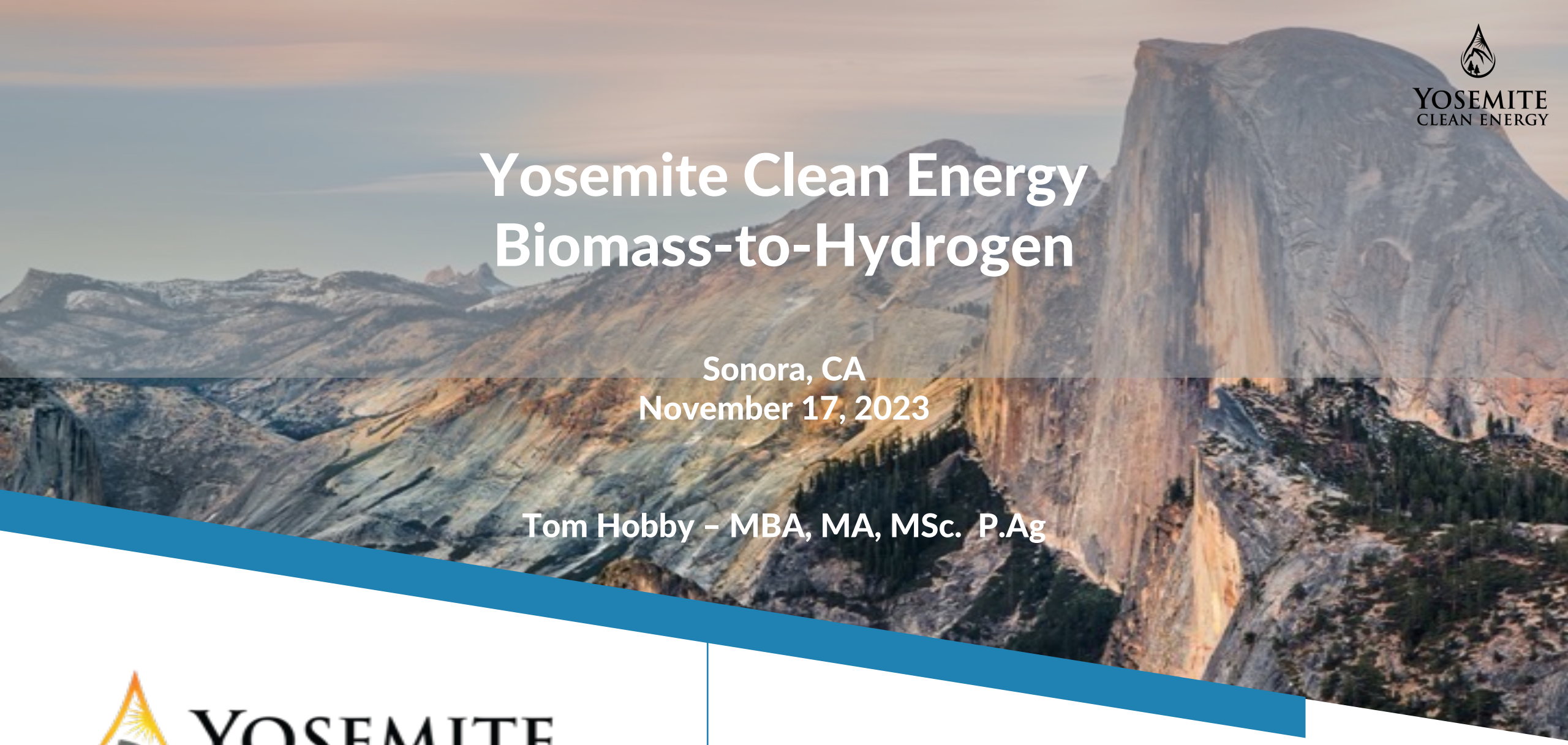

Yosemite Clean Energy
Biomass-to-Hydrogen

Sonora, CA
November 17, 2023

Tom Hobby – MBA, MA, MSc. P.Ag

YOSEMITE
CLEAN ENERGY

California's Problem

CA forests destroyed by wildfires 2016-2022[1]

- 11.2+ MM acres burned
- 195+ lives lost
- 51,664+ structures destroyed

CA companies and communities facing significant liability

- Utilities mandated to manage powelines
- 2MM structures at high or extreme risk,[2] and homeowners unable to obtain fire insurance
- Government committed to managing 1MM acres/year, or up to 20MM BDT of wood waste

USFS Acres Burned[2]

- 2013-2022 - 71.8 MM acres burned

US Senate Report Annual Wildfire Damage

$396-893 Billion per year

1. https://www.fire.ca.gov/incidents/
2. www.verisk.com/insurance
3. www.arb.ca.gov/resources

YCE's Solution

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YCE's wildfire, emissions, and ecosystem benefits

- Upcycles 90,000BDT per year per plant, sustainably managing 5,000 forest or ag acres
- Significantly reduces risk of catastrophic wildfire, reducing CO_2 emissions by up to 170,000 tons/year, and particulate emissions by thousands of tons/year[3]
- Displaces over 100,000 tons CO_2 from transportation industry
- Restores and protects ecosystems and watersheds

YCE's Model

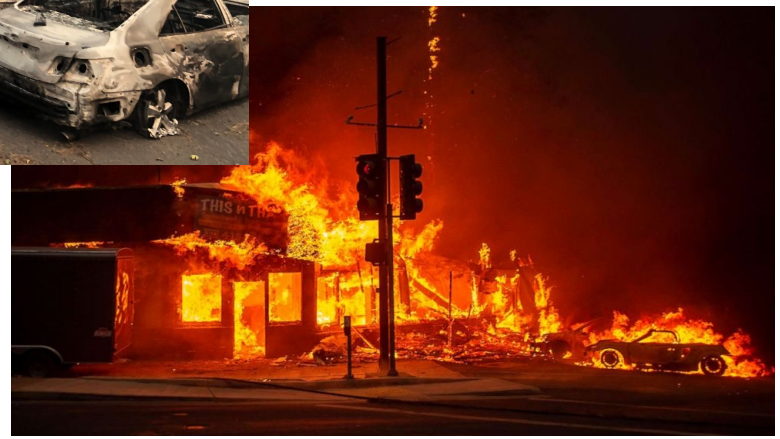
- Provide wood owners or producers the highest value for the biomass back to the owner/producer
  - Wood suppliers are equity partners, long-term supply agreements
  - Fixed price with Price Incentive Pool Bonus
- Better utilize all timber resources as a 3rd leg of the stool along with sawlogs, pulp and **high $$ value biomass**

Wildfire Damage

YOSEMITE CLEAN ENERGY

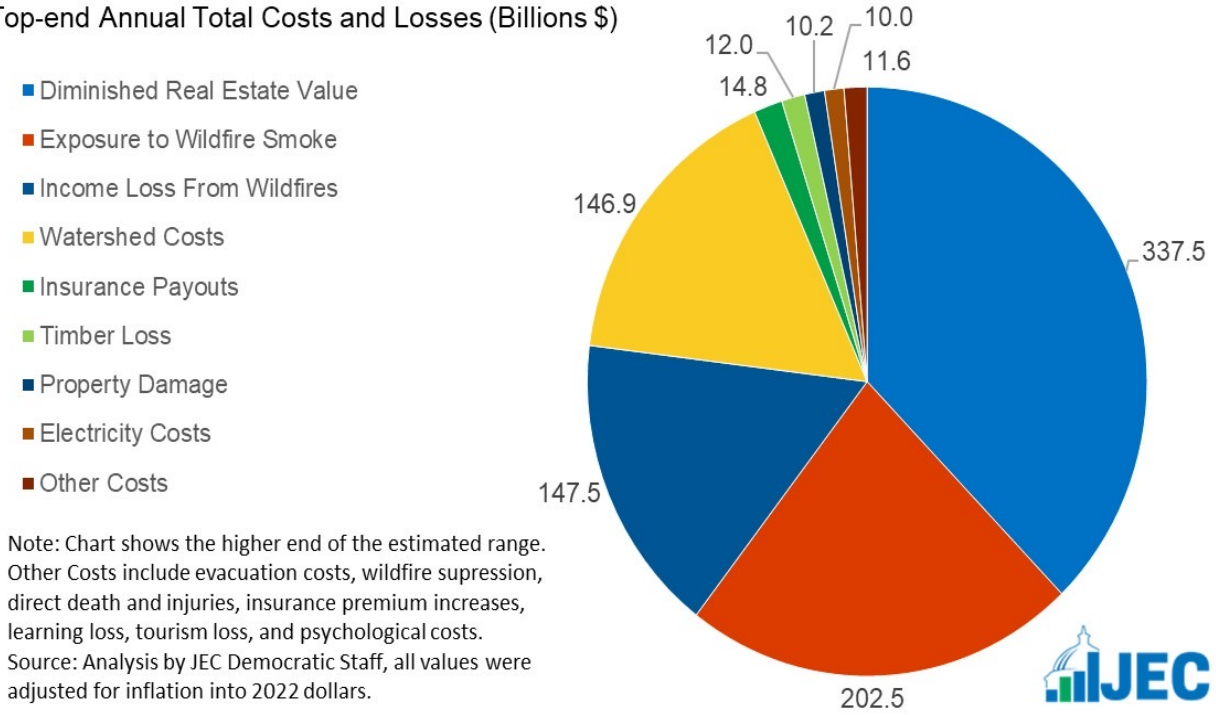
Increasing Costs in USA - Year after Year

