



BRIGHTLOOP™

NOVEMBER 2023



SAFE HARBOR STATEMENT

B&W Enterprises cautions that this presentation contains forward-looking statements within the meaning of federal securities laws. All statements other than statements of historical or current fact included in this presentation are forward-looking statements, including, without limitation, statements relating to the company's business outlook and expected financial performance, including adjusted EBITDA and sales targets, expectations regarding future growth, expansion and profitability, outlook and expectations regarding B&W's BrightLoop™ technologies, as well as statements about B&W's future pipeline of new projects and business within its Renewable, Environmental and Thermal operating segments and their impact on future shareholder value. These forward-looking statements are based on management's current expectations and involve a number of risks and uncertainties, including, among other things, the impact of global macroeconomic conditions, including inflation and volatility in the capital markets; the impact of our divestiture of Babcock & Wilcox Solar Energy, Inc. ("Babcock & Wilcox Solar" or "B&W Solar"); the refinancing of our senior debt; our ability to integrate acquired businesses and the impact of those acquired businesses on our cash flows, results of operations and financial condition, including our acquisitions of Babcock & Wilcox Renewable Service A/S, formerly known as VODA A/S ("VODA"), Fossil Power Systems, Inc. ("FPS"), Optimus Industries, LLC ("Optimus") and certain assets of Hamon Holdings Corporation ("Hamon"); our recognition of any asset impairments as a result of any decline in the value of our assets or our efforts to dispose of any assets in the future; our ability to obtain and maintain sufficient financing to provide liquidity to meet our business objectives, surety bonds, letters of credit and similar financing; our ability to comply with the requirements of, and to service the indebtedness under, our debt facility agreements; our ability to pay dividends on our 7.75% Series A Cumulative Perpetual Preferred Stock; our ability to make interest payments on our 8.125% senior notes due 2026 and our 6.50% notes due 2026; the highly competitive nature of our businesses and our ability to win work, including identified project opportunities in our pipeline; general economic and business conditions, including changes in interest rates and currency exchange rates; cancellations of and adjustments to backlog and the resulting impact from using backlog as an indicator of future earnings; our ability to perform contracts on time and on budget, in accordance with the schedules and terms established by the applicable contracts with customers; failure by third-party subcontractors, partners or suppliers to perform their obligations on time and as specified; delays initiated by our customers; our ability to successfully resolve claims by vendors for goods and services provided and claims by customers for items under warranty; our ability to realize anticipated savings and operational benefits from our restructuring plans, and other cost-savings initiatives; our ability to successfully address productivity and schedule issues in our B&W Renewable, B&W Environmental and B&W Thermal segments; our ability to successfully partner with third parties to win and execute contracts within our B&W Environmental, B&W Renewable and B&W Thermal segments; changes in our effective tax rate and tax positions, including any limitation on our ability to use our net operating loss carryforwards and other tax assets; our ability to successfully manage research and development projects and costs, including our efforts to successfully develop and commercialize new technologies and products; the operating risks normally incident to our lines of business, including professional liability, product liability, warranty and other claims against us; difficulties we may encounter in obtaining regulatory or other necessary permits or approvals; changes in actuarial assumptions and market fluctuations that affect our net pension liabilities and income; our ability to successfully compete with current and future competitors; our ability to negotiate and maintain good relationships with labor unions; changes in pension and medical expenses associated with our retirement benefit programs; social, political, competitive and economic situations in foreign countries where we do business or seek new business; the impact of the ongoing conflicts in Ukraine and the Middle East, the impact of pandemics or other global health crises, and the other factors specified and set forth under "Risk Factors" in our periodic reports filed with the Securities and Exchange Commission, including, without limitation, the risks described in the Company's Annual Report on Form 10-K for the year ended December 31, 2022 under the caption "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" (as applicable). These factors should be considered carefully, and B&W Enterprises cautions you not to place undue reliance on these forward-looking statements, which speak only as of the date of this presentation, and undertakes no obligation to update or revise any forward-looking statement, except to the extent required by applicable law.

