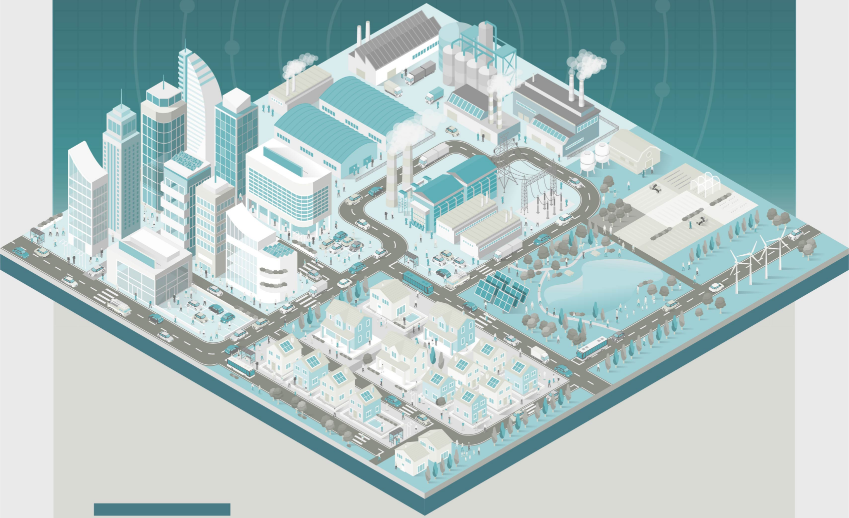
# ZINC

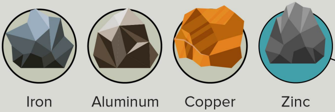
## THE ESSENTIAL, VERSATILE, AND SUSTAINABLE METAL



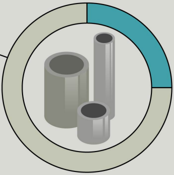
ZINC IS AN

## ESSENTIAL METAL

THAT OFTEN FLIES UNDER THE RADAR.



In fact, zinc is the **fourth** most used metal in the world.



## USES OF ZINC

Zinc compounds
**25%**

Galvanizing, alloys, brass/bronze
**75%**

Source: USGS

The zinc market is worth **$40B** per year, and zinc was one of the best performing commodities of 2020.

2020 zinc returns
**19.73%**

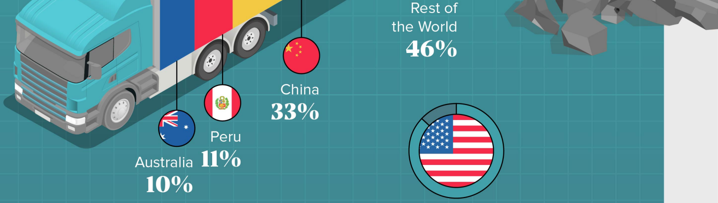
Sources: International Zinc Association, U.S. Global Investors

## ZINC'S PROPERTIES MAKE IT ESSENTIAL TO SEVERAL INDUSTRIES, FROM CONSTRUCTION TO MEDICINE. BUT WHERE DOES ZINC COME FROM?

# THE ZINC SUPPLY CHAIN

Three countries - China, Peru, and Australia - account for 54% of global zinc production, while 46% comes from the rest of the world.

Source: USGS, 2020



The U.S. is one of the largest importers of zinc and zinc products with a net import reliance of **87%**.

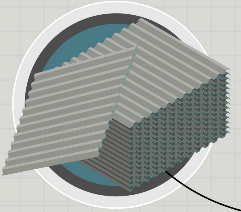
AS THE WORLD TRANSITIONS TO A SUSTAINABLE FUTURE, LOCAL SOURCES OF MINED AND REFINED ZINC WILL PROVE KEY IN MEETING ZINC'S RISING DEMAND.

# ZINC:
# STRONGER, BETTER, FASTER

## STRONGER

### STRENGTHENING TOMORROW'S INFRASTRUCTURE

### ZINC IN STEEL



Zinc is widely known as the "galvanizing metal" for its role in protecting **steel**.

