



pv magazine USA Week 2024

SOLAR PANEL RECYCLING: DEMAND, TECHNOLOGY & SUPPLY CHAIN

Day 3
October 24th, 2024

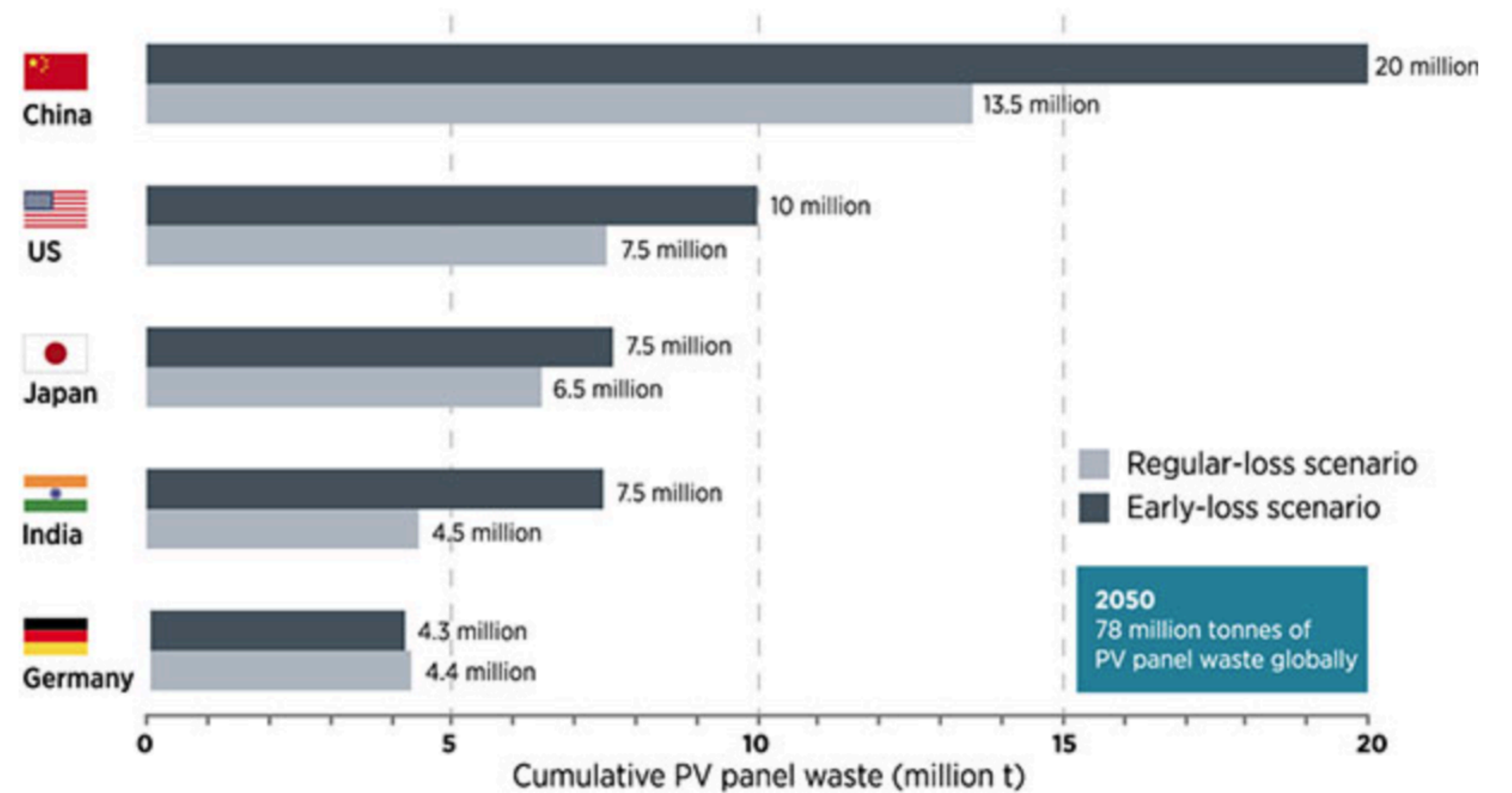
Brett C. Henderson
CEO, Co-Founder
(SPR) solarpanelrecycling.com