BRIGHTLOOP™ - B&W'S INNOVATIVE HYDROGEN GENERATION TECHNOLOGY SUPPORTS GLOBAL 2050 CLIMATE GOALS

PRIMARY HYDROGEN (H₂) PRODUCTION METHODS TODAY:

- **Steam Methane Reforming:** natural gas converted to hydrogen and carbon dioxide using a catalyst with additional processes needed for carbon capture
- **Autothermal Reforming:** syngas produced from natural gas, along with further processes creates hydrogen and carbon dioxide
- **Gasification:** carbonaceous fuels converted at high temperature into carbon monoxide, hydrogen and carbon dioxide which must all be separated with further processing
- **Electrolysis:** electricity used to convert water into hydrogen and oxygen

2030 H₂ GLOBAL MARKET

- 165 million Tonnes/Year (500,000 tonnes/day) from electrolysis, steam methane reforming, auto-thermal reforming, gasification, chemical-looping and other novel technologies
- **Current State:** 70 million Tonnes/Year of high cost, high carbon intensity hydrogen from steam reforming of natural gas, gasification and electrolysis

*Data from IEA Net Zero by 2050 A Roadmap for the Global Energy Sector

INCENTIVES DRIVING HYDROGEN MARKET

United States Incentives – Inflation Reduction Act

Clean Hydrogen Production Tax Credit (PTC) 45V

New 10-year incentive for clean hydrogen production with four tiers and a maximum of 4 kilograms of CO₂ equivalent per kilogram of hydrogen

Carbon Capture & Sequestration Tax Credit 45Q

Increases the tax credits, lowers the threshold to be applicable, and adds direct air capture making carbon capture affordable

Advanced Energy Project Credit (ITC) 48C

New, tech-neutral ITC replaces Energy ITC after 2024, emissions-based and flexible between clean technologies

European Union Incentives – Green Deal Industrial Plan - Proposed

Net-Zero Industry Act (for less red tape)

Ensures simplified and fast-track permitting, promoting EU strategic projects, and developing standards to support the scale-up of technologies across the Single Market.

Faster access to funding

Speed up investment and financing for clean tech production in Europe.
Subsidy pool of \$265 billion

BRIGHTLOOP™ HYDROGEN PRODUCTION

FEEDSTOCK OPTIONS

BIOMASS



BIOGAS



NATURAL GAS



COAL



PETROLEUM COKE



Nitrogen
for Beneficial Use



BrightLoop™
Technology

CO₂
for Storage/Beneficial Use

OUTPUT OPTIONS



HYDROGEN



STEAM



ELECTRICITY



SYNGAS

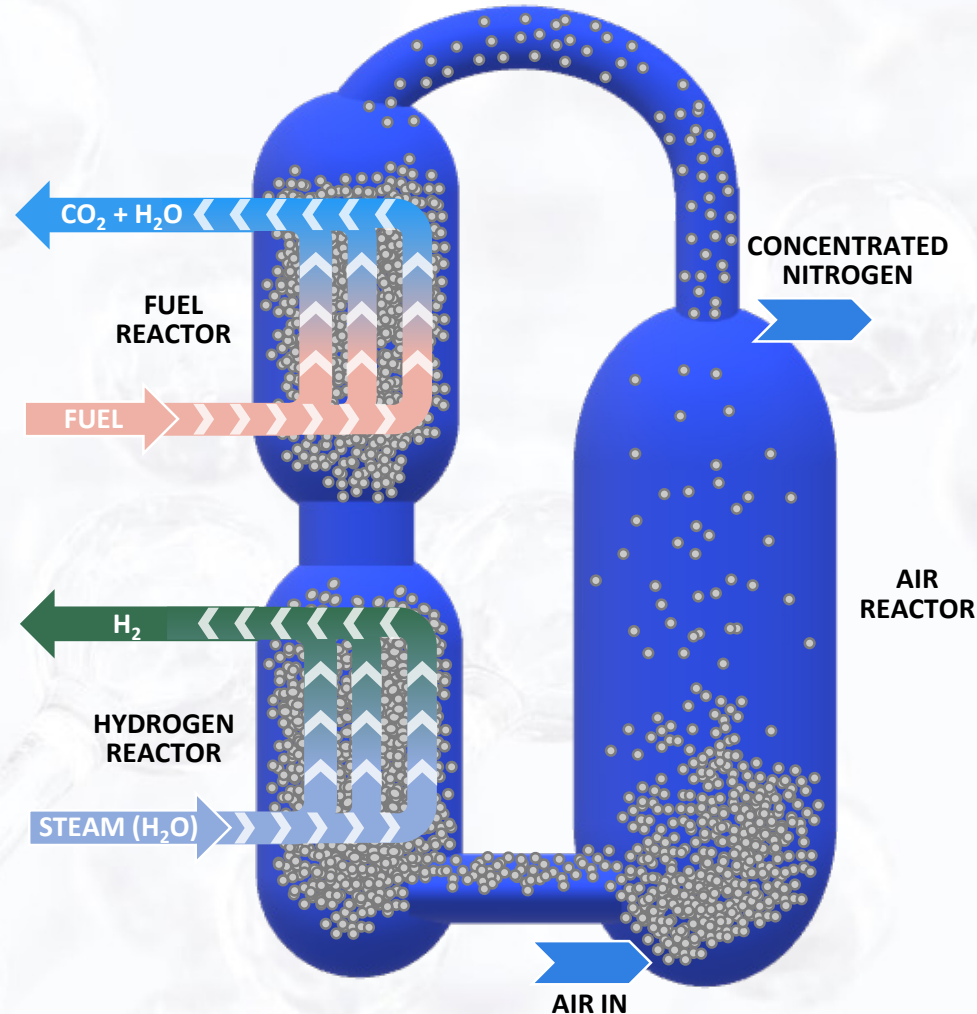
SIGNIFICANT ADVANTAGES:

- **Hydrogen from solid fuels** – can utilize a variety of solid or gaseous fuels as feedstock
- **High rate of carbon captured** – inherent CO₂ isolation supports sequestration or utilization without the expensive post combustion capture equipment and operation
- **Competitive hydrogen cost** – lower levelized cost of hydrogen when compared to other hydrogen production methods
- **High quality hydrogen** – production from steam produces higher quality as compared to separating hydrogen from fuel
- **Scalable for a range of applications** – accommodates both large and small applications

BRIGHTLOOP™ CHEMICAL LOOPING OVERVIEW

Fuel reactor – moving bed design that allows full reaction of particle to achieve FeO state of the particle

Hydrogen reactor – hydrogen is created from the steam reacting with the hot particle



Patented iron oxide particle – oxidation state of particle is controlled through chemical reactions as it moves around the system

Depleted Air and CO₂ streams – heat exchangers to create steam for use in the hydrogen reactor and concentrated streams allow for small footprint equipment to clean up any pollutants in the streams

BRIGHTLOOP IDEAL FOR WIDE RANGE OF APPLICATIONS

CREATES HYDROGEN WITHOUT INCINERATION OR GASIFICATION

SMALL SCALE

1-3 tonnes per day of H₂
for industry, industrial
equipment or transportation.

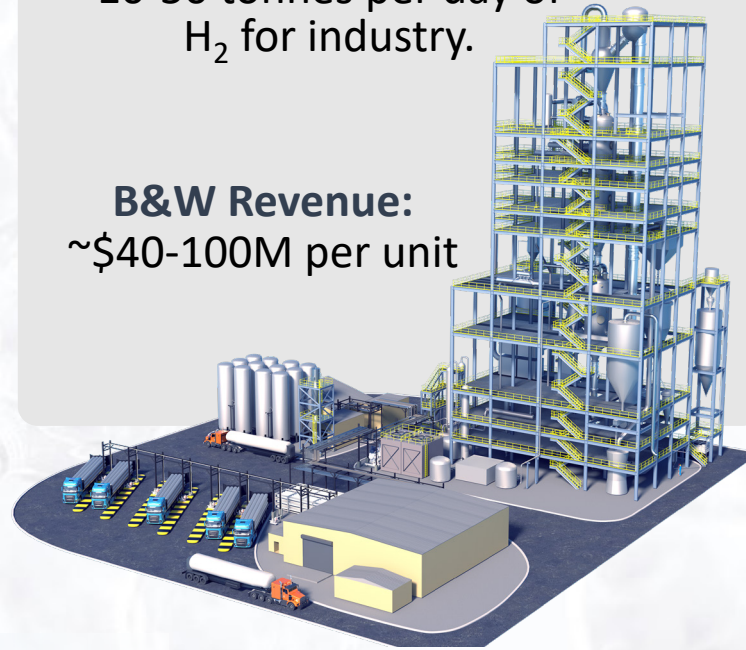
B&W Revenue:
~\$5-30M per unit



MEDIUM SCALE

10-50 tonnes per day of
H₂ for industry.