US Senate Report, Oct 2023



Climate-Exacerbated Wildfires Cost As Much as $893 Billion Per Year

Top-end Annual Total Costs and Losses (Billions $)



Note: Chart shows the higher end of the estimated range. Other Costs include evacuation costs, wildfire supression, direct death and injuries, insurance premium increases, learning loss, tourism loss, and psychological costs.
Source: Analysis by JEC Democratic Staff, all values were adjusted for inflation into 2022 dollars.

JEC

Wildfire Severity Damage

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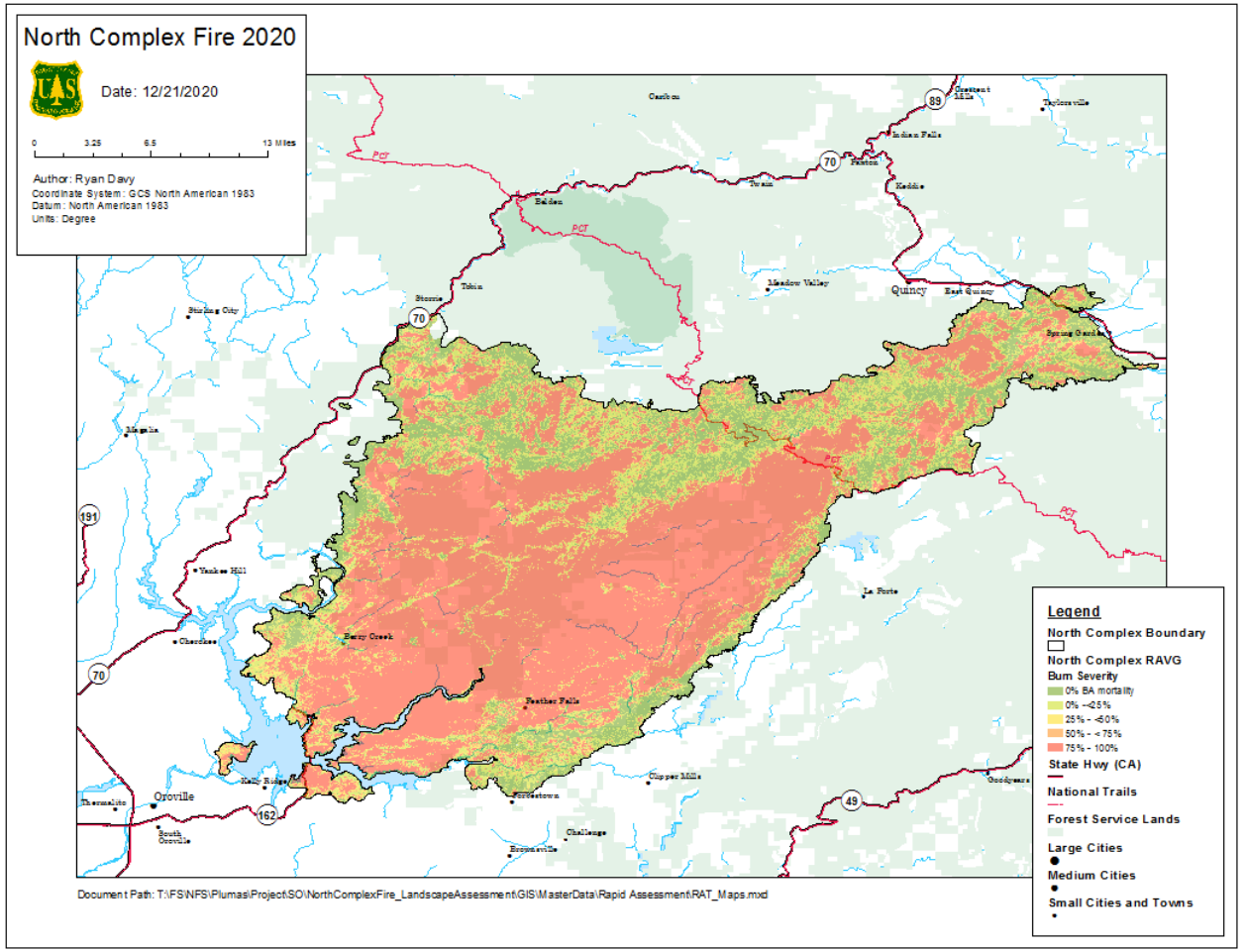
More intense wildfire severity over the last decade

BAER Reports post Wildfires
Burned Area Emergency Response

- Increased hydrophobic soils
- Increased sedimentation
- Poor water turbidity and toxicity
- Erosion and soil sterilization

- All are significant costs and lost soil productivity



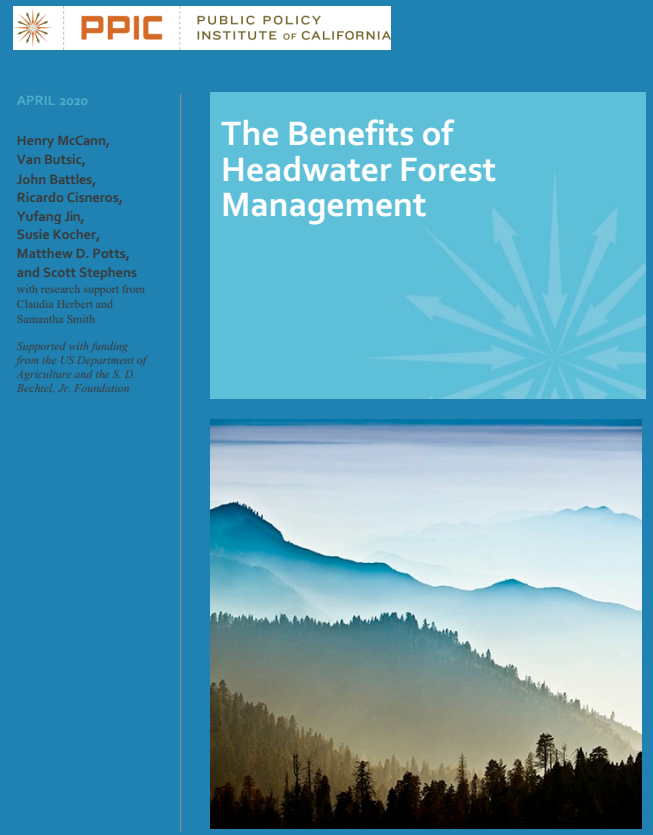
California Fire Severity Map –North Complex Fire 2020

Good Forest Stewardship = Higher Water Flows

2/3 of CA surface H_20 comes from headwaters

Problem

- Climate Impacts – hotter and longer summers
- Drought period increases
- Overstocking of small trees across the headwaters with ET using more H_20 than is sustainable
- Wildfire- hazard leading to catastrophic fires, flooding, siltation, soil degradation