Setting the Stage

VOLUME

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



CREDIT: IRENA & IEA-PVPS

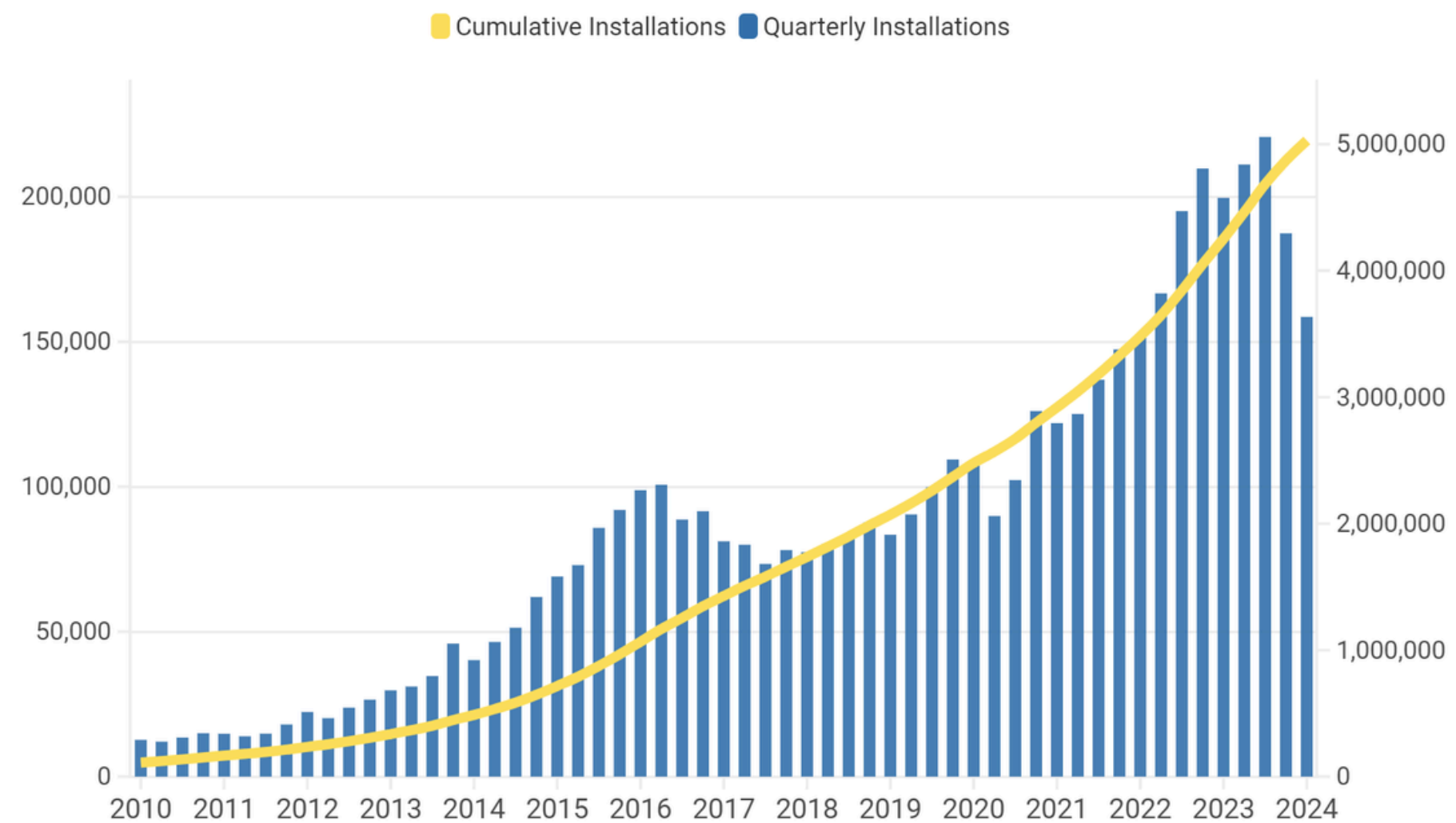
Setting the Stage

VOLUME

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

SPR ANTICIPATIONS HIGHER VOLUME

