

Residential Fuel cell mCHP

November 25th, 2014

Panasonic Corporation

What is Residential Fuel Cell “ENE-FARM”?

Residential fuel cell “ENE-FARM” is a μ -CHP which creates electricity and hot water
⇒《Energy Creation》

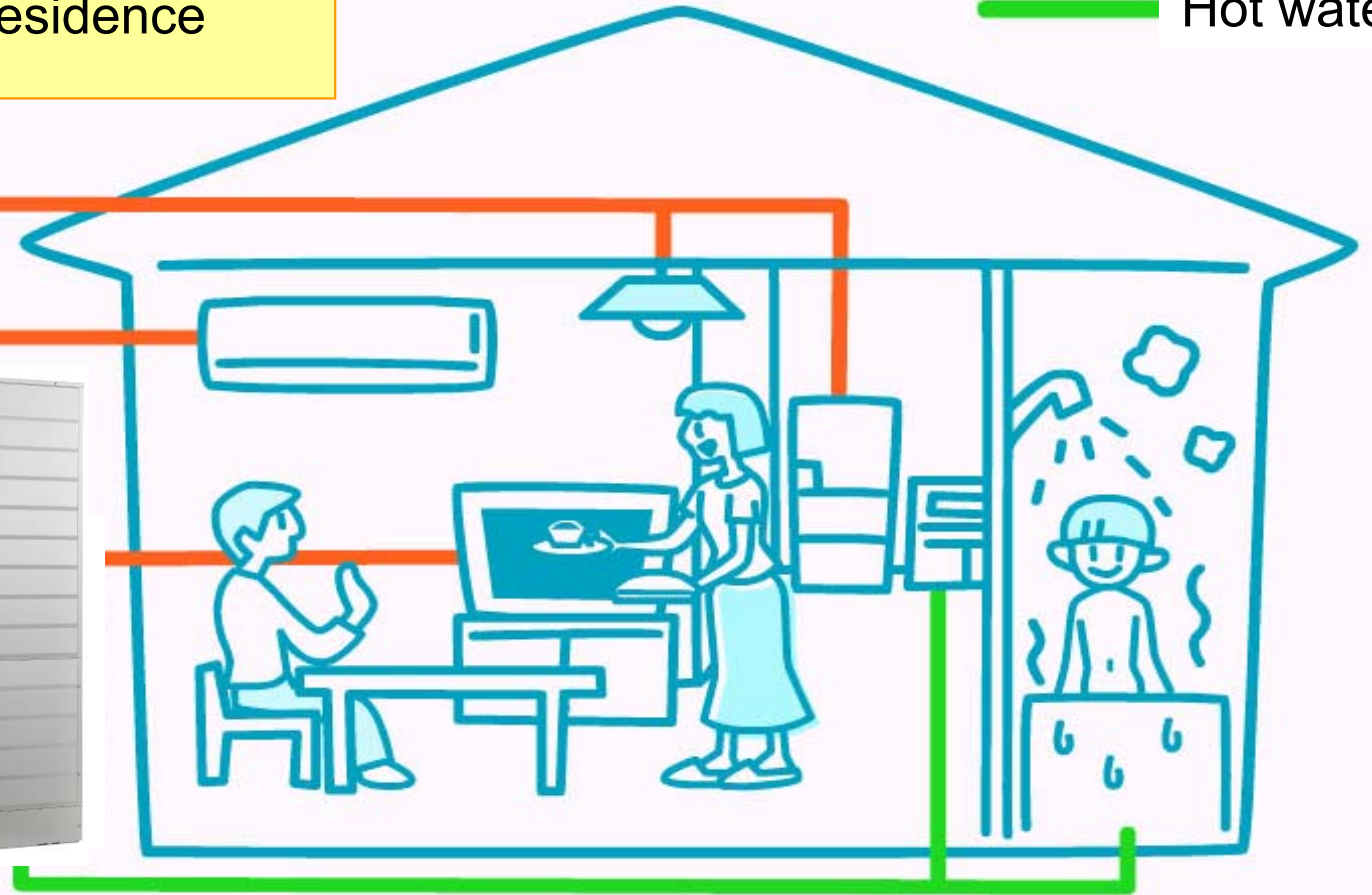


Creates electricity and hot water required for a residence

— Electricity
— Hot water

Natural Gas

Air
(Oxygen)

