







Roberto Tangorra

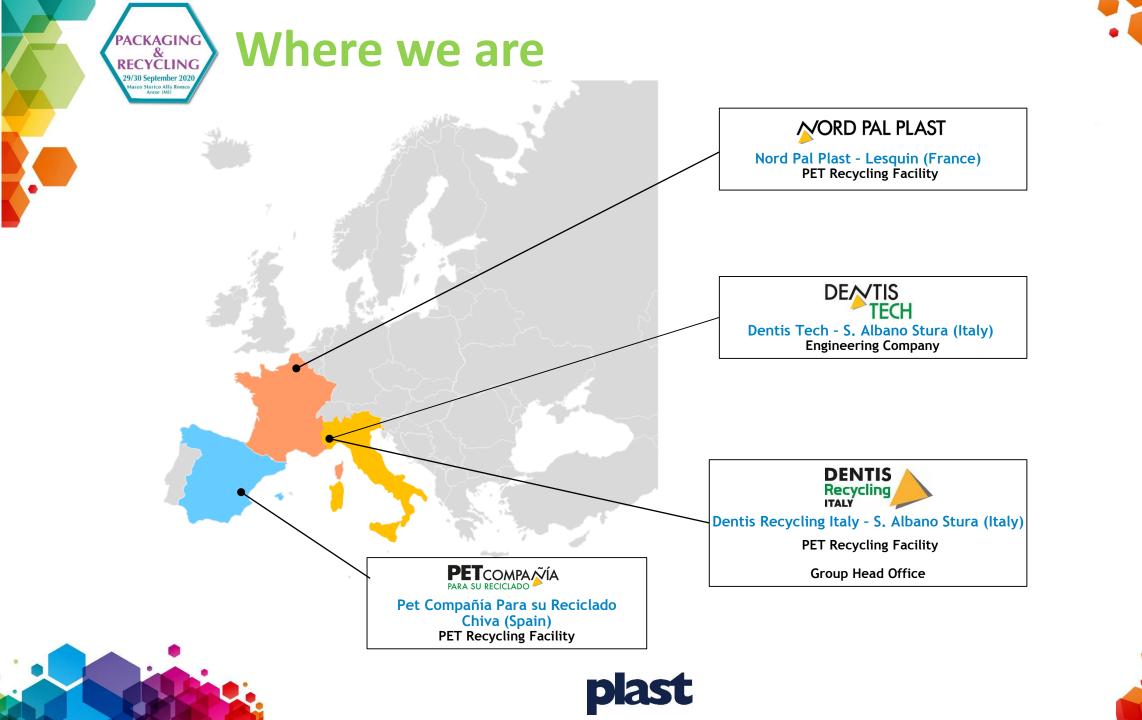
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## The Dentis Group today





### Dentis Recycling Italy S.r.l. (Italy)

•HQ, operating in Italy with Input capacity of 40.000 ton/y

## PETCOMPAÑÍA

NORD PAL PLAST

#### Pet Compania para su reciclado s.a. (Spain)

•The largest plant of group with a Input capacity of 90.000 ton/y

#### Nord Pal Plast (France)

•New acquisition of the Group. Two lines facility with a input capacity of 20.000 ton/y



#### Dentis Tech s.r.l. (Italy)

•Dentis's specialized department in process design and engineering

### **Dentis Group Snapshot**



Turnover in 2019 > 82 M€



+150 employees



Over 150 Kton/y bottles PET bottles processed

ISO 14001 9001 and 28000 certified







Product certification











## Why PET?





- PET key technical advantages: versatility, durability, heat resistance, light weight, cost-competitiveness
- > PET is 100% recyclable
- PET is the most recycled plastic polymer and the only with an established supply chain and market

















A shared common feeling: «a plastic polluted ocean»







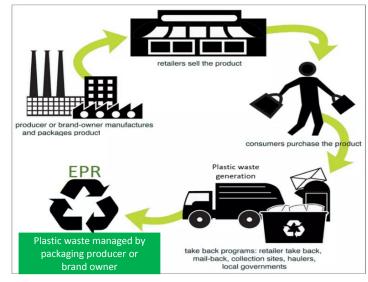


# The importance of the extended producer responsibility (EPR)



- According to the current legislation, packaging "producers" are responsible to manage all the entire lifecycle of their products on the market, especially for **the product end-of-life**, including waste selective collection and recycling.
- ➤ To fulfill those requirements, the packaging producers might directly manage the packaging end-of-life, or, **sub-contracting to an authorized company/consortium** the packaging waste collection by paying a fee

proportional to the product volume amount placed into the marketplace.











