SUPPLIERS PARTNERSHIP FOR THE ENVIRONMENT

Webinar

May 3, 2022

10:00 – 11:00AM ET

Sustainability in the U.S. Tire & Rubber Industry

U.S. TIRE MANUFACTURERS ASSOCIATION

MICHELIN

supplierspartnership.org

Sustainability in the U.S. Tire & Rubber Industry

SUPPLIERS PARTNERSHIP FOR THE ENVIRONMENT

- **Please use the "Q&A" window to ask question of our panelists.**
- **Please note this webinar is being recorded.**
- **A link to view the recording and a copy of the slides will be provided to all registrants in the coming days.**

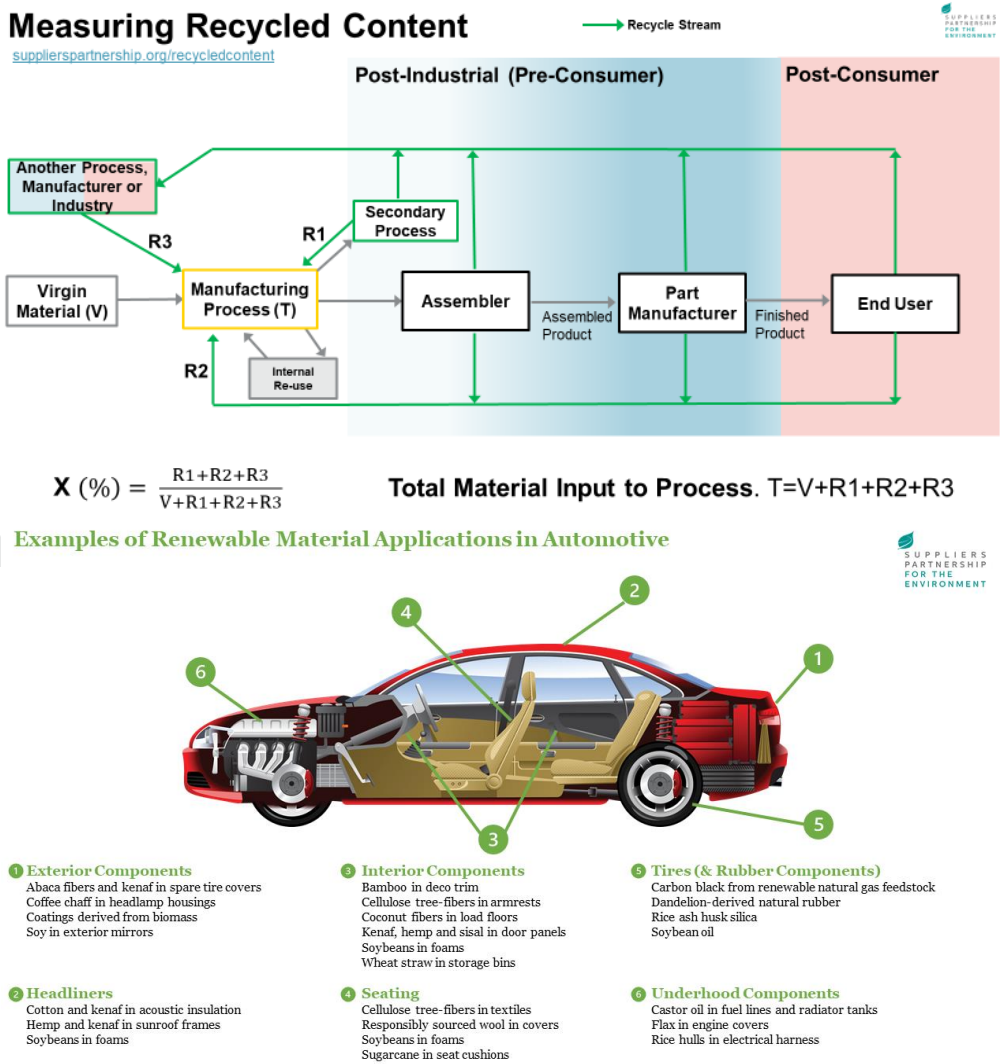
Sustainability in the U.S. Tire & Rubber Industry

SUPPLIERS PARTNERSHIP FOR THE ENVIRONMENT

- Since 2002, Suppliers Partnership for the Environment (SP) has been a leading forum for global automakers and their large and small suppliers to work together to improve the environmental sustainability and business value of the automotive supply chain.

- Looking forward, several of the world's largest automakers and suppliers have announced the next-generation of ambitious environmental sustainability goals aspiring to advance *positive* environmental, economic and community impacts through their operations and value chains.

- Today, we are pleased to begin a dialogue on the sustainability priorities and direction of the U.S. tire and rubber industry, and opportunities to promote additional collaboration and alignment going forward.



SUPPLIERS PARTNERSHIP FOR THE ENVIRONMENT

USTMA Sustainability Vision

- John Sheerin, USTMA, Director of End-of-Life Tires

Michelin Sustainability Ambitions

- Laure Jaubert, Michelin
- Brigitte Chauvin, Michelin

U.S. TIRE MANUFACTURERS ASSOCIATION

Mobilizing the Future

Sustainability Priorities and Progress

May 3, 2022

John Sheerin
Director End of Life Tire Programs

OUR MISSION, VISION AND BRAND IDENTITY

MISSION

To strengthen the competitiveness, societal impact and reputation of the U.S. tire manufacturing industry.

VISION

To be the premier advocate, trusted voice and thought leader for the U.S. tire manufacturing industry. Advancing safe, sustainable mobility for the future.

BRAND IDENTITY

Safety through innovation; economic value; sustainability and environmental stewardship.

USTMA Full Corporate Members

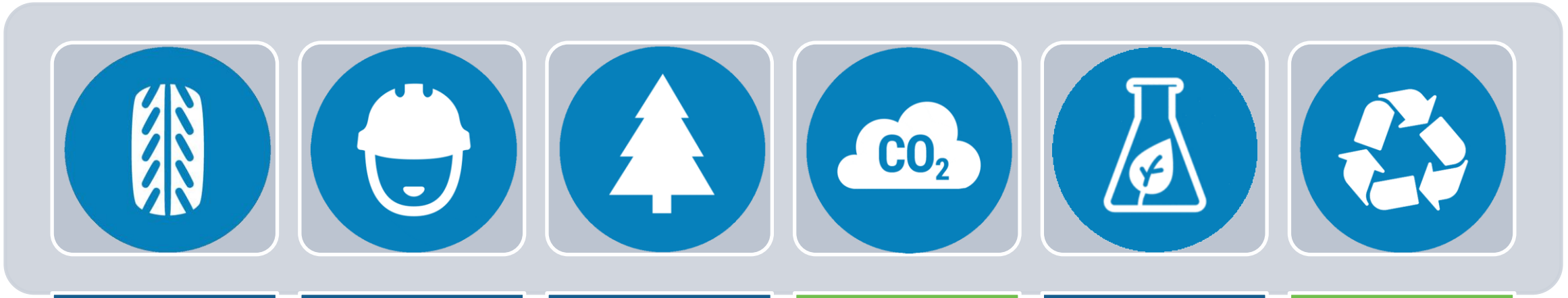
USTMA Sustainability Pillars

Safety

Environment

Economic Impact

USTMA Sustainability Visions



USTMA members strive to improve the longevity and driving performance of the tires we design, make and sell