Number of U.S. PV Installations Cumulative & Quarterly



Setting the Stage

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

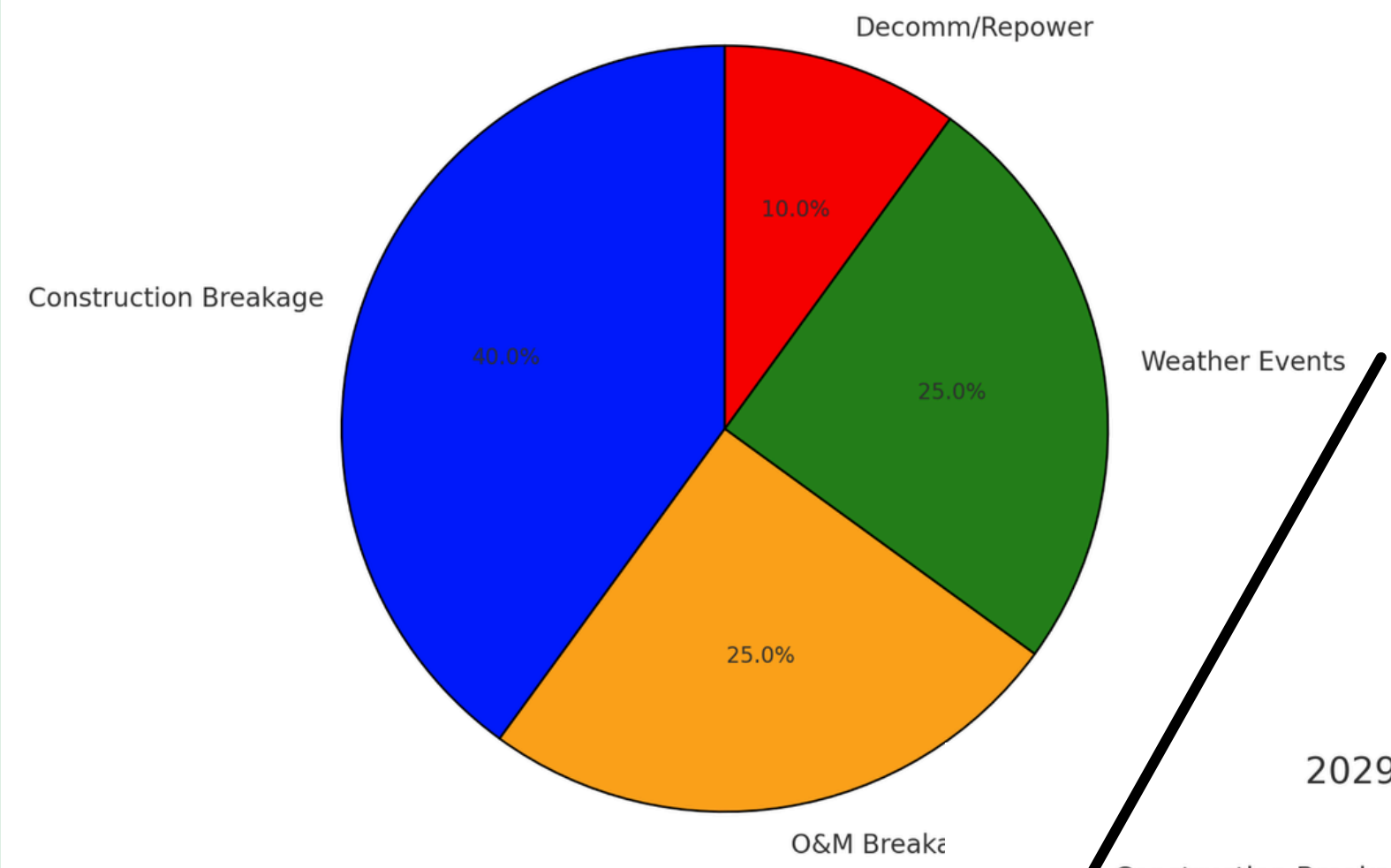
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Setting the Stage

