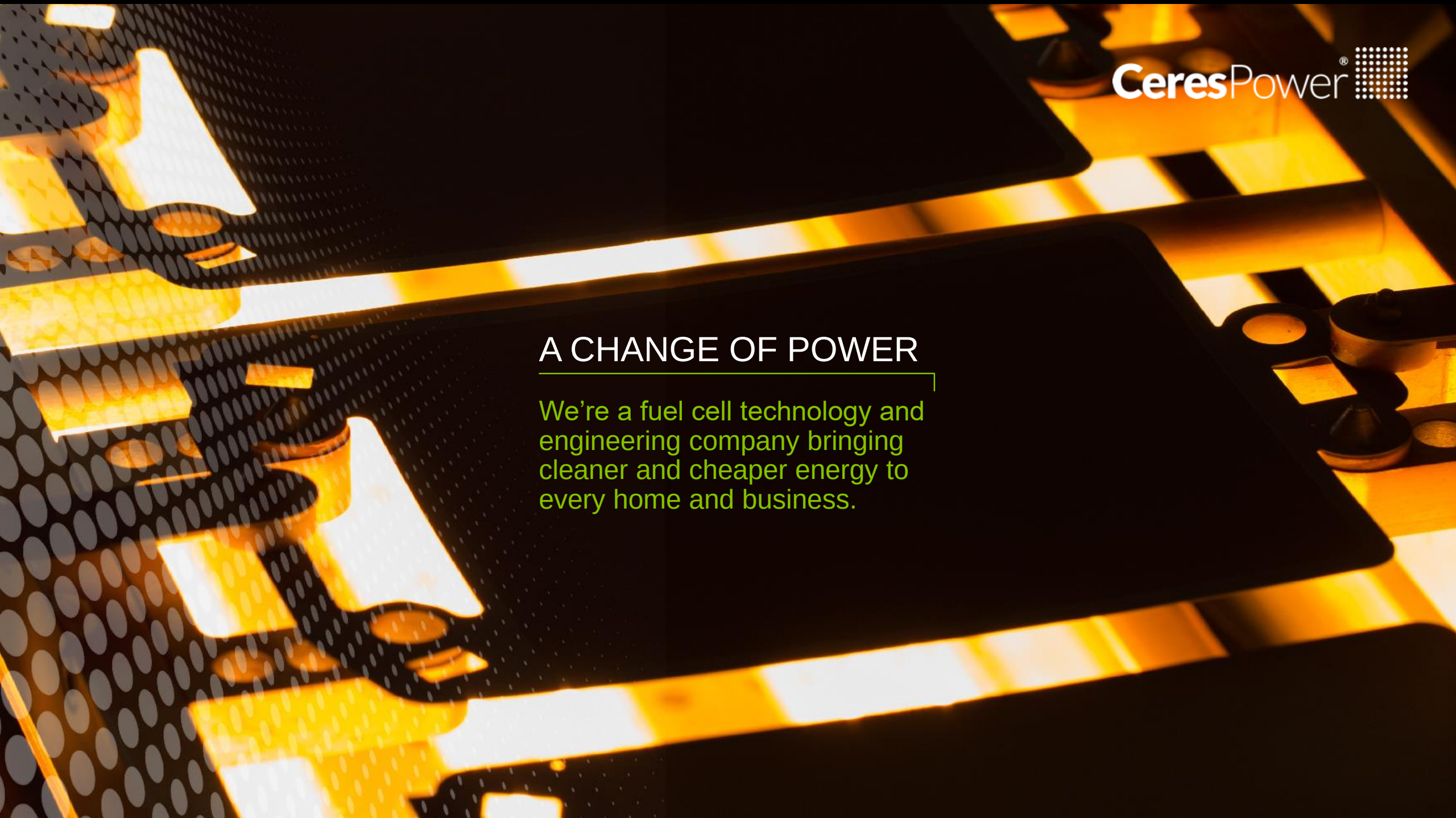

CeresPower®
Our vision
“A fuel cell in every home and business”

Our next generation Steel Cell

- **£100m investment to date**
- **Secured 42 patent families**
- **Unique British technology**


CeresPower®
A CHANGE OF POWER
We’re a fuel cell technology and engineering company bringing cleaner and cheaper energy to every home and business.