# The New European Strategy for Plastics in a Circular Economy



Commission will develop requirements to ensure that all packaging in the EU market is reusable or recyclable in an economically viable manner by 2030!!



- ✓ Expand and improve the separate collection of plastic waste, to ensure quality inputs to the recycling industry;
- ✓ Improve ecofriendly packaging design and support innovation to make plastics and plastic products easier to recycle, pushing on the extended producer's responsibility.
- ✓ Create viable markets for recycled and renewable plastics, boosting the recycled plastic demand.







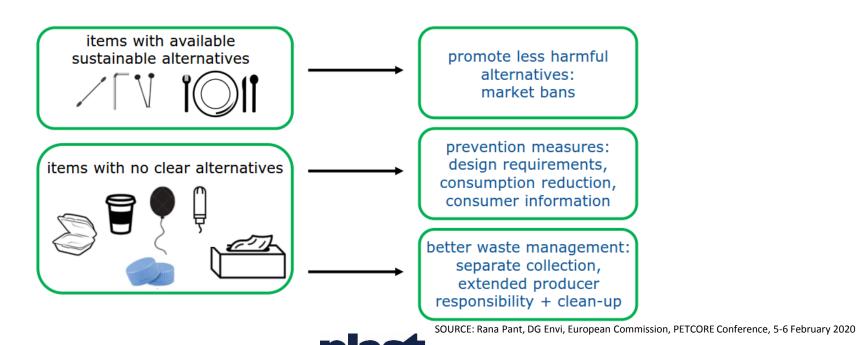


### Implementation of Directive EU 2019/904 – SUP



(12) "...examples of food containers to be considered as single-use plastic products for the purposes of this Directive are fast-food containers or meal, sandwich, wrap and salad boxes with cold or hot food, or food containers of fresh or processed food that does not need further preparation, such as fruits, vegetables or desserts.."

#### Different SUP products - different measures

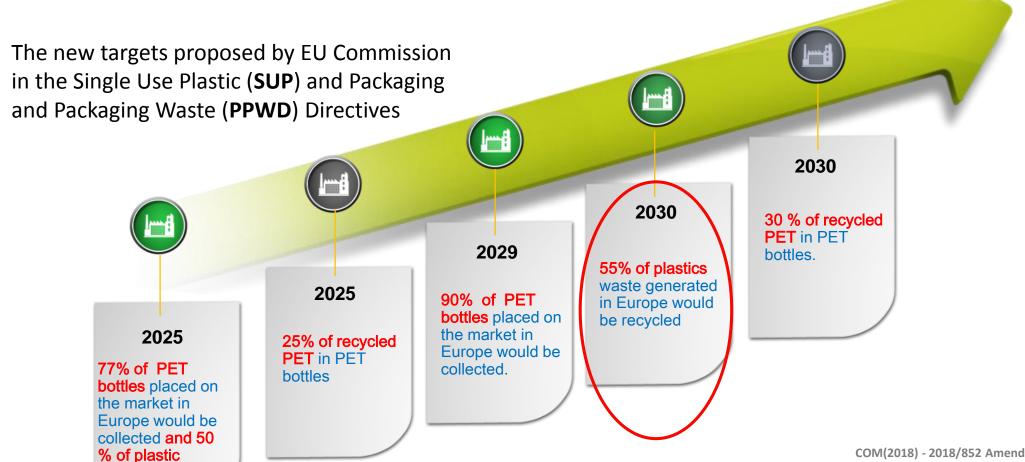




would be

recycled

EU Roadmap towards a plastic strategy in a circular economy



COM(2018) - 2018/852 Amendments to 96/62/EC COM(2019) - 2019/904 Single-use plastic Directive





# National Member States initiatives for circular economy for plastic waste



Overview of policies aimed at the plastic waste recycling industry



The EU Council President's proposal for the budget for the period 2021-2027 provides for the introduction of a levy on non-recycled packaging plastic of 0,80 €/kg. Proposal to partially finance the Recovery Fund by the EU Plastic Tax incomes. Member State not obliged to introduce a plastic tax.