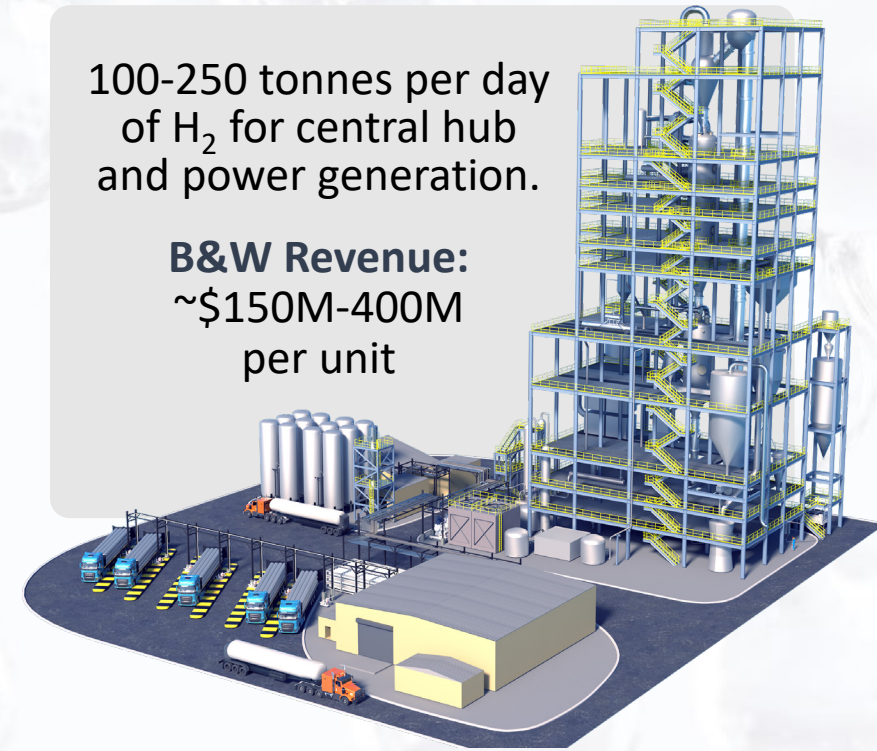
B&W Revenue:
~\$40-100M per unit



LARGE SCALE

100-250 tonnes per day
of H₂ for central hub
and power generation.