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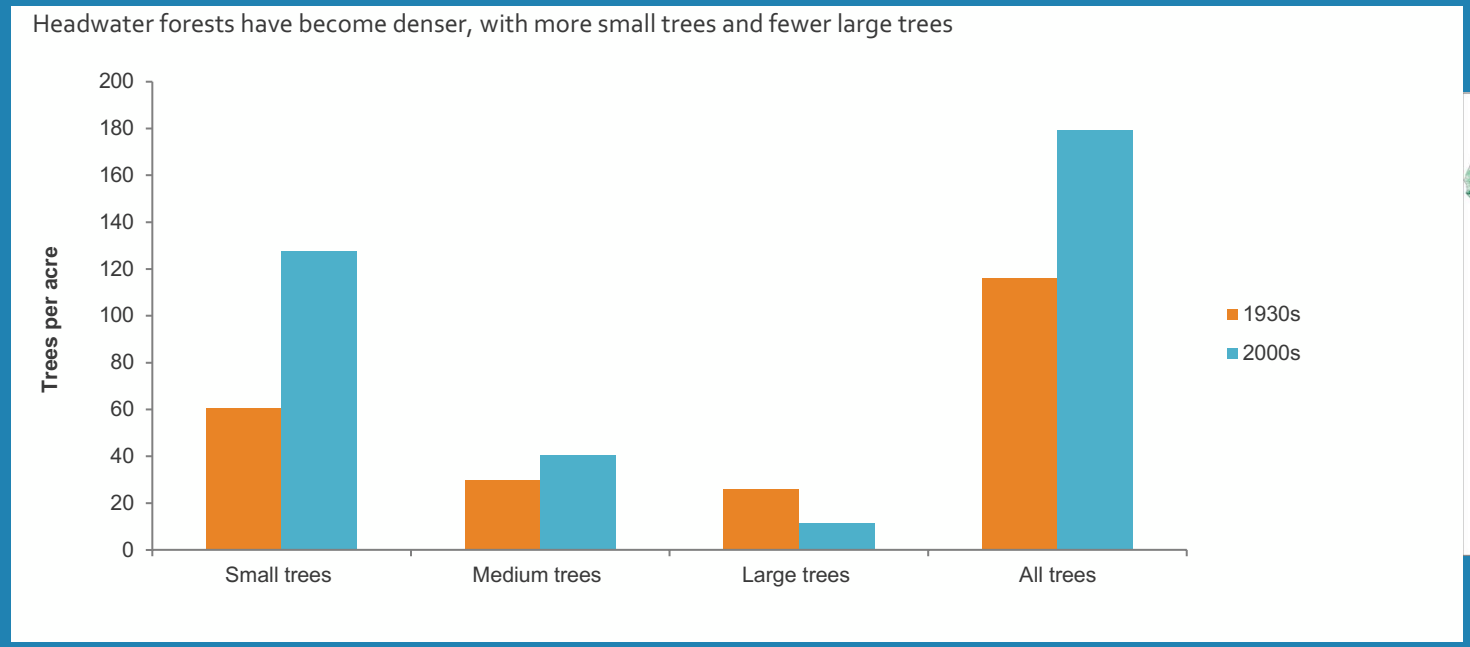
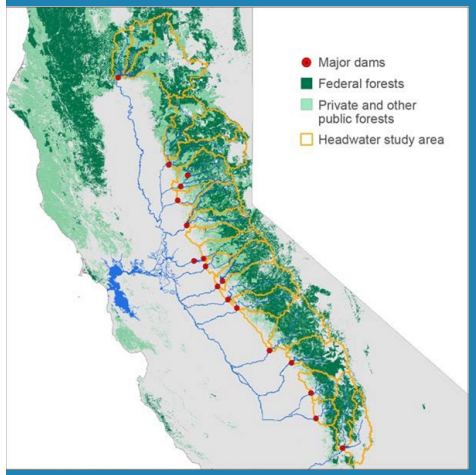
https://www.ppic.org/publication/the-benefits-of-headwater-forest-management/

Problem: Forest Structure and Tree Distribution has led to increased Forest Fuel Hazards, and Wildfire Threat





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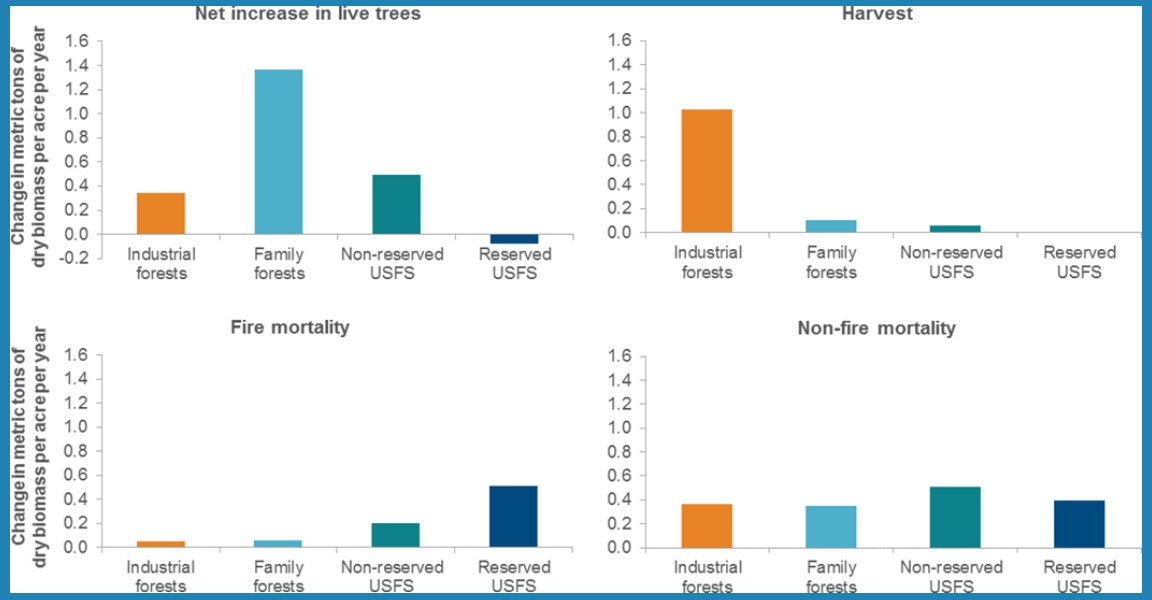
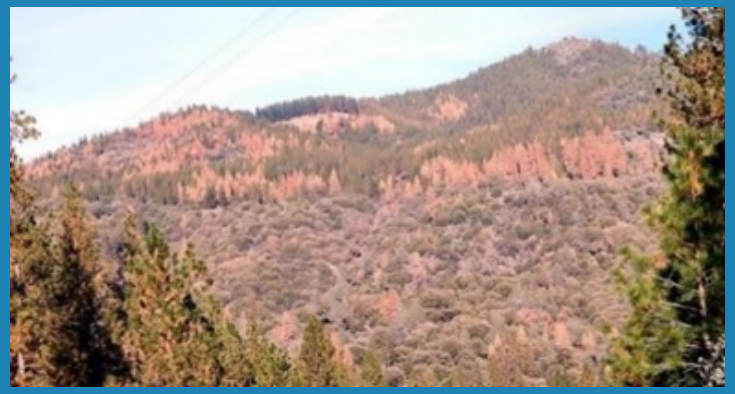
Problem: Too Many Trees