USTMA members strive to have zero workplace injuries and illnesses

USTMA members strive to increase the use of sustainable materials in the tires we manufacture

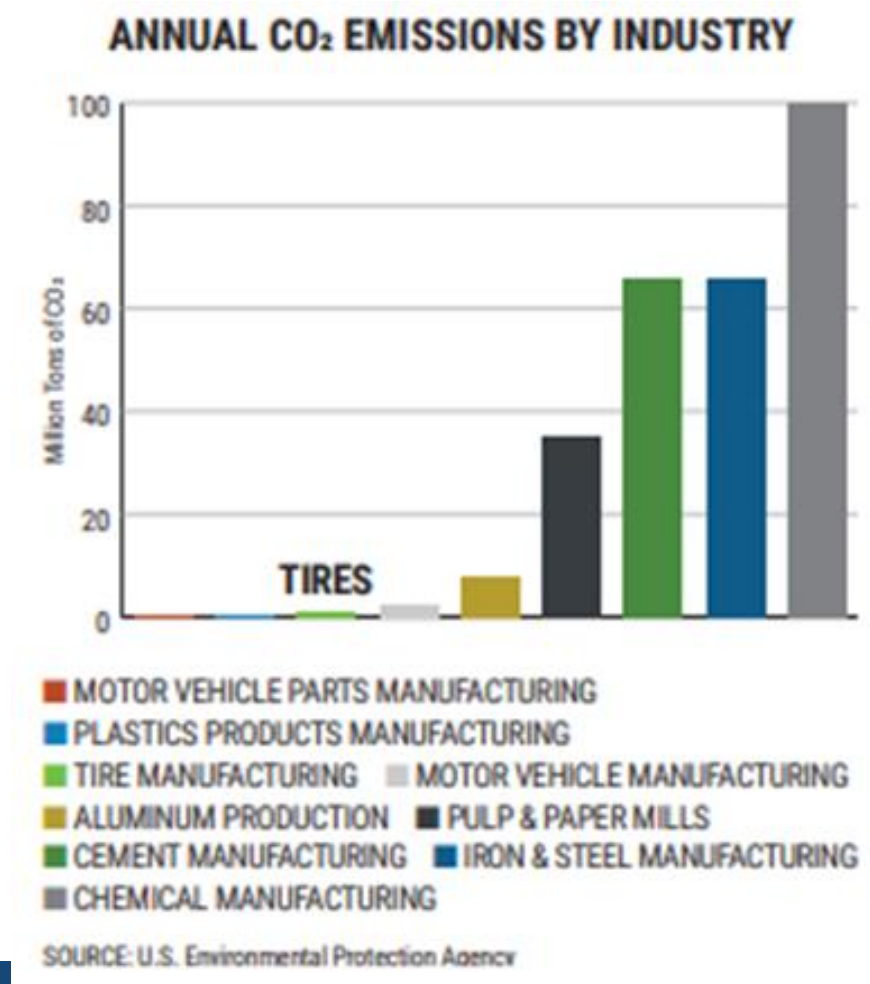
USTMA members strive to reduce greenhouse gas emissions throughout a tire's life cycle

USTMA members are committed to understanding our products' impact

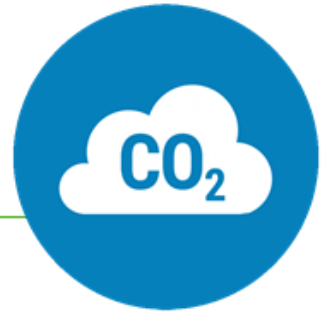
USTMA members have the goal that all scrap tires enter sustainable end use markets

Climate Change Mitigation

- Vision - [USTMA members strive to reduce greenhouse gas emissions throughout a tire's life cycle]
- Industry Snapshot:
  - Total U.S. tire industry CO2 emissions decreased 6% from 2017-2019.
  - CO2 intensity decreased 7% over the same period.

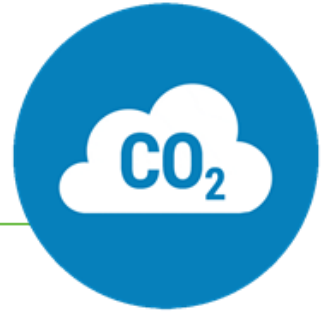


Climate Change Mitigation – Progress through our products



- Tire performance = Greatest opportunity for USTMA members to reduce CO2 emissions
- **More than 80 percent of tire-related CO2 emissions are linked to vehicle fuel consumption**; reduced fuel consumption translates to reduced CO2 emissions.
- Better Rolling Efficiency, Big Fuel Savings
  - A 1–2% increase in the fuel efficiency of light trucks and passenger cars thanks to improved rolling efficiency could save up to 2 billion gallons of fuel per year
- More than half of USTMA members have now set numeric goals for improved rolling efficiency.

Climate Change – Renewable and recycled feedstocks held reduce life cycle CO2



Sustainable natural rubber platform

Development of plant-based rubber alternatives that can be grown closer to home – guayule and dandelions

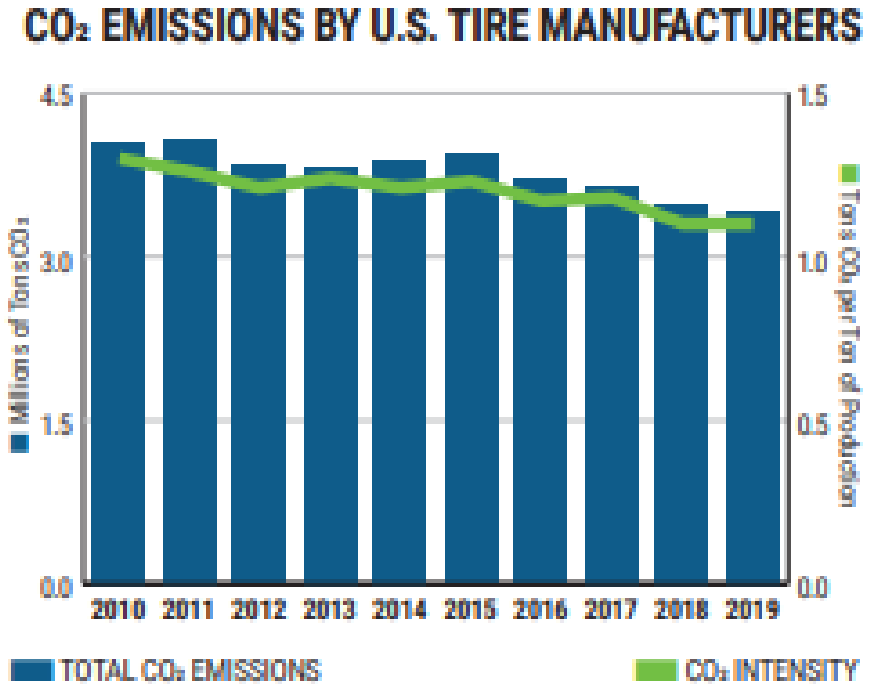
- Use of risk husks as a replacement for silica
- Soy-bean and orange peel oils