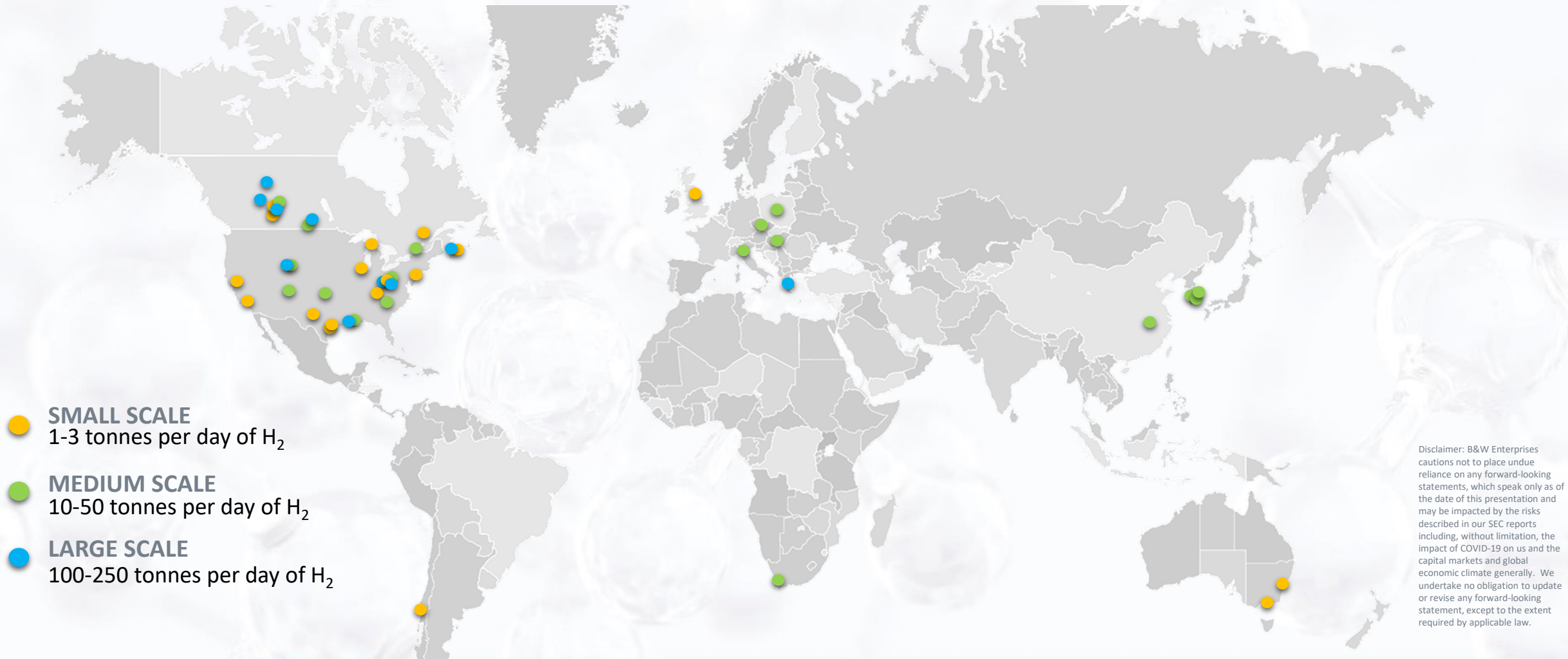
B&W Revenue:
~\$150M-400M
per unit



Hydrogen available for: Industrial processes, transportation fuels, ammonia and methanol production, and power generation.

GLOBAL OPPORTUNITIES FOR LOW CARBON INTENSITY HYDROGEN

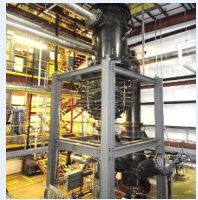
BRIGHTLOOP™ PIPELINE – GREATER THAN \$1 BILLION



LEVERAGING DECADES OF FUNDING AWARDS AND INVESTMENTS

CONTINUE TO SCALE THIS INDUSTRY – CHANGING TECHNOLOGY

COAL DIRECT CHEMICAL LOOPING (CDCL)



2,000 **50**

OPERATING HOURS

STARTUP / SHUTDOWNS

NATIONAL CARBON CAPTURE CENTER (NCCC)



