Bloomenergy®

RG 360

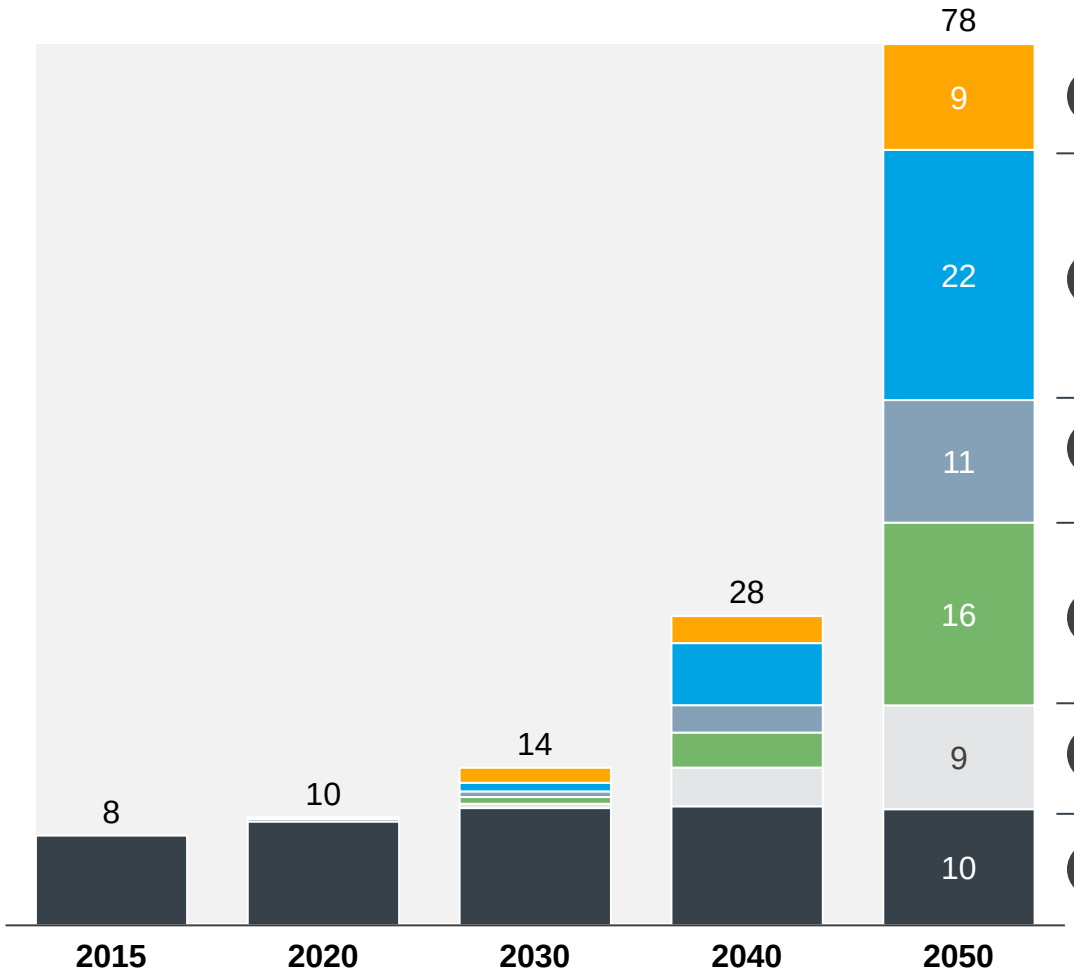
Policies and Technologies to Enable Green Hydrogen

