

INLINER RECYCLING

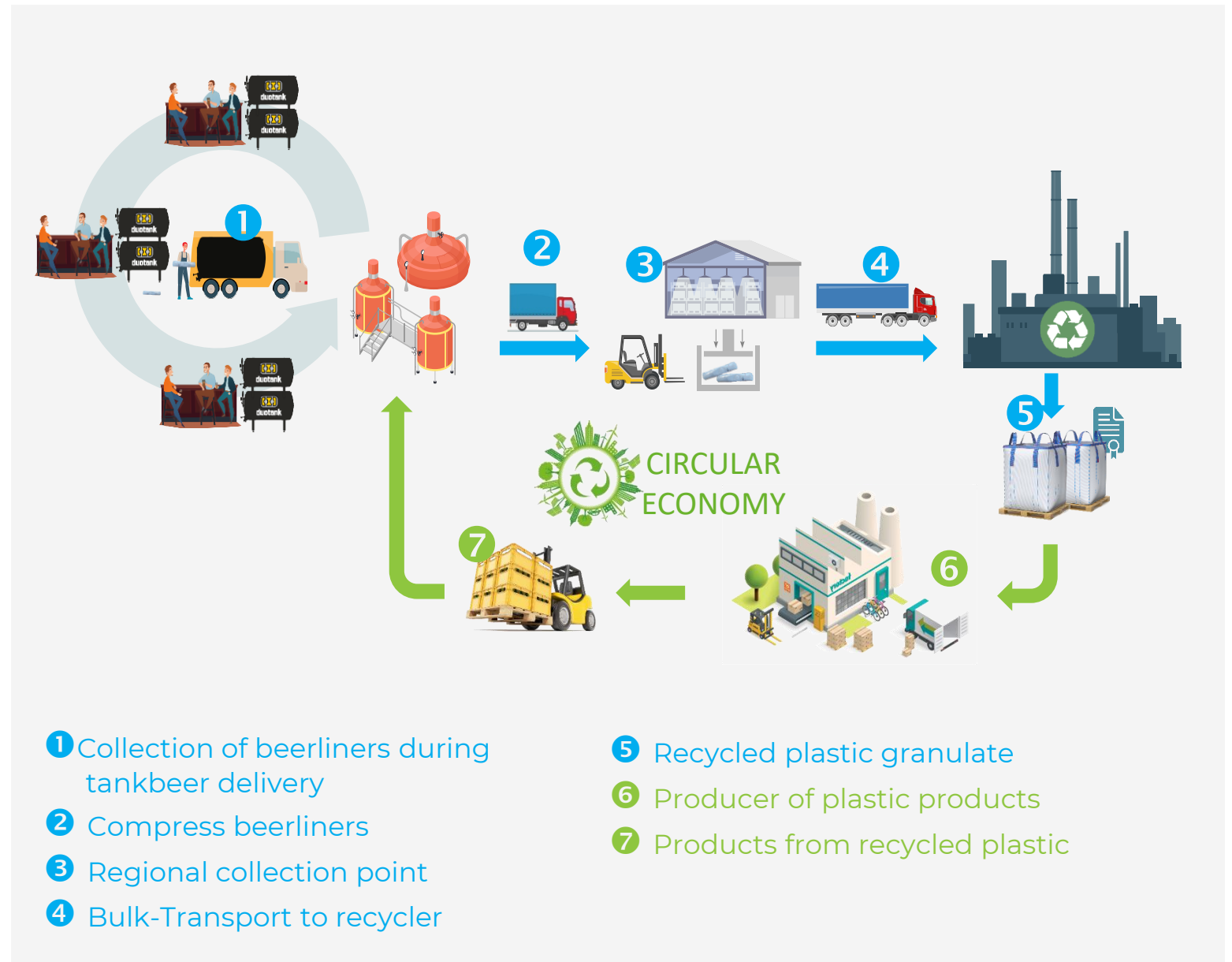




INLINER RECYCLING



0,2 Kg extra reduction on
CO₂/HL

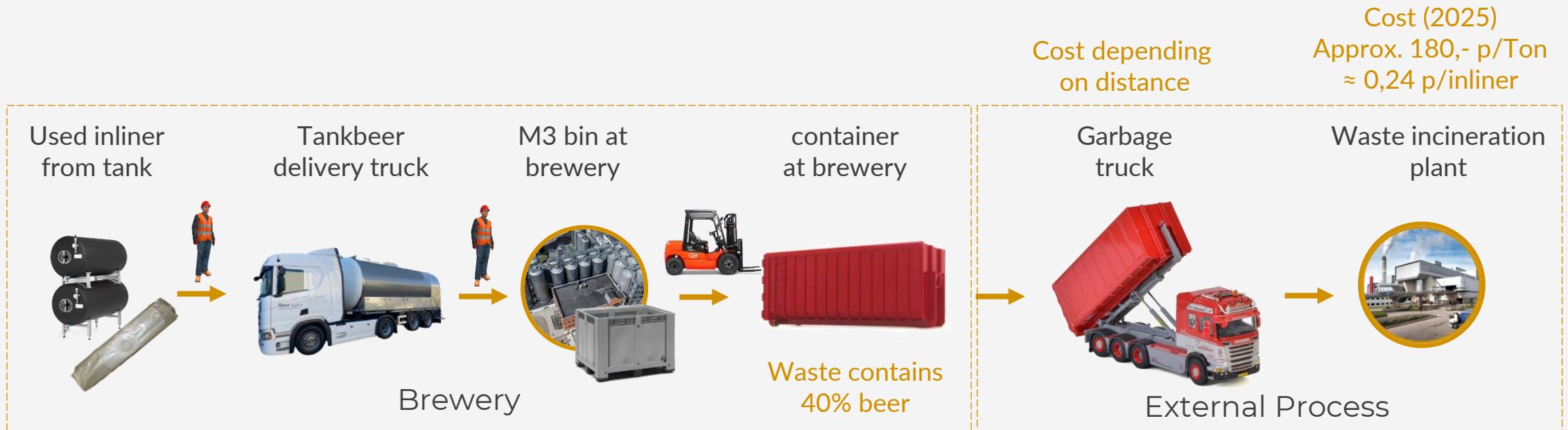


- 1 Collection of beerliners during tankbeer delivery
- 2 Compress beerliners
- 3 Regional collection point
- 4 Bulk-Transport to recycler

- 5 Recycled plastic granulate
- 6 Producer of plastic products
- 7 Products from recycled plastic