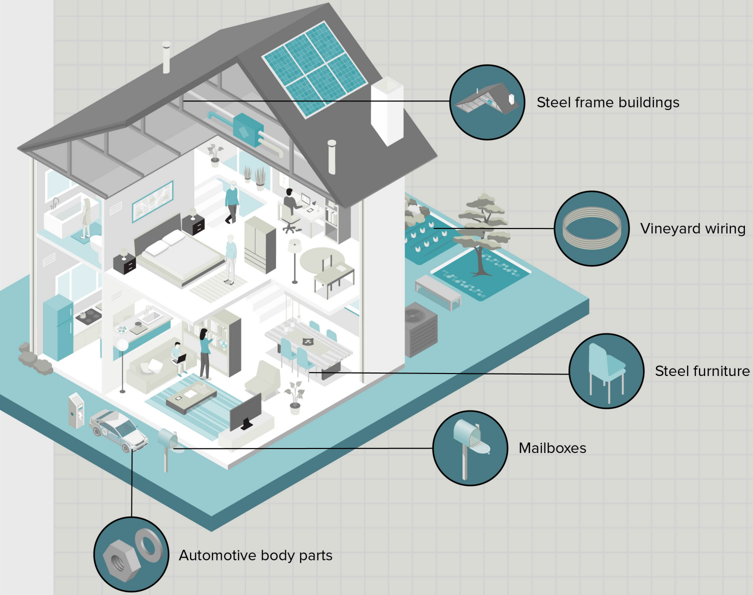
Steel can corrode easily when exposed to moisture and oxygen. Zinc acts as the "**sacrificial anode**"—the outer layer that protects the underlying steel from corrosion.

Galvanizing with zinc provides steel with:

- Strength
- Longevity
- Corrosion-

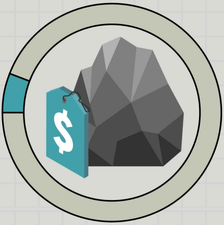
resistance

## ZINC-COATED STEEL HAS APPLICATIONS IN CONSTRUCTION, AUTOMOBILES, INFRASTRUCTURE, AND MORE.



Source: International Zinc Association

## Galvanizing with zinc can substantially reduce the costs of corrosion.



Only **6%** of steel produced annually is coated

The global cost of corrosion is estimated to be **$2.5 trillion** per year

Sources: International Zinc Association, NACE

# ZINC IN ALLOYS

ZINC'S DUCTILITY MAKES IT AN AFFORDABLE YET EFFECTIVE ALLOYING MATERIAL.

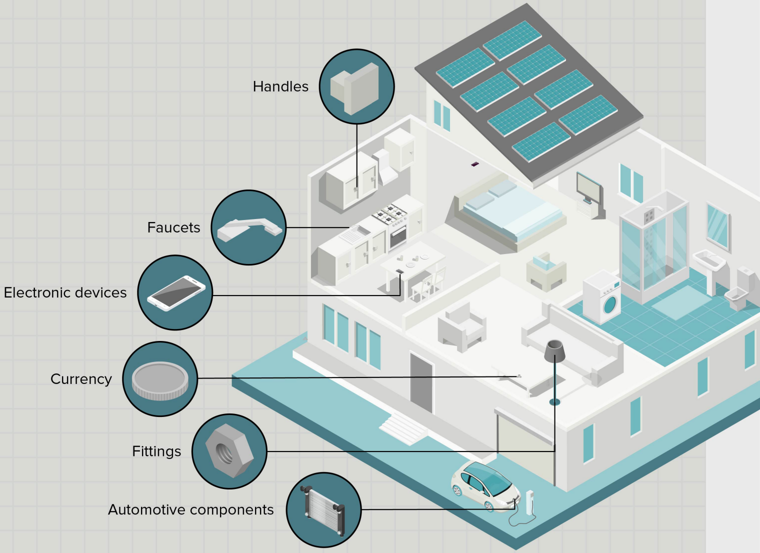
BRASS, AN ALLOY OF ZINC AND COPPER, HAS A RANGE OF APPLICATIONS.

Door knobs in hospitals

Plumbing fittings

Musical instruments

BESIDES BRASS, ZINC-BASED ALLOYS ARE FOUND IN EVERYTHING FROM HOUSEHOLD FIXTURES TO ELECTRONIC DEVICES.



Source: International Zinc Association,Pola, A. et al, 2020

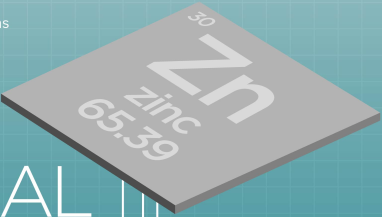
ZINC PROTECTS AND STRENGTHENS MANY OF THE STRUCTURES AND APPLIANCES THAT ARE VITAL

TO THE MODERN ECONOMY.

# BETTER:
## IMPROVING HEALTH AND PRODUCTIVITY

Zinc contributes to a better life for humans as well as plants.

## ZINC IS ESSENTIAL



Zinc is a critical nutrient for the human immune system.