The Steel Cell

Costs

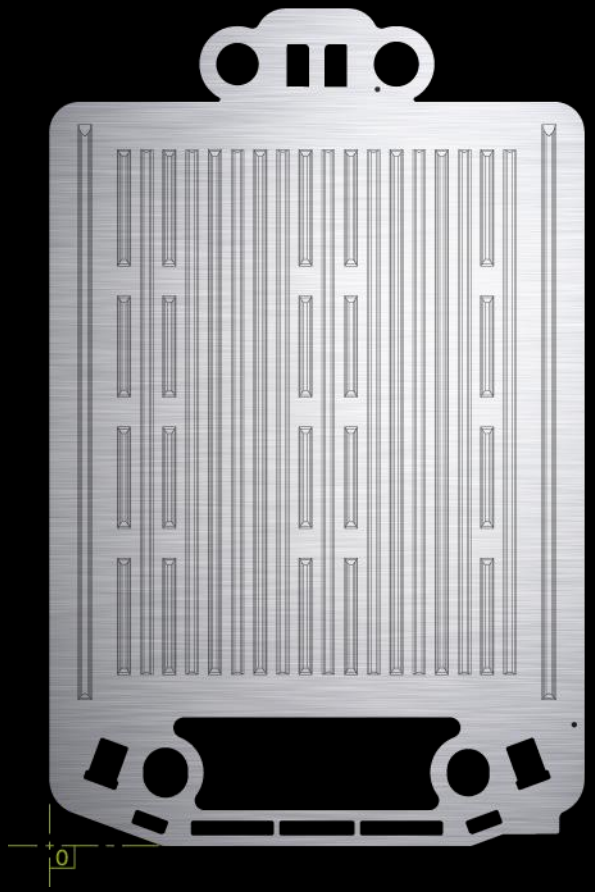
- cell cost
- system cost
- manufacturing cost

Efficiency

- high efficiency
- power density
- life time

Robustness

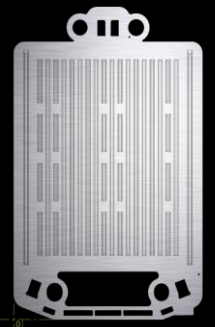
- stop-start
- e-stop
- low degradation



Why is Steel Cell the solution?