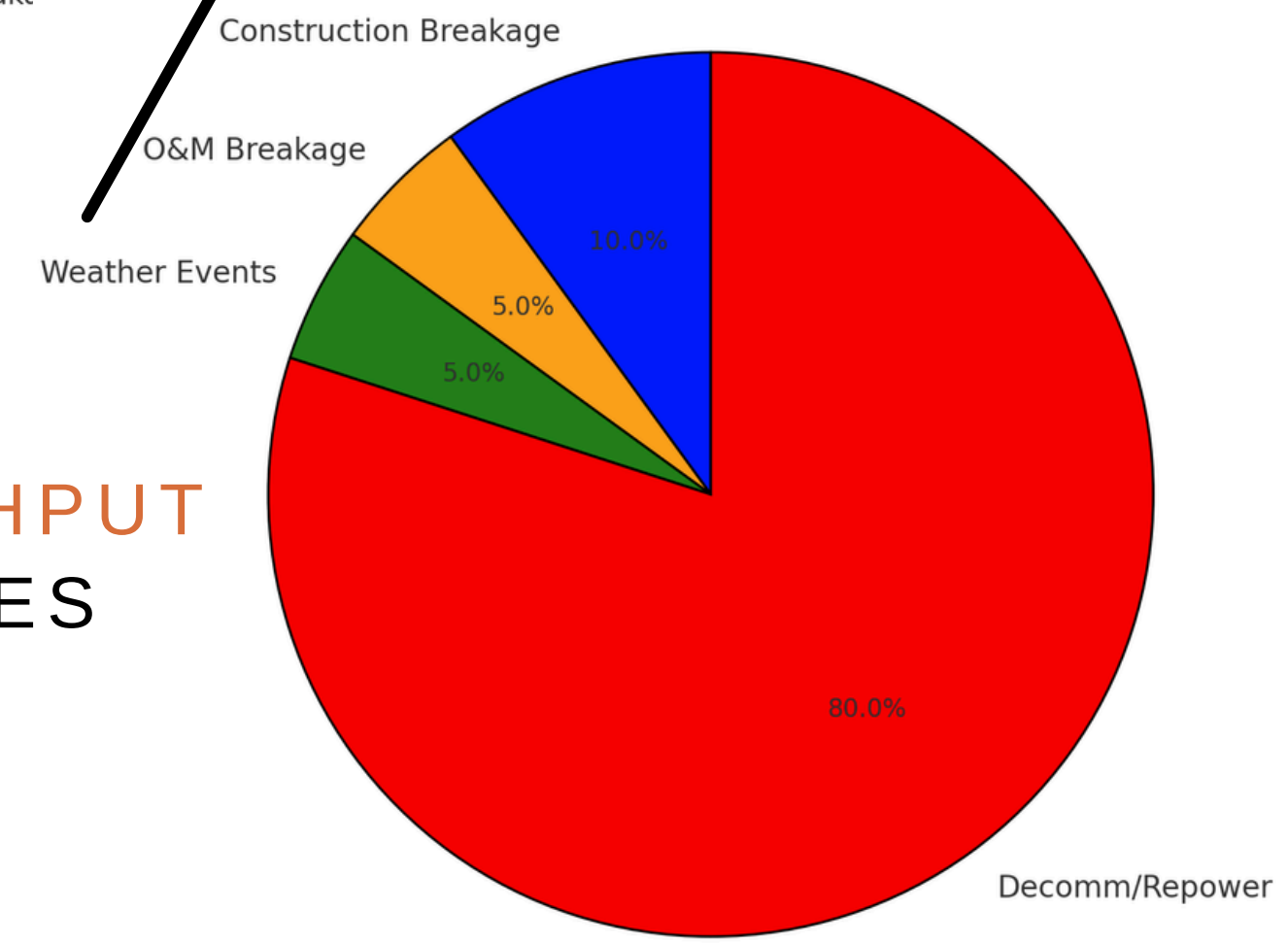
(SPR) VOLUME



2024 - Source of EOL Panels



2029 - Source of EOL Panels



RECYCLING THROUGHPUT
NC/GA/TX FACILITIES

RECYCLING DEMAND

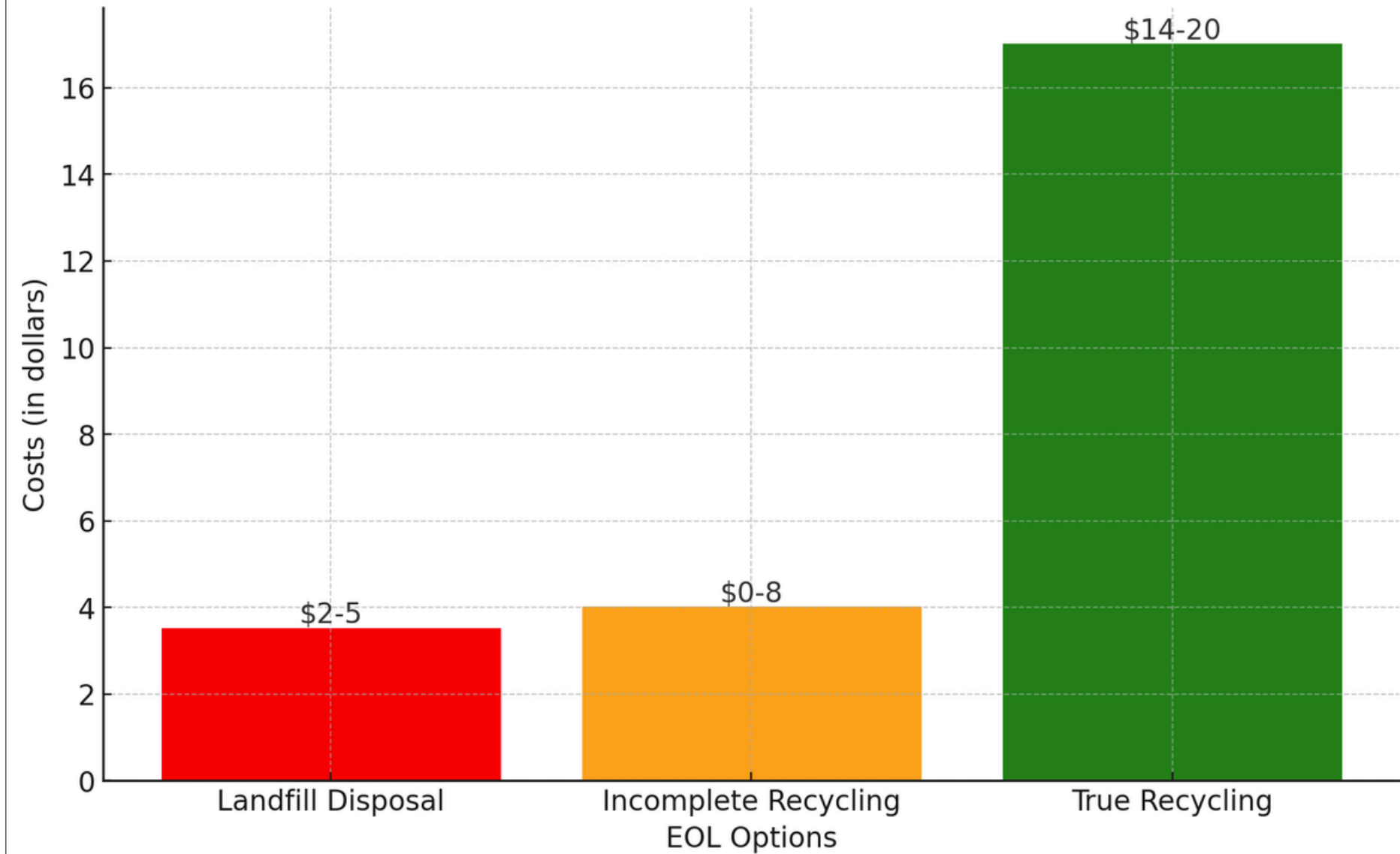
(-)DRIVING FORCES

COSTS

CURRENTLY DRIVES MOST SOLAR PANELS TO LANDFILLS OR INCOMPLETE RECYCLERS IN LIEU OF TRUE RECYCLING



