CertifHy- Developing a European Framework for the generation of guarantees of origin for green hydrogen

CertiHy event: October 19th 2016, Brussels

Project co-finance by the FCH JU under FP7:

The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) for the Fuel Cells and Hydrogen Joint Technology Initiative under grant agreement n° 633107 - Duration: 24 months (Nov 1st 2014 to October 30th 2016)

Agenda

1. CertifHy: Key results	
11.00	Opening
11.15	CertifHy Project: Developing a European Framework for the generation of guarantees of origin for green hydrogen
12.15	Lunch and networking break
2. The policy dimension	
13.15	The role of Guarantee of Origin in further developing of the hydrogen economy
13.30	Guarantees of Origin for Sustainable Hydrogen and the new Renewable Energy Directive
13.45	Sustainable hydrogen: what does the European Parliament say?
14.00	GO schemes: an NGO's view

Agenda

3. The perspective of hydrogen supplier and users	
14.15	Hydrogen – Transporting the Future
14.30	Importance of a well-designed hydrogen certification mechanism for the take-off of the hydrogen economy
14.45	Premium hydrogen as a prerequisite for the take-off of fuel cell vehicles
15.00	Short break
4. Implementing the scheme	
15.15	Panel discussion: How to implement the premium hydrogen GO scheme: Taking up the CertifHy roadmap
16.00	Follow-up to the CertifHy project: State of affairs, endorsements statements, next steps
16.30	Closure

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CertifHy– Developing a European Framework for the generation of guarantees of origin for green hydrogen

CertifHy: Key results

Project co-finance by the FCH JU under FP7:

Wouter Vanhoudt
Hinicio

Agenda - CertifHy project presentation

- Introduction
- Definition of Green Hydrogen
- GO scheme
- Implementation Roadmap

Find out more:


www.certifhy.eu


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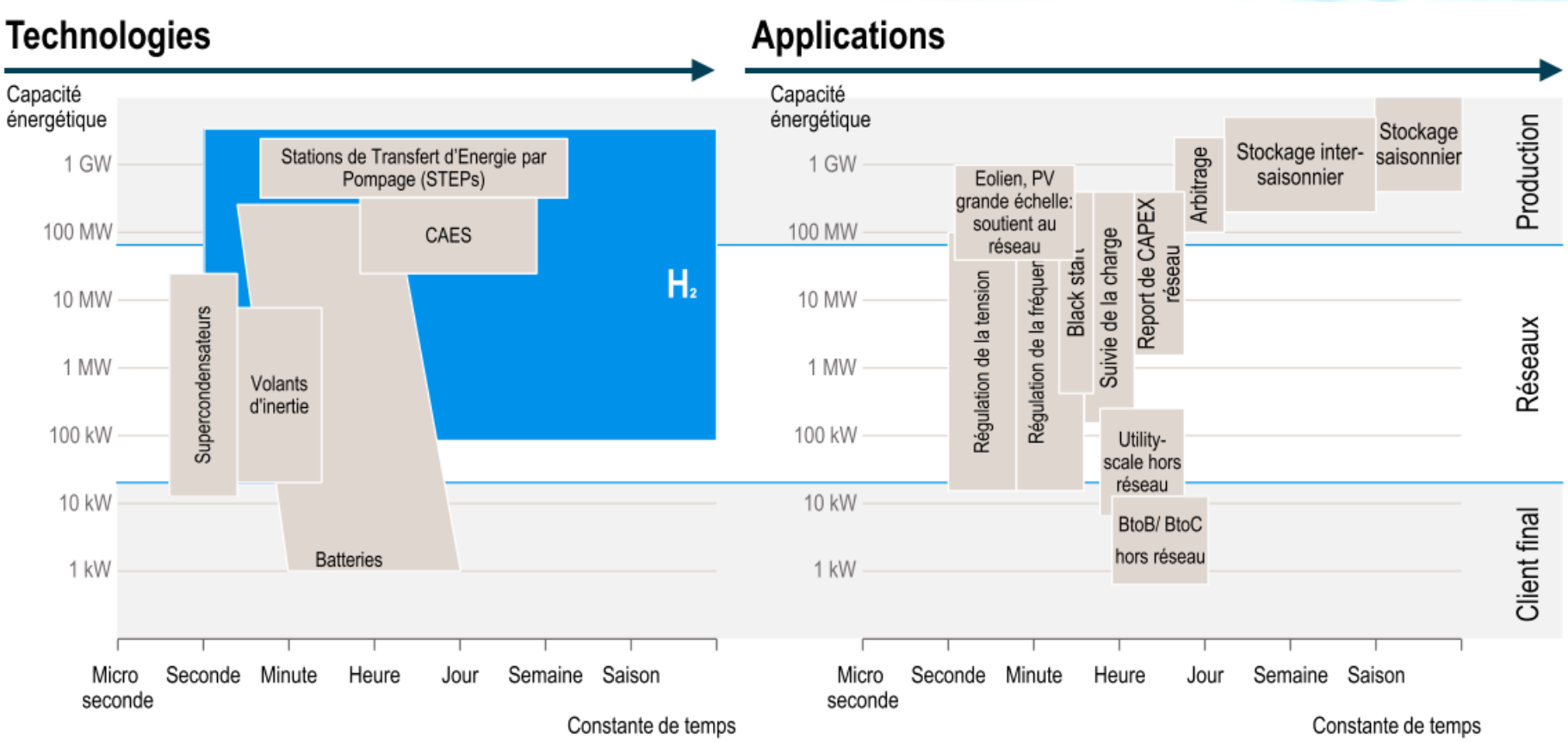
#CertifHy

Introduction to ….