PEM cell

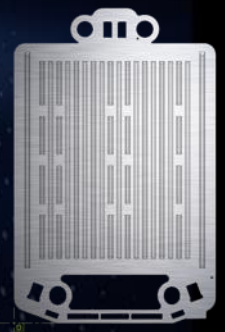
SOFC cell

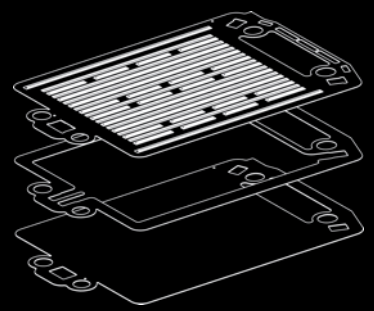


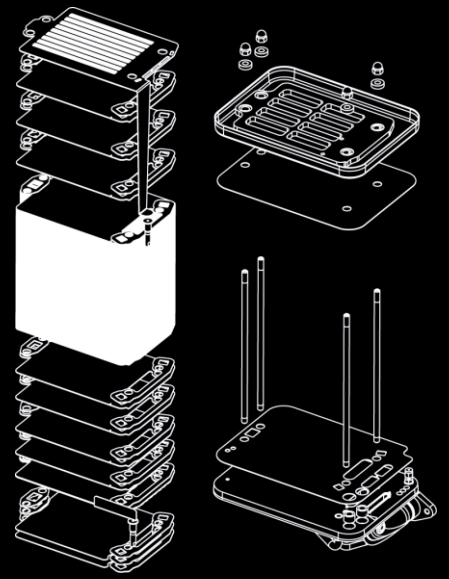
SteelCell

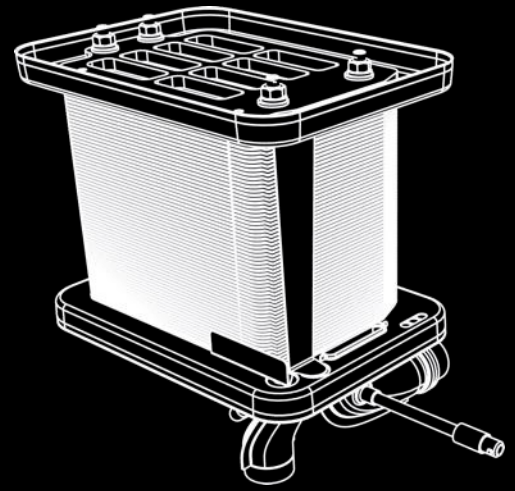
	PEM cell	SOFC cell	SteelCell
Cost			●
Efficiency		●	●
Robustness	●		●
Fuel flexibility		●	●

Simple Robust Stack Concept





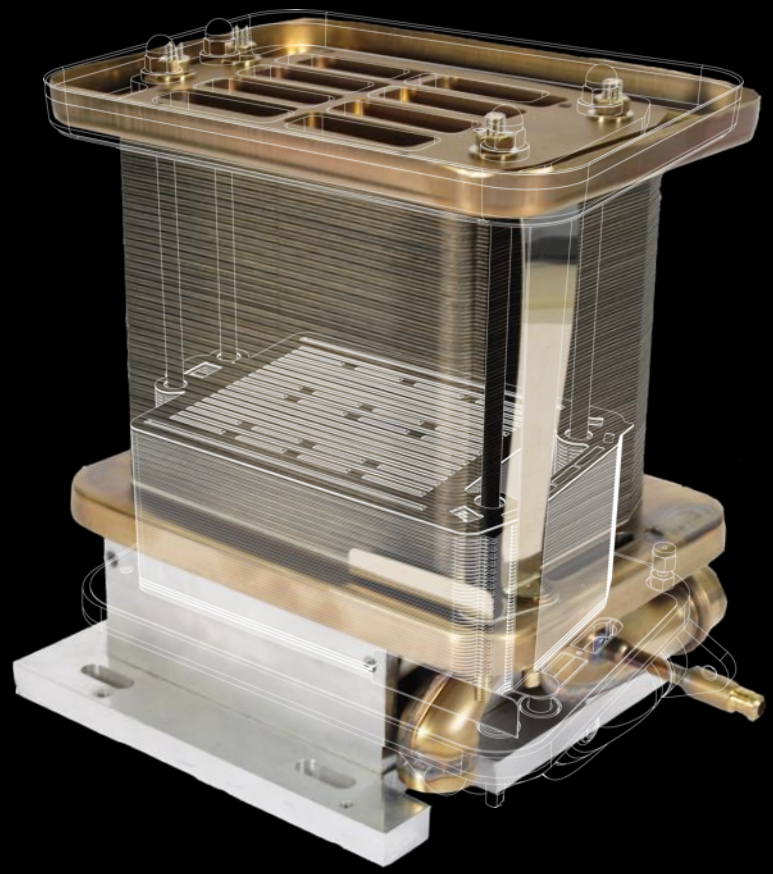




Steel Cell Stack Module

Specification

- Weight 11 kg
- Volume 5 l
- Cells ~100/stk
- Dimensions:
  - W 190mm
  - D 140mm
  - H 180mm
- Sealing by welding and
- compressive gaskets
- Ease of assembly for
- mass manufacture

