



About Us

# Welcome To Novelis

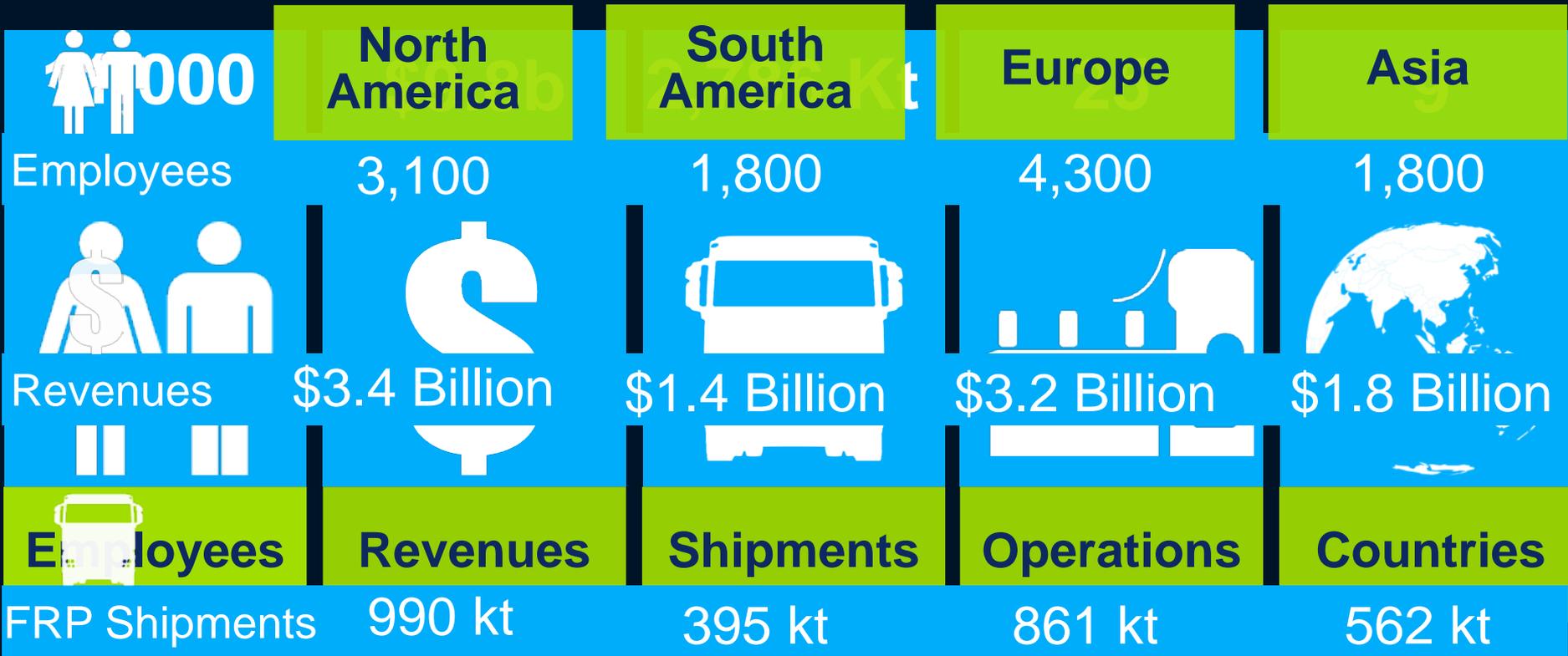
## A World Leader In Aluminum Rolling and Recycling

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Andy McKee  
Recycling Manager, UBC/NON-UBC  
December 19<sup>th</sup>, 2013