• Plastic Tax on non recycled single-use plastic packaging of 0,45 €/kg postponed to Jan of 2021. Recycled packaging excluded by the taxation!



• Spain introduced recently a proposal for a tax on non recyclable plastic starting of 0,45 €/kg from 01/07/2021 for plastic packaging producers.



- Plastic tax starting on Q4/2022 of £200/ton of Plastic Packaging manufactured/imported with less than 30% of recycled material. Current proposal easily separable components will count as two separate items of packaging and each will fall within the scope of the tax.
- DRS scheme in Scotland (2021) and proposal in UK (2023/2024)



**Use of Recycled Plastic will get shortly mandatory!** 

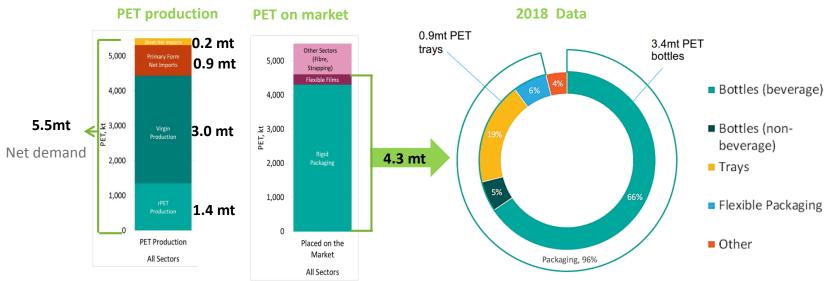






## PET placed on Market in EU 28+2





Demand for PET exceeds production (within EU28+2 boundaries). i.e. Net Importer

- Net (of imports/exports) demand in EU28+2 = 5.5mt
- Net imports = 0.9mt (plus 0.2 mt of sheet imports)
- Virgin = 3.0mt
- rPET = 1.4mt

Estimation of a total of 3.4mt PET bottles and 0.9mt PET trays placed on the market in the eu28+2 in 2018



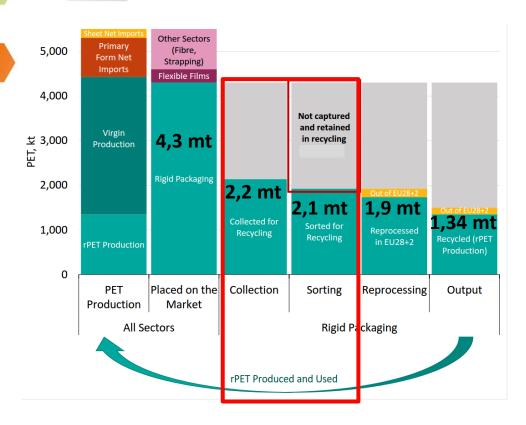






### **Overall 2018 PET Mass Balance in EU**





### The PET recycling chain bottleneck\*

\*By 2020, the calculation of the recycling targets based on the **effective weight** of packaging waste which enters **in recycling** process

An estimated of 4.3 mt of PET rigid packaging ended its cycle-life and available for collection in 2018:



## PET Amount for recycling 1,9 mt (45% of PET placed on market)

1,78 mt (on 3,4 mt on market)
52 % for PET bottles

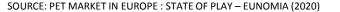
0,12 mt (on 0,9 mt on market)
~15 % for PET trays (diuted in PET bottle
Streams)



1,34 rPET production

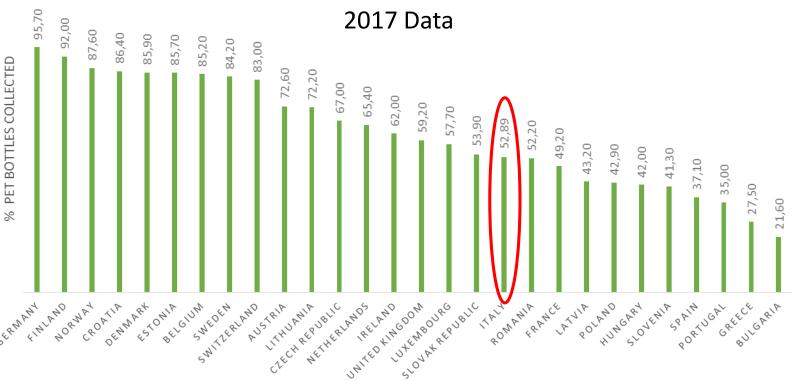
COM(2018)- 2018/852 Amendments to 96/62/EC