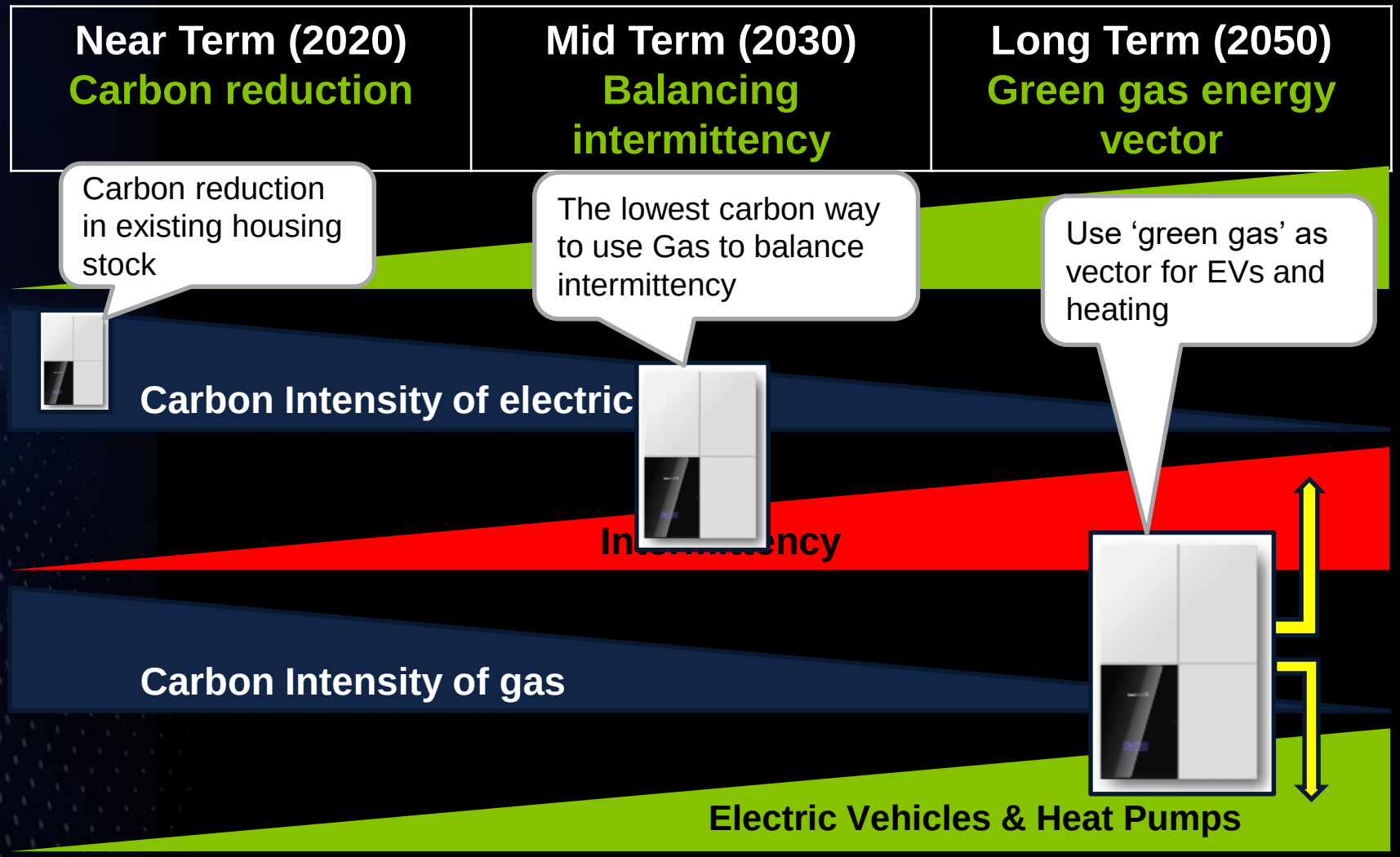


Fuel Cell Power System

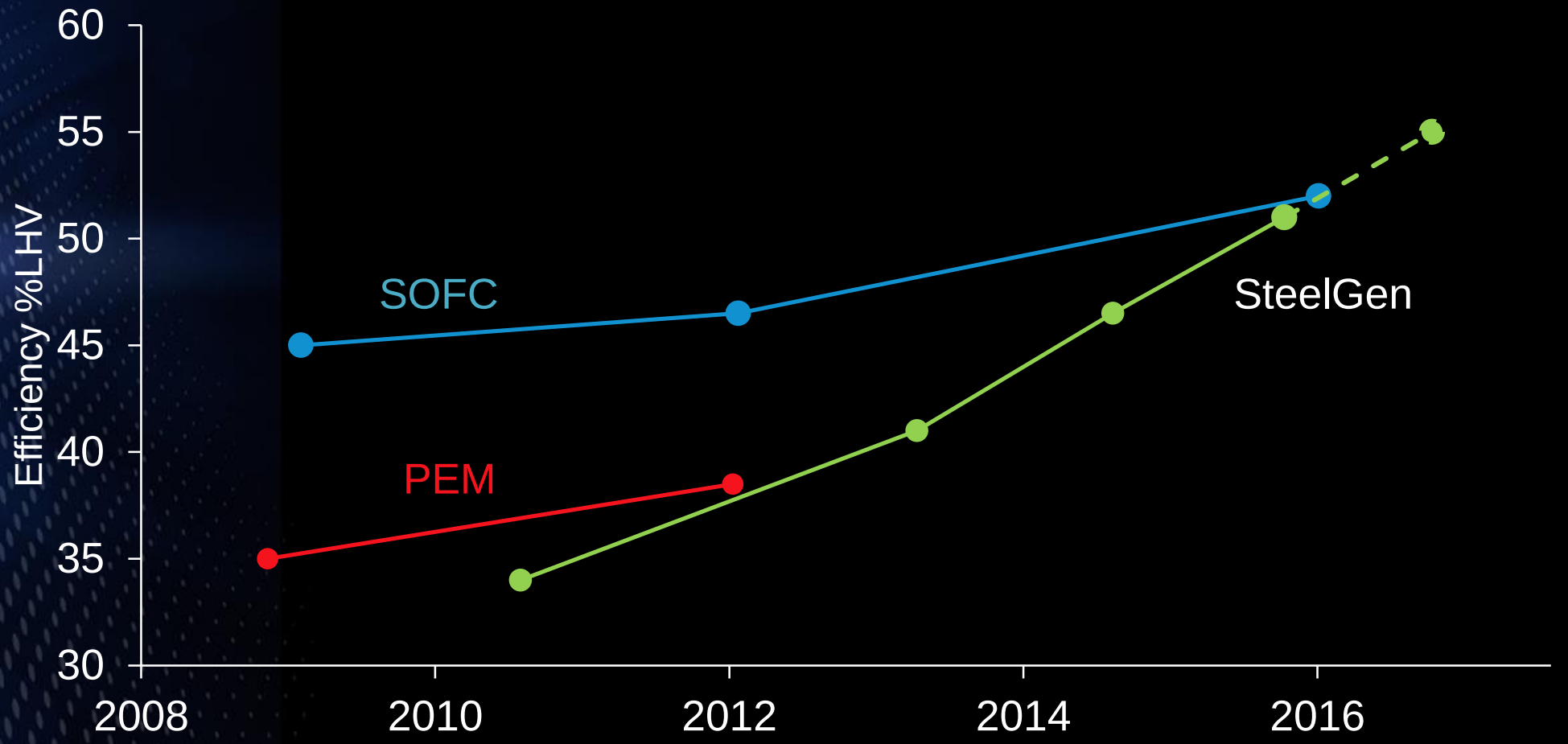
µCHP platform & design

- Conventional fuels
- Flexible core
- Efficiency of 50% power
- Efficiency 90% µCHP
- Affordable materials
- Saves ⅓ carbon
- Saves ⅓ energy bill
- 1kW Class