- **Hydrogen**
- GO schemes
- The CertifHy project

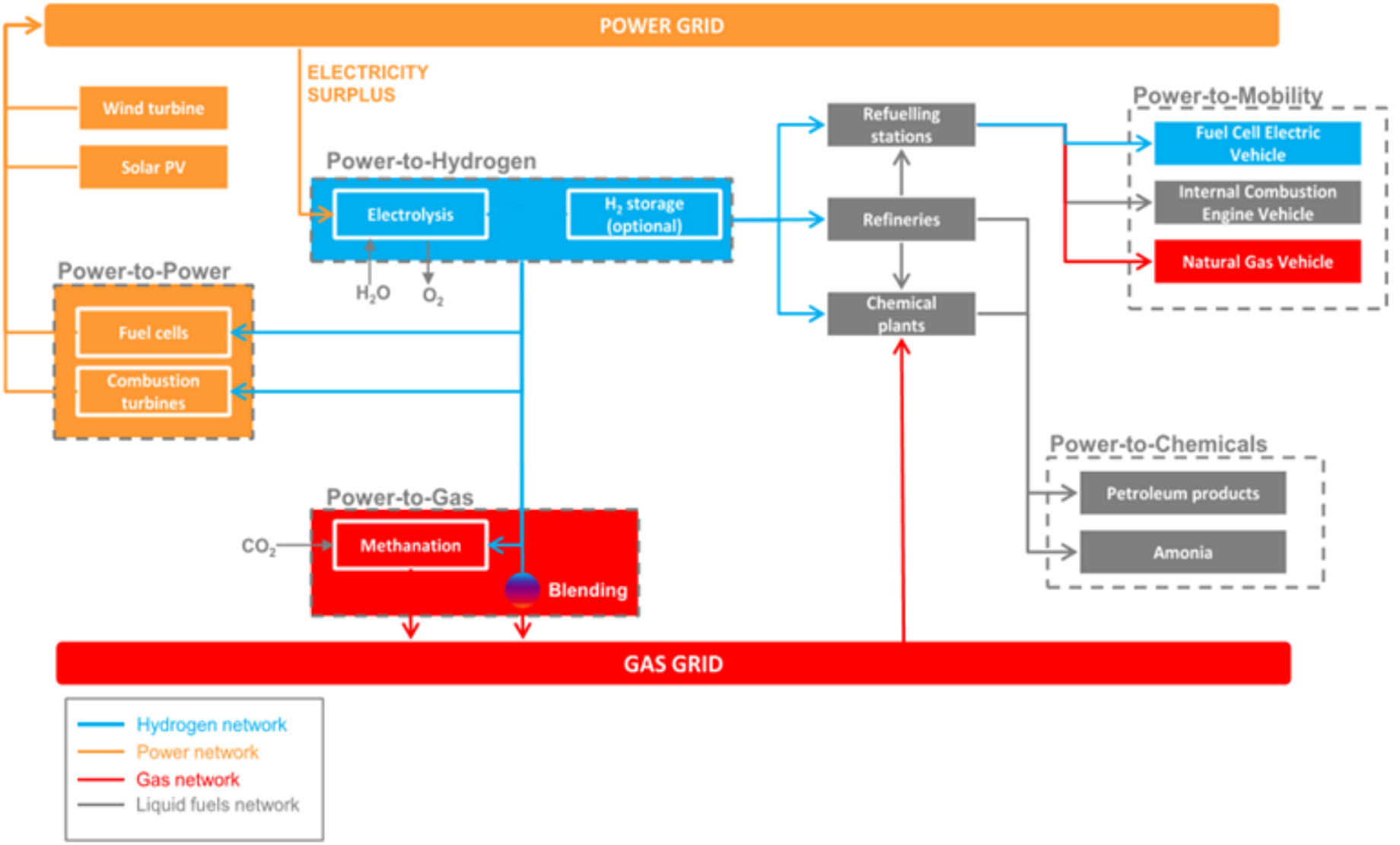
H2 pops up as an energy carrier for storing renewables