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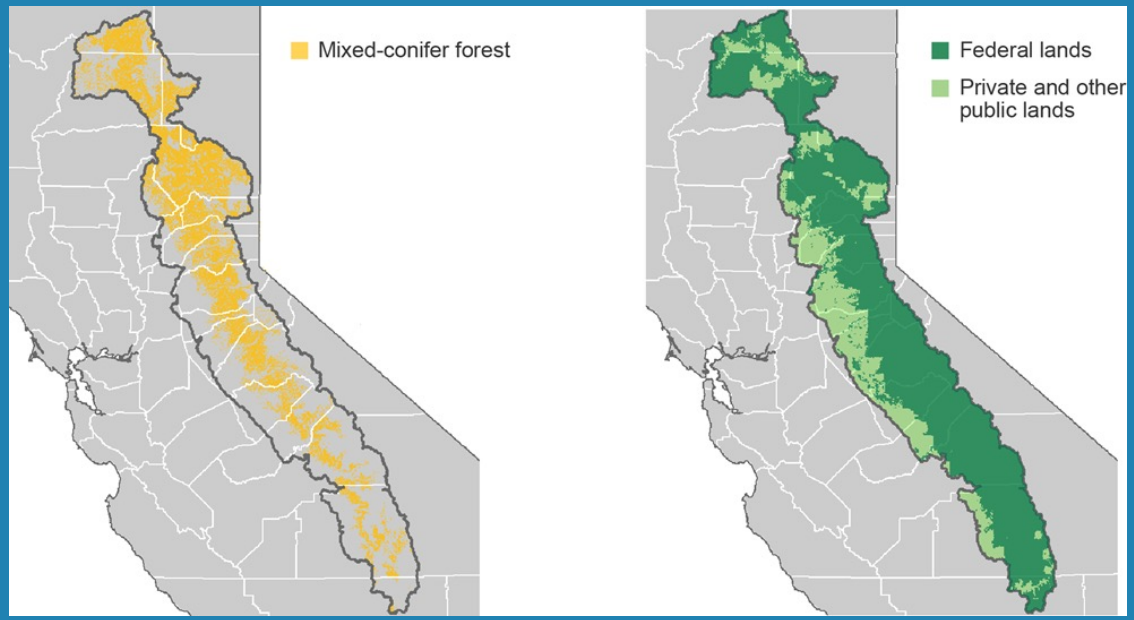
Sierra Headwaters Forest Cover 14.5M Acres

Ownership

USFS 53%
Family owned Forest 23%
Industrial Timberland 10%
NPS 10%
BLM 3%
State <1



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Wildfire Fuels Hazard Issue

YOSEMITE CLEAN ENERGY

US Forest Service Lands

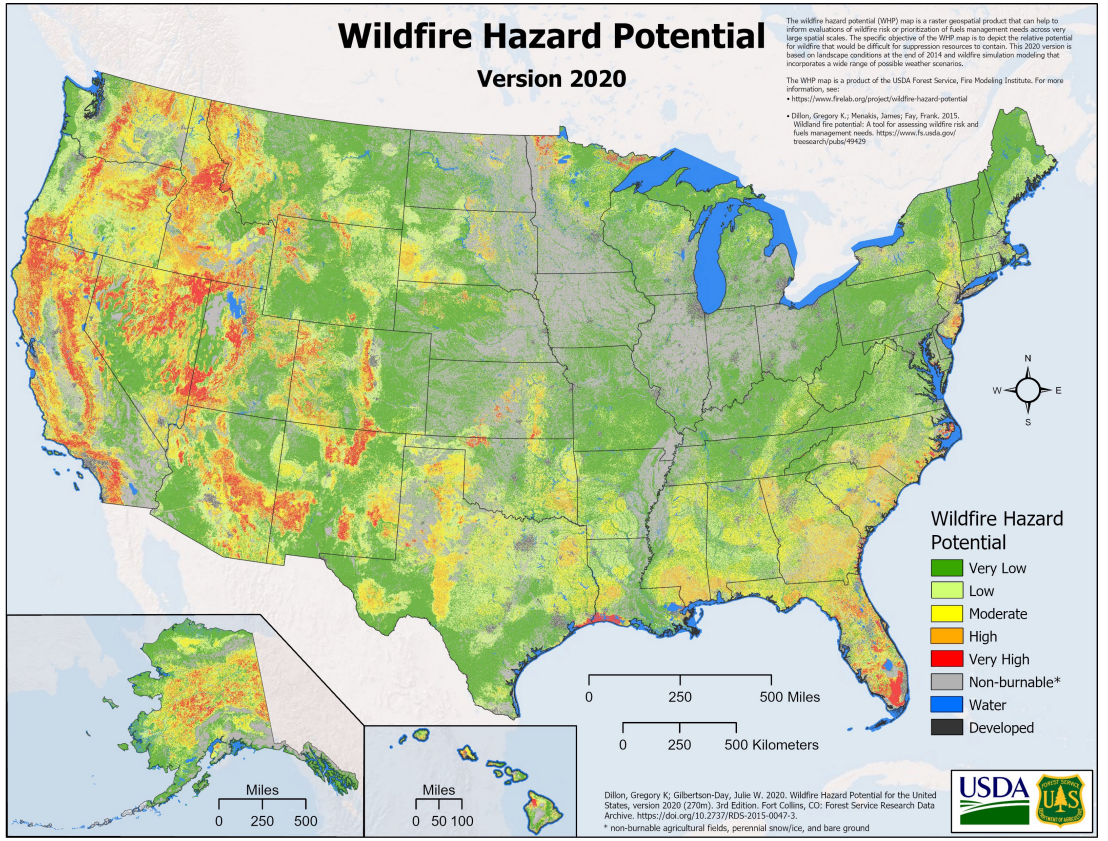
193 Million Acres Managed

Fuel Hazard Index @ Risk of Large Wildfires

Moderate
High
Very-High

Total Acres at Risk of Catastrophic Wildfire
Approximately 100 million acres of USFS lands

90% of Western US Forests are threatened to Burn by 2050 without fuels treatment mitigation.



Yosemite Clean Energy – Transforming today's biomass into tomorrow's green fuels

YOSEMITE CLEAN ENERGY

Company Overview

Yosemite Clean Energy ("YCE" or "Yosemite") specializes in transforming forest and farm wood waste into carbon-negative hydrogen, providing renewable solutions to California's energy sectors. Expertise includes:

- Project development / management
- Feedstock Contracting / Management
- Woody biomass to syngas technology

Competitive advantages include:

- Signed long-term feedstock agreements with diversified feedstock
- Exclusive technology license and 20 years of commercial gasification experience
- Site security zoned for projects
- Direct sales and offtakes to end users
- Access to proprietary downstream distribution systems

Team and Partners

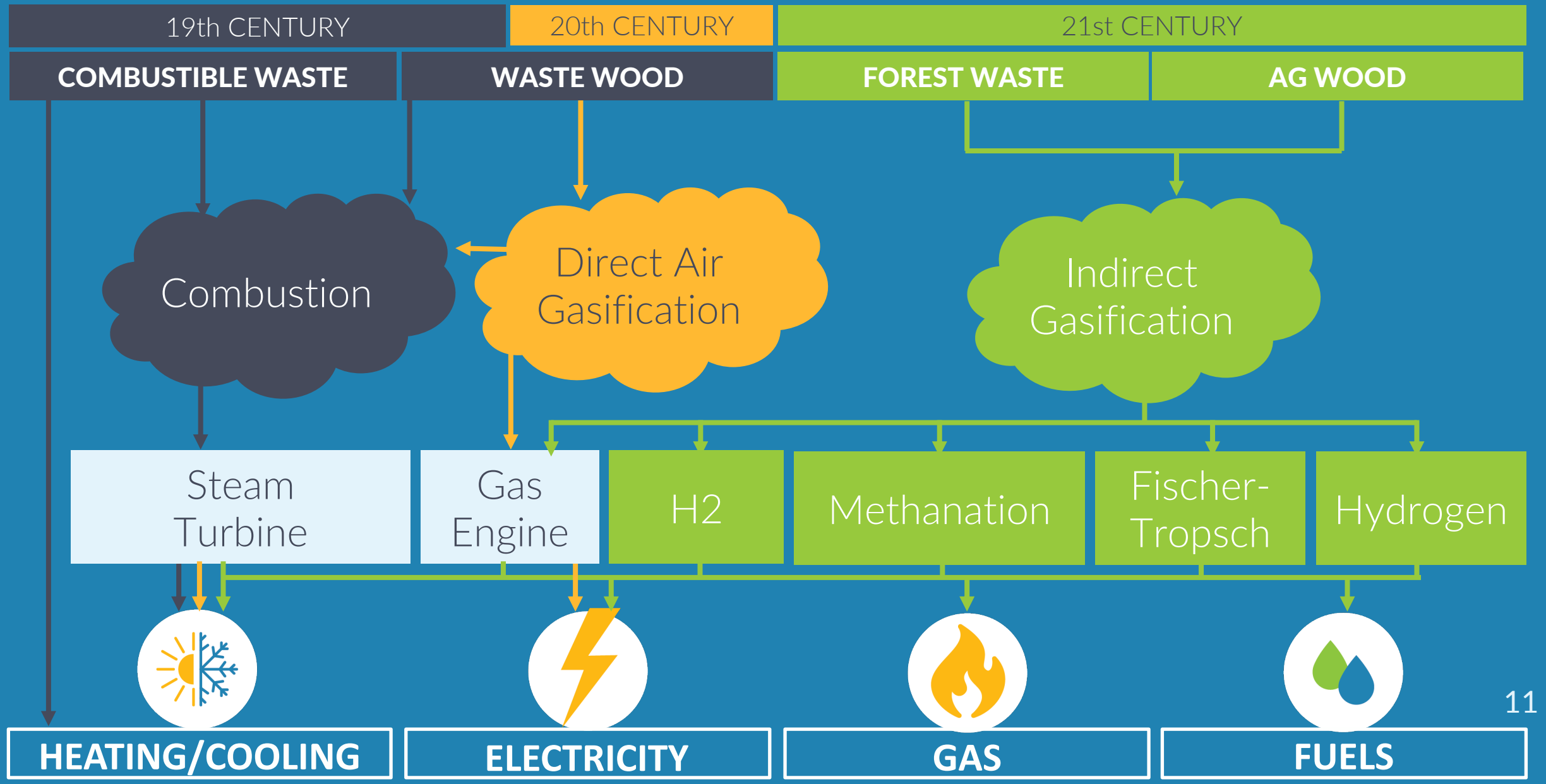
Leadership:

YCE has assembled a strong team of staff and consortium partners to successfully execute biomass projects. Yosemite's team and partners have worked in biomass energy development for many decades, and have strong backgrounds in forestry, agriculture, chemical, civil, electrical, mechanical and process engineering, energy project construction, natural resource economics, banking, social enterprise, energy sales and logistics, business development, and energy and natural resources law.

Partners:

- Primoris – owners engineers and preferred EPC
- Repotec – technology provider
- Hilltop Securities – investment bank
- Kilpatrick Townsend & Stockton – finance law firm
- Gunvor – offtake partner
- California Resources Corporation – sequestration partner

History of Biomass Conversion Technology



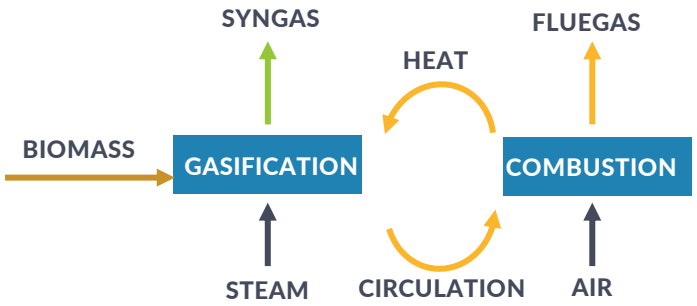
Technology

YOSEMITE CLEAN ENERGY

Technical University Vienna/Austria

Repotec

Dual-Bed Gasifier



Successfully commercialized in Europe for over

20 years

Using proven, innovative gasification technology to make

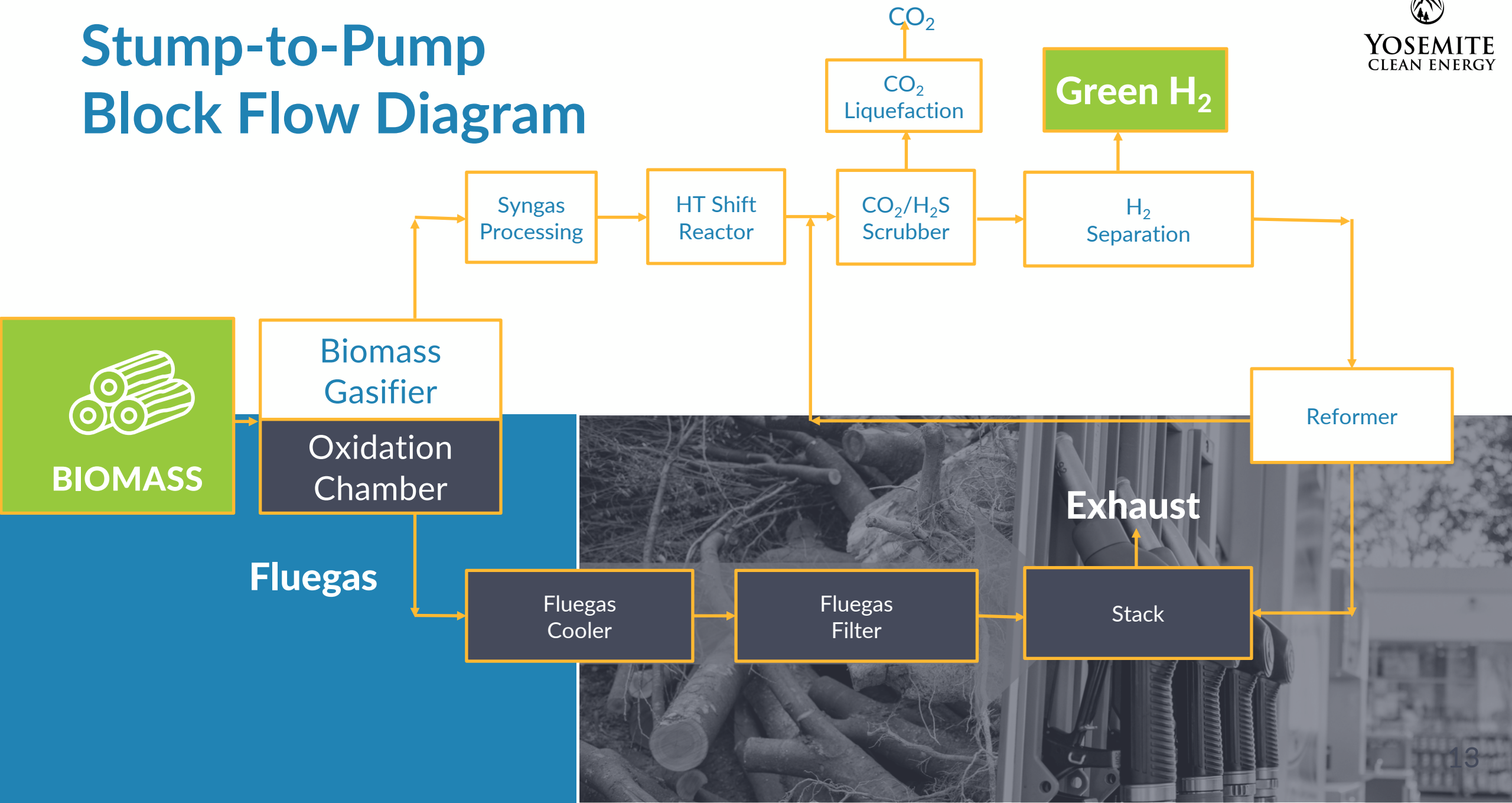
Carbon Negative

syngas and produce:

H_2 Green Hydrogen

- Regional exclusive technology agreement for Repotec's dual-bed gasification technology
- Downstream syngas reformation - licensing Topsoe proprietary technology
- CCS provided by California Resource Corp.
- End-product flexibility for future plants: SAF, Green Diesel, RNG, H2, Electricity

