NET POWER

Truly Clean, Cheaper Energy

NET Power 50 MW Reference Plant

- NET Power was invented by 8 Rivers team in 2010.
- Zero emissions power from natural gas at lower cost than a combined cycle plant.
  - 100% Carbon Capture and no NOX, SOX, or particulates.
- NET Power has raised >US$160M from McDermott, Exelon, and Occidental Petroleum.
- Combustor demonstrated in Q2 2018, multiple commercial projects in development.

THE NET POWER TEAM

NET POWER IS SUPPORTED BY STRONG PARTNERS WITH DEMONSTRATED EXPERTISE TO DRIVE COMMERCIALIZATION

NET POWER IS A JOINT VENTURE THAT LICENSES THE TECHNOLOGY

8 RIVERS
- Inventor/developer
- Engineering/sales/marketing

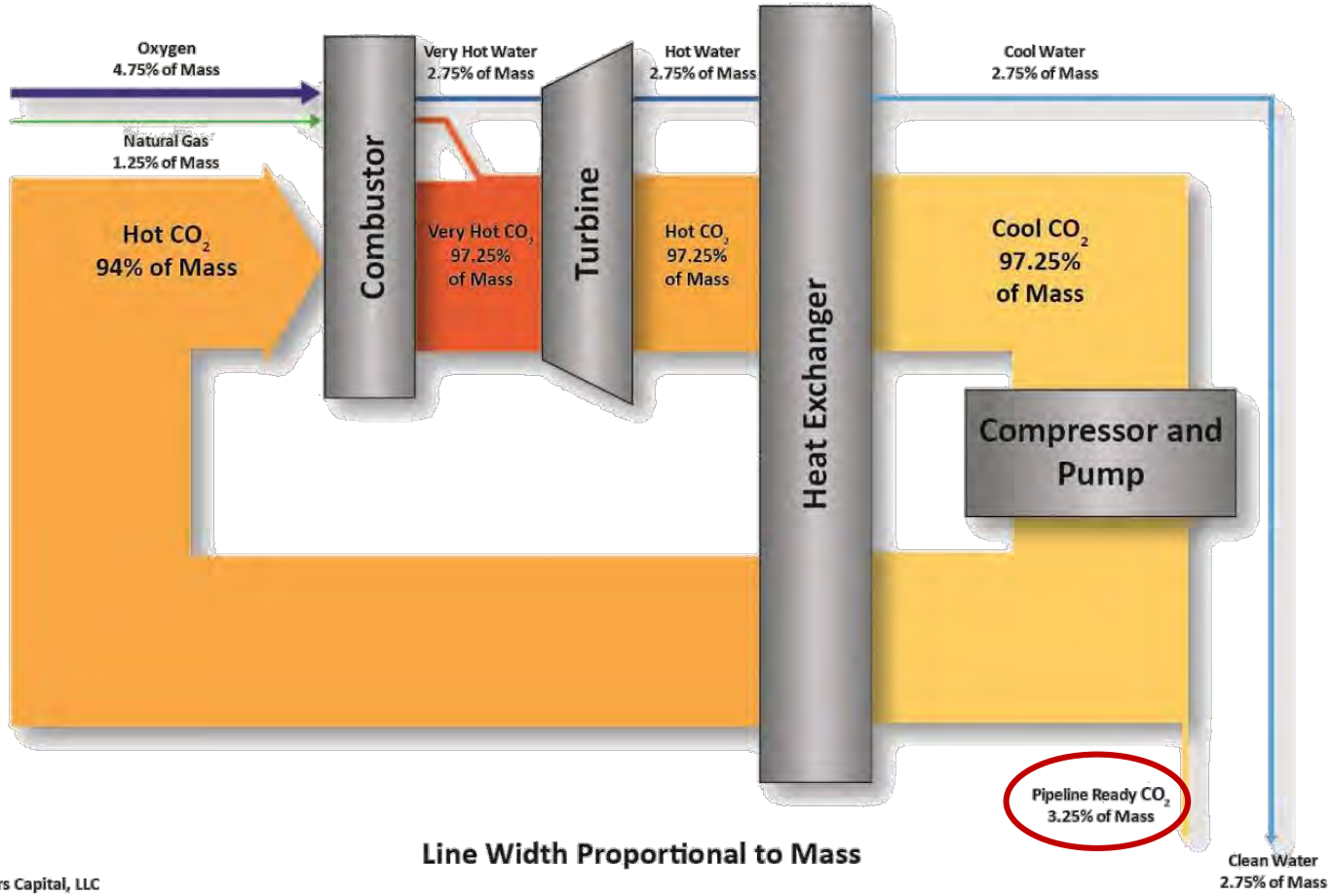
TOSHIBA
Leading Innovation
- Key OEM partner (2011)
- Turbine design, testing and supply