HELPS FIGHT INFECTIONS

VITAL FOR TASTE AND SMELL

ENHANCES MEMORY AND THINKING

Zinc has been labelled a **“life saving commodity”** by the UN.

Increased access to zinc could prevent **200,000** childhood deaths each year.

Source: International Zinc Association

Zinc oxide, a zinc compound produced primarily by oxidizing metallic zinc, is a key ingredient in several health products.

Dietary supplements

Food additives

Cosmetics

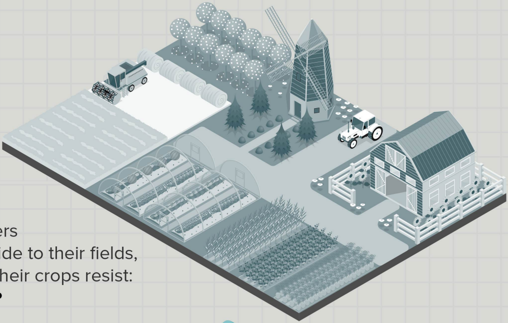
Anti-fungal creams

Medicinal tapes

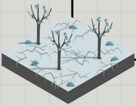
Source: Zinc Oxide Producers Association

# ZINC ENHANCES PRODUCTIVITY

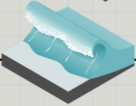
Crop productivity will be critical in addressing higher demand for food in the future, and so will **zinc.**



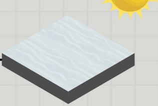
When farmers
add zinc-oxide to their fields,
it can help their crops resist:



DROUGHT



SALINITY



HEAT

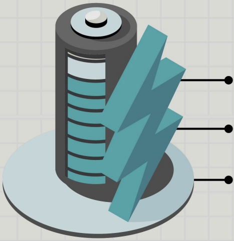
Source: Zinc Oxide Producers Association

# FASTER:

## BOOSTING THE CLEAN ENERGY TRANSITION

# ZINC IN RENEWABLE ENERGY

ZINC IN BATTERIES PROVIDES A LOW-COST ENERGY STORAGE METHOD.



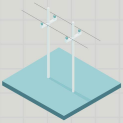
### ZINC-AIR BATTERIES:

- Efficient for storing non-constant renewable energy
- Affordable because of their use of zinc
- High energy density

ZINC-AIR BATTERIES HAVE ALREADY MADE A SIGNIFICANT IMPACT ON SUSTAINABILITY...

**4M** litres of diesel fuel use reduced

**50,000 tons** of $CO_2$ emissions avoided

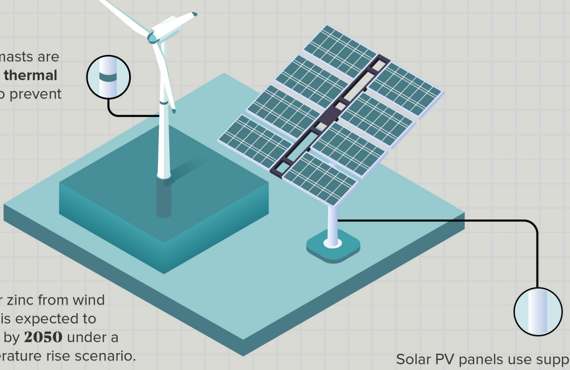


**200,000** people provided with access to power

...DUE TO DEPLOYMENT OF NANTENERGY'S ZINC-AIR STORAGE SYSTEMS.

Source: International Zinc Association, NantEnergy

In addition, zinc protects the steel used to build renewable energy sources.



Offshore wind masts are made from **zinc thermal sprayed steel** to prevent corrosion.

The demand for zinc from wind power systems is expected to increase **250%** by **2050** under a **2°** global temperature rise scenario.

Source: International Zinc Association

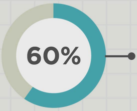
Solar PV panels use support structures that are made of **galvanized steel.**

# ZINC IN THE CIRCULAR ECONOMY

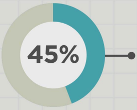
### ZINC IS PART OF A CIRCULAR ECONOMY THAT RECOVERS, RESTORES, AND REUSES.

**Zinc is 100% recyclable**

it can be recycled from scrap without losing any properties.



**60%** of all produced zinc is still in use

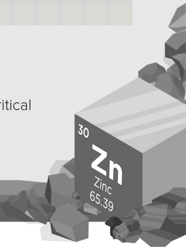


Zinc has a **45%** end-of-life recycling rate

Source: International Zinc Association

## Zinc is essential to the modern economy.

As the world transitions to a sustainable future, zinc will continue playing a critical role in strengthening, improving, and sustaining modern life.



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