Increased use of recycled carbon black

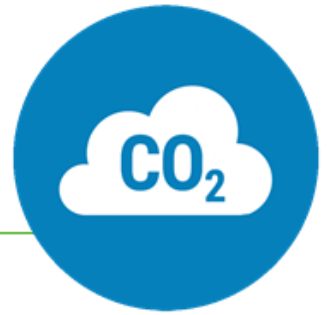
Use of micronized rubber powder

Climate Change – Progress in our facilities

- Total emissions of CO2 related to tire manufacturing decreased 15% from 2010 to 2019
- CO2 intensity decreased 7% over the same period
- More than half of the energy used at USTMA member facilities comes from natural gas



Climate Change – Progress at our facilities



Bridgestone's facility in Aiken County, South Carolina, installed an 8-acre array of solar energy panels, averting 1,400 metric tons of CO2 annually.

Continental installed LED lighting, improved insulation around presses to reduce heat loss, and enhanced its energy monitoring system.

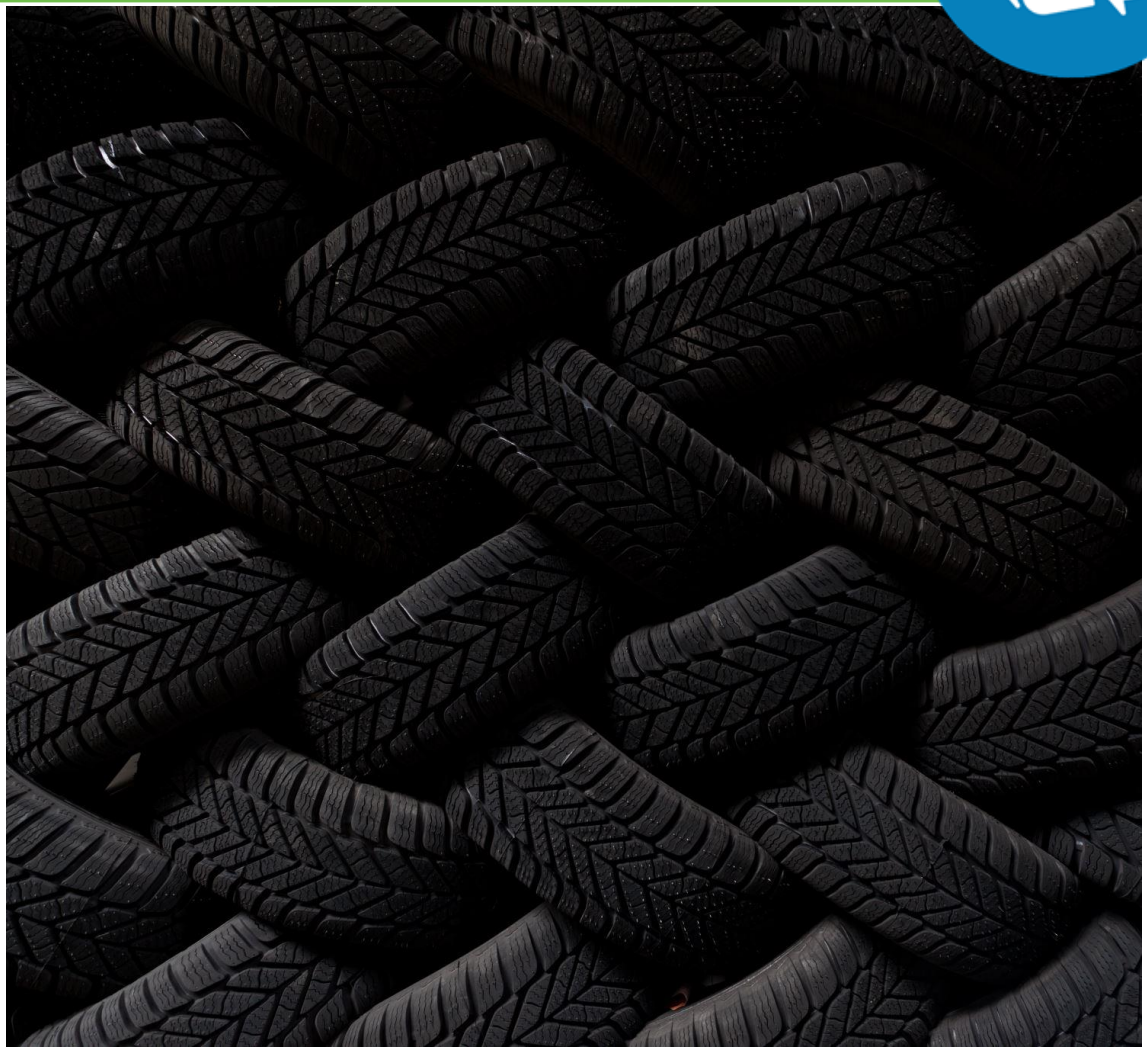
Michelin's efforts include a focus on increasingly efficient transport, taking an intermodal approach. For example, some products are now shipped between Canada and the United States by boat instead of by road, reducing fuel consumption