Worldwide H2 markets

INDUSTRY & MARKET SHARE	KEY APPLICATIONS	SUPPLY SYSTEM	H2 DEMAND per YEAR
 1%	• Semiconductor • Propellant Fuel • Glass Production • Hydrogenation of Fats • Cooling of electrical Generators	• Small on-site • Tube trailers • Cylinders • Liquid H2	LOW >0.4 Mtons
 6%	• Iron Reduction • Blanketing gas • Forming gas	• Cylinders • Tube trailers	MEDIUM 2 Mtons
 30%	• Hydrocracking • Hydrotreating	• Pipeline • Large On-site	14 Mtons
 63%	• Ammonia • Methanol • Polymers • Resins	• Pipeline • Large On-site	HIGH 29 Mtons

Power to Gas is coming up



Hydrogen Mobility is becoming a reality

Ambitious national roadmaps for deployment

COUNTRY	PROGRAM	FINDINGS	2015	2025	2030	2050
	H_2 Mobility	HRS	90	500	1,000	NA
		FCVs	200	500,000	1,87 mill	NA
		H2 (tons)	24	60,000	216,000	NA
			2015	2025	2030	2050
		HRS	NA	355	600	>1,000
		FCVs	NA	167,000	773,000	7.3 mill
		H2 (tons)	NA	22,000	89,000	880,000
	UK H_2 Mobility		2015	2025	2030	2050
		HRS	65	380	1,150	NA
		FCVs	<500	255,000	1,27 mill	NA
		H2 (tons)	<100	30,600	152,000	NA
	H2moves.eu SCANDINAVIA		2015	2025	2030	2050
		HRS	12	185	NA	450 - 1000
		FCVs	26	87,000	NA	3,3 mill – 7,3 mill
		H2 (tons)	3.2	10,400	NA	394,000 - 880,000

The first commercial vehicles

Hyundai ix35

Toyota Mirai

SymbioFC Kangoo H2

Many bus manufacturers

Introduction to ….