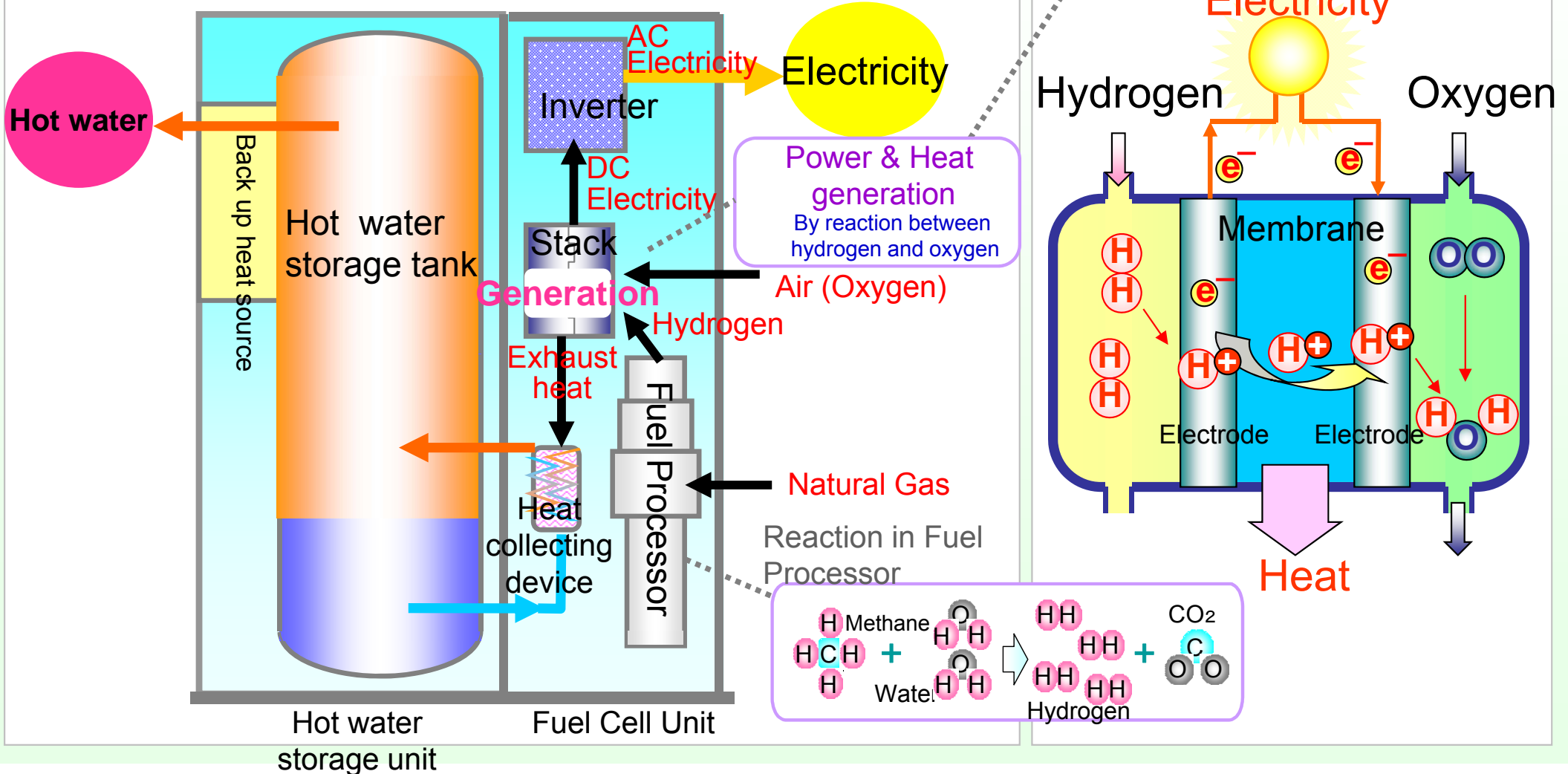


What is Fuel Cell mCHP ?

■ Chemical reaction between hydrogen and oxygen generates electricity, as well as hot water.

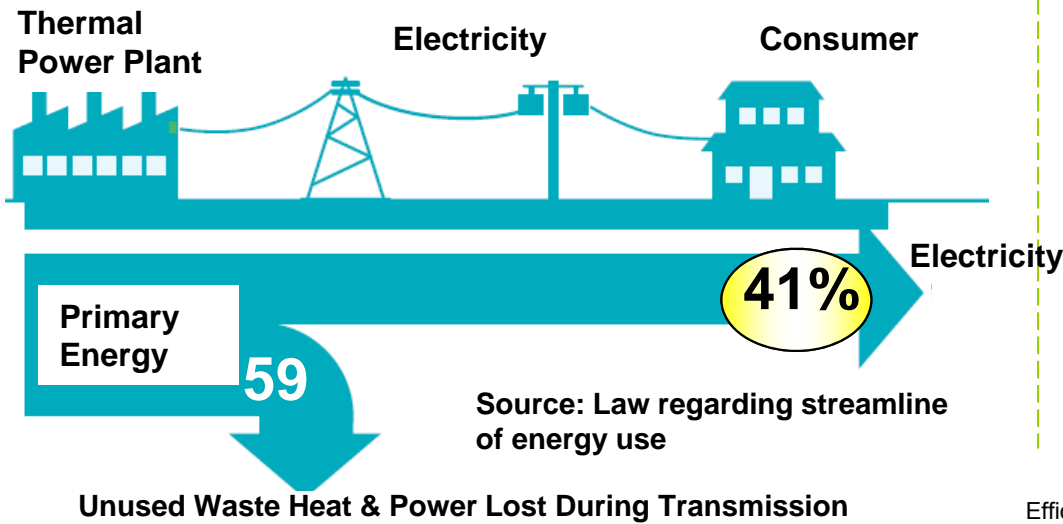
mCHP (Micro Combined Heat & Power)