Scrap Tires

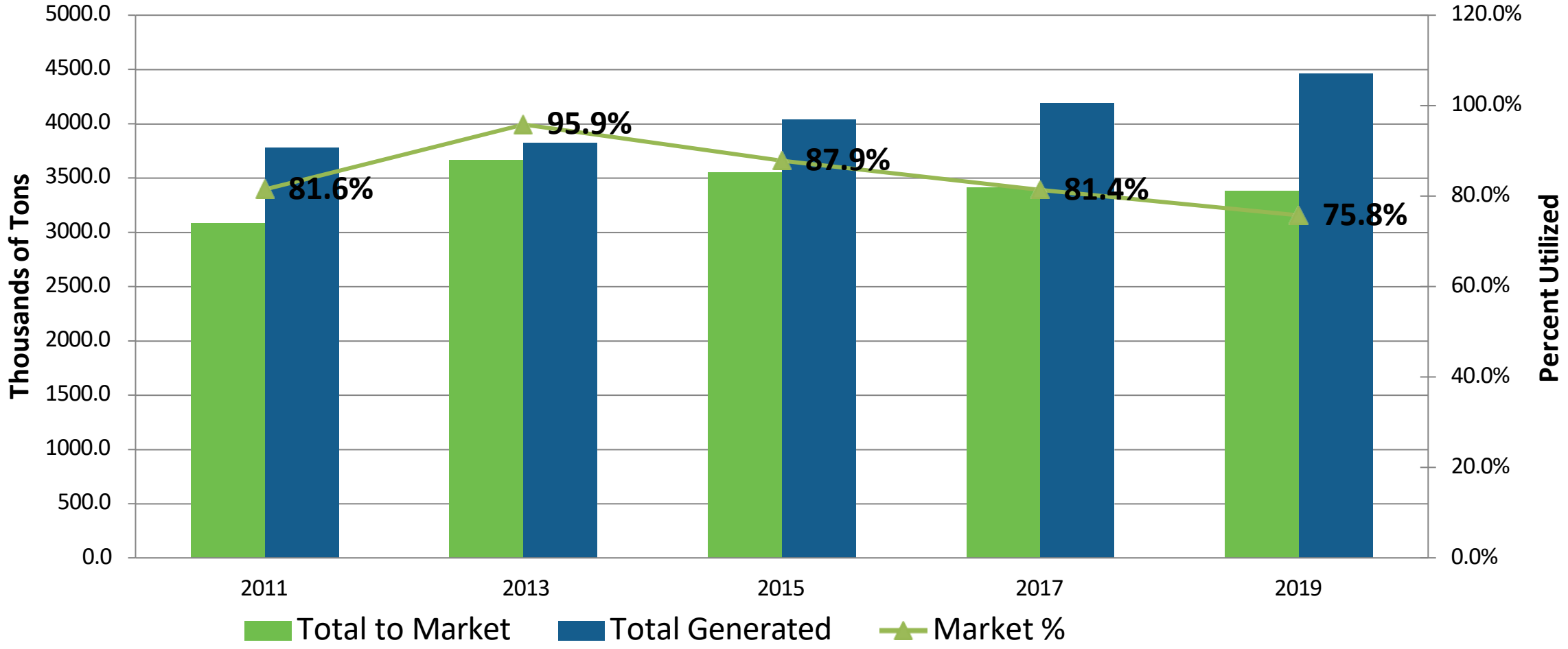
- Vision - USTMA members have the goal that all scrap tires enter sustainable and circular end use markets
- Snapshot
  - 2017-2019: Growth in scrap tire generation outpaced the recovery of scrap tires for recycling as total markets remained essentially flat.

Scrap Tires - Overview

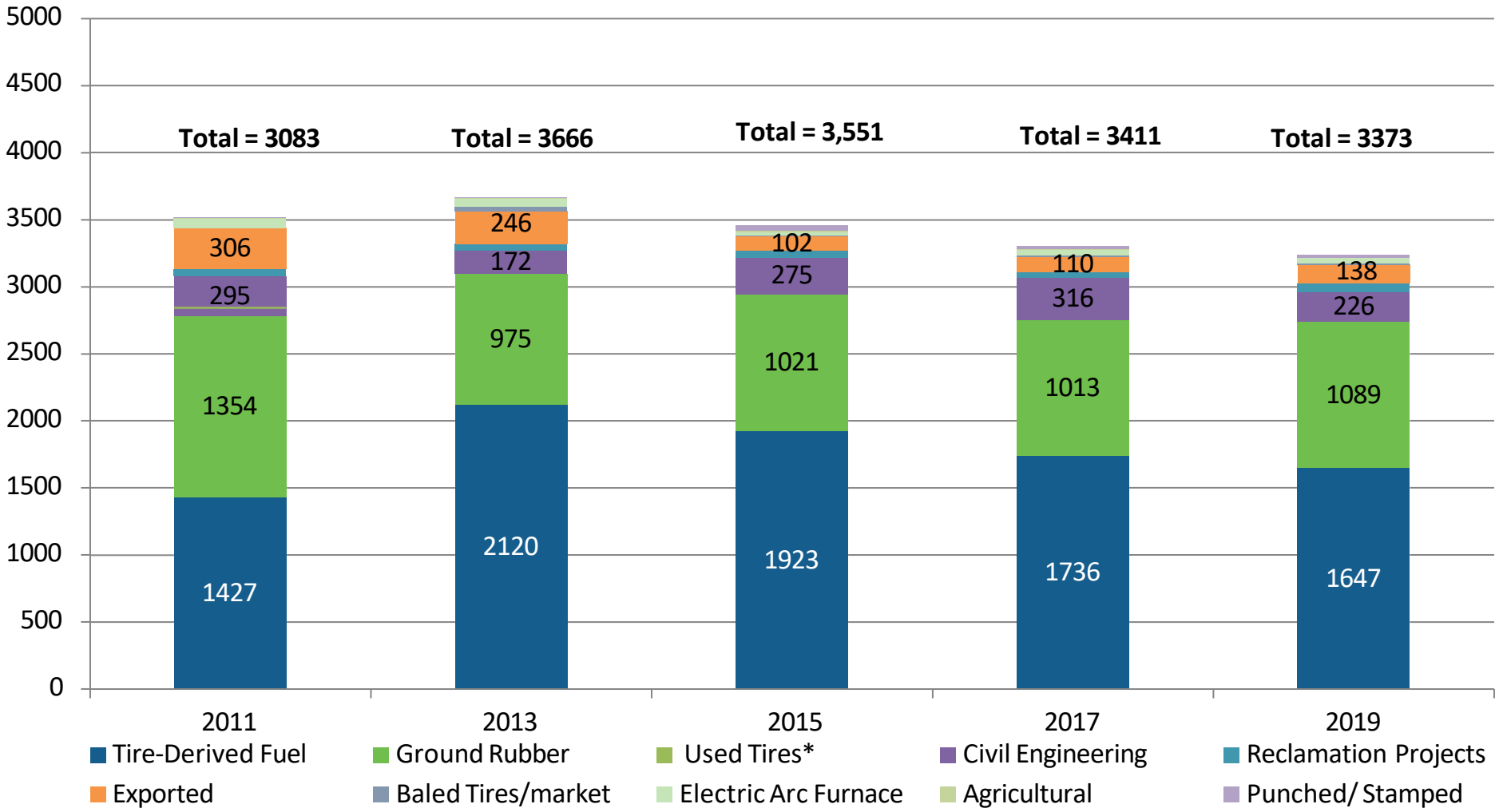
- 2019 USTMA Scrap Tire Management Summary Report
  - Scrap tire markets are not keeping pace with annual generation
  - In 2019, roughly 76% of annually generated scrap tires entered end use markets - down from its 2013 peak of 96%
  - Scrap tire generation continues to grow each year by roughly 7%
  - Growing sustainable, circular markets for scrap tires is a priority



U.S. Scrap Tire Market Trends 2011 - 2019



U.S. Scrap Tire Market Trends 2011 – 2019



*The USTMA Scrap Tire Management Summary report began tracking tires culled from scrap tire collection entering domestic passenger and light truck used tire markets in 2009 by including used tires as a market for scrap tires. The USTMA Scrap Tire Management Summary report now subtracts used tires from the total tires hauled to calculate total net scrap tire generation, a practice that began with the 2011 edition.