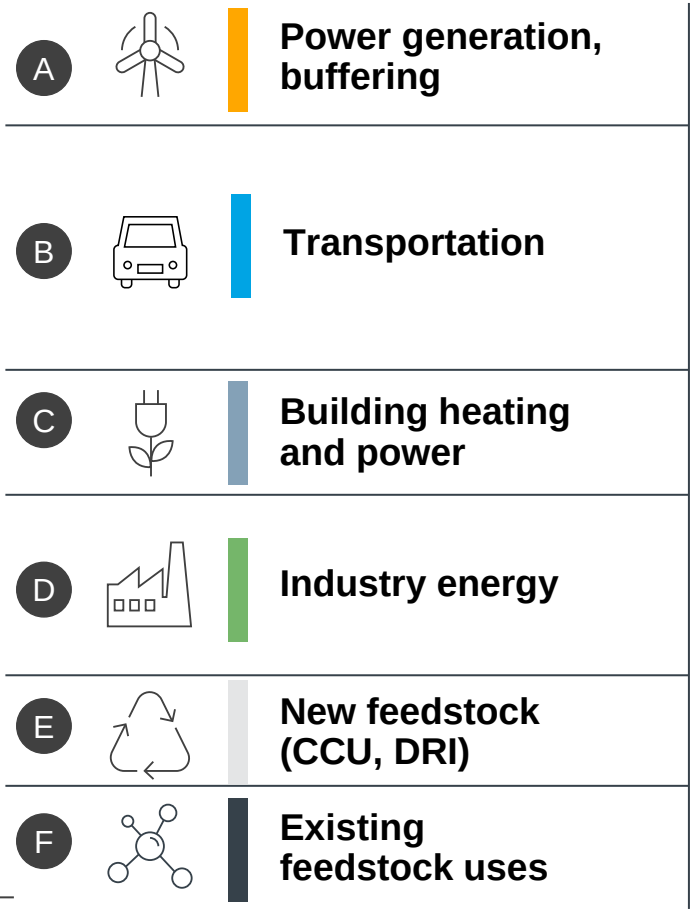
AGENDA

1. Why green hydrogen? It’s the climate, stupid…
2. But it’s also the economics
3. Accelerating green hydrogen
    1. Efficiency
    2. Scale
    3. Policy

IT'S THE CLIMATE, STUPID...

Global energy demand supplied with hydrogen, EJ





18%
of final energy demand

6Gt
annual CO_2 abatement

$2.5tn
annual sales (hydrogen and equipment)

30m
jobs created

Source: Hydrogen Council: Scaling Up, McKinsey

BUT IT'S ALSO THE ECONOMICS

1) 70%
2) 89%
3) 75%

ACCELERATING GREEN HYDROGEN

1) Efficiency
2) Scale
3) Policy

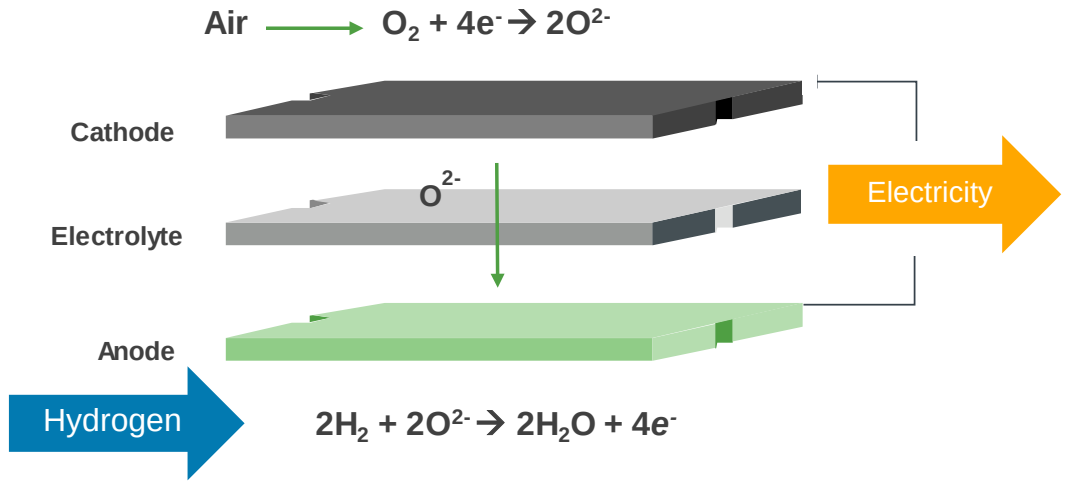
EFFICIENCY

	PEM Electrolysis	Alkaline Electrolysis	Solid Oxide Electrolysis
Description	Based on polymer membrane on a plate under high voltage and high current	Production reaction occurring in liquid alkaline solution	Solid ceramic material as electrolyte operating at high heat to reduce electrical needs
Operating Temperature	70° – 90° C	50° – 90° C	700° – 800° C
Efficiency (kWh/kg) [lower values are more efficient]	52	54	39 / 46 *(with/without heat integration)*

