



smart city expo
WORLD CONGRESS



Alternative Fuels for Smart and Sustainable Mobility

Nov, 15 2016

NERTATEC, S.L. Pz Vicente Aleixandre, nº1 Parque Tecnológico de Boecillo
Tfs. +34 983 023744 Boecillo Valladolid (Spain). info@nertatec.es

Who are we?

NERTATEC is a newly created company focused on innovative projects in energy, transport, environment and ICTs



We have been involved in several projects to test new fuels with on board instrumented fleets and different modes of transport and other uses (civil works, power generation)

¿Where do we go?

What will be the technology & Fuel for transport for the future?



Electric?

CNG or LNG?

LGP?

Hybrid?

Hydrogen?

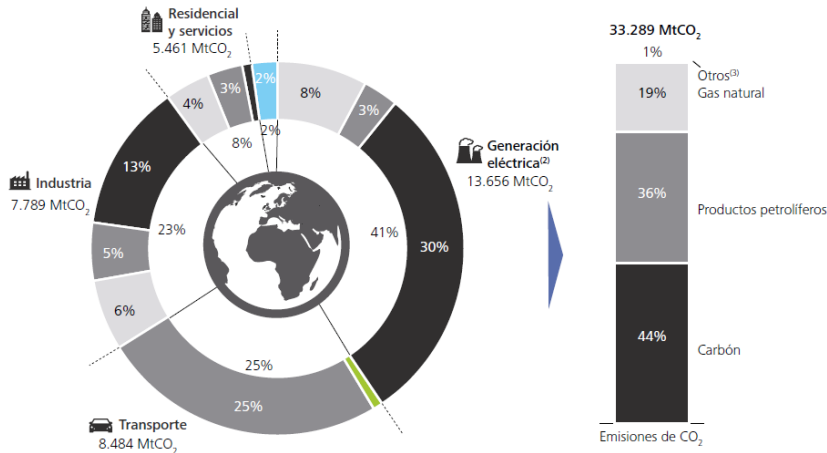
And we think that
the answer is...



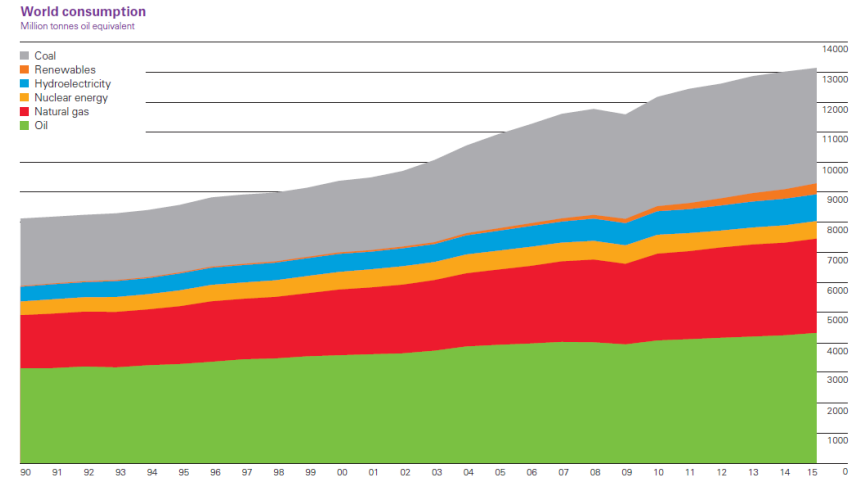
When?

Why when?

CO₂ emissions from energy uses



Primary Energy Worl Consumption 2015



Fuente: Worl Energy Outlook 2015, Monitor Deloitte

Fuente: BP Statistical Review Report 2016

Some Key Factors:

- Development of RE
- Development of Infrastructure for refuelling and charge points
- Development of storage technologies (for EV and RE)

We can't change the current situation in only one step!!

In the transition to a full decarbonised transport, all alternative technologies have to be taken into account

¿What do we need?(I)

The technology&fuel for the sustainable mobility has to be:

Affordable



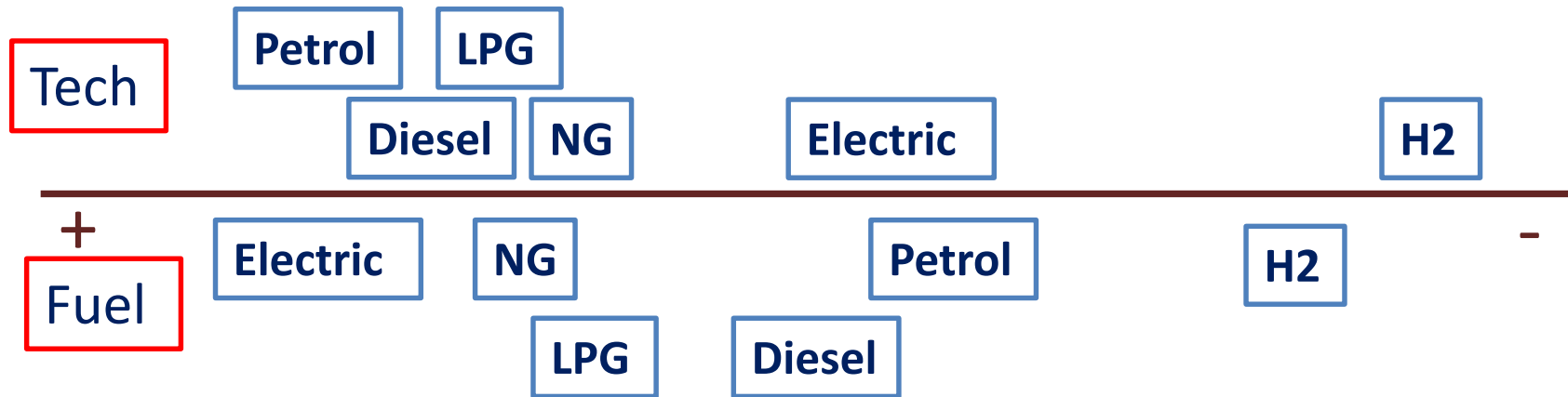
Available

Comfortable

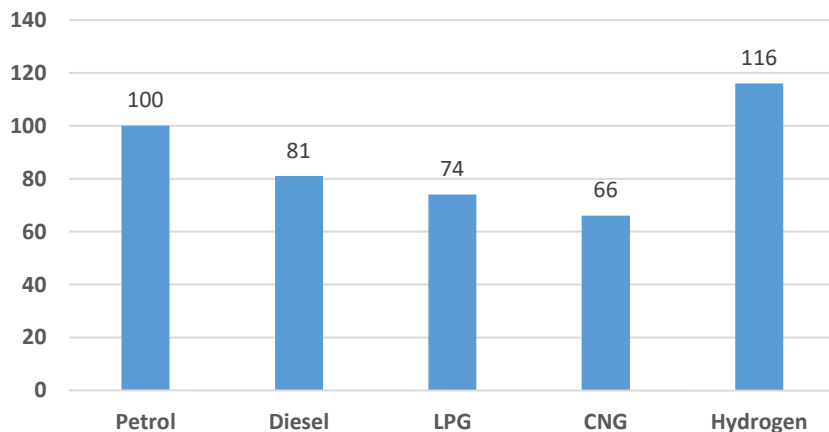
Environmentally Friendly

¿What do we need?(II)

Affordable



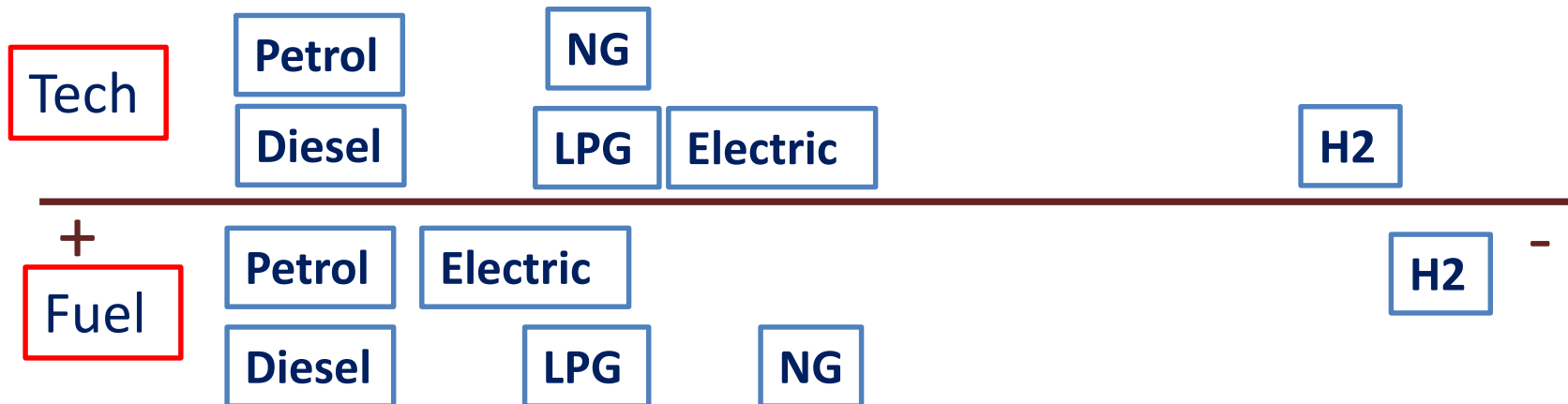
Relative Fuel price (c€/kWh)



- The price of electric vehicles is 40% higher than conventional (€/hp)
- Taking into account the grants to promote alternative fuels, the prices of LPG, NG and conventional vehicles are similar
- Special tariffs and grants for private (domestic) refuelling or charging infrastructure have to be into account to promote alternative fuels