Exelon
- Investor (2012)
- EPC and sales expertise

MCDERMOTT
- Investor (2014)
- Operations and owner input

OXY Oxy Low Carbon Ventures, LLC
A subsidiary of Occidental Petroleum Corporation
- Investor (2018)
- CO_2 and commissioning expertise

THE ALLAM CYCLE RUNS ON SUPERCRITICAL CO_2

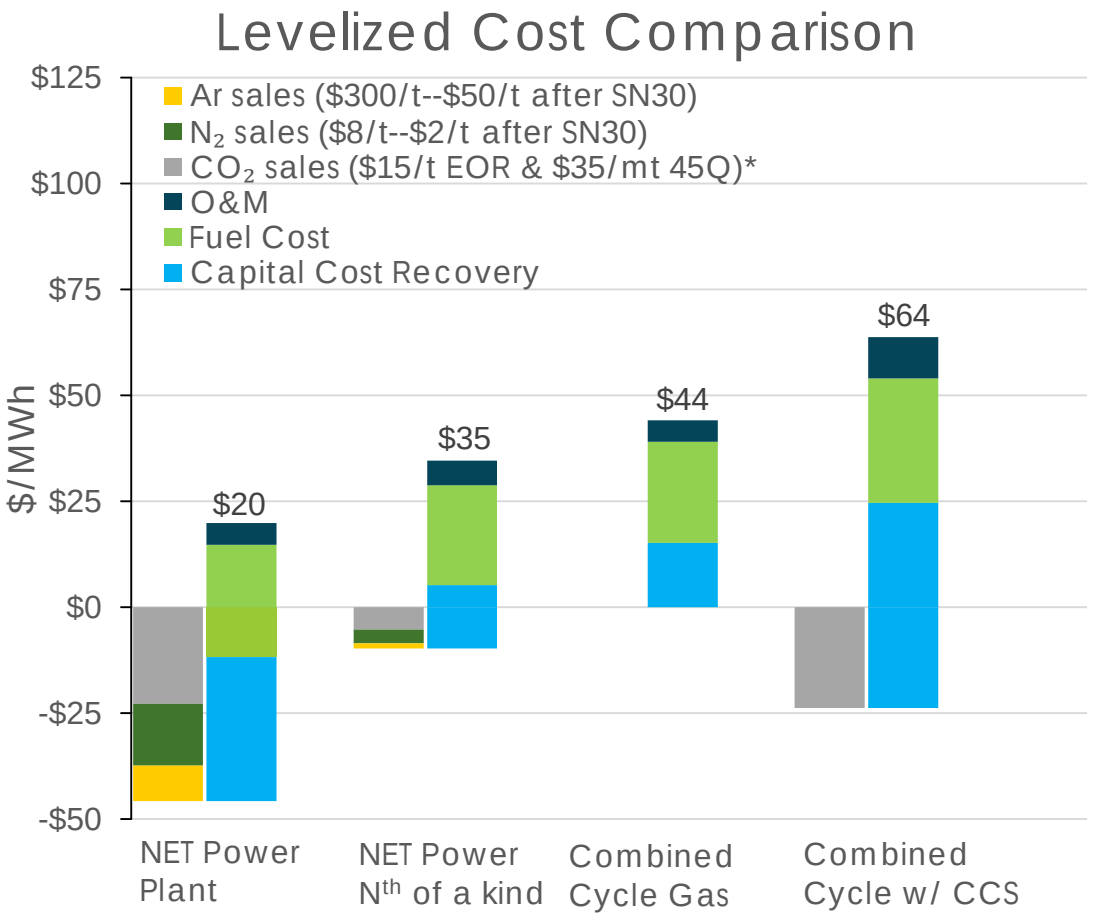


NET POWER PLANTS ARE EXTREMELY COMPETITIVE

45Q AND INDUSTRIAL GAS SALES PROVIDE NET POWER WITH A COST ADVANTAGE TODAY.