## **European Rates for PET bottle collection**



SOURCE: ICIS and Petcore Europe Annual Survey on the European PET Recycle Industry 2017

- In **2019** in Italy
- 458 000 tons of PET bottles put on the market
- 267 000 tons of PET bottles collected
- > 58 % PET bottle collection rate





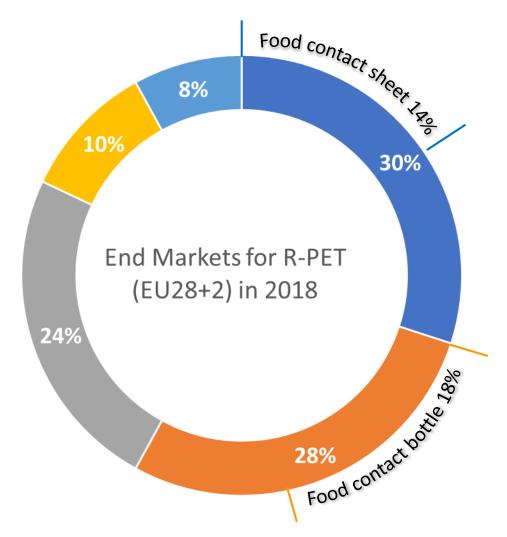




## 1,34 Mton of R-PET used for...



- Blow moulding
- Fibre
- Strapping
- Others













|  | rPET to Product<br>Application 2018, kt | Use in EU28 Production,<br>2018, kt | Estimate of Recycled<br>Content in 2018 |  |
|--|---|-------------------------------------|---|--|
| Blow-moulding (food contact)                         | 238                                     | 2 400                               | 11%                                     |  |
| Blow-moulding (other)                                | 135                                     | 3,400                               | 1170                                    |  |
| Sheet (food contact)                                 | 190                                     | 000                                 | 450                                     |  |
| Sheet (other)  | 215                                     | 900                                 | 45%                                     |  |
| Other sectors (fibre, strapping, injection-moulding) | 569                                     |                                     |   |  |
| TOTAL  | 1,348                                   |                                     |   |  |









## The effect of "Pledging Era"



In Italy **458 000 tons** (2019) of PET bottles on the market



At least 115 000 tons, the 45% of total current R-PET production would be addressed only to PET bottles

### With increased demand for R-PET in bottles:

- The sole PET Bottle collection will be enough for all R-PET supply chain?
- Will bottle eat the entire R-PET segment?
- Where will trays source their R-PET?

Mandatory a **new paradigm**: From **Bottle2Tray** to **Tray2Tray** 











## **Making PET trays circular!**



Develop new industrial model of PET collection and sorting in order to fill the gap of R-PET needed to catch the EU goals by 2025



☐ Develop new homogenous and selected PET streams for increasing the input material quality of R-PET

Create selected PET streams:

> PET bottles



> PET trays









## Design for recyclability



By 2030, the Commission proposed that **at least 55** % of all plastics packaging in the EU should be recycled.

- Avoid plastic packaging turn into waste after one very short first-use cycle\*.
- Rethink the packaging design towards an eco-friendly ones including recyclability as one of the first requirements as well as marketing, shelf-life and aesthetic ones in packaging design.













## The concept of «recyclability»



### Lack of a unique definition of "recyclable" at EU level

#### Definition by APR, PRE and PETCORE

The product must be made with a plastic that is collected for recycling, has market value and/or is supported by a legislatively mandated program.

The product must be sorted and aggregated into defined streams for recycling processes.

The product can be processed and recycled with commercial recycling processes.

The recycled plastic becomes a raw material that is used in the production of new products.



