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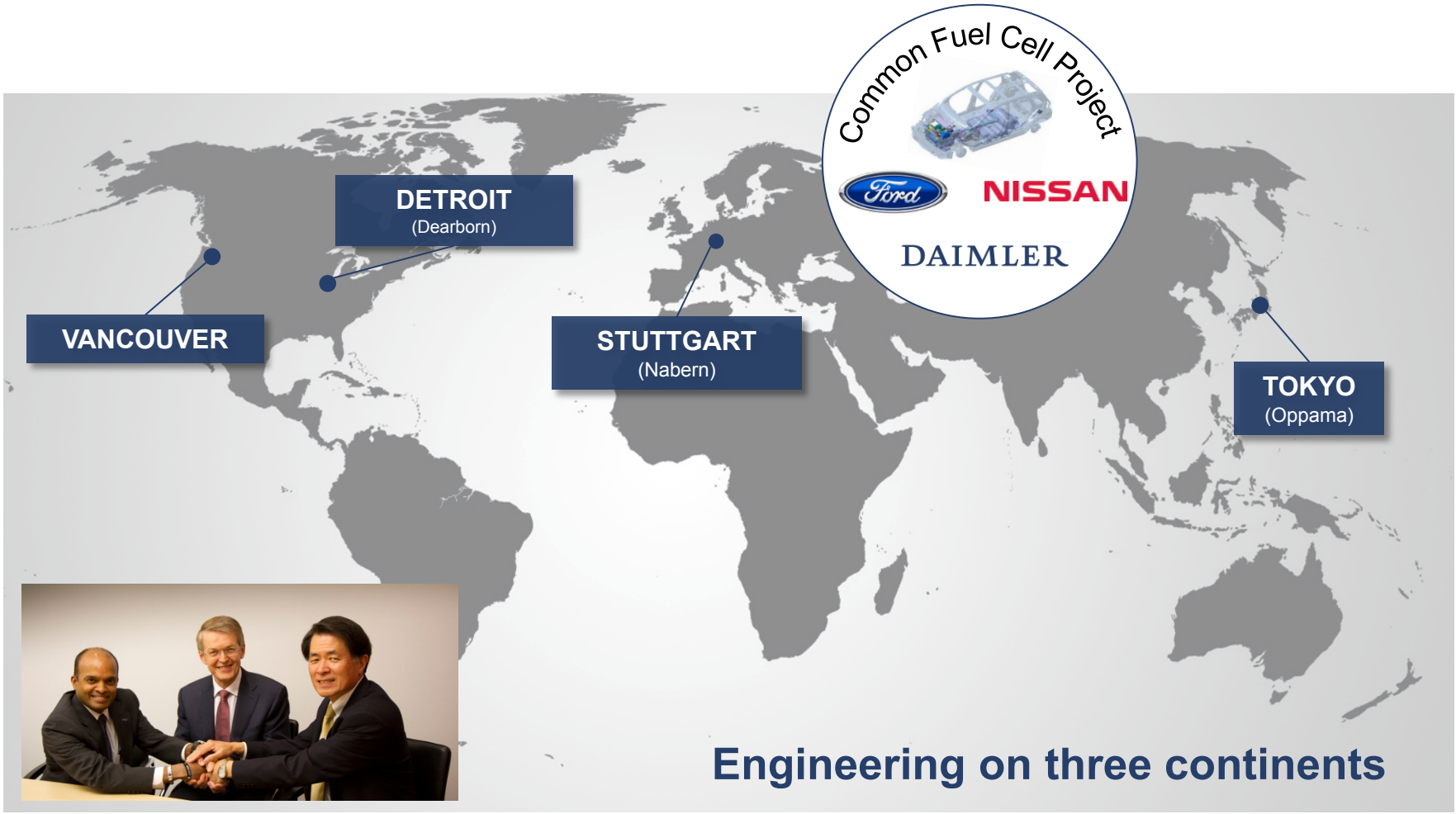
Common Fuel Cell Project