# Novelis

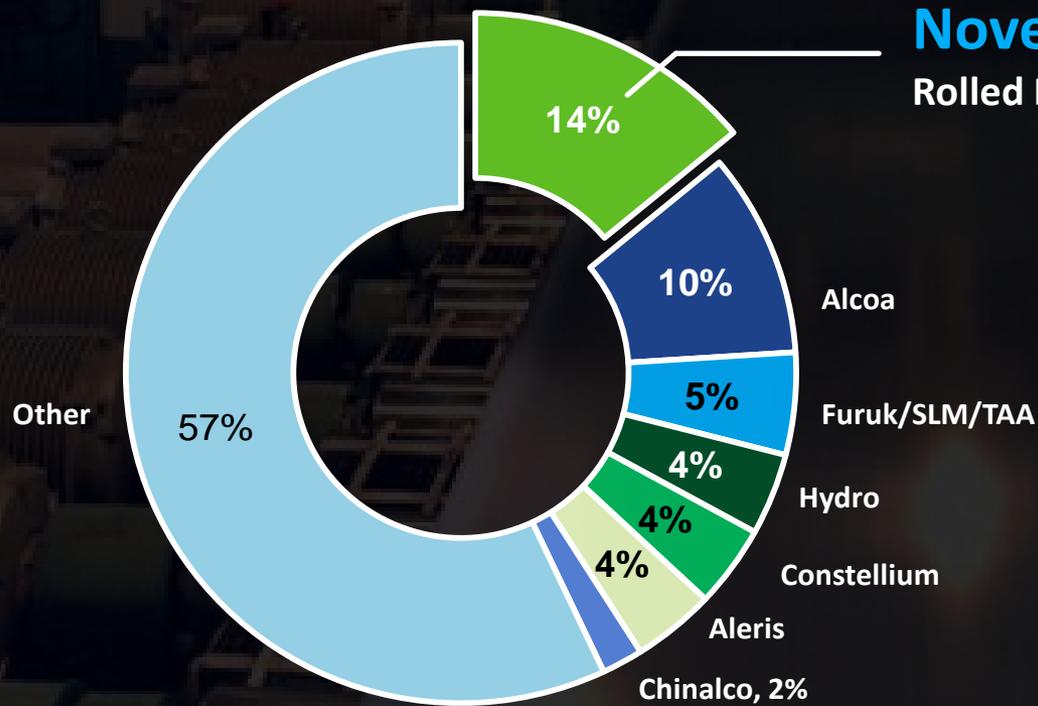
# Global Footprint



Shipments and Sales Based on FY 2013 Results; Employees as of March 31, 2013

# Global FRP Production

## World Leader in Rolled Aluminum



**Novelis #1**

Rolled Products Supplier Worldwide

### Leader in:

- Can & Auto
- Rolling technology
- Recycling & closed-loop partnerships

Total 100% = 20 mt Top 6 = 41%

Source: Novelis estimates, 2012 data

# Working Closely With Our Customers On Next-Generation Products

## Beverage Cans

ABInBev  
Coca-Cola  
CROWN  
Ball  
REXAM

## High-End Specialties

PACTIV  
SAMSUNG  
LG  
AGFA Agfa  
VELUX®

## Automotive

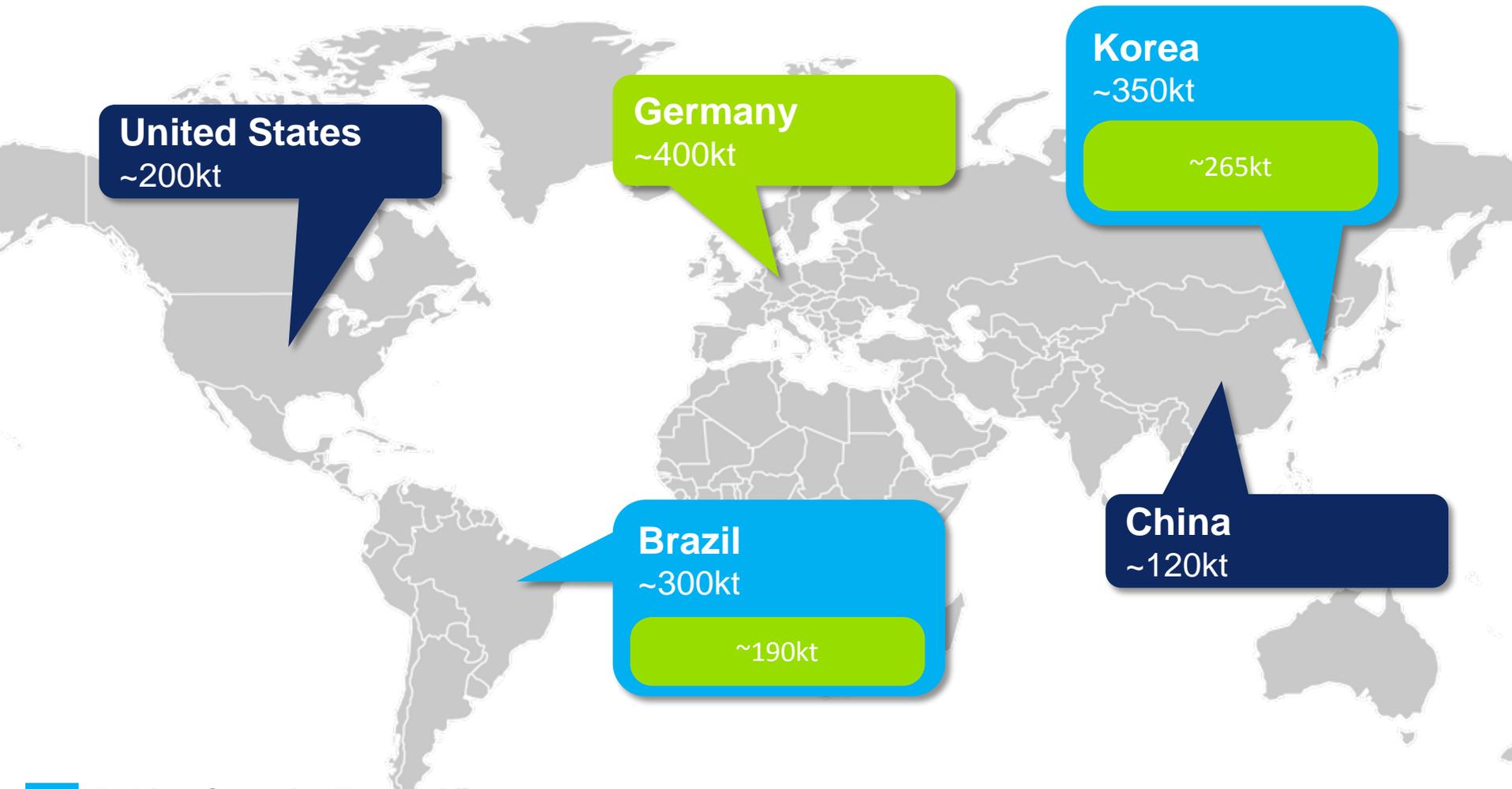
Audi  
JAGUAR  
LAND-ROVER  
HYUNDAI  
BMW  
GM  
Ford  
Mercedes-Benz