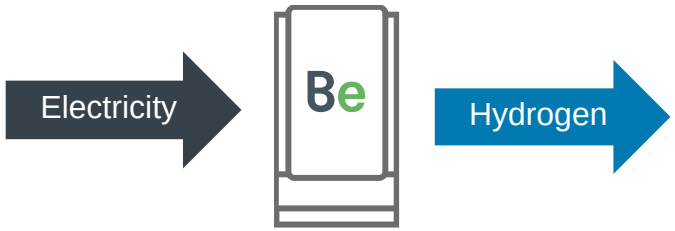
Higher operating temperature of SOEC provides a greater overall efficiency

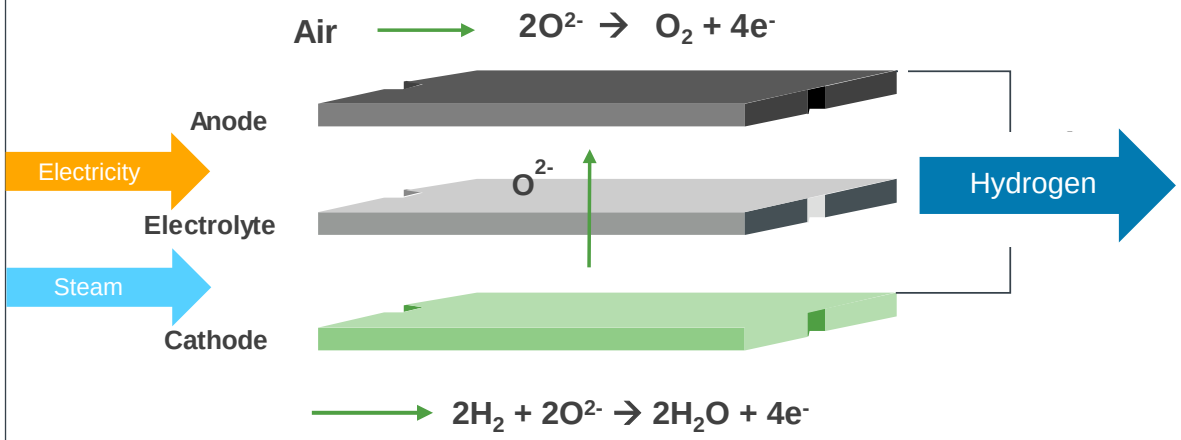
SCALE

FUEL CELL



ELECTROLYZER





SCALE THROUGH COLLABORATION

Bloomenergy | Baker Hughes

ANNOUNCEMENT

BAKER HUGHES AND BLOOM ENERGY TO COLLABORATE ON EFFICIENT POWER AND HYDROGEN SOLUTIONS TO ACCELERATE ENERGY TRANSITION

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ANNOUNCEMENT

BLOOM ENERGY AND IDAHO NATIONAL LABORATORY TO GENERATE HYDROGEN POWERED BY NUCLEAR ENERGY

Bloomenergy | Heliogen

ANNOUNCEMENT

BLOOM ENERGY AND HELIOGEN JOIN FORCES TO HARNESS THE POWER OF THE SUN TO PRODUCE LOW-COST GREEN HYDROGEN

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ANNOUNCEMENT

BLOOM ENERGY AND SK E&C WIN COMPETITIVE BID FOR KOREA'S CHANGWON RE100 PROJECT

The expanded partnership will supply **100% hydrogen-powered solid-oxide fuel cells and electrolyzers**

POLICY

1) ITC/PTC extension
2) $3/kg H2 PTC
3) Hydrogen hubs