AT MATURE COSTS, NET POWER PLANTS ARE ABLE TO COMPETE ON ELECTRICITY ALONE.

300 MW_E COMMERCIAL SCALE



*Based on recent 45Q tax incentives in the US for EOR. $35/metric tonne tax credit for EOR is converted to a pre-tax $/short ton basis to illustrate equivalent impact (assumes 0.907185 tonne/ton and 21% corporate tax).

Notes: Assumes $2.85/MMBTU natural gas in 2018, with annual escalation at 2%. All data for utility-scale projects. Capacity payments and other ancillary service revenue not included

50MW$_{TH}$ PLANT IN LA PORTE TX

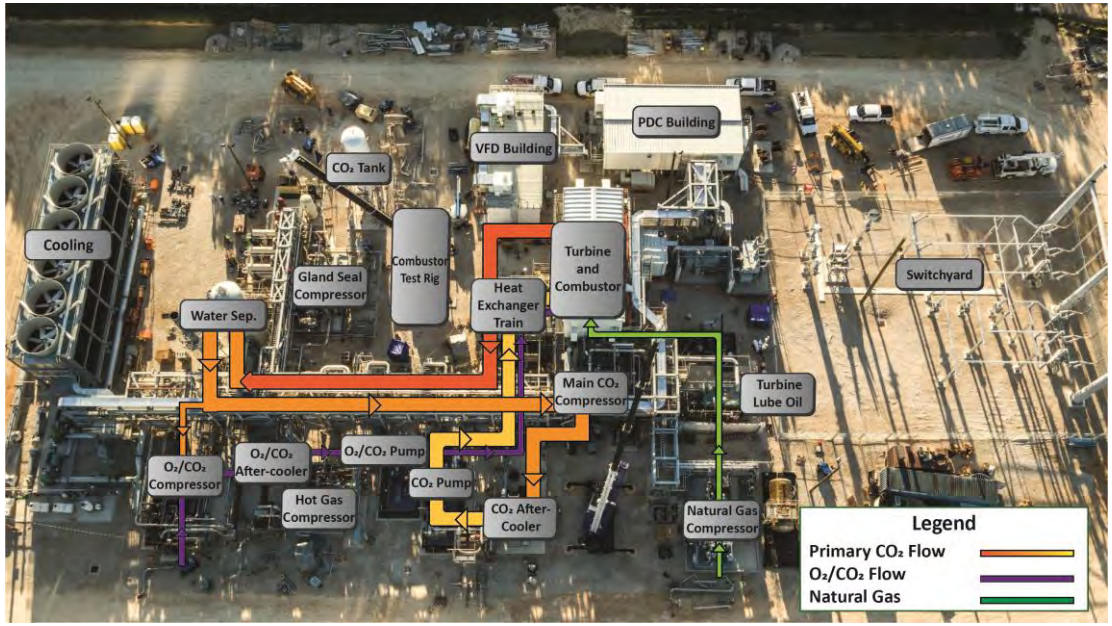
$160M+ DESIGN, CONSTRUCTION, AND TESTING PROGRAM

2016
- CONSTRUCTION START (MAR)

2017
- CONSTRUCTION COMPLETE (DEC)

2018
- COMMISSIONING COMPLETE (APR)
- COMBUSTOR FIRST FIRE (MAY)
- COMBUSTOR TEST COMPLETE (AUG)

2019
- POWER TO THE GRID (SOON)



La Porte, TX Demonstration Plant

Exelon MCDERMOTT 8 RIVERS

TEST PLAN AND RESULTS

Full testing began Q4 2018. Testing ongoing.

Full configuration with turbine in hot gas path

Successful Combustor Plant testing

- Plant run through startup, shutdown, and transient/excursion testing at key operating points
- Turbine operating at rated speed, but flow path isolated

Early results

- 600 - 1000h of major equipment runtime
- 170h runtime with Fuel/O2 in the cycle
  - (26.5h single run)
- Cycle temperatures over 1000°F, 40% of full load flowrate
- Cycle Performance matches modeled performance

Early lessons

- Tuning of oxygen and oxidant supply system foundational to cycle stability
- Process reaches highly controlled steady state at elevated temperature and pressure

