUPPLY CHAIN

SOLAR OPPORTUNITIES

CURRENT:  
APPLICATIONS IN VARIOUS  
SUPPLY CHAINS

OPPORTUNITIES:  
ONSHORING OF SOLAR  
MANUFACTURING INCREASES

GLASS CULLET  
SILICON  
ALUMINUM  
METALS



COMPONENTS FOR  
US SOLAR  
MANUFACTURING

HURRICANE HELENE

Community

SUPPORT





# Contact Information



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