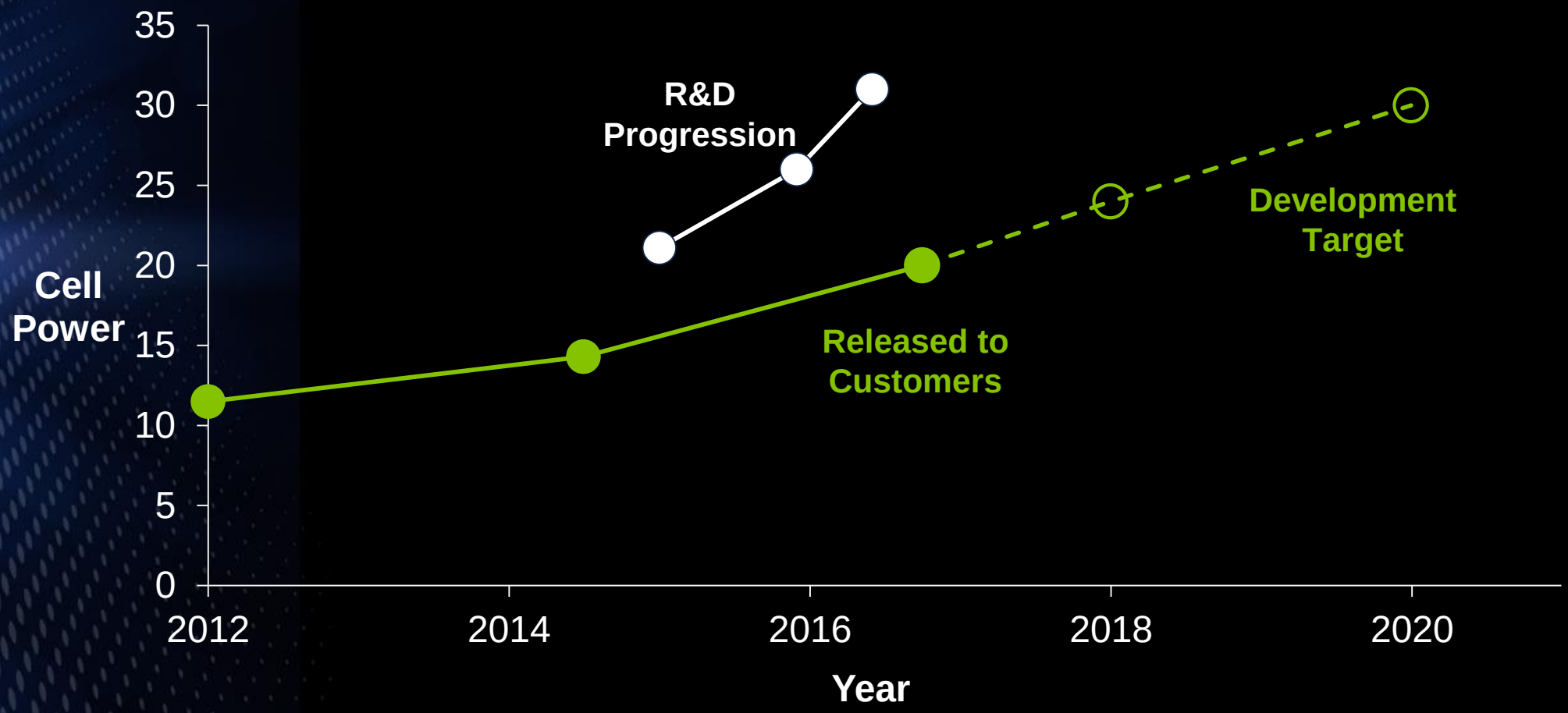
Gas to low-carbon heat and power – supports a low carbon energy future



Fuel Cell Power System – efficiency improvements towards 60% net



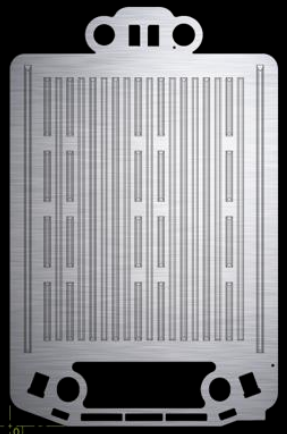
Power density improvements demonstrated in R&D