1,000 **20**

OPERATING HOURS

STARTUP / SHUTDOWNS

2009 CL
with OSU

2010 NCCC
Design & Construction

2010 NCCC
Testing

2012 – 2014 CDCL DOE
Techno-Economic Analysis

2016 – 2018 DOE
Pre-FEED CDCL

2022 - Present
Commercialization

THE OHIO STATE UNIVERSITY

TGA TESTING

500 **10,000**
TEST RUNS HOURS OF TESTING

3 Reactor SUB-PILOT

50 **1,000**
TEST RUNS HOURS OF TESTING

BENCH SCALE

200 **5000+**
TEST RUNS HOURS OF TESTING

SUB-PILOT

50+
TEST RUNS

2,000+
HOURS OF TESTING

75
STARTUP / SHUTDOWNS

PATENTED IRON OXIDE PARTICLE

10,000+
CYCLE TIMES

3,000+
HOURS OF TESTING

10,000+
TOTAL TESTING HOURS



Experts Trained

70 OSU CL
RESULTED PHDs
100 GRAD
STUDENTS
250 OTHER STUDENTS
AND STAFF

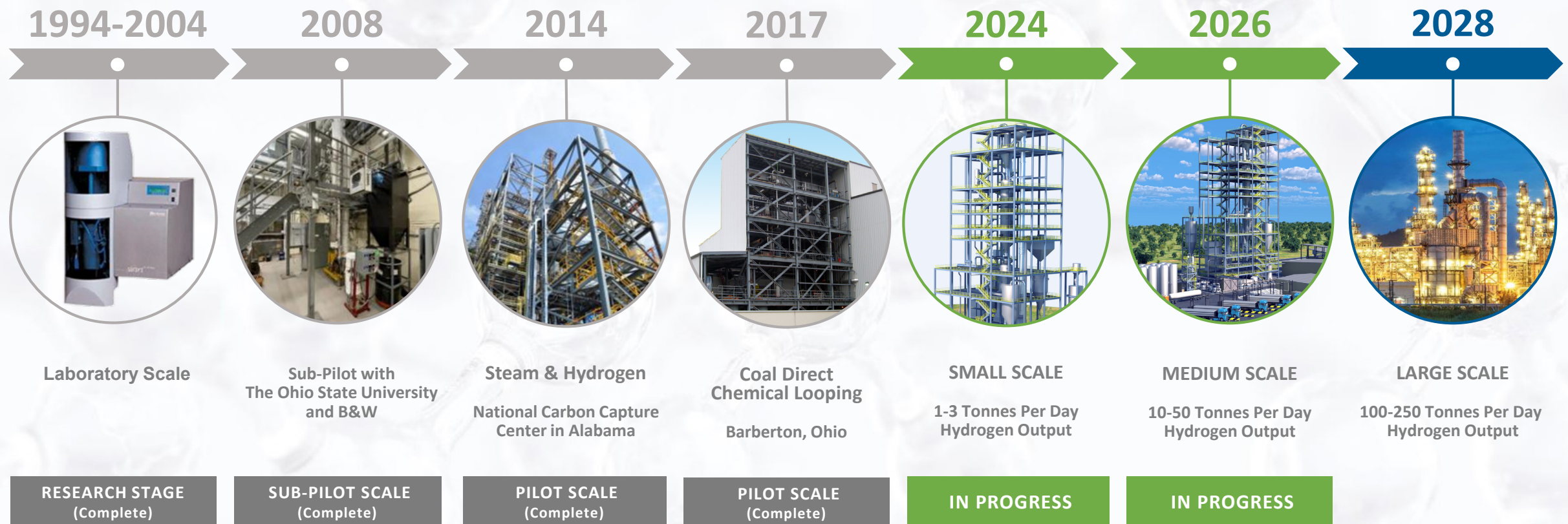
TOTAL R&D INVESTMENT

\$275M+

DOE GRANTS – STATE GRANTS – OSU – B&W
to study impact of various feedstocks on hydrogen
production and advance the technology

BRIGHTLOOP™ HYDROGEN PRODUCTION PROGRESS

BRIGHTLOOP™ EVOLUTION



PROJECT – MASSILLON, OH

REVENUE OUTPUTS

H₂ from Natural Gas

~1-3 tonnes/day

H₂ production use

**Industrial and/or
transportation**

PROJECT DEVELOPMENT PLAN – APPROXIMATE TIMELINE

Off-take agreement finalized

4Q 2023

Funding Commitment

4Q 2023

Permits issued

1Q 2024

Target first H₂ production

4Q 2024



PROJECT – GILLETTE, WY

REVENUE OUTPUTS

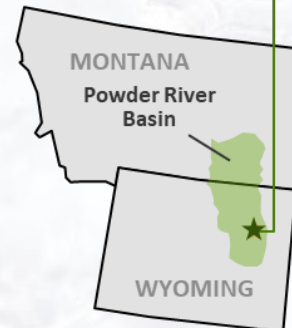
H ₂ from Powder River Basin Coal	~10-15 tonnes/day
H ₂ production use	Power generation and/or transportation