Stump-to-Pump Block Flow Diagram



YOSEMITE
CLEAN ENERGY

Gussing Austria First CHP Plant 2002

Repotec -Designed Plants
8 plants globally

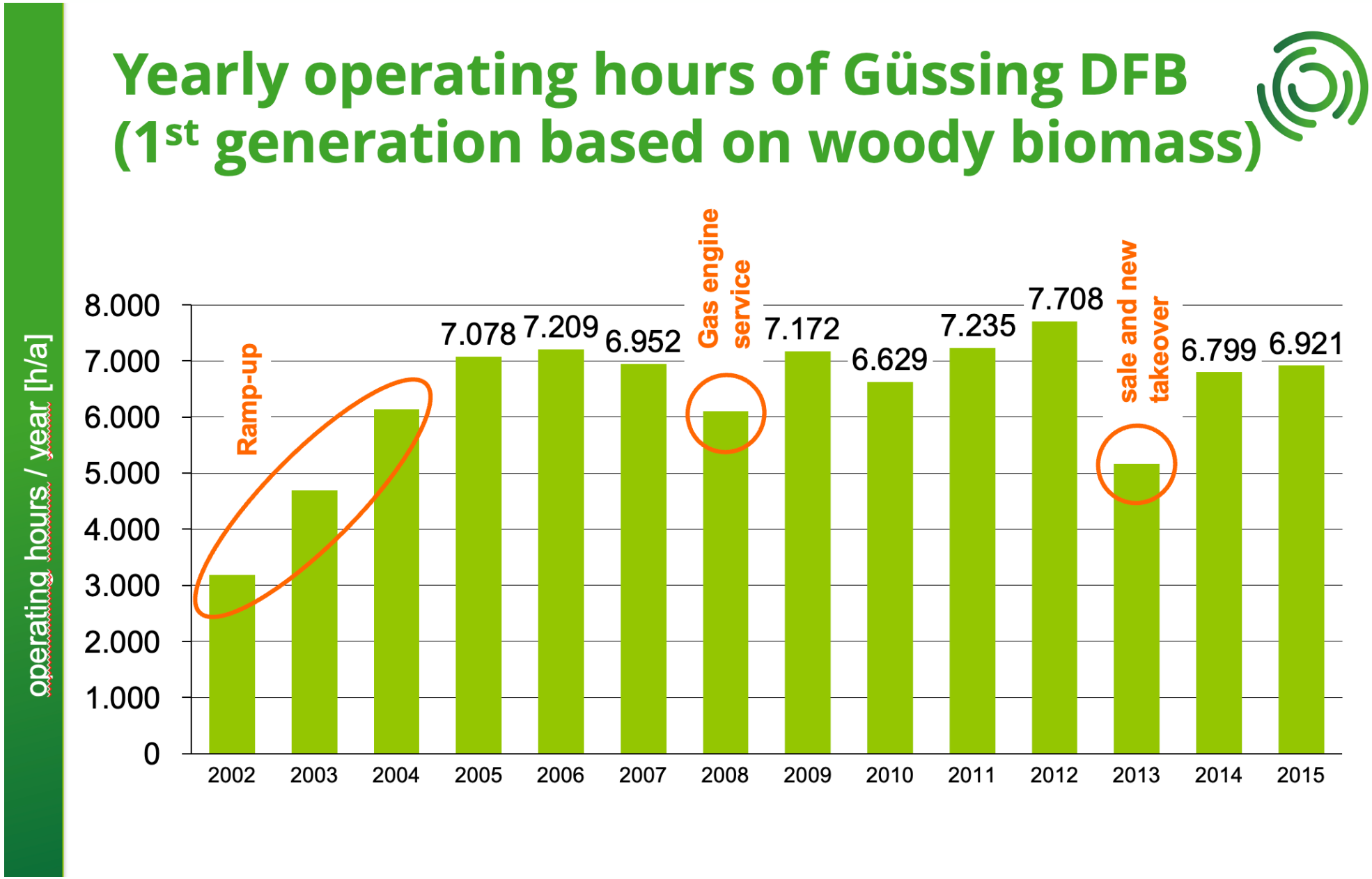
5MWe Senden, Germany

Goteborg, Sweden - SNG

2.8 MWe Oberwart, Austria

Yearly operating hours of Güssing DFB (1st generation based on woody biomass)

YCE's Target
7000 hr/yr (min)



Fuel Treatment Prescription

YOSEMITE CLEAN ENERGY

Using Evidence-Based Fire Science

Today's Forest Stewardship provides the best environmental protection For our forest future

Thinning From Below (example)

- All Trees < 4" masticate
- Trees 4"-8" cut and pile Biomass
- 9-12" cut good trees for poles

- Leave 200 trees/acre > 4"
- Trees > 12" DBH Sawlogs
- All trees processed at the landing w/ limbs, tops, and slash chipped for biomass

No trees > than 30" to be removed

Fuel Treatment Costs

YOSEMITE CLEAN ENERGY

US Forest Service Lands

Fuels Treatment Cost Scenario Estimate.
160 Million acres

Fuels Treatments - thinning, mastication, burning

- Thinning – cut, pile/ burn hand work $600-1500/ Ac.
- Mastication $1000-2300/ Ac.
- Thinning – cut, skid, deck mechanical $2000-3500/Ac.

Total Acres at Risk of Catastrophic Wildfire 160 Million USFS Moderate, High and Very High Fuel Hazard Areas

If 7+ million acres/year are treated over 20 years

Estimated Average Costs - $ 14billion/year @ Ave $2000/ac
20 year program – cost $280 billion investment (w/o inflation

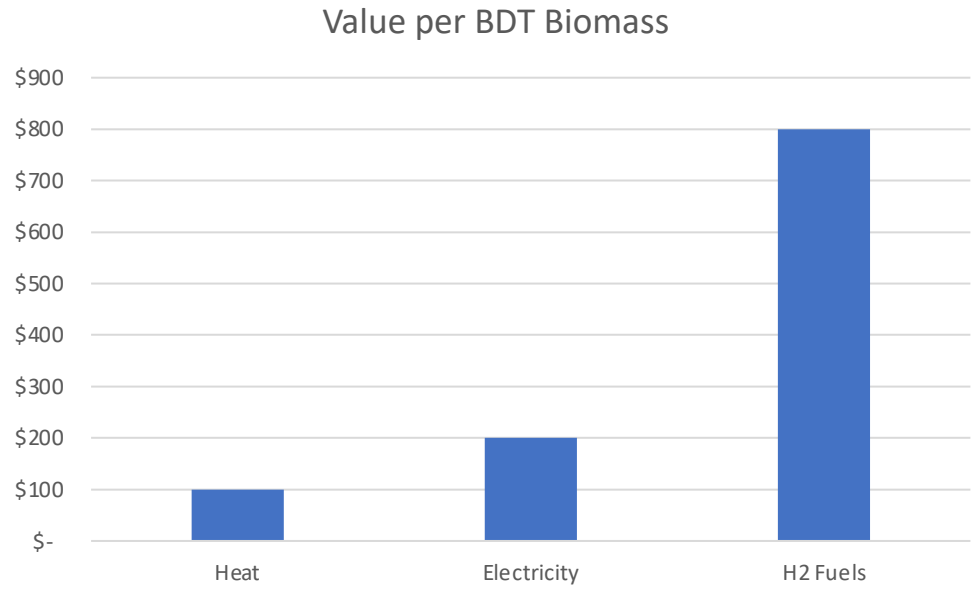
Chadron State Park Fuels Reduction project after handpiling, near the National Forest boundary.

Biomass to H2 Value and Opportunity

YOSEMITE CLEAN ENERGY

New Markets for Non-merch Biomass

Subsidies that would cost $ to masticate, burn or deck and leave biomass can be offset with biomass payments that can reduce fuel treatment costs to USFS, Tribal and Private lands



Biomass Value

Adding RINs through the RFS on Federal and Tribal land would boost biomass value $200-$300/Ton (based on RINs Value).