# Expanding For The Future

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# Investing \$1.7B, Growing Capacity by 50%



- Rolling Capacity Expansion
- Automotive Finishing Line(s)
- Recycling Expansions



# Working Closely With Our Customers On Next-Generation Products

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# Novelis is a Catalyst for Innovation



## 2013 Range Rover: 100% Novelis Aluminum

### Weight Loss

700 lbs saved from Aluminum unibody and hang-ons

### Performance

"...light-weighted Range Rover feels likewise transformed"

**ROAD&TRACK**

### Economy

9% improvement in mpg while cutting 0 to 60 mph by one second

### Awards

"...the cycle of burgeoning weight and engine power has ended"

THE WALL STREET JOURNAL.

Not just aluminum, Novelis Aluminum.™

## New Standard of Sustainability for Beverage Packaging

- **Industry's first independently certified can body sheet**
- **Rolled out initially at 3 Novelis recycle centers:**
  - Berea, KY
  - Greensboro, GA
  - Latchford, UK
- **Current guaranteed recycled content of 90% for the body; 70% for the can**
  - Ultimate goal: 100% recycled content can



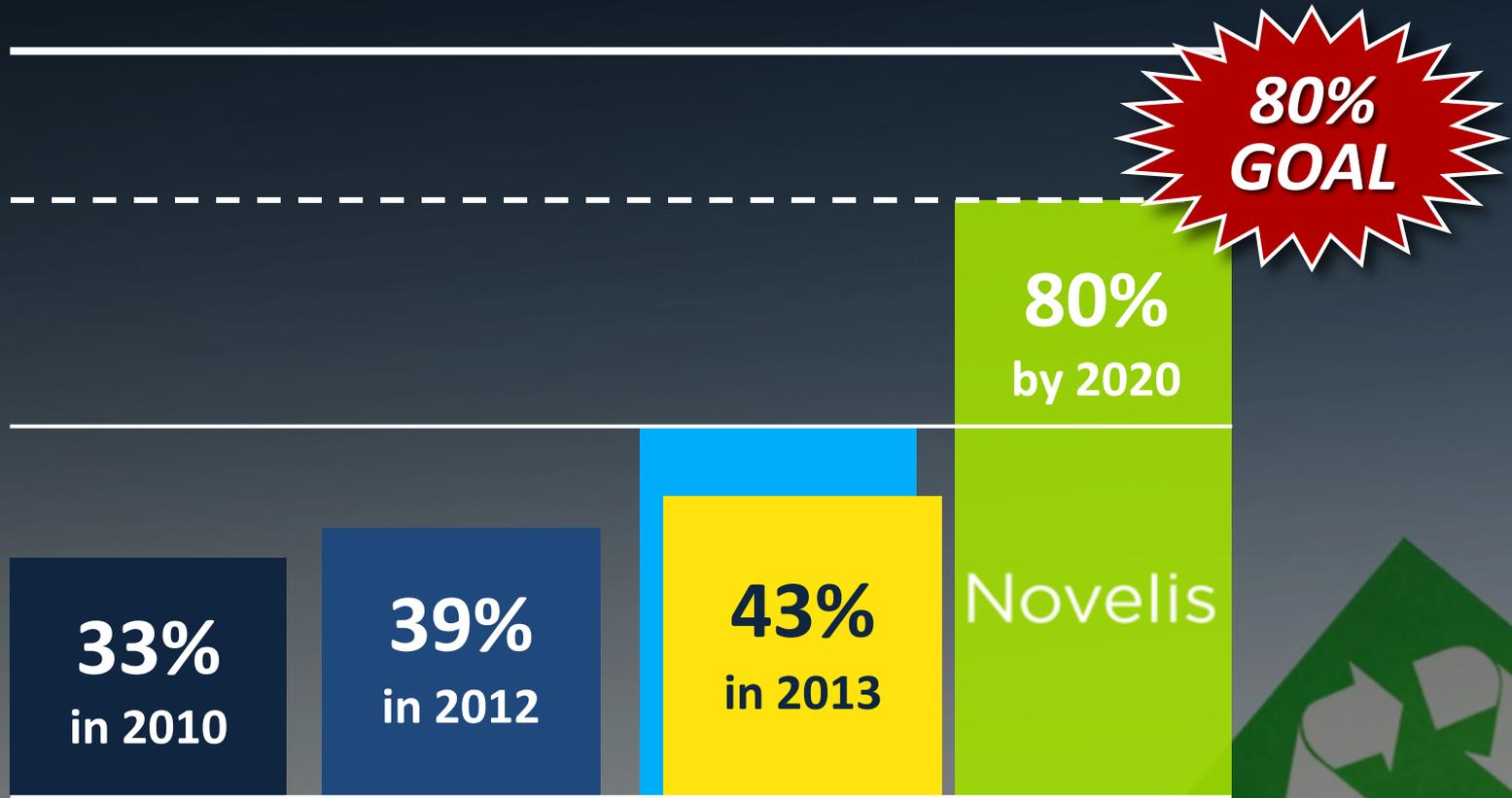
# Recognition For Innovation



*Metals Company of the Year*



# Growing Our Recycled Content



# Prohibitive Items Found in UBC Packages

- Hypodermic needles
- fertilizers
- oxidizers
- filled aerosol containers
- Lead (Pb)
- Radioactive materials
- Automatic disqualifications
  - \*\* Wood, plastic, glass, steel, rubber, excessive dirt / sand,

# Tracking Methods

## ■ Moisture Testing

- We adhere to the industry standard of 4 back to 2
- We moisture test 100% of received loads

## ■ Seperation

- Pre Shredder-Magnetics
- Air Knife Separation for both Ferrous and Non Ferrous heavies and light plastic
- Screen separation for dirt and sand

\*