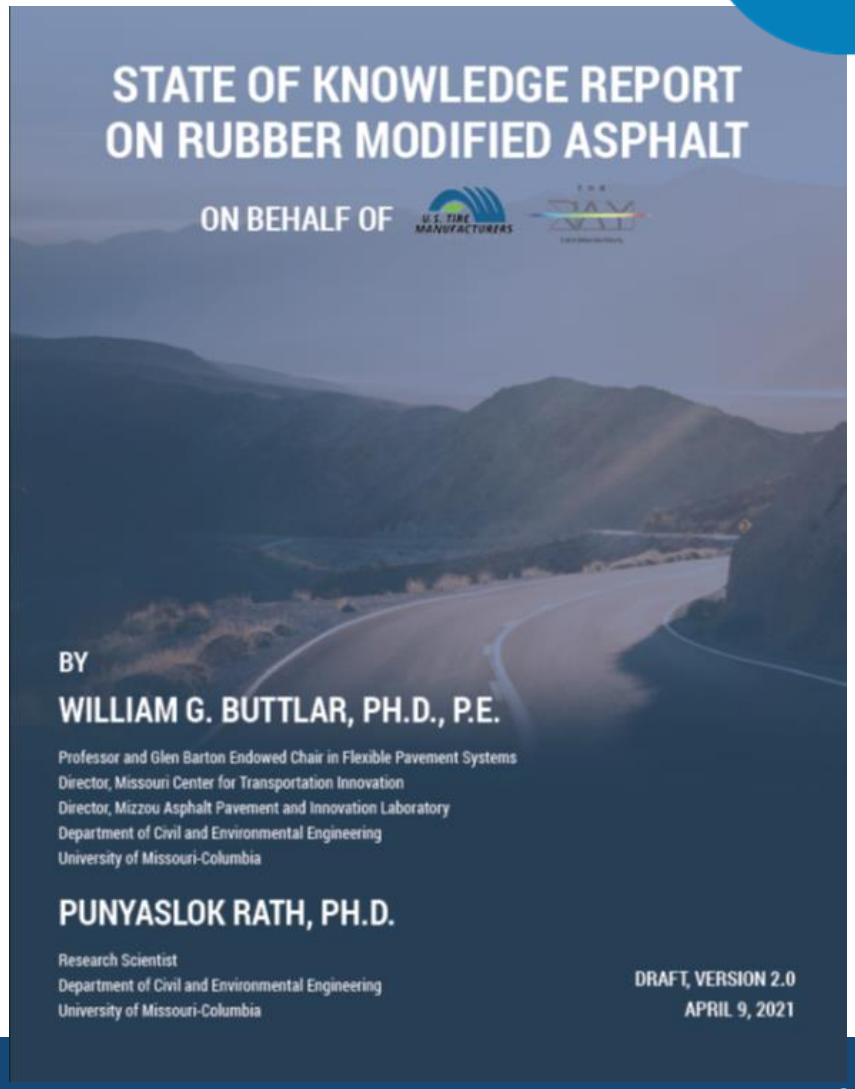
Scrap Tires – Partnerships are a proven road to success

USTMA is working with other stakeholders on multiple fronts to encourage the growth of circular, sustainable markets for scrap tires:

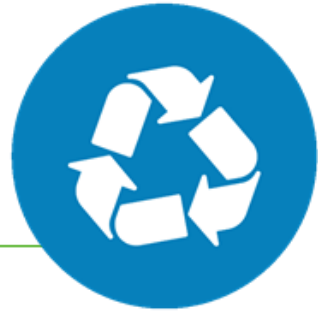
1. Advocating for the proper funding of state scrap tire programs
2. Raising awareness for public and private investments for research and innovation
3. Advocating for federal sustainable infrastructure legislation and raising awareness at the federal and state level for the promising benefits of rubber modified asphalt.
4. Continuing to support innovation in the industry for recycled carbon black

Scrap Tires - Raising awareness for public and private investments for research and innovation

- Conducted at the University of Missouri-Columbia in Partnership with USTMA and The Ray
- Over 300 Articles Reviewed
- Survey of State Highway Agencies Conducted
- Peer-reviewed by Panel of Experts from Academia, Industry and Various State and Federal Agencies
- SOK Report Aggregates Knowledge and Identifies Gaps



Scrap Tires - Raising awareness for public and private investments for research and innovation



State of Knowledge Report on Rubber Modified Asphalt (RMA) – Key findings:

- PERFORMANCE BENEFITS
- ECONOMIC BENEFITS
- ENVIRONMENTAL BENEFITS

Scrap Tires - USTMA Members Lead the Drive to a Circular Economy

Pyrolysis of scrap tires yields recycled carbon black — used to reinforce and manage heat in a tire — produces 81% less CO_2 per ton compared to virgin carbon black.

USTMA members are using recycled carbon black to produce new tires

- Bridgestone partnered with Delta-Energy Group to bring at-scale use of recycled carbon black (rCB) to the tire market
- Continental worked with Pyrolyx to help tire manufacturers scale up the production of recycled carbon black from scrap tires for use in products ranging from mobile phones to ink pens
- Michelin invested in recycling startup Pyrowave and partnered with Enviro Systems to commercialize pyrolysis technology

THANK YOU

John Sheerin
jsheerin@ustires.org

U.S. TIRE MANUFACTURERS ASSOCIATION

DCEM.pv & DMD

TOPICS

- Michelin ambitions – Laure Jaubert
- Sustainable material projects – Brigitte Chauvin