- Hydrogen
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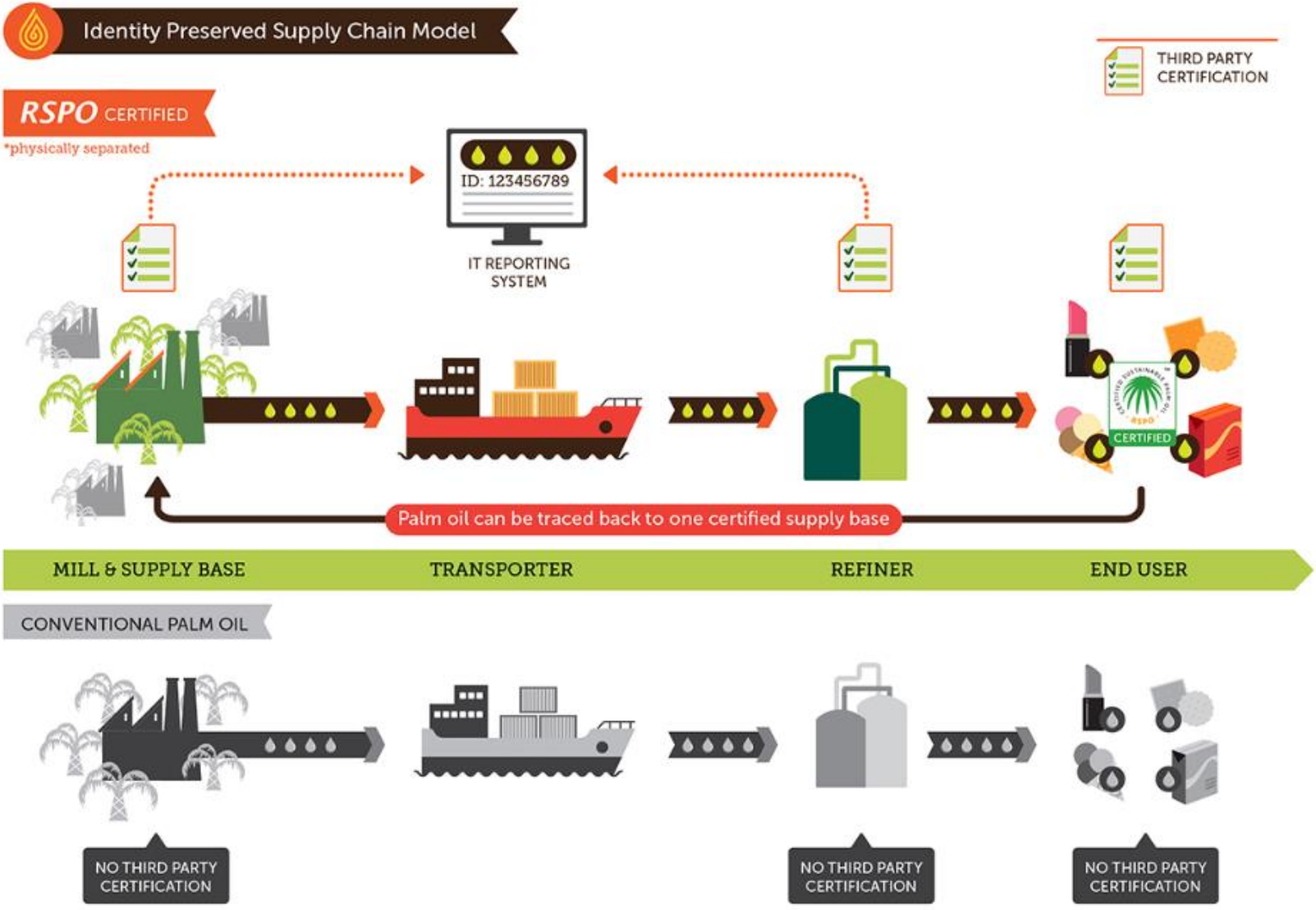
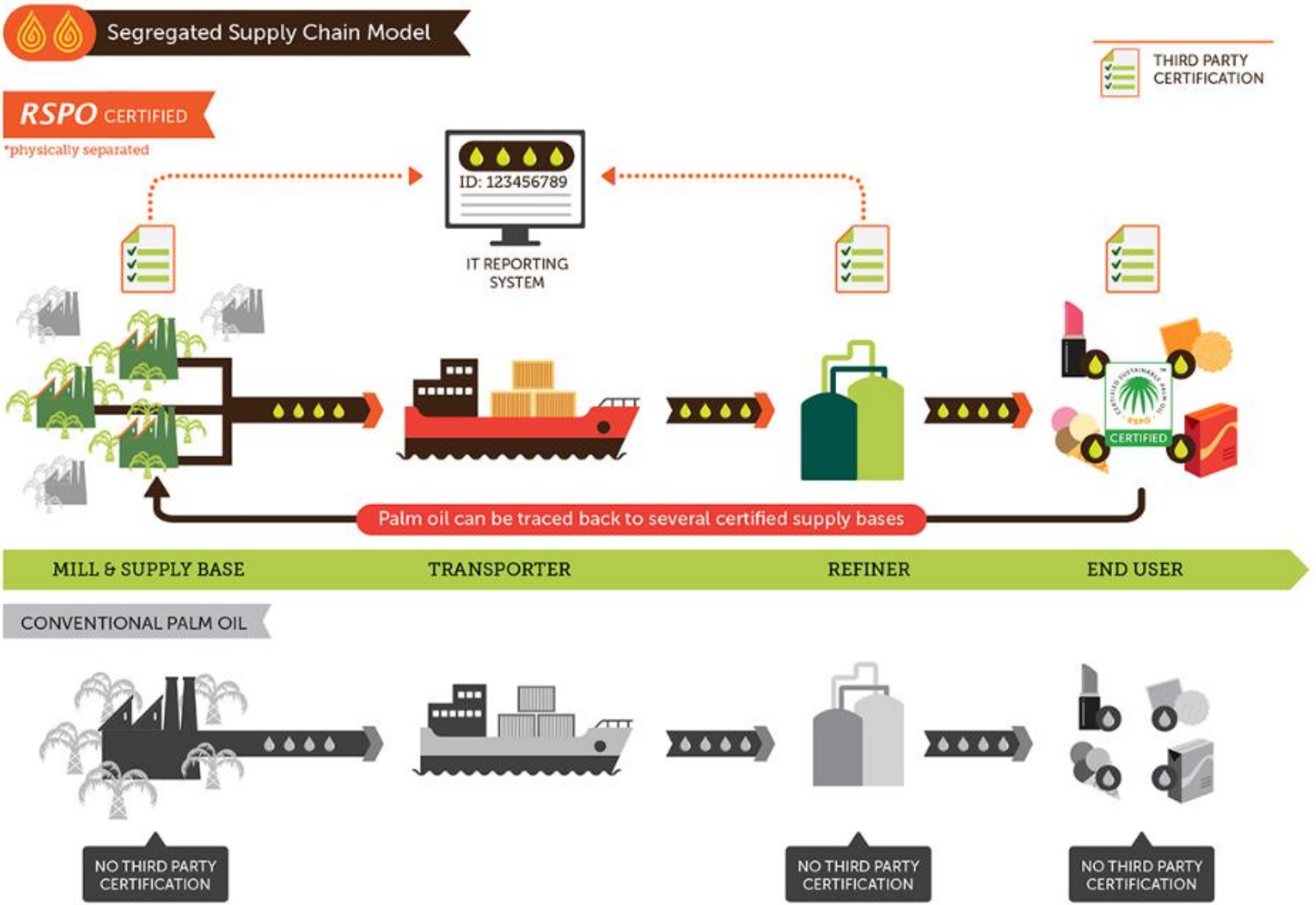
CertifHy