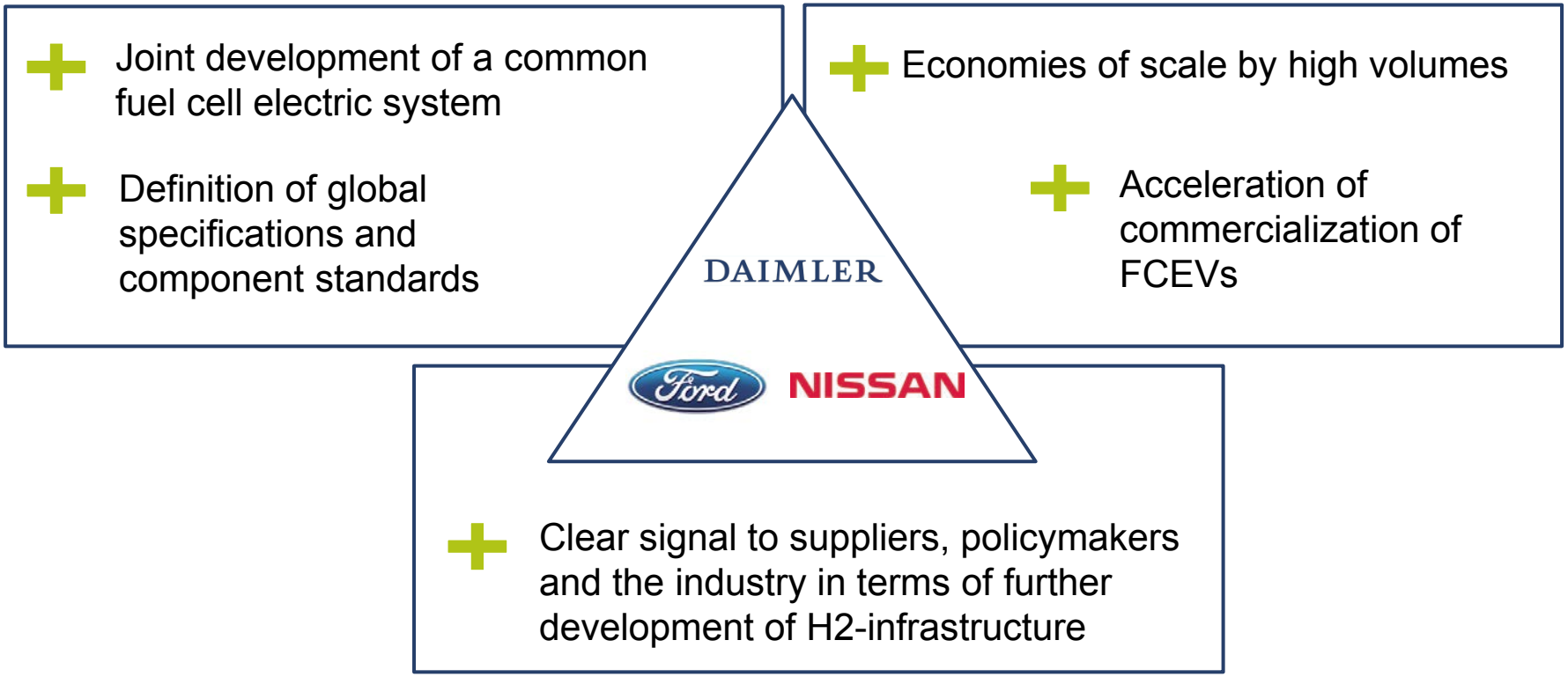
William B. Craven

Involvement of the main fuel cell markets and players

Asia, Europe and US – Unique collaboration across three continents



Cooperation with Ford / Nissan
"The Hydrogen Vehicle for the World"



Until 2017 the infrastructure and market conditions are expected to be on a appropriate level to bring large quantities.

Facts & Figures regarding the cooperation

Cooperation establishes technology on a significantly broader basis

Employment:

- Higher employment through the cooperation.
- Several hundreds of new jobs in the fuel cell supplier industry.