ON THE PATH TO REACH CARBON NEUTRALITY

PLANET

MANUFACTURING
Scopes 1 & 2

Reduction in energy consumption + Shift towards clean energy

2030
-50%
CO_2 emissions vs 2010

2050
CARBON NEUTRALITY

LOGISTICS
Scope 3

Transport less, better and differently

2030
-15%
CO_2 emission vs 2018

2050
CARBON NEUTRALITY

SUPPLY CHAIN
Scope 3

2024
70%
of emissions from suppliers covered by science-based targets

2050
CARBON NEUTRALITY

EN ROUTE TO REACH FULL CIRCULARITY OF PRODUCTS

with 40% of sustainable raw materials in 2030, 100% in 2050

REDUCE · REUSE · RECYCLE · RENEW

NATURAL RUBBER

ResiCare

BLACK CYCLE *

PLASTIFIERS

BIOIMPULSE

TEXTILES

CARBIOS

SYNTHETIC RUBBER

BIOBUTTERFLY **

PYROWAVE

FILLERS

enviro

BLACK CYCLE

LTLehigh TECHNOLOGIES

METALS

MICHELIN

OTHER

MICHELIN

* European project funded by Horizon 2020, project number : 82068

** With the support of ADEME (ADEME: French Environment & Energy Management Agency)

https://www.youtube.com/watch?v=0BJysYp9Lmc

MICHELIN

A BETTER WAY FORWARD

SUSTAINABLE MATERIALS

BRIGITTE CHAUVIN

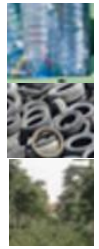
SUSTAINABLE MATERIALS

- **Currently, there is no unique and universal definition** of Sustainable Materials !
- **For Michelin :**

  Sustainable Materials are either renewable materials or recycled materials with no negative global environmental impact.

- Renewable materials and Recycled materials are selected according to their conformity with chosen definitions from robust external references (see next slide)

- The global environmental impact is evaluated through Life Cycle Assessment methodology (LCA)



SUSTAINABLE MATERIALS

RENOUVELER

RECYCLER

Renewable materials **are made from feedstock generated from natural resources that can be replenished on a human time scale, such as biomass.** It excludes fossil resources (oil, natural gas, coal etc.) and minerals.**

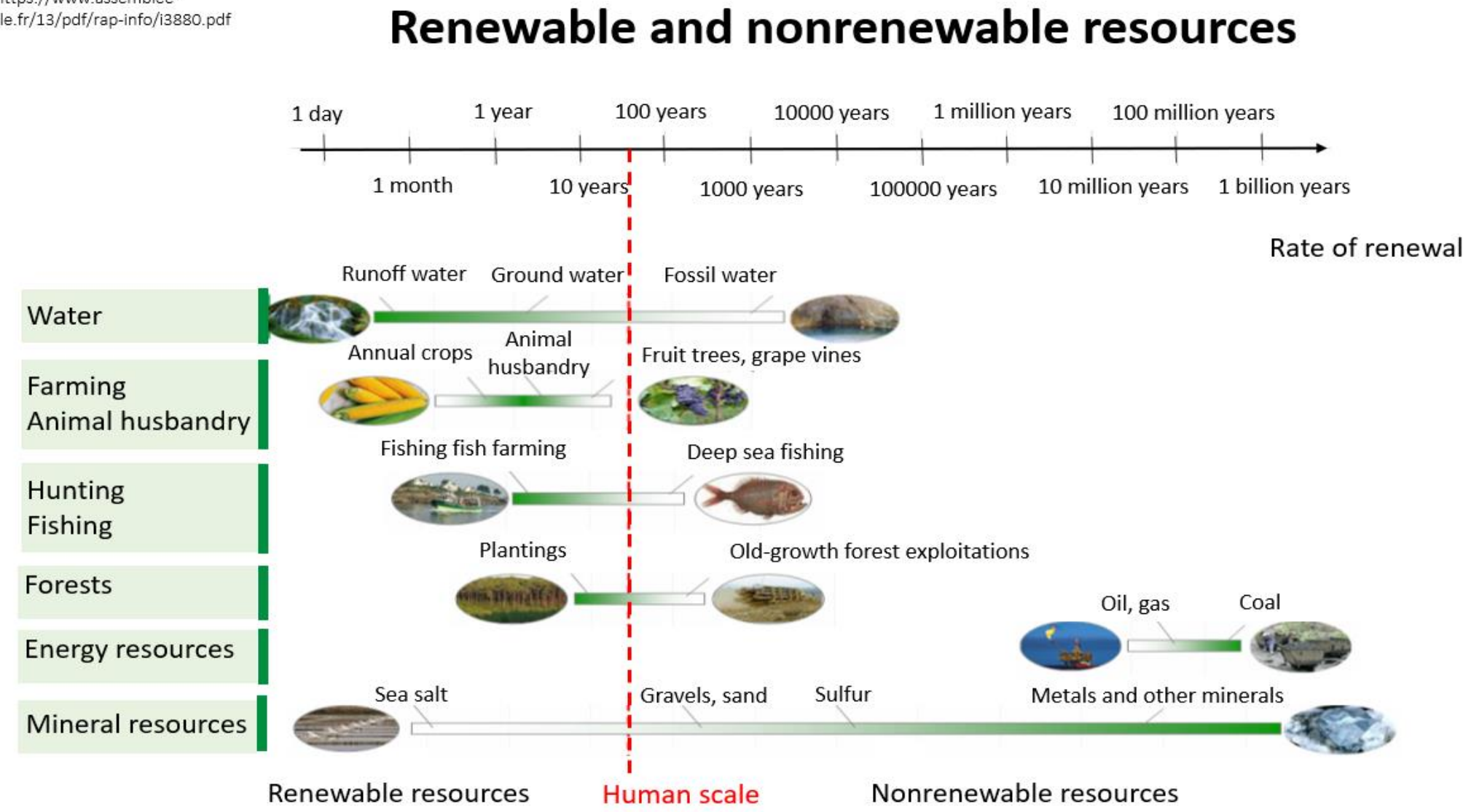
Recycled materials **are made from feedstock generated by any recovery operation by which waste materials, both industrial or post-consumer, are reprocessed into products, materials or substances.** It does not include energy recovery and the reprocessing into materials that are to be used as energy.*

***Based on the American Chemical Society's (12 principles for green chemistry), and OECD definitions*

**Based on the European Waste Directive definition*

SOME EXAMPLES

Source : Ph. Bihouix et B. de Guillebon. https://www.assemblee-nationale.fr/13/pdf/rap-info/i3880.pdf