End-of-Life Solar Panel Costs



RECYCLING DEMAND

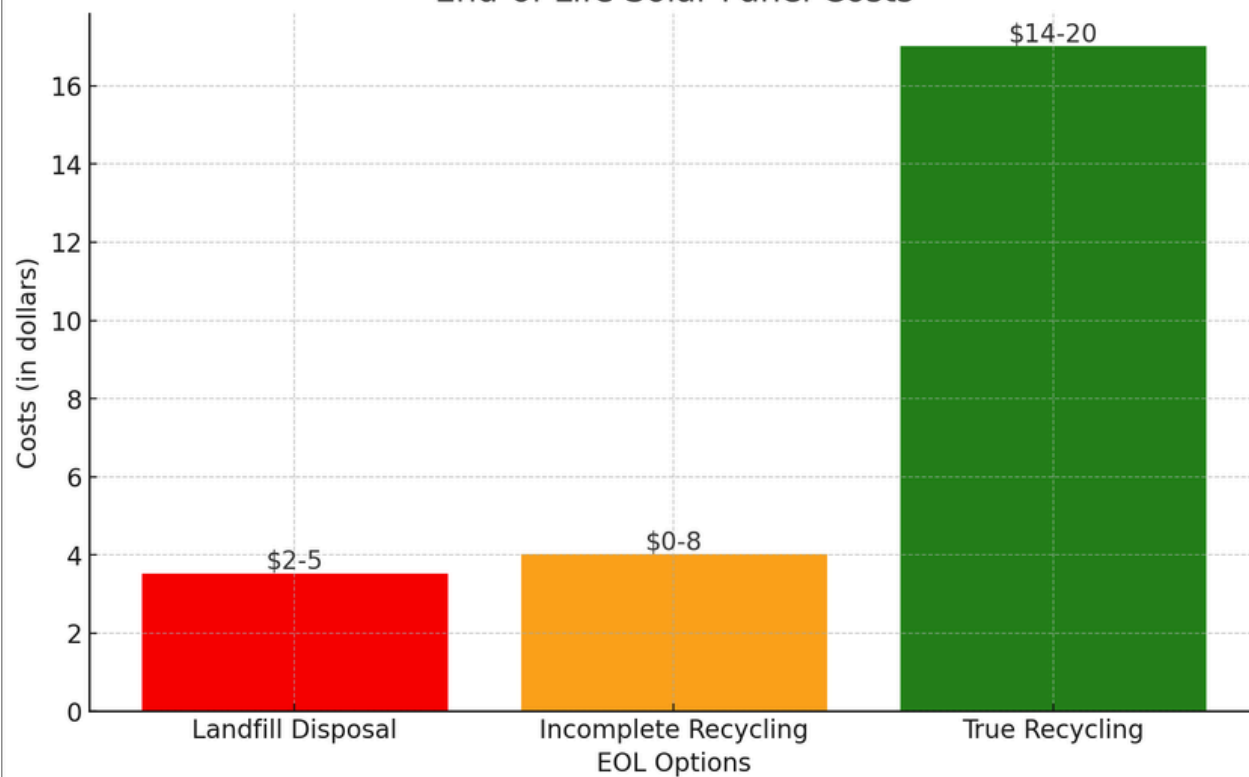
(+) DRIVING FORCES



42%

cost decrease in last 36 months

End-of-Life Solar Panel Costs



TECHNOLOGY ADVANCES
ECONOMIES OF SCALE
NEW SUPPLY CHAIN MARKETS
REGIONAL FACILITIES/TRANSPORTATION

RECYCLING DEMAND

(+) DRIVING FORCES

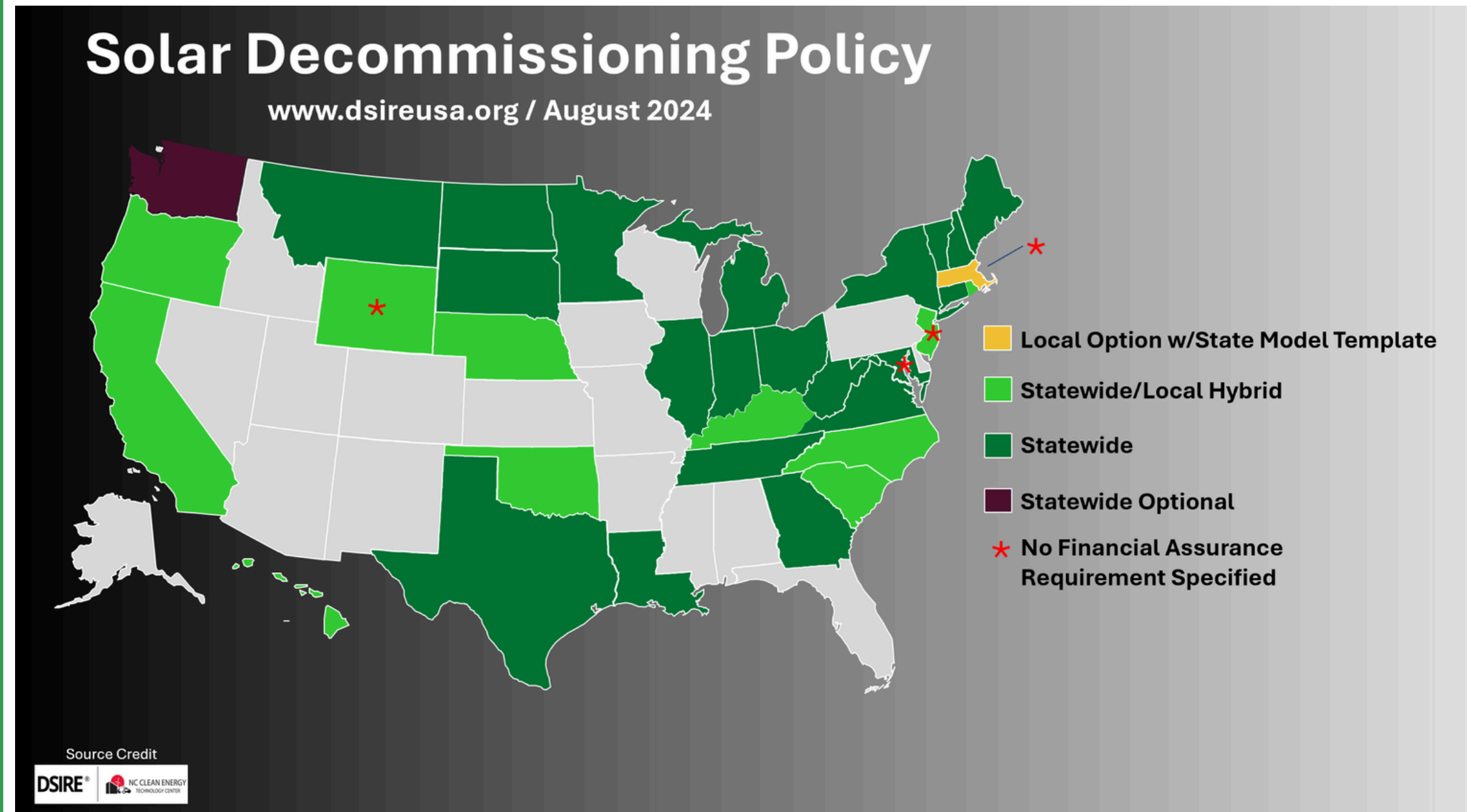
EOL POLICY & SEIA LEADERSHIP

MOSTLY BI-PARTISAN AT STATE LEVELS

LANDFILL CAPACITY (EX: NC 10 YEAR)

EPA: HAZARDOUS TO UNIVERSAL CLASSIFICATION

SEIA: NATIONAL PV RECYCLING PROGRAM & CERT



A photograph showing several large stacks of solar panels on a wooden pallet. The panels are light blue and are secured with yellow straps. They are stacked outdoors on a grassy area under a blue sky with some clouds.

RECYCLING DEMAND

(+) DRIVING FORCES

COMMUNITY ENGAGEMENT & MISCONCEPTIONS

CLEAN ENERGY OPPONENTS
(COMMENTS FROM LINKEDIN & NEWS ARTICLES OF STORM
DAMAGE)

“SOLAR CANNOT BE RECYCLED AT END-OF-LIFE”

“EOL SOLAR PANELS ARE CONTAMINATING
OUR WATER & AIR”

“ITS NOT CLEAN ENERGY IF THEY BURY
IT IN THE LANDFILL”