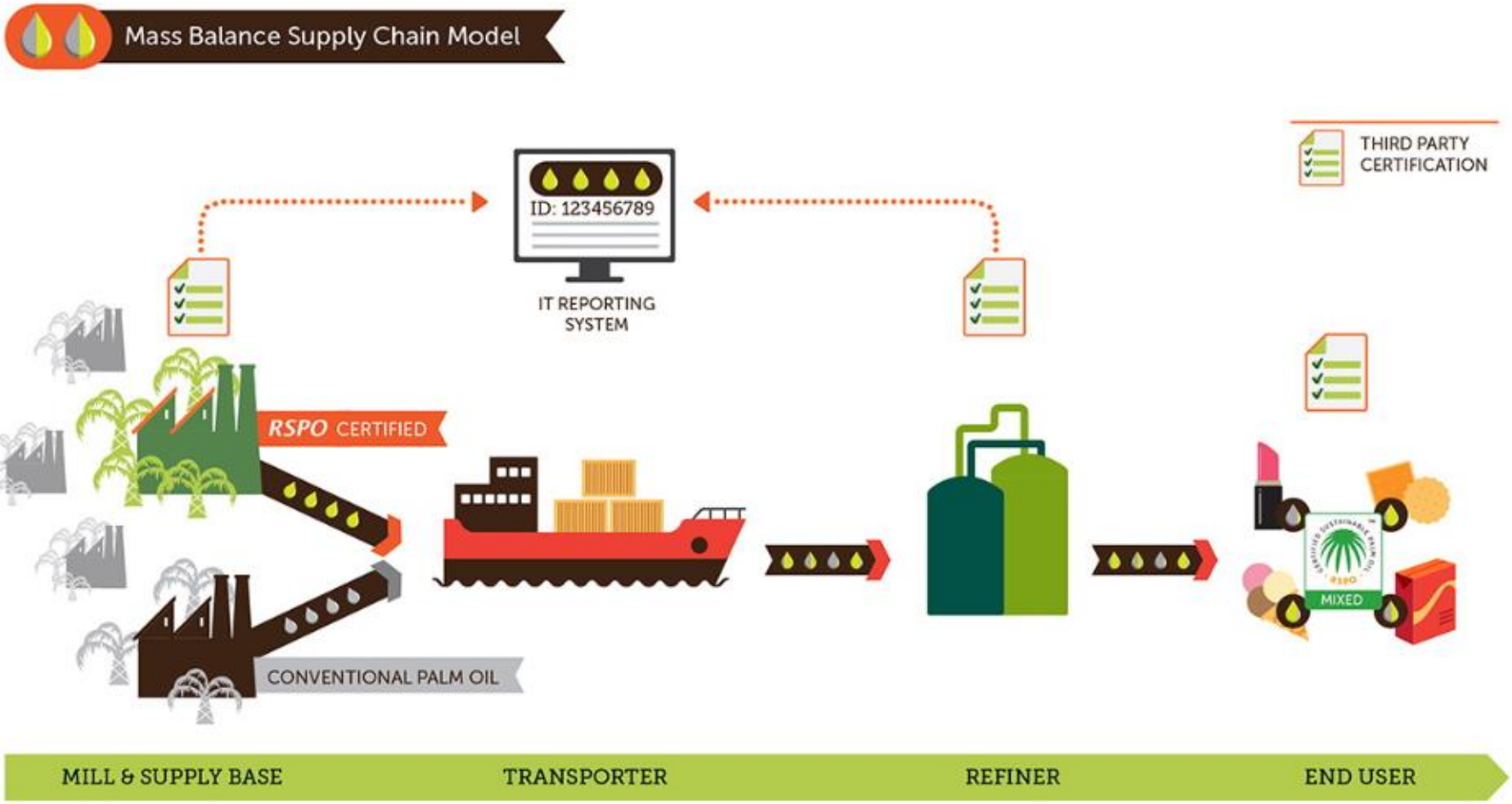
Sustainable palm oil from a single identifiable certified source is kept separately from ordinary palm oil throughout supply chain.



Sustainable palm oil from different certified sources is kept separate from ordinary palm oil throughout supply chain