PROJECT DEVELOPMENT PLAN – APPROXIMATE TIMELINE

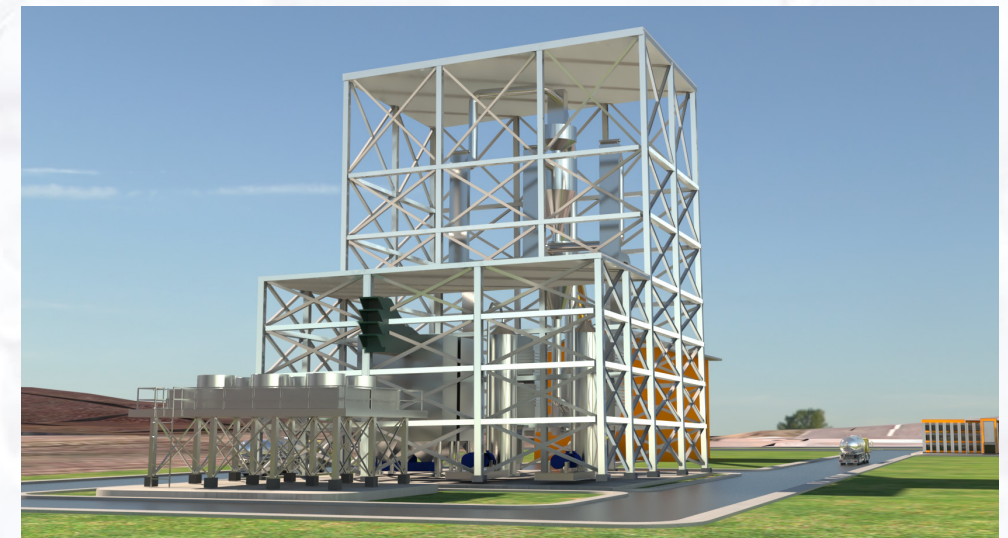
Permits issued	2Q/3Q 2024
Target first H ₂ production	3Q/4Q 2026
Follow-on >100 tonnes/day large unit project commences	4Q 2026/1Q 2027
Large unit H ₂ production	2Q/3Q 2029



SITE
Powder River Basin “PRB” is the largest source of low cost carbon in the U.S.



Project Renderings



PROJECT – BATON ROUGE, LA



REVENUE OUTPUTS

H ₂ from biomass to produce carbon negative H ₂	~10-15 tonnes/day
H ₂ production use	Industrial

PROJECT DEVELOPMENT PLAN TARGET DATES

Land lease, feedstock and off-take agreements in progress with completion	4Q 2023 – 1Q 2024
Permits issued	Q2/Q3 2024
Target first H ₂ production	4Q 2026
Follow-on >100 tonnes/day large unit project commences	3Q 2027
Large unit H ₂ production	4Q 2029

AFTERMARKET POTENTIAL FOR B&W

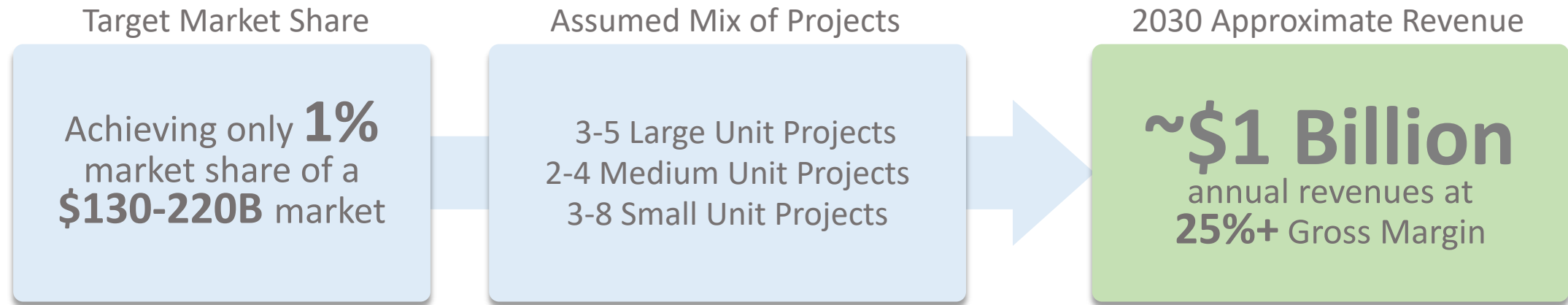
ANNUAL REVENUE ~ \$200-250K PER TONNE
OF H₂ PER DAY PRODUCTION

- Standard designs support strong aftermarket potential of all plant equipment
- Patented iron oxide particle addition required each year to maintain performance
- Ongoing support by continuous monitoring of operation utilizing subject-matter experts and artificial intelligence for groundbreaking analysis and ongoing performance improvement



UNLOCKING FUTURE REVENUE POTENTIAL OF BRIGHTLOOP AND POSITION BASED ON MARKET

WITH SIGNIFICANT GROWTH OF HYDROGEN PROJECTED



B&W currently has 8 projects in pipeline which alone total over \$1Billion

B&W Project Timeline:

- 2024 – Producing hydrogen from the first small unit
- 2025 – Producing hydrogen from the first medium unit
- 2030 – Booking multiple units of each size per year

*Market Data from IEA Net Zero by 2050 A Roadmap for the Global Energy Sector

