

Greening Growth Partnership & Economics and Environmental Policy Research Network Annual Symposium

IS CIRCULAR ECONOMY GOOD FOR THE ENVIRONMENT? Testing tools for circularity assessment

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#### CASE STUDY ON PLASTIC BOTTLE CLOSED LOOP RECYCLING IN THE USA PET MARKET



#### PET BOTTLE CASE STUDY

## MERCI D'AVOIR RECYCLÉ.

Is it environmentally beneficial to increase the amount of recycled PET (rPET) in a plastic bottle in the US ?

# RECYCLÉ

RE-BONJOUR LA SUISSE

VALSER.

## VALSER.

#### **Circularity potential to reduce environmental impacts**

#### Data from EcoInvent v2.2





#### **PET BOTTLE CASE STUDY: SCOPES**





Consumption of **one PET bottle** in the USA





Consumption of **one PET bottle** in the USA



#### *Material circularity indicator* score





# What would be the **consequences** of using more recycled PET (rPET) in bottle production in **the US market** ?



#### PET BOTTLE CASE STUDY: MFA ON PET US MARKET



Consumption of 2.78 Mt of **PET bottles** in a year in the USA.





Consumption of 2.78 Mt of **PET bottles** in a year in the USA.

#### Material circularity indicator score





#### PET BOTTLE CASE STUDY: BOTTLE MARKET SCOPE

**Functional Unit:** 

Consumption of 2.78 Mt PET **bottles**, 1.98 Mt PET **fibers**, 1.13 Mt PET **sheets**, 500 kt **PET films** and 69 kt **strappings** in a year in the USA.



#### Climate impact [CO<sub>2</sub>eq]



Consumption of 2.78 Mt PET **bottles**, 1.98 Mt PET **fibers**, 1.13 Mt PET **sheets**, 500 kt **PET films** and 69 kt **strappings** in a year in the USA.



*Material circularity indicator* score





Effetcs from maximizing recycled content into bottle production:

Scopes	MCI	СС
Brand	+ 175%	- 40%
Bottle market	+ 25%	- 3%
PET market	- 3,5%	~



#### Based on CC impacts





#### Based on CC impacts



#### Based on CC impacts





#### Based on CC impacts



#### Based on CC impacts





# Is it environmentally beneficial to increase the amount of recycled PET (rPET) in a plastic bottle in the US ?

## AS LONG AS PET COLLECTION DOES NOT IMPROVE, THEN NO !

### Product circularity **≠** Market circularity



#### **DEDICATED PARTNERS**