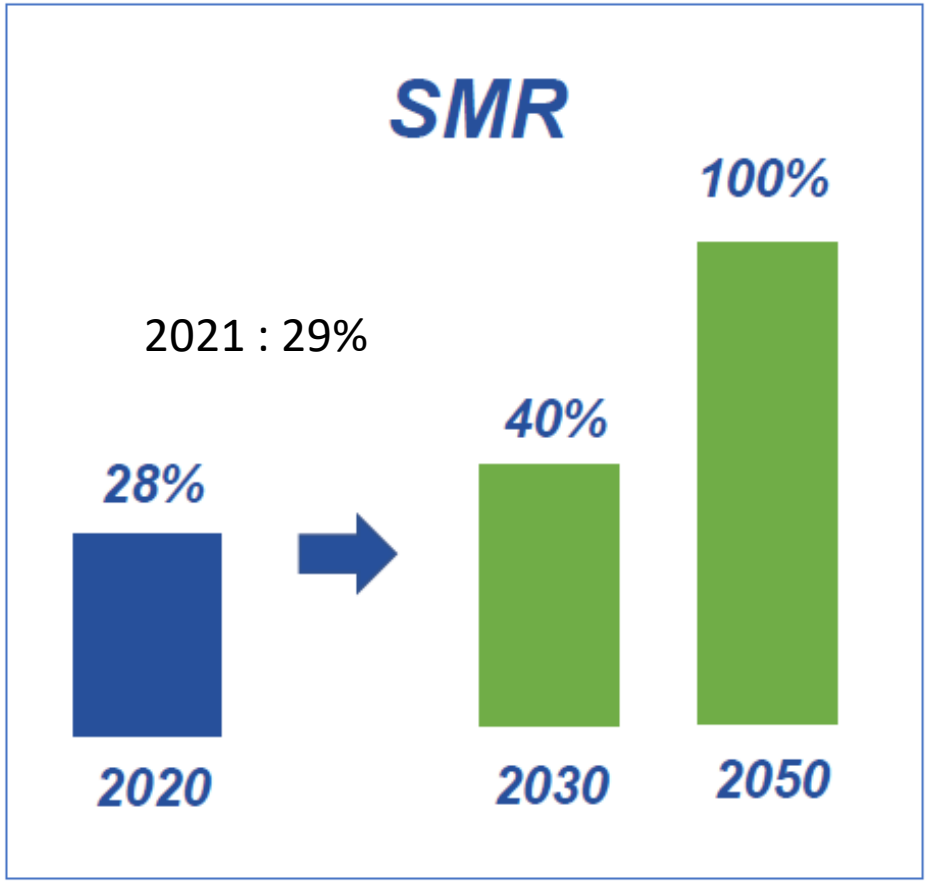


SUSTAINABLE MATERIAL RATE

- **SMR** (Sustainable Material Rate) or **TMD** (Taux de Matière Durable) is the **Corporate KPI** chosen to demonstrate our implementation of sustainable materials inside the Company

- It is defined as the **weight percentage** of sustainable materials (*) among the **total raw materials purchases for tires** (**) of the Michelin Group on a one year basis.

- This KPI is **published annualy** and **audited externally**



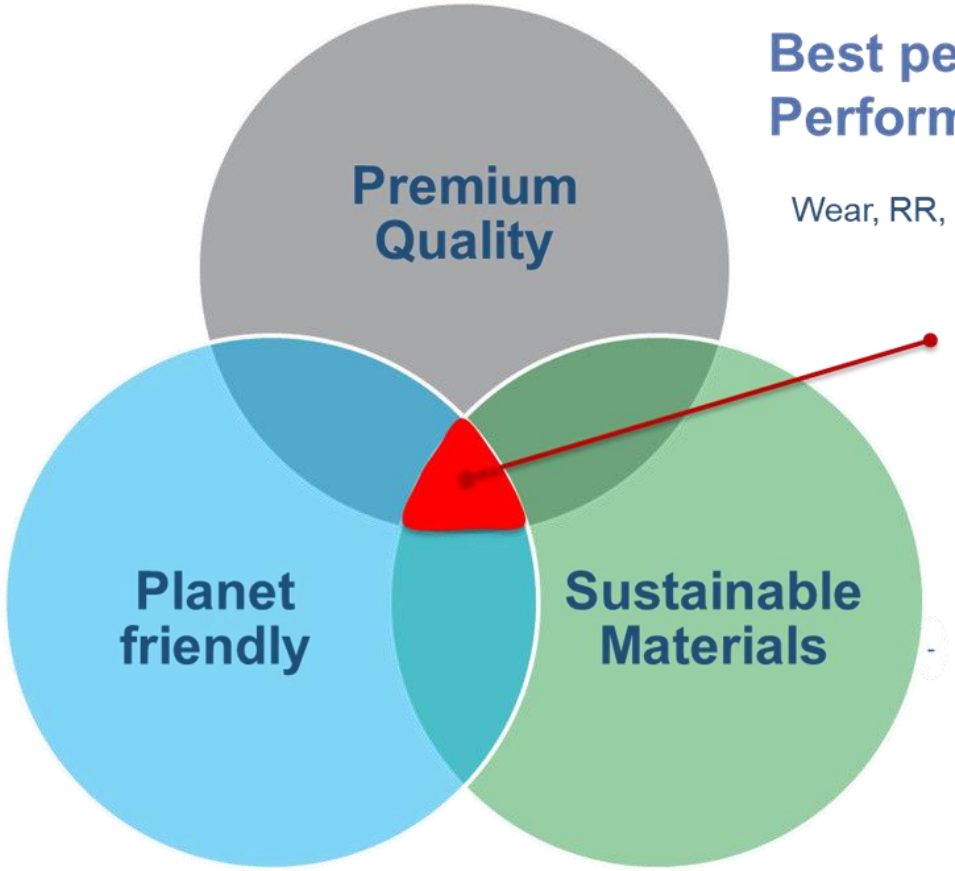
(*) : According to the definitions given in the previous slides
(**) : The target is to extend to the totality of the Group raw materials purchases

MICHELIN WAY TO INCREASE SMR

3 structuring pillars …

Eco-design Improved LCA

Climate warming
Water consumption
Resources depletion
…



Best performances & Performances balance

Wear, RR, Load, Traction, Handling, Longevity,..

Our value proposal

Increased SMR

…Differentiation & competitive advantage through trust, fueled by our technical expertise!