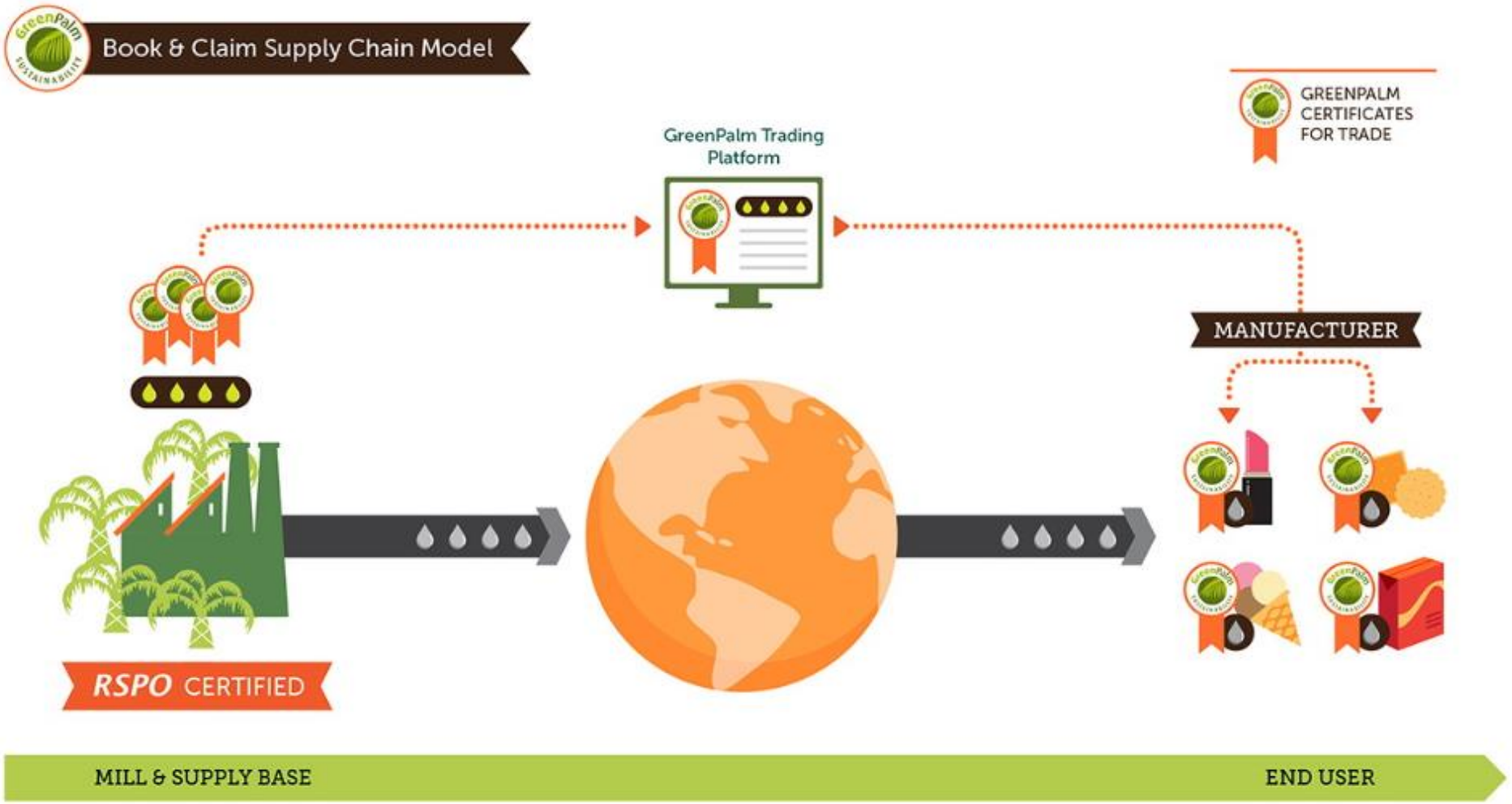
Sustainable palm oil from certified sources is mixed with ordinary palm oil throughout supply chain.