Production volume:

- Joint series production of the common fuel cell system scheduled to start in 2017 with high volumes from the beginning to get economies of scale - thus a stronger impact as far as suppliers, infrastructure partners and governments are concerned.

Experience & Intellectual Property:

- Joint experience of more than 10 million km driven in customer operation and more than 60 years of joint development experience.
- Excellent intellectual property portfolio from pooling.

Well-To-Wheel:

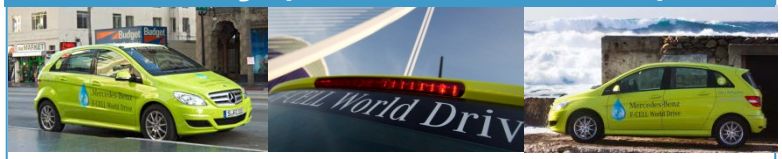
- The vehicles produced within the cooperation will reduce the CO_2 emissions at least around 23% (natural gas reforming); using green H_2 up to 100%.

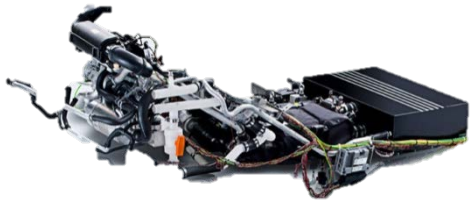
Investment in fuel cell technology:

- Daimler invested over 1 billion € into fuel cell technology since the beginning of fuel cell development in the 1980s.

Packaging of Fuel Cell System

Today (B-Class F-CELL)





Future Technology Target

Reduction of ~ 30%

Through a further modularization of the fuel cell specific components, the packaging of future generations of FC vehicles will be simplified.

➔ **The significantly more compact dimensions would allow a accommodation in the engine compartment of a conventional vehicle.**

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Who is AFCC?

Daimler and Ford have been partners/shareholders of Ballard Power Systems since 1994/1997

In February 2008, all automotive assets and resources were transferred from Ballard Power Systems to a new, private company called "**Automotive Fuel Cell Cooperation Corporation**" (AFCC)

We are now the fuel cell stack "centre of excellence" for Daimler and Ford

- Responsible for research, product development, and product launch of auto fuel cell stacks
- Located in Vancouver, Canada
- 230 employees in 2010 (50+% growth since 2008)

Joint-venture private company

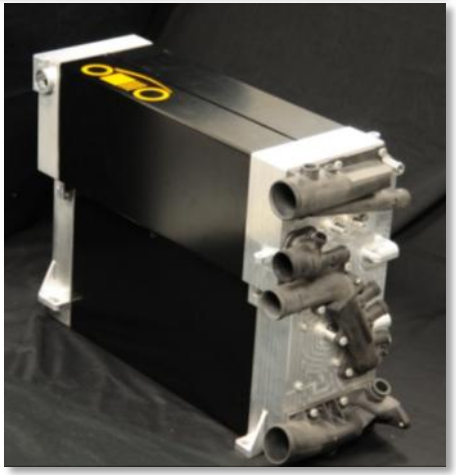
- Daimler 50.1% Ford 30.0% Ballard 19.9% (financial investor only; to be acquired by Ford on Feb 1, 2013)
- Operational funding provided by Daimler and Ford

Goal – to make automotive fuel cells a reliable and affordable solution in the 2015 timeframe