WE ARE PREPARING SUSTAINABLE SOLUTIONS FOR EACH TIRE COMPONENT WITH A DIVERSITY OF APPROACHES

PLANET

4R CIRCULAR ECONOMY

RENEWABLE REUSE REDUCE RECYCLE

RUBBERWAY

- Natural rubber

BIOBUTTERFLY

- Synthetic rubbers

MICHELIN

- Textiles

ResiCare

- Resins/Plasticizers

- Synthetic rubbers

PYROWAVE

- Fillers

enviro

LTLehigh TECHNOLOGIES

BLACK CYCLE

- Steel

MICHELIN

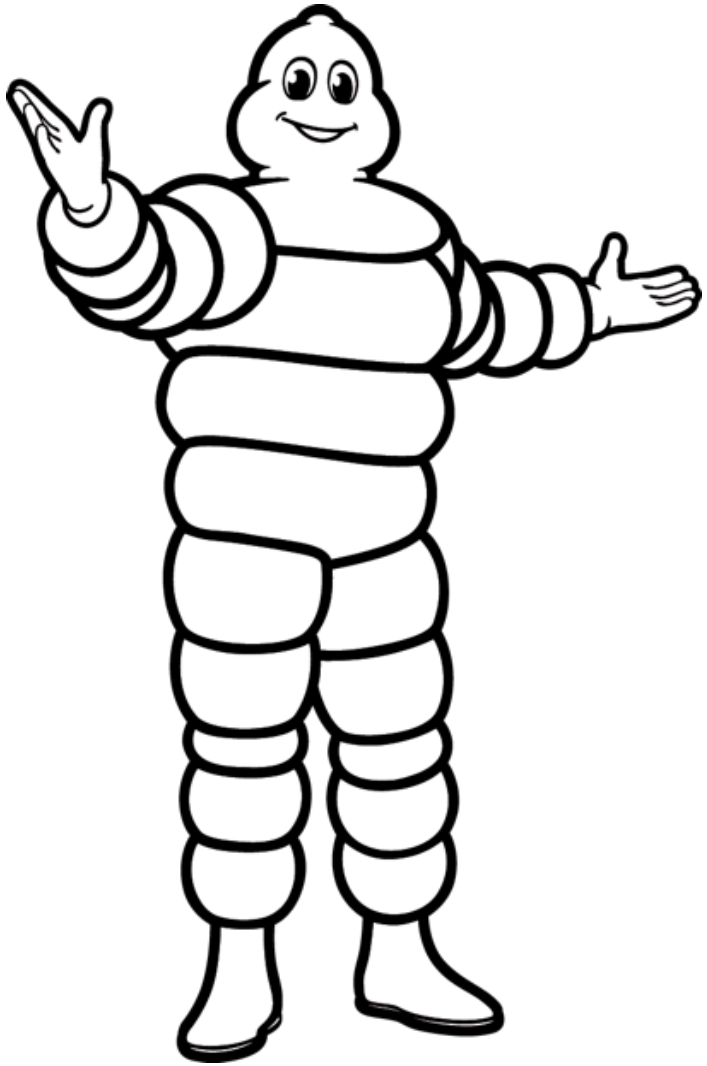
- Textiles

CARBIOS

Reinvent Polymers Lifecycle

- Resins/Plasticizers

BLACK CYCLE



Thank you

Questions?

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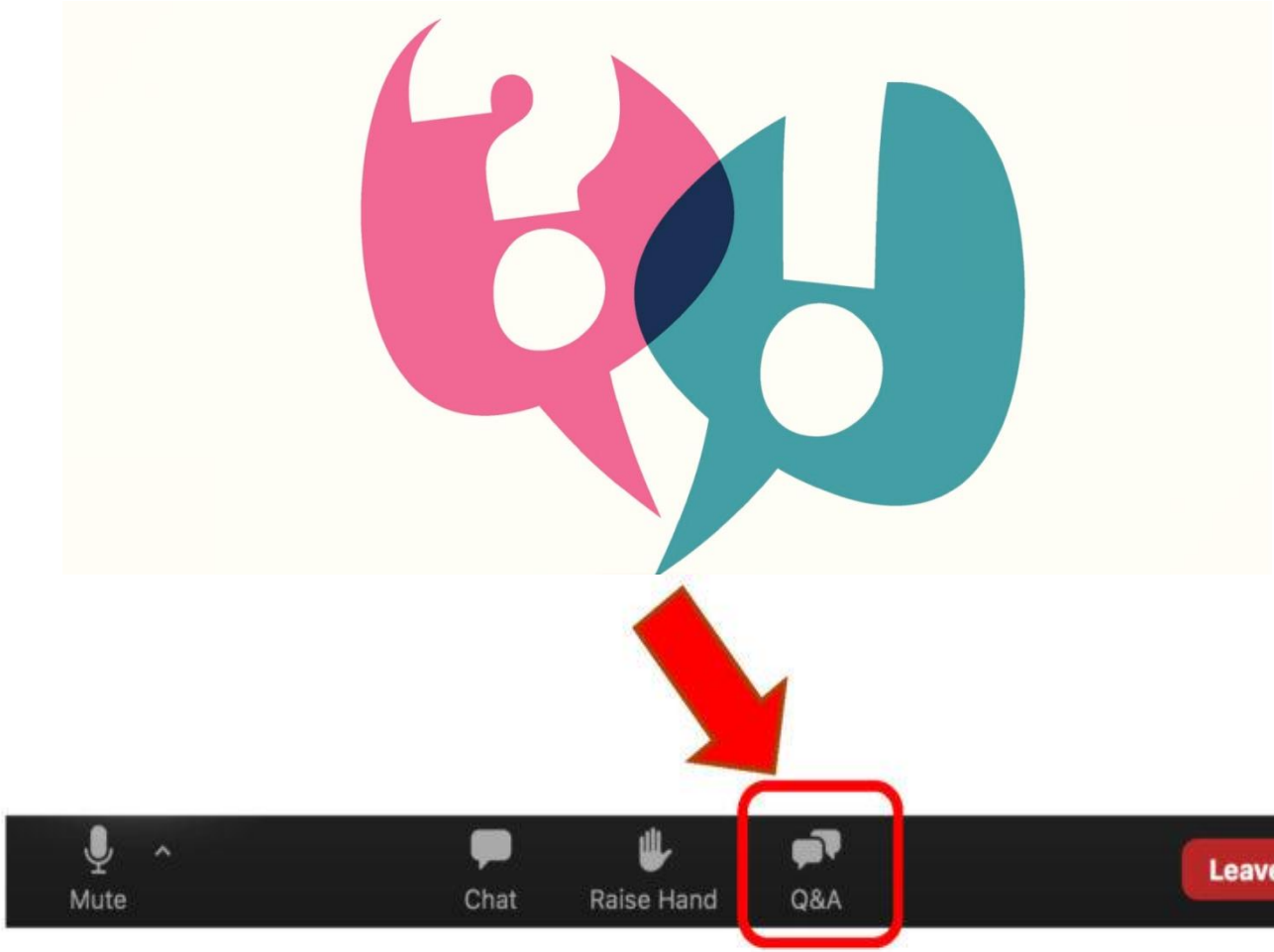

Helpful Resources

Learn more at: suppliespartnership.org/featured-resources/


THE OHIO STATE UNIVERSITY
SUPPLIERS PARTNERSHIP FOR THE ENVIRONMENT
Join us for the 2022 SP Innovation Summit!
Accelerating sustainable innovation through the automotive value chain
Columbus, Ohio
July 27-28, 2022
supplierspartnership.org/2022summit/