SteelCell Applications

Commercial

Data Centers



Range Extenders
APU

Residential

Nissan Electric Vehicle Range Extender Concept

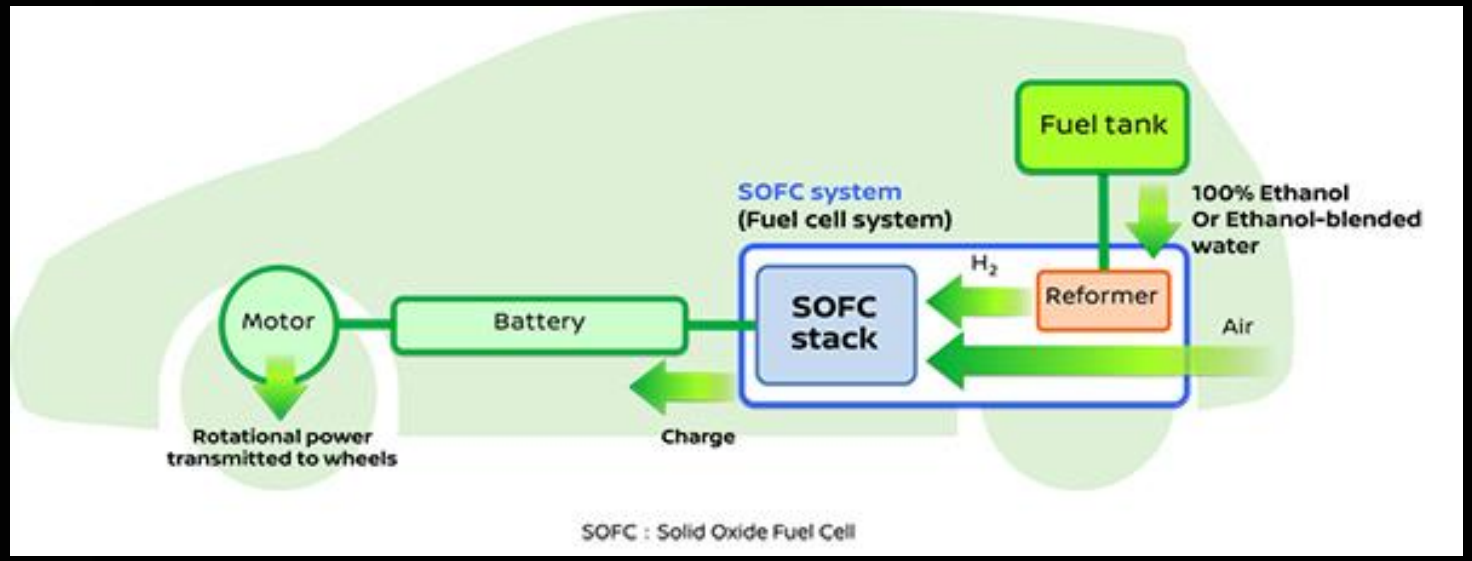


Image from Nissan press release:
https://newsroom.nissan-global.com/releases/160614-01-e

Users

- No lengthy charging
- Maximise operation of fleet
- Same range as a normal vehicle

Energy

- Lower carbon than pure Battery Vehicles
- Waste heat to the cabin
- Bio-ethanol from waste sources

Infrastructure

- No need for a hydrogen infrastructure
- No need for electricity grid reinforcement
- Faster deployment

Why Bio-Ethanol and Solid Oxide Fuel Cells?

	Gasoline ICE	Battery Electric Vehicle	Hydrogen & PEM FC	Bio-Ethanol & SOFC
CO_2 / km (WTW)		● [1]	● [2]	●
Existing Infrastructure	●	●		●
Filling time	●		●	●
Range	●		●	●

1) 67% of global electricity generation is still from fossil fuels
2) Most H_2 production is from reformed Natural Gas

SteelCell Technology meets the needs of Electric Vehicle Range Extenders

High electrical efficiency	✓✓
Fuel flexible	✓✓
Fast start-up	✓✓
Low cost	✓✓
Robust	✓✓
High power-density	✓

Thank you

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