1ST COMBUSTOR VALIDATION

COMBUSTOR DEMONSTRATED AT FULL COMMERCIAL SCALE

Commercial Scale Combustor Validated

DEMONSTRATION (50 MWTH)

COMMERCIAL 300 MWE PLANT 12 X (50 MWTH) COMBUSTORS

1st Combustor Tested at La Porte Site

Image meant to be a visual aid for relative combustor-turbine configuration, not actual NET Power compressor, combustor, or turbine. This image is a Mitsui SGT-750 industrial gas turbine. This image only used in this presentation for this Mitsui meeting. It does not, and will not, appear in any other NET Power material.
Source: http://www.energy.Mitsui.com/br/en/fossil-power-generation/gas-turbines/sgt-750.htm

300 MW_E COMMERCIAL PROJECTS

MULTIPLE 300 MW SCALE PROJECTS UNDER CONSIDERATION

COMPLETED DETAILED PRE-FEED FOR A 303 MWE PLANT

SCALING FROM LA PORTE PLANT:

- COMBUSTOR: NO SCALE-UP, TESTING FULL-SCALE
- TURBINE SHELL: 2.5X SCALE-UP
- BALANCE OF PLANT: COMPONENTS COMMERCIALLY AVAILABLE AT SCALE

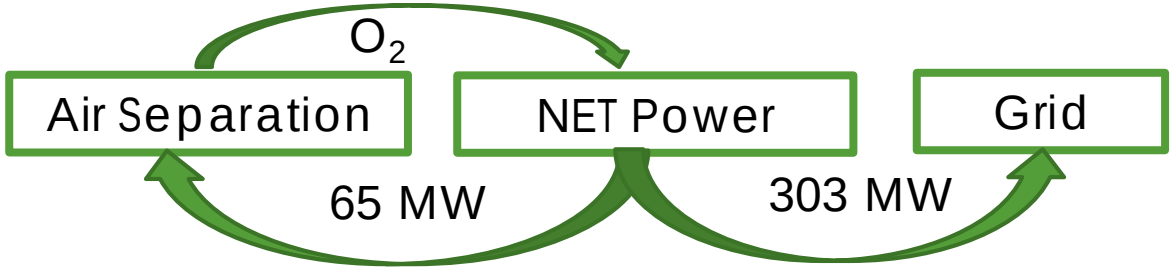
Plant outputs	
Electric Output	303MW
CO_2 Output	• 890,000 ton/year • 40 million scf/day
N_2 Output	4.2 MM ton/year
Ar Output	70,000 ton/year
ASU O_2	4,200 ton/day
Site Area	13 acres

Commercial Plant Performance*		
Thermal Heat Input (MW)	549.1	100%
Turbine Shaft Power (MW)	453.0	-18%
Shaft-mounted CO_2 compressor and generator	-47.9	-8%
Gross Electrical Output (MW)	405.1	
ASU auxiliary load	-65.1	-12%
BOP parasitics (pumps, cooling tower, etc.)	-37.5	-7%
Net Electrical Output (MW)	302.5	55.1%
Net Plant Efficiency (% on LHV)*	55.1%	55.1%
Net Plant Heat Rate (LHV)*	6,193	6,193

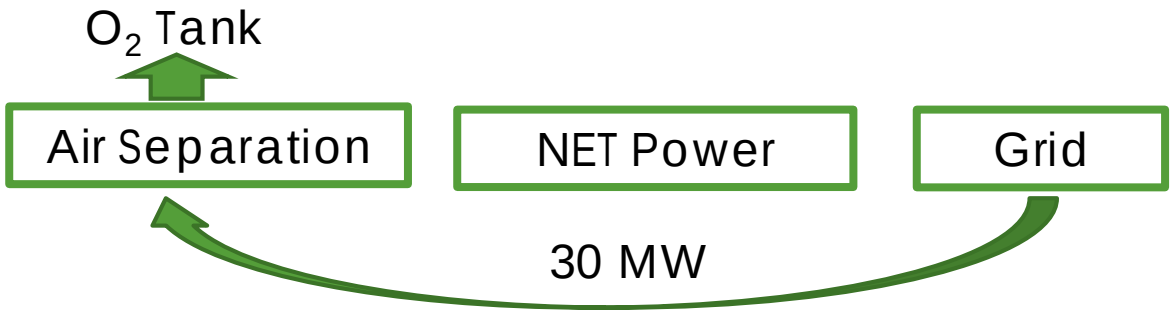
* Efficiency optimized for US economics. For countries with high gas prices, 58.9% efficiency is achievable at higher capital cost.