If an average of 25 BDT/Acre is produced from fuels treatments

$5,000-7,500/acre added value by RFS RINs

Goal of 7Million acres treated per year
Would potentially generate

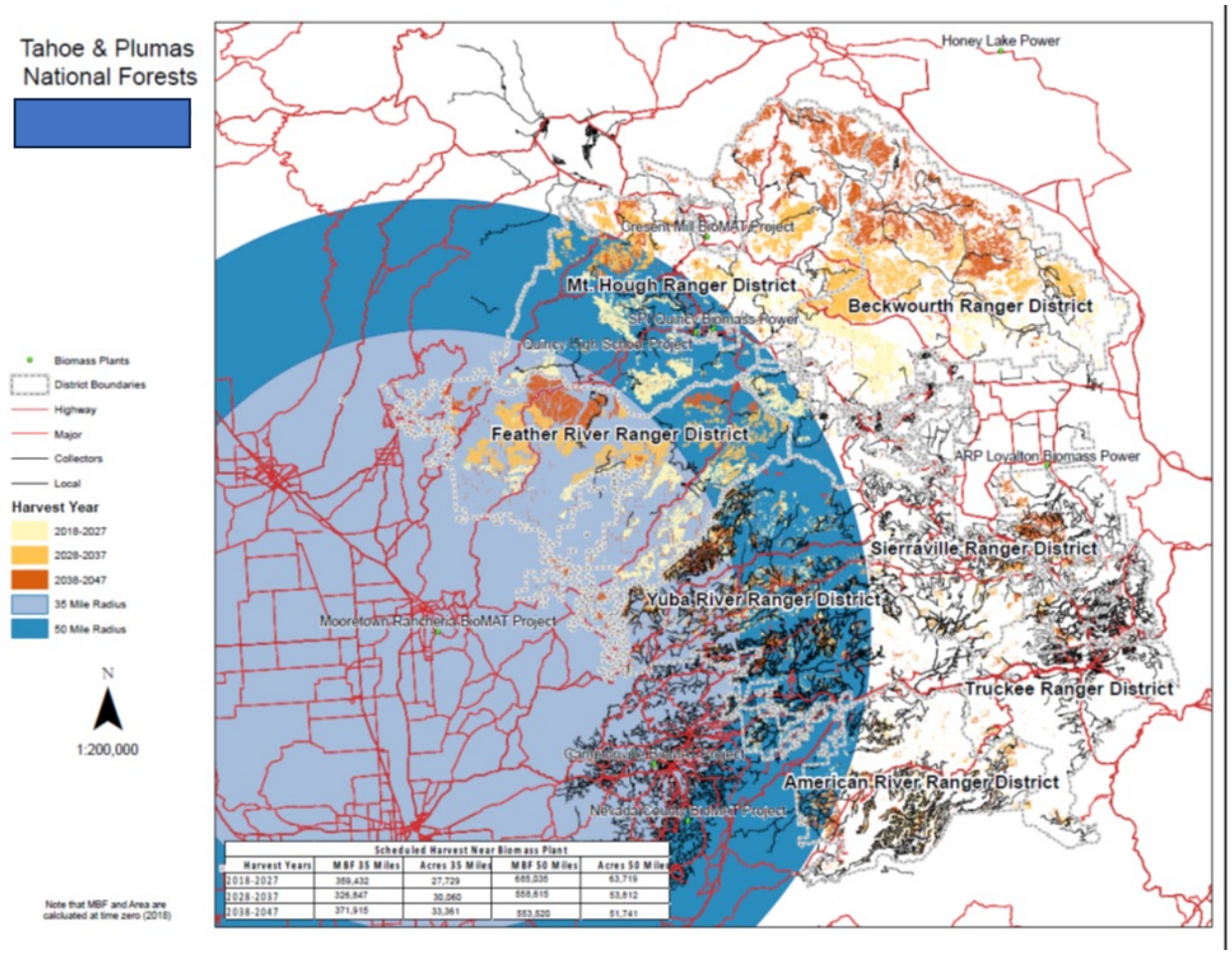
USFS $35-50 Billion per year in Gross $ Based on
77 Kg H2/BDT @ $10/Kg
value including IRA 45V & LCFS credits

Feedstock Analysis and Economics

35 mile. Zone 1 feedstock area (light blue)
50 mile – Zone 2 feedstock area (dark blue)

For the Tuolumne Co. Project
Analysis will cover the same zones up to 50 Miles from Chinese Camp

Calavaras Co. - north 50 miles
Mariposa Co. – south 50 miles
Sonora Pass – East 50 Miles
Modesto, Stockton West 50 miles (ag biomass)



YOSEMITE CLEAN ENERGY
transforming wood waste to biofuels

“From Stump to Pump” – YCE’s Process

1. Forest and agricultural management and operations completed on public and private land: environmental best practices to restore forests, ecosystems, watersheds, and agricultural land

2. Wood waste transported to plant by forest management partners, usually minority owners in the projects

3. Depending on the season, wood waste is dried in an air dryer on site to reduce water content to +/-20 percent

4. Wood chips are gasified in a dual bed gasifier developed by Aichernig Engineering (“Repotec”)
   - *Repotec’s gasifiers are TRL 9 and have over 200,000 hours of commercial run time*
   - *YCE holds an exclusive regional license for Repotec’s technology*

5. High BTU syngas is converted to hydrogen and CO2 using water gas shift, PSA, and Topsoe tail-gas reformer. CO2 amine scrubber provided by technical vendor TBD
   - *Amine scrubber and Topsoe’s reformer technology are TRL 9 and commercially available*

6. Hydrogen is compressed to 350 bar, loaded on a tube trailer, and driven directly to fueling sites

7. Trailers dropped and swapped at fueling stations, so as to reduce recompression. Trailers serve as storage for fueling stations, based on best-in-class systems currently in operation

Hydrogen – Midstream and Downstream Systems

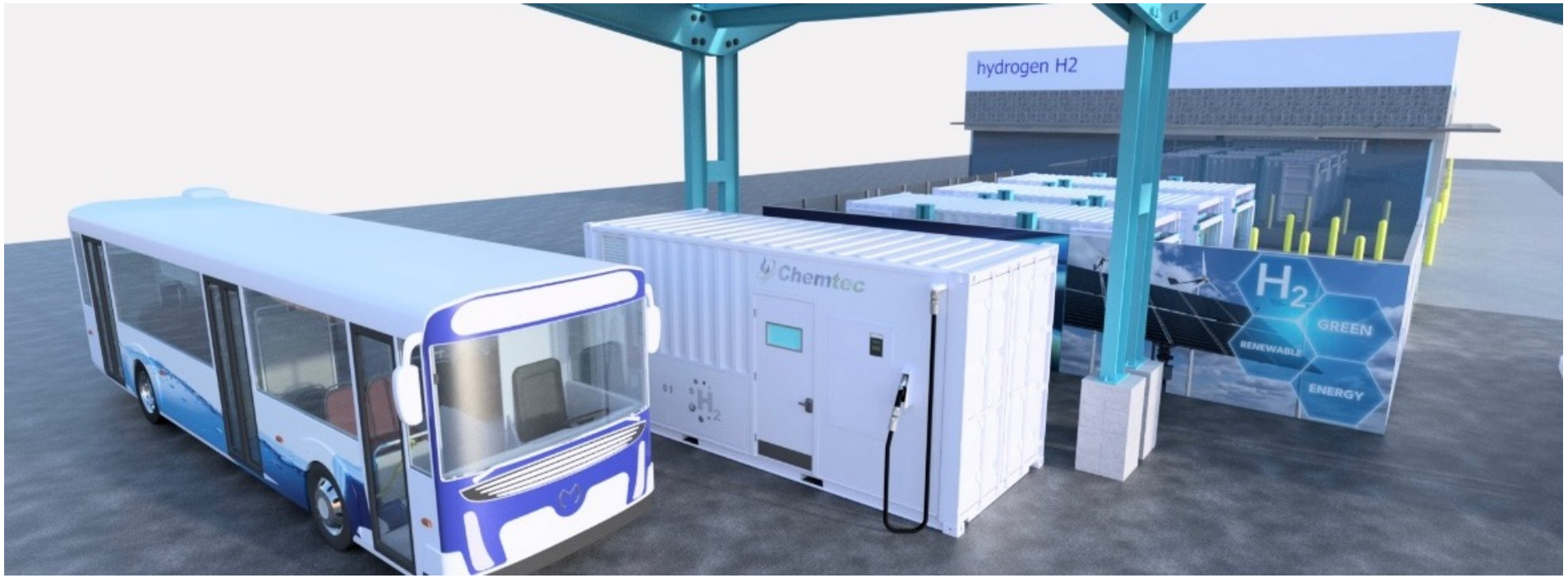
H2 – Panel, loading rack and type IV trailer system

The Transport Module is filled at 350 bar and approx. to max capacity of 450 Kg H2 per 20’ transport module

Each trailer can be filled in roughly 2hrs.