CURRENT PROCESSES



CO₂e impact*
Virgin LDPE + incineration LDPE
1,9 + 1,87 = 3,77 kg CO₂e/Kg

↑
End of Scope 3

*Source: CE_Delft_220327_CO2-winst_met_kunststofrecycloort_DEF.pdf

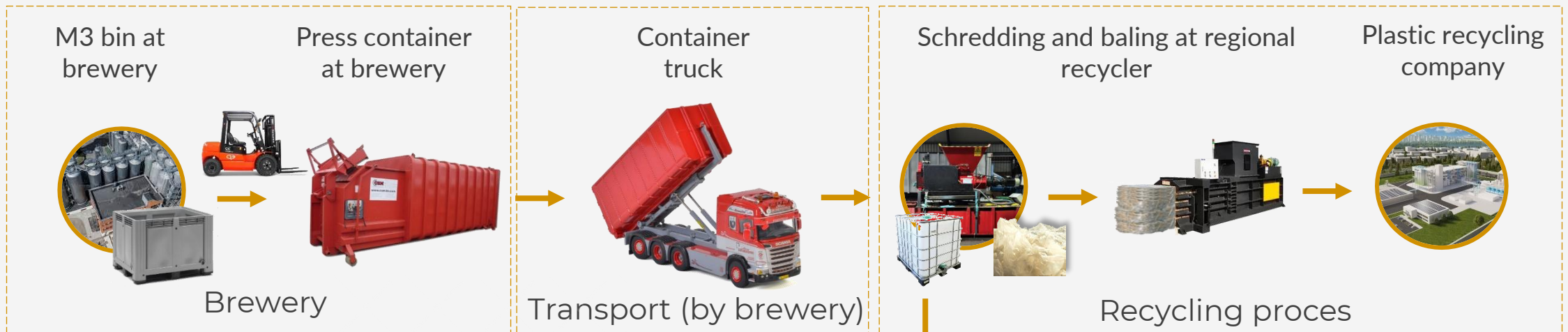


BIG BREWERY

IN OPERATION

Cost depending on distance

Cost (2025) for LDPE + beer recycling for 15 ton annual
Approx. 105,- p/Ton \approx 0,14 p/inliner



Beer to bio energy plant

End of Scope 3

CO2e impact*
Recycled LDPE
1,5 kg CO2e/Kg
CO2e reduction 2,3 CO2e/Kg

COSTS

Brewery with 15 tons of inliners per year

Average disposal of 1000 inliners in incinerator

kg inliners	800 kg
kg beer	536 kg
total	1336 kg
cost (excl transport to incinerator) €	240,48 (180 Euro per ton via container)
cost per inliner €	0,24 (260,- euro per ton via 1m3 garbage containers)

cost recycling (based upon 15 Ton)

monthly fee for recycling programm	€ 350 p/month (machinecost, space costs etc.)
volume	15 ton plastic/year
cost per ton	€ 280 p/ton
operational costs	€ 282 p/ton of inliner* (based upon inliner-weight including beer)
Yield	€ 562
cost inliner recycling per ton	€ 324 p/ton*, incl cost transport to plastic re-granulating plant
	€ 238

beer disposal

disposal in sewer	570-1400 Euro	985 p/ton
Disposal through waste recycling	€	85 p/ton*

Average disposal of 1000 inliners through recycling

kg inliners	800 kg
kg beer	536 kg
total	1336 kg
cost LDPE recycling*	€ 191
cost beer disposal*	€ 46
cost (excl transport to recycler)*	€ 236 (177 Euro per ton)
cost per inliner*	€ 0,24 -2%

*based on pricing Aug 2025

Savings 2%



OPPORTUNITY

Usage of inliner waste material for crates, stretchfilm etc.



Datasheet according to EN 15344:2007

General product information

- material type	:	PE LD trial bales Henineken liners
- product code	:	N/A
- material form	:	granule form
- granule size	:	3-4 mm
- granule color	:	translucent yellowish
- additives	:	-
- filtration level	:	100 micron
- source of input material	:	used beer liners Heineken
- application of the product	:	extrusion of films, pipes profiles, injection
- product packaging	:	big bag or bulk in silo
- product identification	:	
- production date	:	

Product technical information

MFR 190° C 2,16 kg	:	0,48 g/10min	ISO1133/99
MFR 190° C 5,0 kg	:	1,56 g/10min	ISO1133/99
ash content	:	no ash %	oven
density	:	0,928 g/cm ³	ISO1183/87
shore hardness	:	44 shore	ISO868/98
loose weight	:	510 g/L g/L	ISO66/77
PP content	:	no pp %max	DSC
Humidity	:	0,04 %max	8min 130°C
Charpy impact	:	- kJ/m ²	23°C
	:	- kJ/m ²	-15°C
IZOD impact	:	65 kJ/m ²	23°C
	:	- kJ/m ²	-15°C
Flex modulus	:	210 MPa	
Elasticity limit	:	- MPa	