150 MWH OF CHEAP ENERGY STORAGE

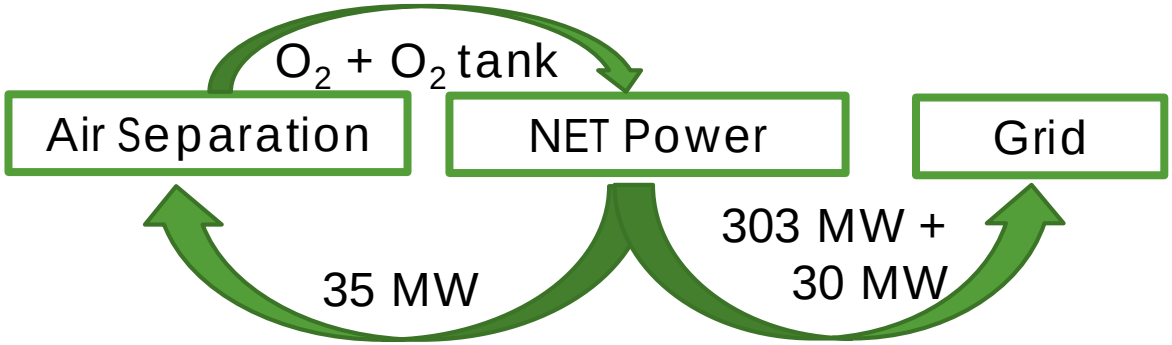
Normal Operations



Energy Storage Input (30 MW / 5 HR)