Collection and Sorting



**Plastic Product** 





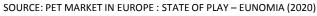




## The status of Art of Trays recyclability

| Recyclability criteria | Monomaterial Trays  | Multimaterial/layer Trays   |  |
|------------------------|---|---|--|
| Overall                | Partially recycled, undeveloped potentialities  | No recyclable, rPET would be made only by PET blended polymers  |  |
| Collection             | No comprehensive collection scheme available throughout European regions  | Not collected for recycling   |  |
| Sorting                | Currently sorted into bottle streams (in Italy max 1%) or into "mixed plastics" for energetic recovery.  Colored trays (IR detectable) can be sorted! | No sorted! Certain combinations can be mis-sorted by sensor based sorters (PETG, EVOH)  |  |
| Mech.<br>Recycling     | Underdeveloped capacity for separate reprocessing of trays. High yield losses if reprocessed on bottle lines. High adhesives and labels content.      | Different polymer layers cannot be cost-<br>effectively separated and affect quality of<br>resulting rPET.<br>No reprocessing capacity at present |  |
| End-Market             | Undeveloped market for r-PET derived from trays   | rPET that could be derived would be mixed polymer with very low market demand   |  |







## Design for recyclability

### PET trays recyclability Check list

- Preferably in mono material or at least in multi delaminating layers
- Colors need to be detected → IR detectable colors (not only clear)
- Avoid the presence of UV/oxygen additive barrier, difficult to be removed in the recycling process and causing yellowness shift in R-PET
- Unprinted closure systems/lidding films, preferably in PET or easily to be removed (glue residuals to be avoided)
- Preferably labels in plastics (PE or PET), in any case with a density < 1 g/cm³ to be easily separated by PET</p>
- Use of adhesive water or alkali soluble at around 70 °C

| Version: Jan 2020  |  |   |   |   |  |  |
|--|--|---|---|---|--|--|
| RocyClace <sup>™</sup>   | 0434   | IN POR RECYCLING GUIDELING<br>PRT THERMOPORMED TRAYS  |   |   |  |  |
| RecyClass CLASS CALAGE TRANSPORTED TO THE PERCENTIONS OF PRINCIPLE AND P |  |   |   |   |  |  |
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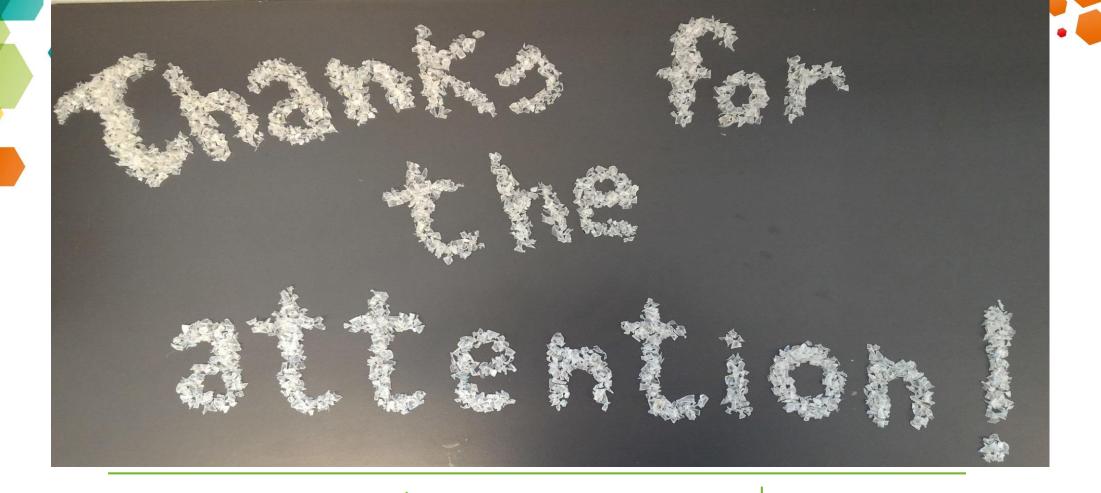
To move towards the ambitious EU targets, we need to create a close networking cooperation among all the players, packaging producers, waste collectors and recyclers, involved in the product end-of life to create a virtuous valuable chain.

- Expand and improve the separate collection of plastic waste, to ensure quality inputs to the recycling industry, creating dedicated stream, especially for PET bottles and PET trays;
- > Expand the capacity of PET sorting and collection to fulfill the EU targets within 2025-2030;
- Support the packaging design and innovation to make plastic products easier to recycle, especially for PET trays;
- > Create and support viable market for r-PET, developing established chain for PET trays recycling.









#### PET COMPAÑÍA PARA SU RECICLADO

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