Source: http://www.rspo.org/

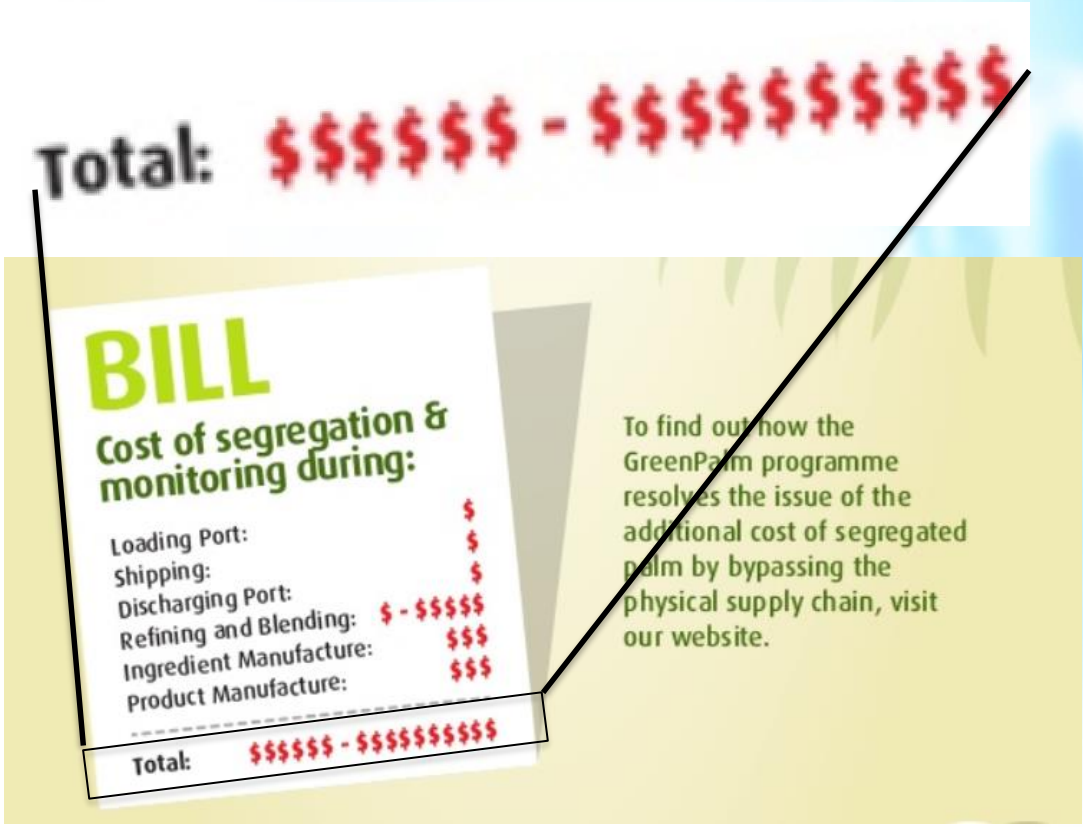
CertifHy

The chain is not monitored for the presence of sustainable palm oil. Manufacturers and retailers can buy a GreenPalm certificate from a RSPO-certified grower



Source: http://www.rspo.org/

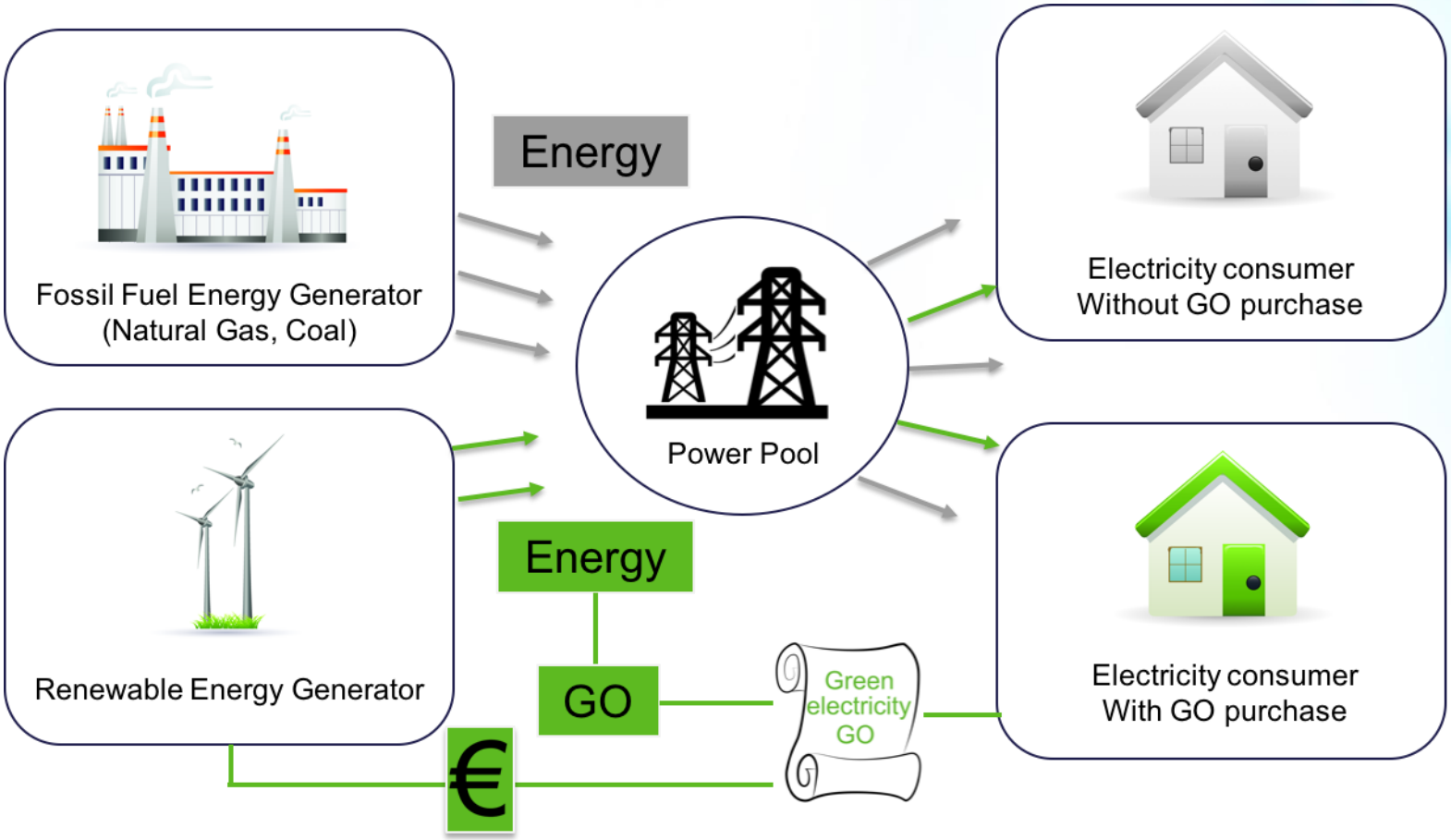
So why a book and claim system ?



