

**FCH Technologies : Market opportunity in changing world**

# **Fuel Cell Future in distributed generation ?**

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# Our Mission and Vision

## Mission

We provide lifecycle power solutions to enhance the business of our customers, whilst creating better technologies that benefit both the customer and the environment.

## Vision

We will be the most valued business partner of all our customers.



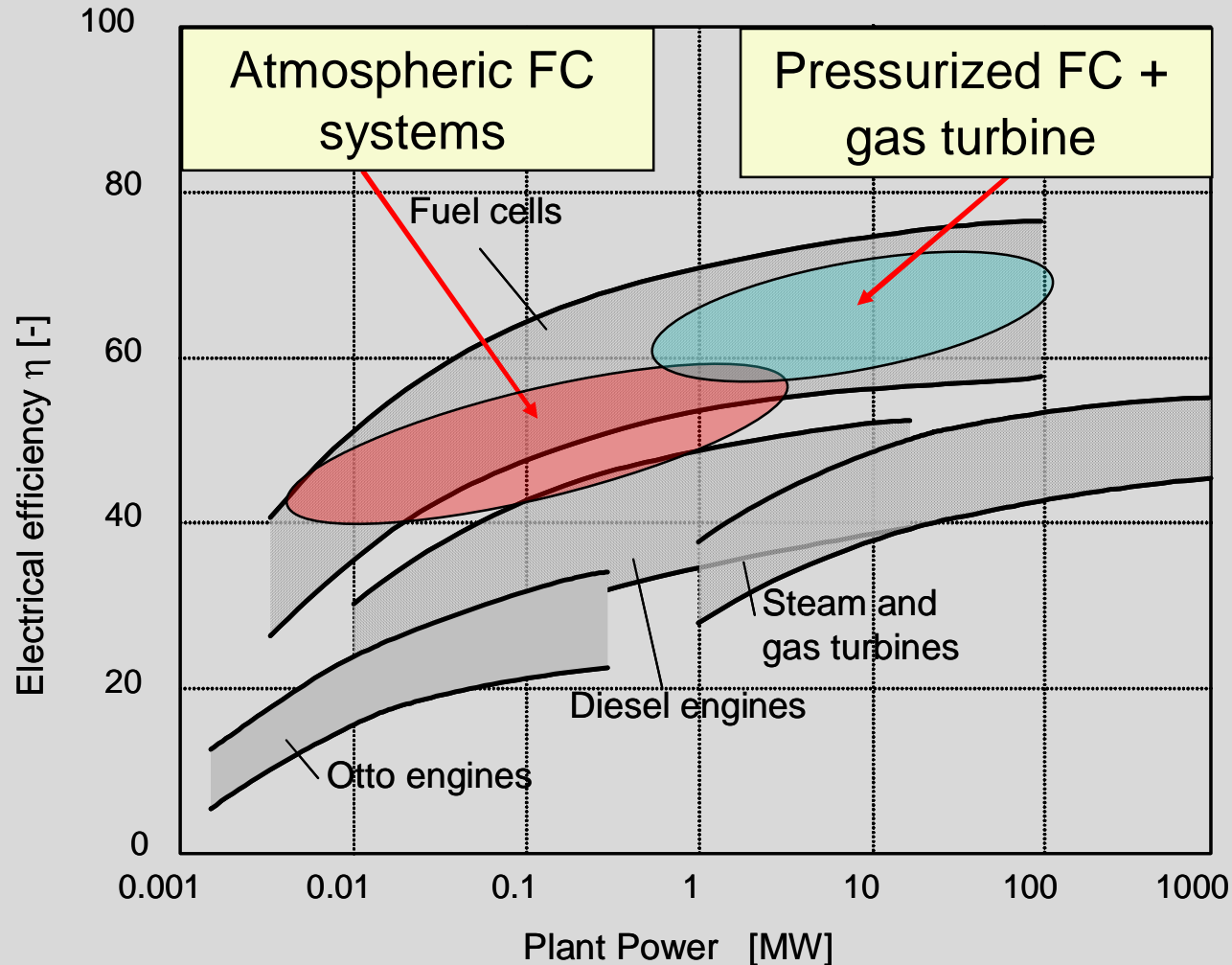
# Trends in future power generation

1. **Energy Efficiency & Environment**
2. **Distributed generation will increase**
3. **Cycling renewable generation will increase**
  - Wind, solar, small hydro, etc.
  - Smart Grids for active control
4. **Emission legislation will**
  - Increase complexity
  - Drive current technologies
  - Define the customer requirements
5. **Fuel flexibility will increase**
  - Bio fuels / liqued and gas
  - Ultra clean fossil fuels
  - Cheaper heavy oils