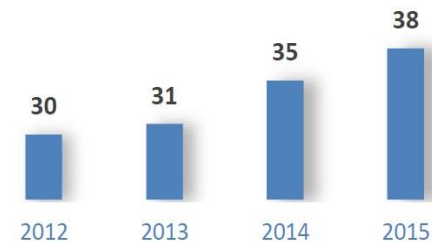
¿What do we need?(III)

Available



	Vehicles			Infraestructure (public refuelling stations)		
	2015	2020		2015	2020	
LPG	40.000	250.000	525%	450	1.200	167%
LNG	300	800	167%	19	30	58%
CNG	4.290	17.200	301%	23	120	422%
Electric Vehicle	10.000	150.000	1400%	1.000	1.200	20%
Hydrogen	Demo projects	2,8		4	21	425%

Número de marcas que ofrecen vehículos con motores alternativos*

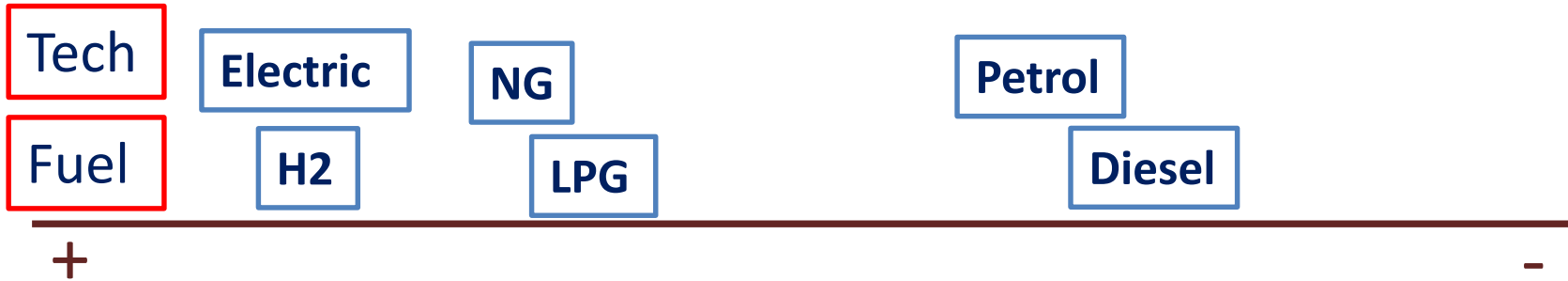


*Veh. Turismo+Todo Terreno

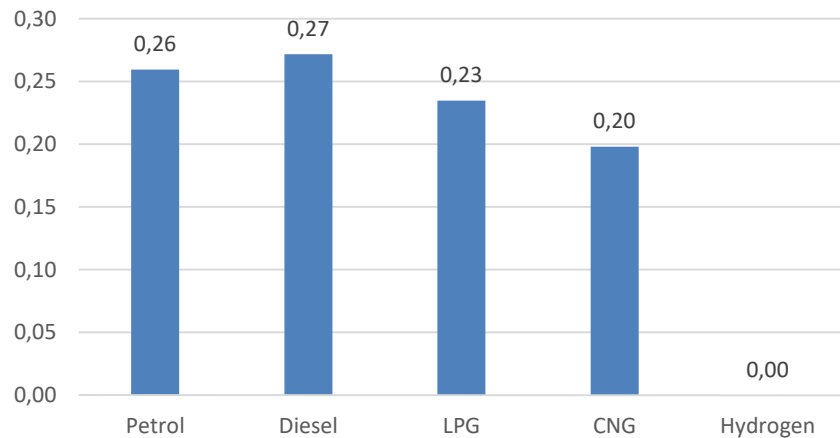
AnfacResearch

¿What do we need?(I)

Friendly



Emmissions kgCO₂/kWh

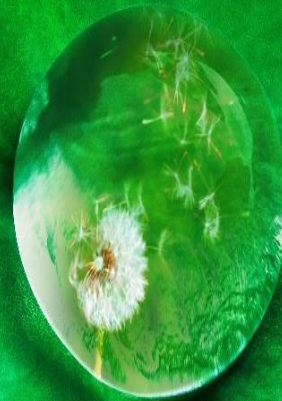


- Other emissions as HCs, CO, NOx and particulate matter have to be taken into account
- The CNGV adapted could use the biogas produced in Municipal Solid Waste and wastewater plants

- There are multiple parameters to analyse in order to select case by case the best technology&fuel
- The design priorities as costs, environmental impact and operative parameters are crucial in the selection of technologies applies on fleets and multimodal transport
- All the current and new technologies are necessities to satisfy the mobility needs in the transition to the full decarbonisation of transport
- The promotion of renewable energy and storage technology to make more manageable and comfortable this energy are crucial
- Its necessary to promote the charge and refuelling infrastructure (for public or private use) close to the potential users to make the alternative fuels more comfortable

NERTATEC is working in projects to develop tools for the best design of fleets and infrastructure, analysing also the normative and contributing to the better knowledge of the new fuels by general public

Thank you



info@nertatec.es