Sustainable palm and palm kernel oil:
The cost & complexity of segregation

Source: http://greenpalm.org

What is a Guarantee of Origin (GO) system?



Introduction to ….

- Hydrogen
- GO schemes
- **the CertifHy project**

CertifHy

CertifHy will boost demand and supply of green hydrogen throughout Europe: by the creation of a market for green H2

- Objective: Define a widely **acceptable definition of green hydrogen**; and Determine how **an EU wide robust GO scheme** should be designed and implemented.
- Consortium ECN, Hinicio, ludwig bölkow systemtechnik, TÜV SÜD
- Affiliated Partners

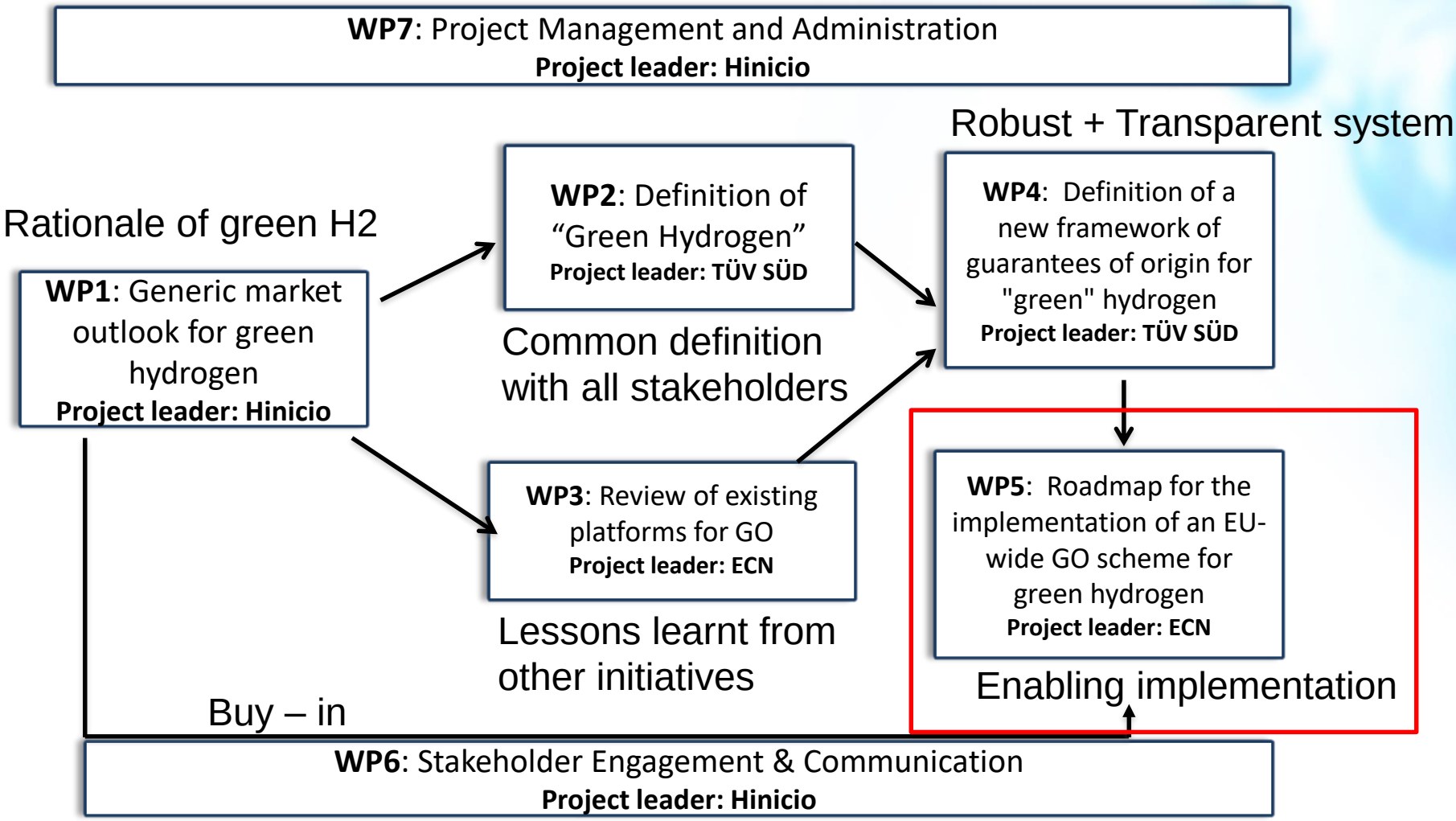
Step by step consultation process

AIR LIQUIDE, AIR PRODUCTS, AkzoNobel, AREVA H_2Gen, BMW, colruyt, EDF, HYDROGENICS, THE LINDE GROUP, Linde, GROUP MACHIELS, OMV, Shell, TOTAL, uniper

- Other Partners: Associations, NGO's, Policy Makers,..

"Supply green H2 where is not produced, improving the business case for green H2"

CertifHy - work program



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