# Fuel Cell Efficiency and power range

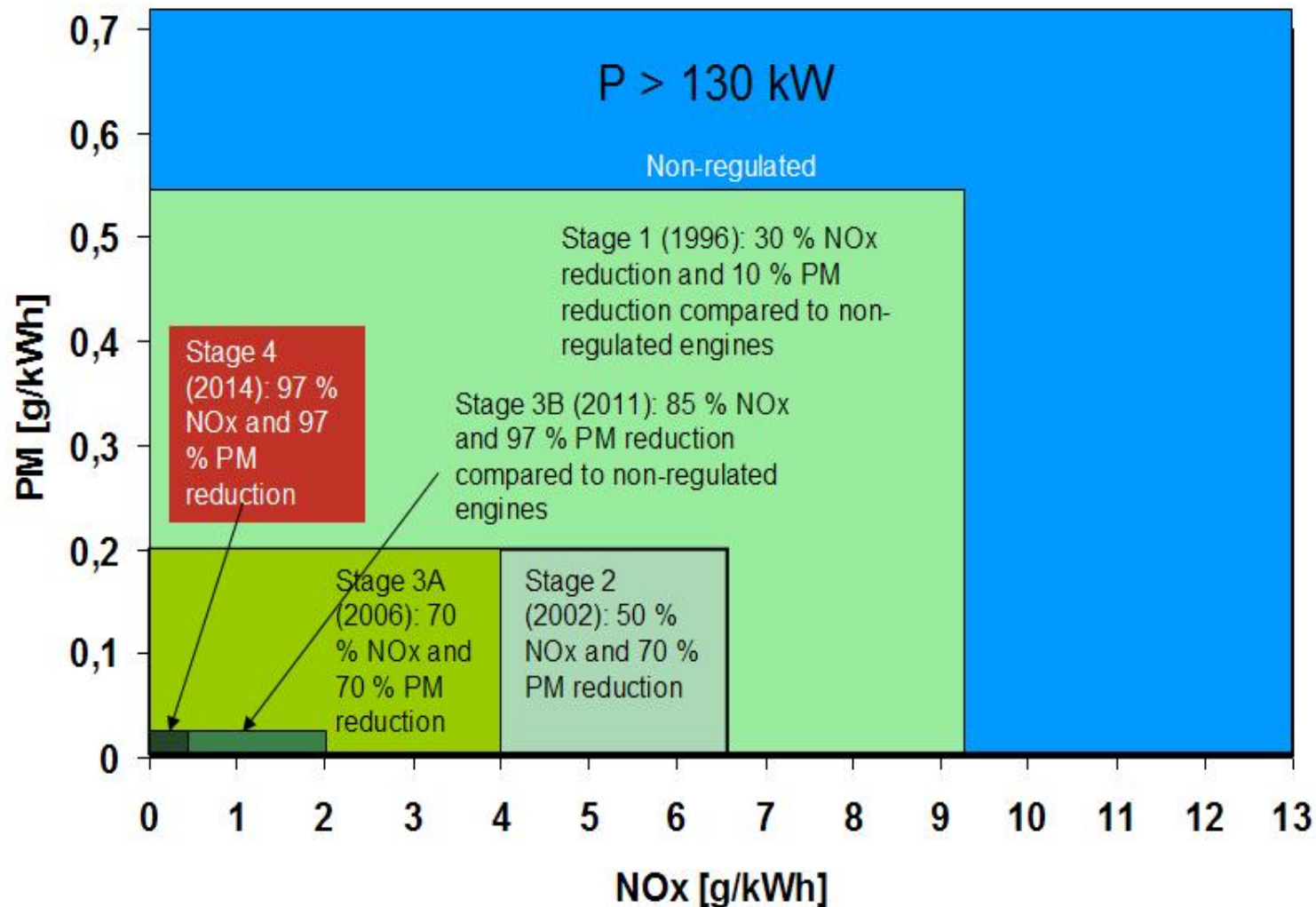
*Higher Energy efficiency is needed*



Source : W. Vielstich, *Handbook of Fuel cells – Fundamentals Technology and Applications*, Volume 1, Chapter 4, p. 29. Wiley (2004), ISBN: 0-471-49926-9