Power Generation

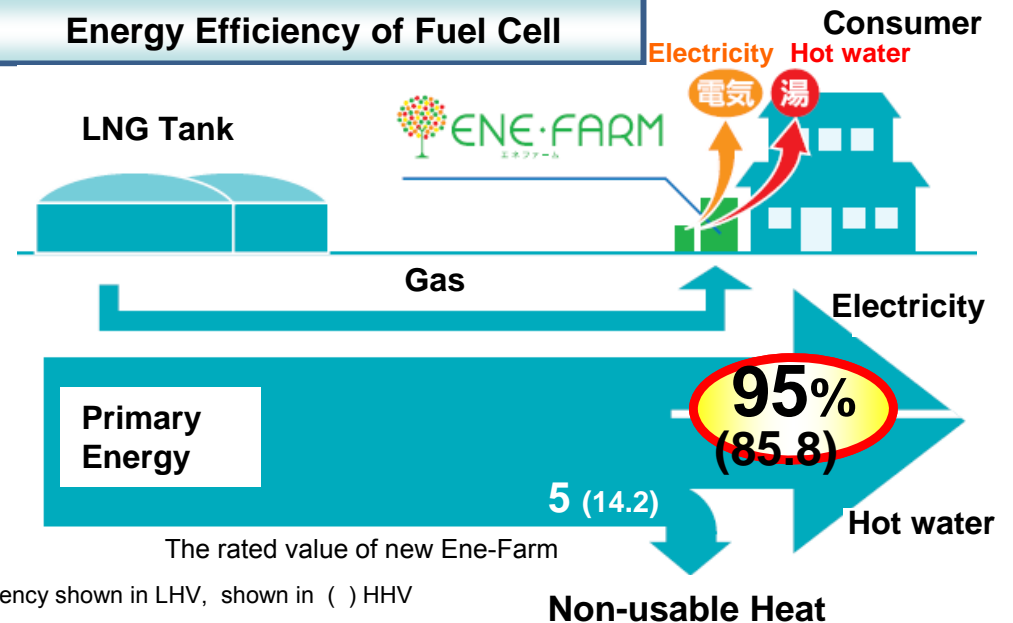


Fuel cell generates electricity where it's used for efficient utilization of precious energy

Energy Efficiency of Power Plant



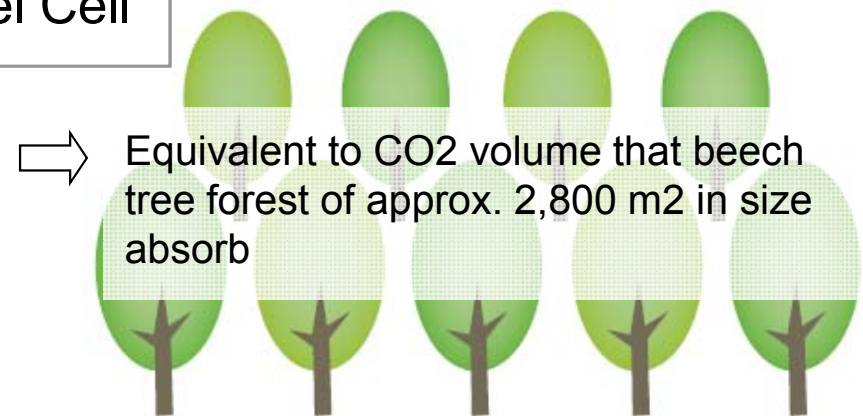
Energy Efficiency of Fuel Cell



Environmental and Economical Effect of Fuel Cell

- ◆ Reduction of CO2 emissions: **1.3t / year**
- ◆ Reduction of household energy cost: **60,000 yen / year**

*Data from Panasonic



Development progress of Fuel Cell mCHP

- The world's first commercial model launched in 2009
- Developed the 3rd generation model for market penetration

1st generation(2009)



2nd generation(2011)



3rd generation(2013)



※1: as of 17th Jan, 2013, Panasonic survey ※2: DSS=Daily Start Stop

Electric output	1000w~300w	750w~250w	750w~200w
Durability	40,000h _(DSS) ※2	50,000h _(DSS) ※2	60,000h _(DSS) ※2
RRP by Tokyo gas	100	79	57 (index number)

A. Installation at private house



B. Fuel Cell + PV, Combined Generation



C. Installation at apartment



D. Various Installation

<Unit to Unit>



<Unit separation>



■ Joint development and sales with Viessmann



1. High efficiency

Power Generation	: 750W
Power Generation Efficiency	: 37%
Overall Efficiency	: 90%

2. Simple construction

Fuel Cell unit + Boiler/Hot water tank unit

3. Easy to Use

Operation and Monitoring by Mobile device