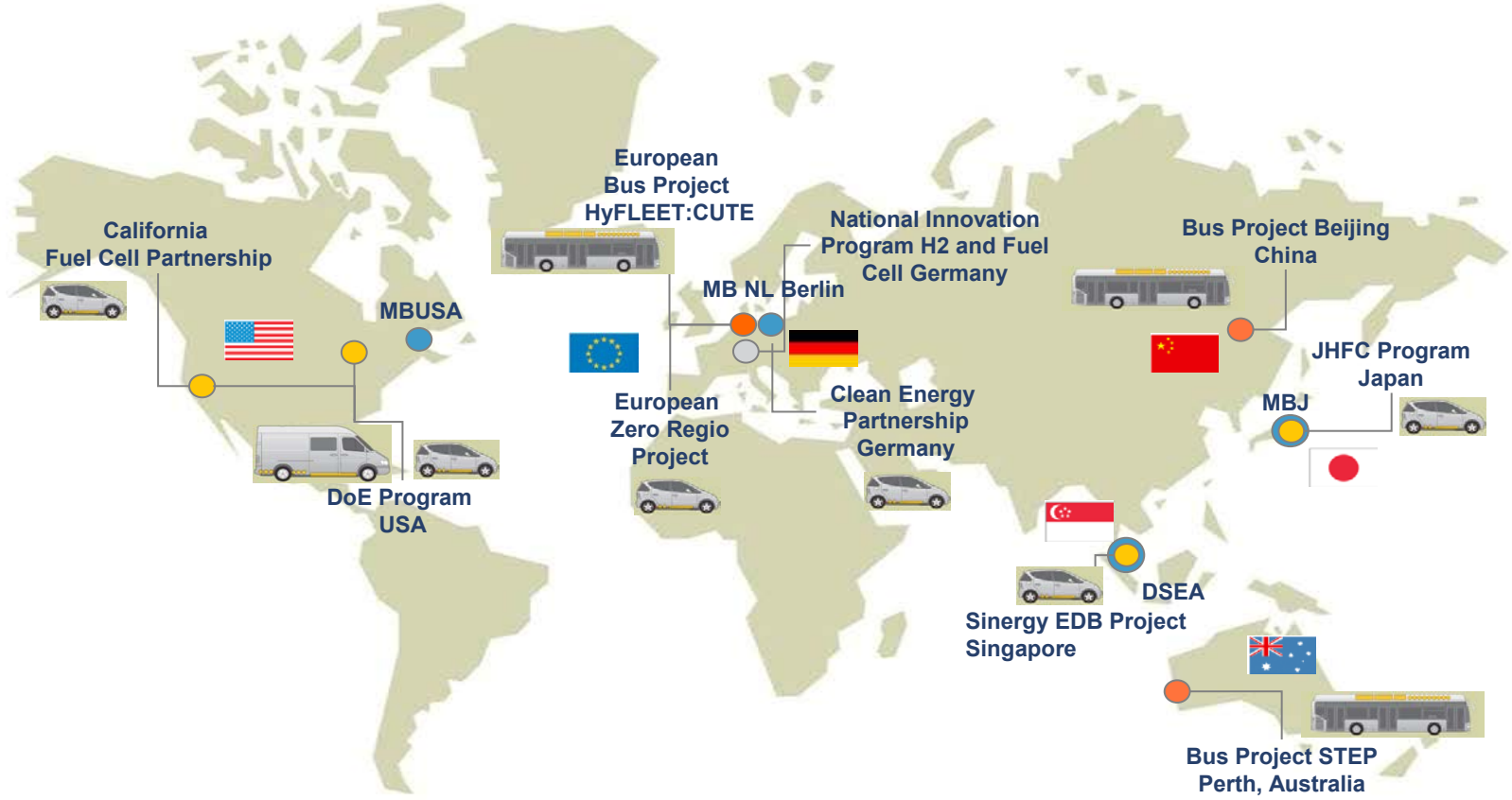
Fuel Cell Production Facility in Vancouver

1st high-volume fuel cell stack production facility for automotive applications globally

From materials research and product development to production technology for large-scale production



Daimler Global FCV Deployments



Fuel Cell Cars
- 240 in total
- 2 million kms
- 58,000 hrs

Citaro Buses
- 36 in total
- 2,100,000 kms
- 137,000 hrs

Sprinter Vans
- 3 in total
- 64,000 kms
- 2,400 hrs

Stacks from Burnaby have powered more than 200 FC vehicles since 2004

Thanks for your attention!