Other product information

- Lab injection test done
- Lab visual control done



Market conform pricing:
rLDPE regranulate index

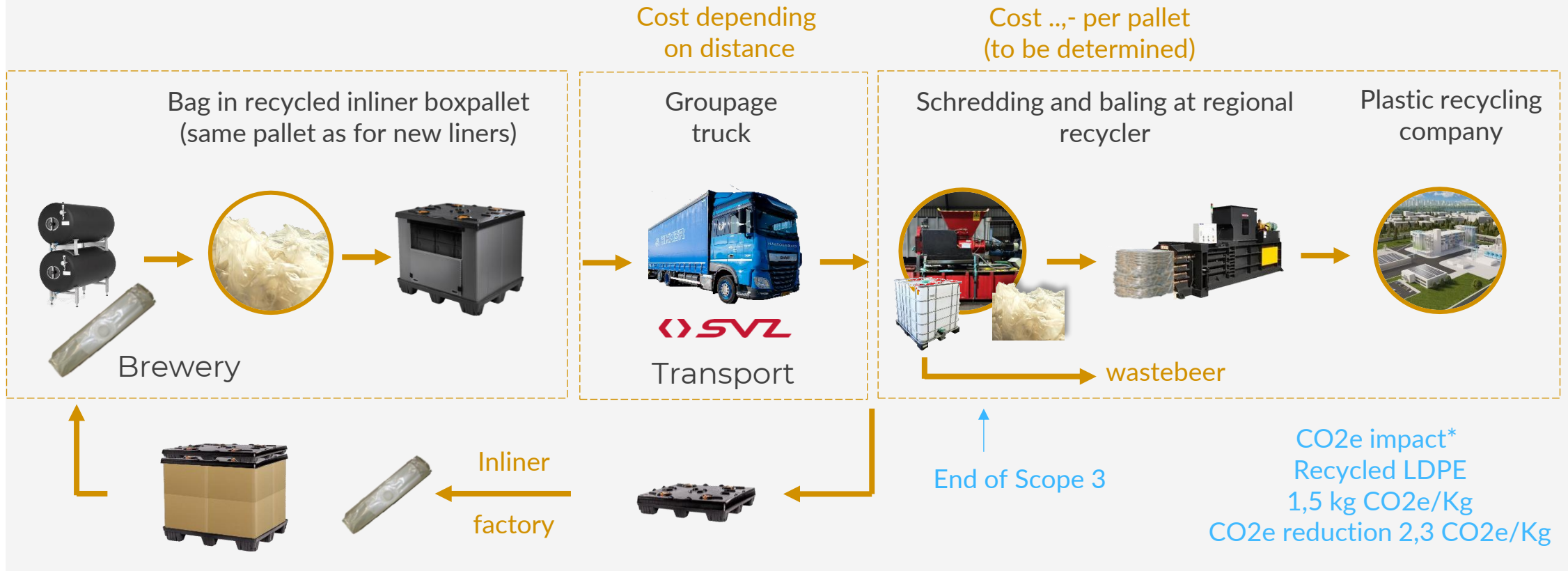




BREWERIES EUROPE

IDEA

With approximately 30 tank beer venues or more

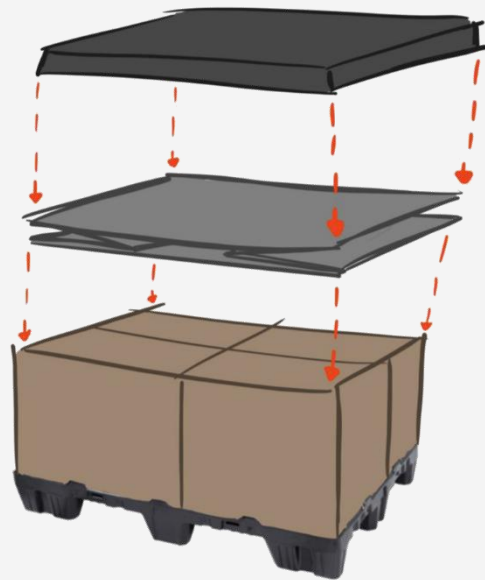




TRANSPORT CYCLE

Recycled pallets

IDEA



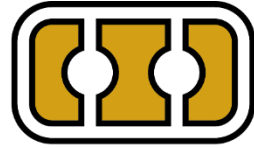
Cover (recycled LDPE)

Sleeve

*Boxes with inliners
(or inliners in sleeve)*

Pallet (recycled LDPE)





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TANKBEER SYSTEMS

Thank you for your attention



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