Downstream Hydrogen Refueling Systems

Municipal Fleet HRS - Layout

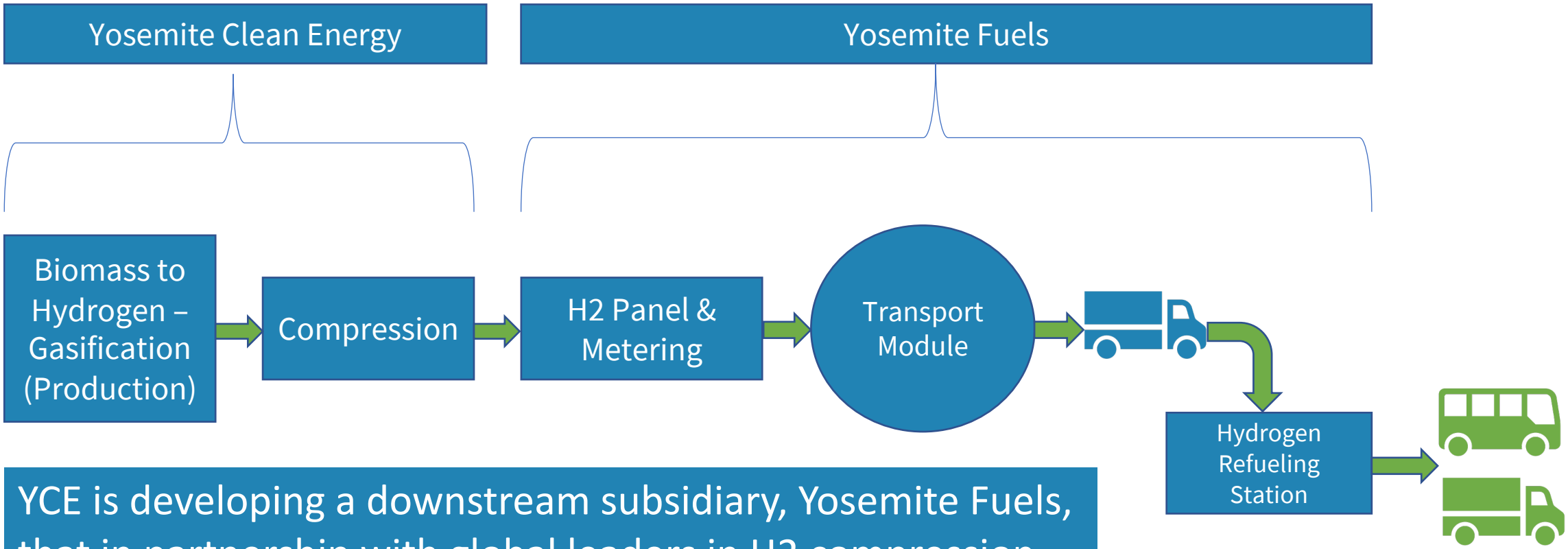


Hydrogen – Midstream and Downstream Systems

Fuel Delivery Rack

Onsite “Drop and Swap” Transport Modules

Hydrogen Downstream Build Out – Yosemite Fuels



YCE is developing a downstream subsidiary, Yosemite Fuels, that in partnership with global leaders in H2 compression, transportation, and storage, to provide turnkey solutions to fleets and and transit authorities

YOSEMITE CLEAN ENERGY

Oroville Project #1. $250M

Renewable Hydrogen

Location: 65 miles North of Sacramento
Online Date: Sept. 2026

Feedstock: 90,000 BDT woody biomass per year
H_2 Production: 7,000 tons per year

Tuolumne Project #2. $250M

Renewable Hydrogen

Location: 50 miles East of Stockton
Online Date: March 2027

Feedstock: 90,000 BDT woody biomass per year
H_2 Production: 7,000 tons per year

Visalia Project #3. $250M

Renewable Hydrogen

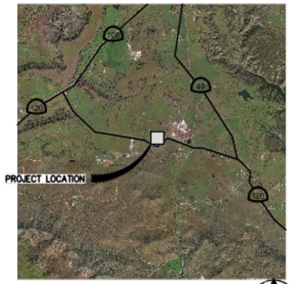
Location: 35 miles South of Fresno
Online Date: July 2027

Feedstock: 90,000 BDT woody biomass per year
H_2 Production: 7,000 tons per year

Know what's below. Call before you dig.

WARNING
POWER LINES OVERHEAD

PROPOSED BIOMASS PLANT
TUOLUMNE COUNTY, CA



VICINITY MAP
NOT TO SCALE

PROJECT SITE
NOT TO SCALE

FIGURE INDEX	
FIGURE NO.	DESCRIPTION
1	COVER SHEET
2	SITE PLAN

PROJECT INFORMATION

APPLICANT: YOSEMITE CLEAN ENERGY LLC
5008 HIGHWAY 140, SUITE F
MARIPOSA, CA 95338

APN: 064-180-052

PROPOSED BIOMASS PLANT
YOSEMITE CLEAN ENERGY LLC
CHINESE CAMP, TUOLUMNE COUNTY
-
COVER SHEET

DESIGN ENGINEER: ROD MCNEELY
LICENSE NO: ----
DRAFTED BY: BG
CHECKED BY:
DATE: 9/15/2021
JOB NO: ----
PROJECT NO:
PHASE:
0 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.
SHEET 1 OF 2

9/15/2021 11:49 AM \\ppeng.com\pzdata\docs\Marketing\Proposals\2021\Yosemite Clean Energy - Tuolumne CEC Grant Support 21-415\Site Plan.dwg -Blake Gendron

Investors and Partnerships

YCE has received almost all of its seed investment from strategic partners who own or manage biomass on a commercial scale, and has received 5 grants from state and federal agencies

YOSEMITE CLEAN ENERGY

Seed Funding (non-comprehensive):

June 2023: $5M from CEC
Jan. 2023: $1M from DOC
Jan. 2023: $200k from Leslie Heavy Hauling*
May 2022: $500k from Cal Fire
May 2022: $250k from USFS
September 2021: $1.3M from Old Durham Wood*
April 2021: $1.3M from JW Bamford*

*Feedstock Suppliers

Policy & Advocacy

Sustainable Markets Initiative
CHBC
Low Carbon Fuels Coalition
Kilpatrick Townsend
Alternative Fuels & Chemicals Coalition
Bioenergy Association of California

Funding Partners

Leslie Heavy Haul
HilltopSecurities Investment Banking Solutions
U.S. Forest Service, Department of Agriculture
Old Durham Wood, Inc. — Wood Grinding, Orchard Removal, Excavating, Land Clearing
Bamford
CAL FIRE Since 1885
California Energy Commission
California Department of Conservation

Engineering & Technology

BEST Bioenergy and Sustainable Technologies
PSC Primoris
repotec renewable power technologies
MMR Power Solutions
TOPSOE

Forestry Experts

BioStewards — Creating Value. Innovating Stewardship.
DRS
Butte County FireSafe Council
Sierra Resource Management, Inc.

Local Support

Butte County, California
B-Line Butte Regional Transit
Tuolumne County Transit
City of Oroville, California
BCAG
California Cattlemen's Association CCA
County of Tuolumne, California
Chicken Ranch Economic Development Corporation
Tuolumne County Resource Conservation District

Downstream Partners

GUNVOR
California Resources Corporation

The Leadership Team:

YOSEMITE CLEAN ENERGY

Thomas Hobby, MSc., MA, MBA, P. Ag, CEO & Managing Member
-Prior CEO, Highbury Energy
-35 years of forestry, R&D, start ups & Non-profits
-Founded NGO that led to $25mm R&D
-Analyzed 2.5mm forest acres

Robert Jackson, VP Bus. Dev. & Managing Member

-35 years enterprise development, finance, & startup management
- Numerous successful property development transactions

Loren Dubberke, VP Social Impact & Managing Member

-35 years in community development and social enterprise management
-Recognized leader in under-resourced community restoration

Zakiul Kabir, CTO
-25 years in clean tech, including fuel cells, distributed power generation and large-scale solar thermal
-18 years of technical management experience (SVP/CTO/COO)

Bill Kehoe, CFO
-20 years building businesses and working with executive leadership teams, BOD, and outside partners
-Proven track record in entrepreneurial environments

Austin Terry, Director Downstream Dev.
-20 years executive and project management experience in energy infrastructure development, EPCM, and pipeline construction

Michael Zahradnik, Director International Bus.
-led commercial planning and development of gasification plants since 2008
-Senior Project Manager for both Repotec and Gussing GmbH

Sustainable Markets Initiative

YCE is a key participant within the Sustainable Markets Initiative founded by King Charles III (www.sustainable-markets.org). YCE chairs the Hydrogen Transport and Storage workstream in support of lowering hydrogen supply chain costs. Through SMI, YCE led a global report that was published in Q1 2023 on the current state and future developments of hydrogen storage and transport.

Thank You!

YOSEMITE
CLEAN ENERGY

www.yosemiteclean.com
Tom.hobby@yosemiteclean.com
+1(209) 800-2831