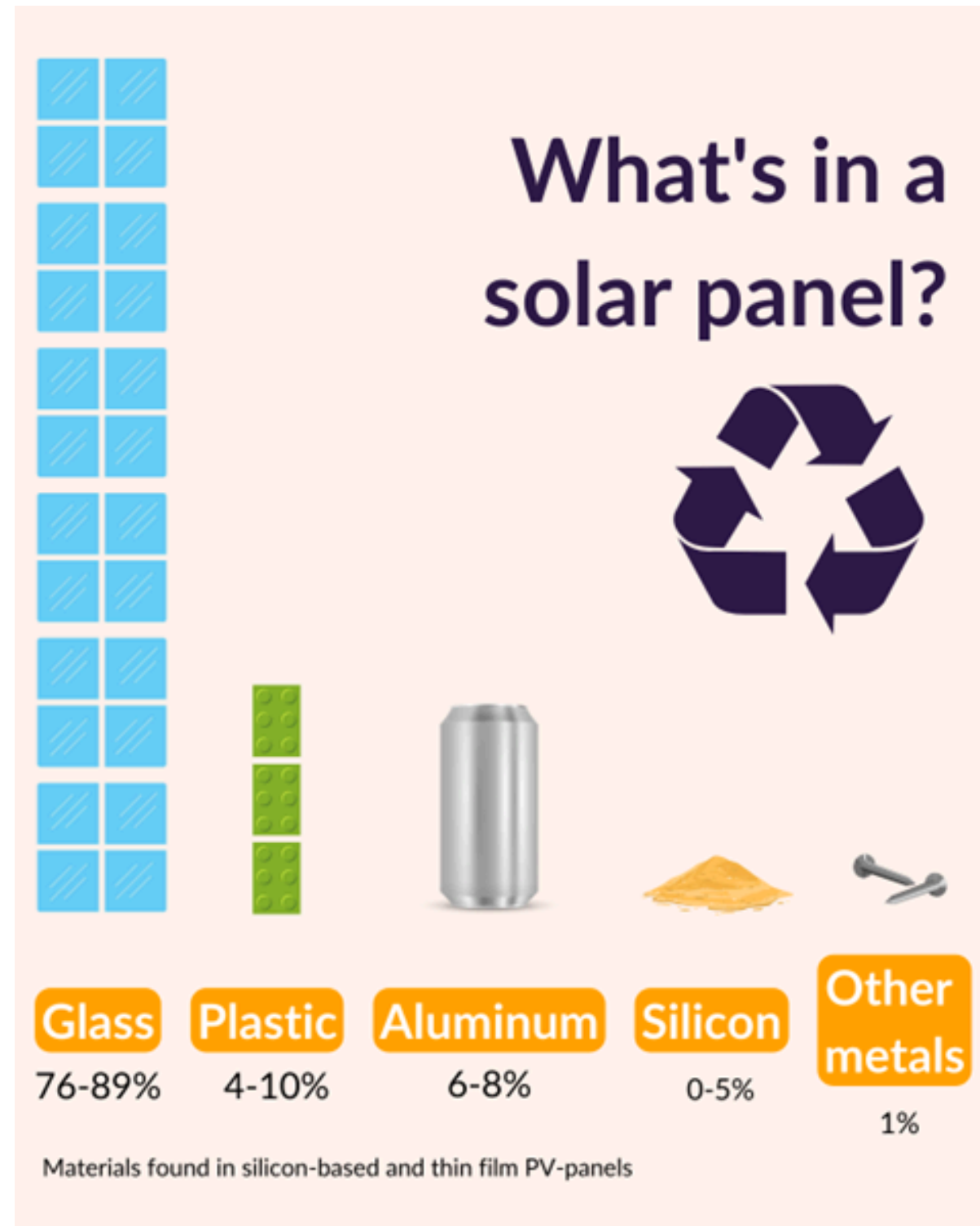
ENVIRONMENTAL STEWARDSHIP

ESG/CLEAN ENERGY THROUGH EOL
EDUCATION & OUTREACH
OPTIONS FOR INDUSTRY TO RECYCLE

TECHNOLOGY

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

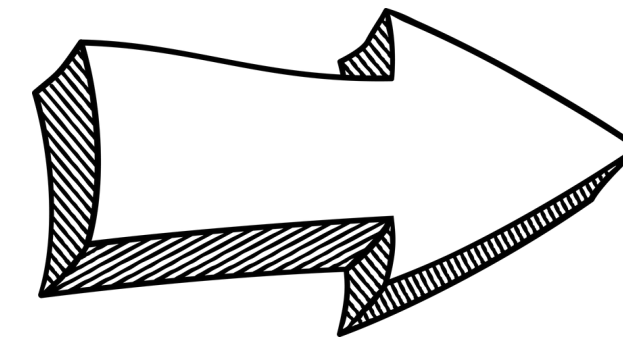
SUPPLY CHAIN

SOLAR OPPORTUNITIES

CURRENT:
APPLICATIONS IN VARIOUS
SUPPLY CHAINS

OPPORTUNITIES:
ONSHORING OF SOLAR
MANUFACTURING INCREASES

GLASS CULLET
SILICON
ALUMINUM
METALS



COMPONENTS FOR
US SOLAR
MANUFACTURING

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RECYCLING PLANTS IN: **NC - GA - TX**

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