# Emission limits for non-road engines

*Current technologies will become cleaner*



# Stationary FC opportunities



Biogas from Landfills,  
Waste water and farms

## **Bio Fuels** –value adding niche

- High efficiency and CHP

## **Commercial buildings** – new market

- Suitable power range
- Co-generation capability
- Local power service

## **Grid stability & Smart grid**

- Balancing power combined with wind and solar, Remote control

## **Premium power**

- High reliability, co-generation, power quality, DC-supply

Telecom/data centers, Hospitals, Banks



Hotels, malls, offices, industries





# Choice of technology

## Selection of solution



**Customer needs**



**Investment  
& operational cost**



**Fuel availability**



**Product**

The customer do  
request competitive  
and reliable power  
solutions with  
lifetime support for  
existing  
infrastructure

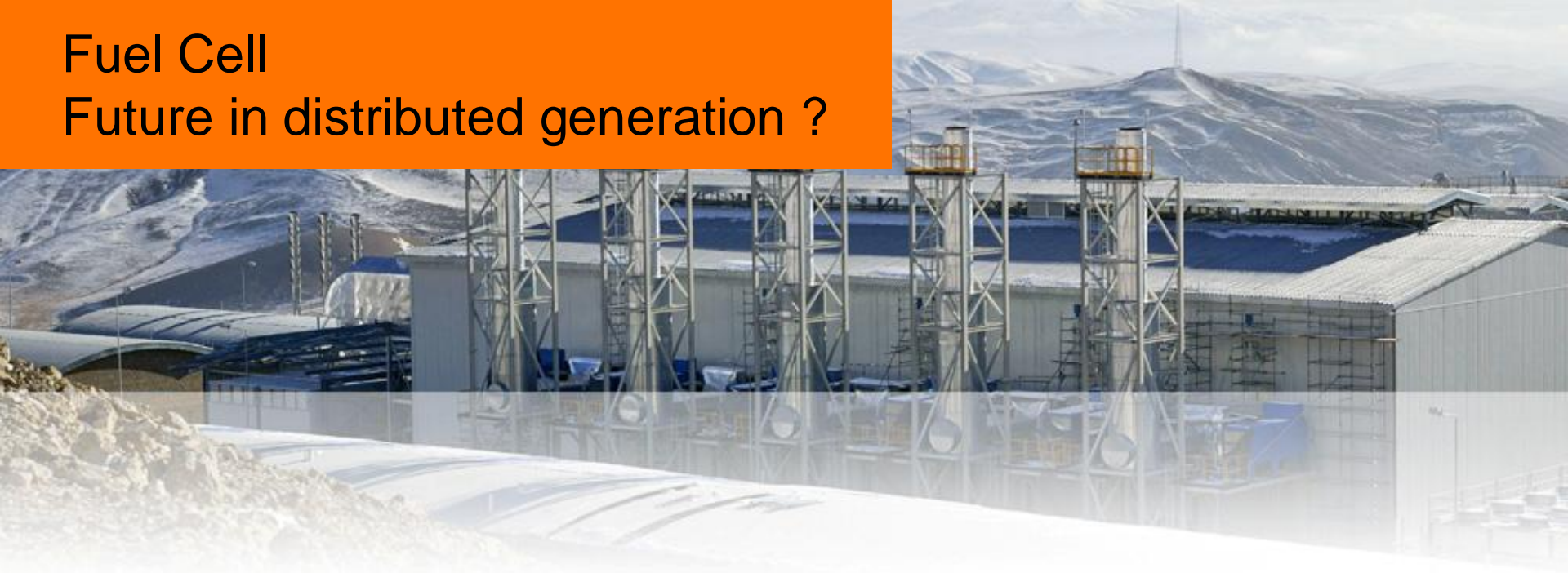


**Legislation**



**Emission  
limits**

# Fuel Cell Future in distributed generation ?



Yes, Fuel Cell Technologies can provide a solution

But

The Technology is not essential for the Customer



# Fuel Cell Future in distributed generation ?



Thank you for your attention

Erkko Fontell