All separation points have catch bins. All are weighed. All are tracked. All are subtracted from total consumption by month & reported as part of overall recovery.

- De-Coating-removal of paint, syrup, oil and organics

# UBC-Heavy Moisture



# Non UBC fallout



# Yield Loss

## ■ **Unplanned De-Coating Downtime**

- Measured by using thermocouples in the de-coating process to extinguish the flame if organics are present causing over-temp for pre-designated time. Extinguishing the de-coating heat source is preventive in protection of the equipment and potential fire loss.

## ■ **Unplanned Equipment Downtime**

- associated with substandard quality inputs processed through the shredders & de-coating process. Downtime is captured in multiple gathering tools & systems. De-baling & shredding downtime is captured based on lbs per hr throughput & variation causes attributed by substandard quality inputs. P.I. Process Intellution records weight based on speed & a known measured quantity across a load cell (weight x speed).

# Heavy Dirt



# UBC-plastic



# What Causes Equipment Problems?

## ■ Excessive Moisture

- Causes inputs to feed poorly & allow fines generated in the shredding process to mix with dirt & sand. It in turn plugs grates causing plugging in the shredding process. It also causes plugging in downstream separation in turn causing over-temp in de-coaters when the increase in organic is dried & burns.

## ■ De-Baler Damage

- Downtime
- De-baler / Shredder explosion (elevated if oxidizers are present)

## ■ De-Coater Damage

- Downtime - Belts, Drives, Rollers, & Ductwork
- De-coater fires are very hard to extinguish due to the heat & chemistry is often one of high Mg content that cannot be fought with water.

# UBC-heavy trash



# Heavy Plastic-Detergent Bottles





# Novelis

Not just aluminum, Novelis Aluminum.™