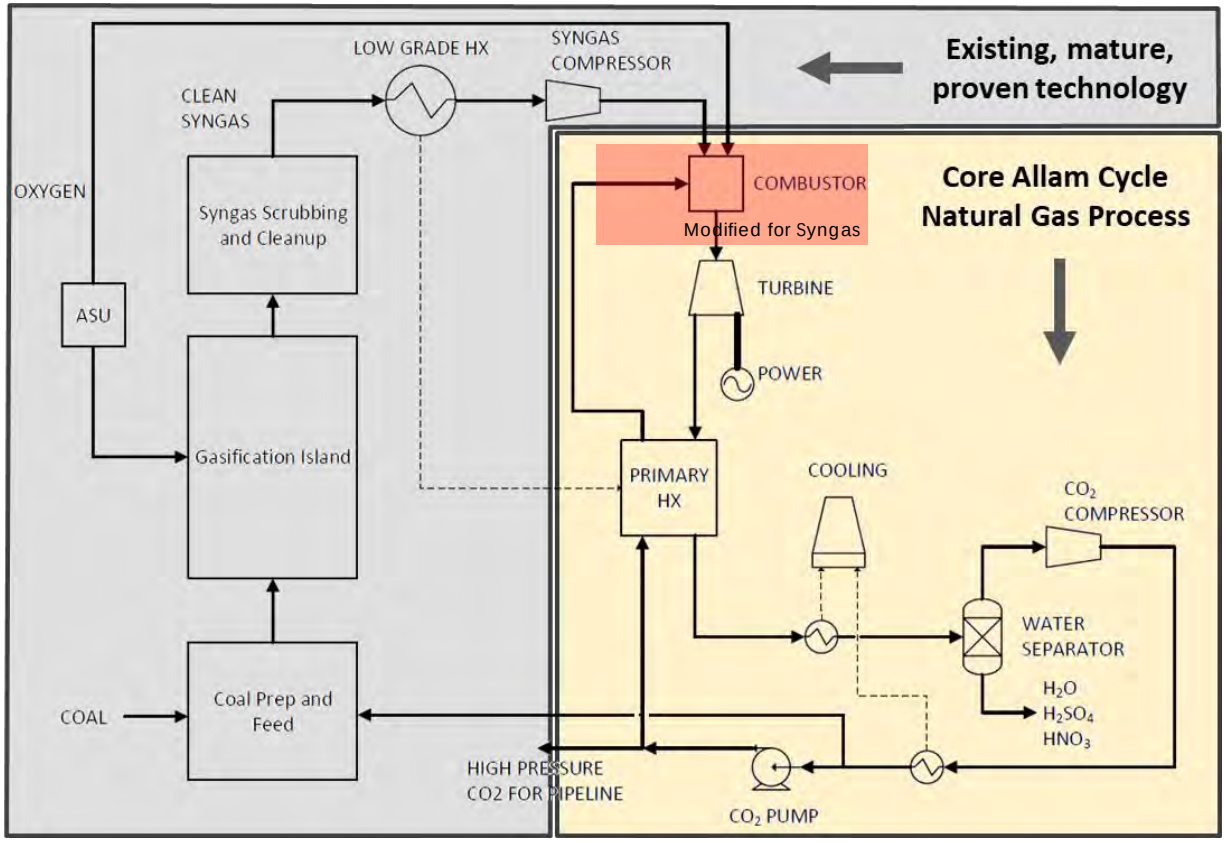


Energy Storage Output (30 MW / 5 HR)



8 RIVERS IS DEVELOPING ALLAM CYCLE COAL

The Allam Cycle can be used with solid fuels while maintaining all the benefits of the core Allam Cycle.



Efficiency	LHV	HHV
Gross Turbine Output	76.3%	72.5%
Coal prep & feed	-0.2%	-0.2%
ASU	-10.2%	-9.7%
CO_2, Syngas Comp.	-9.1%	-8.7%
Other Auxiliaries	-6.5%	-6.1%
Net Efficiency	**50.3%**	**47.8%**

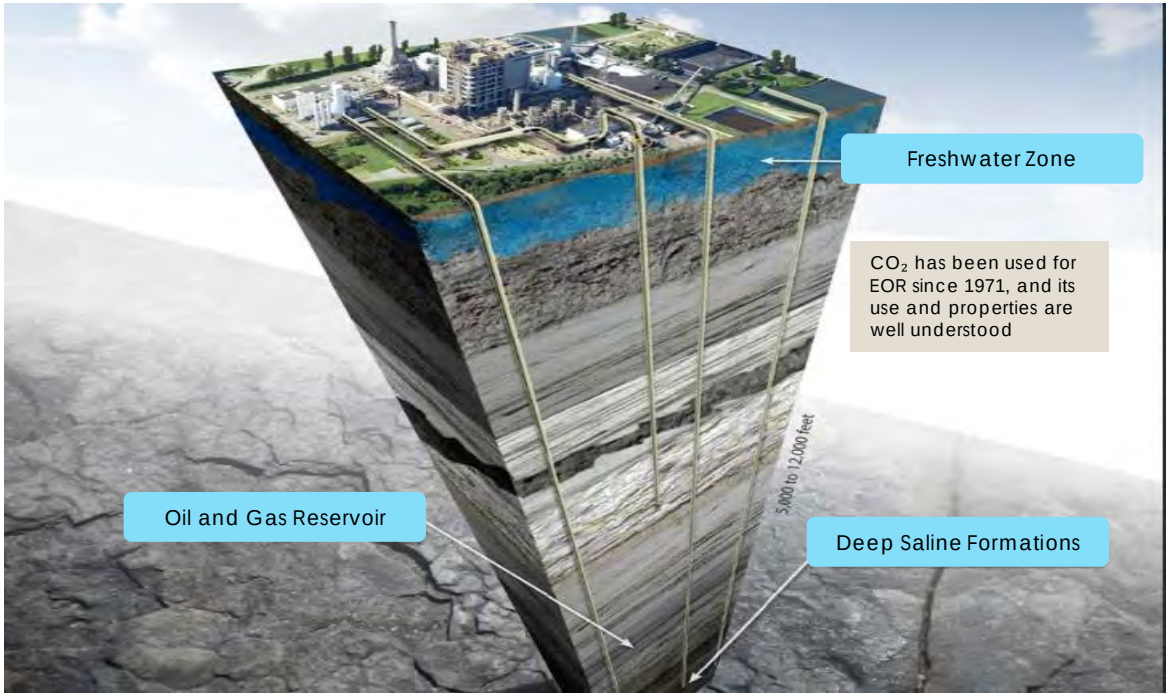
- High efficiency with existing gasifiers.
- Can use unique impurity removal methods.
- Special material considerations to prevent corrosion.
- Zero emissions, including CO_2, SOx, NOx, Hg, particulates.

CO_2 CAN BE SEQUESTERED

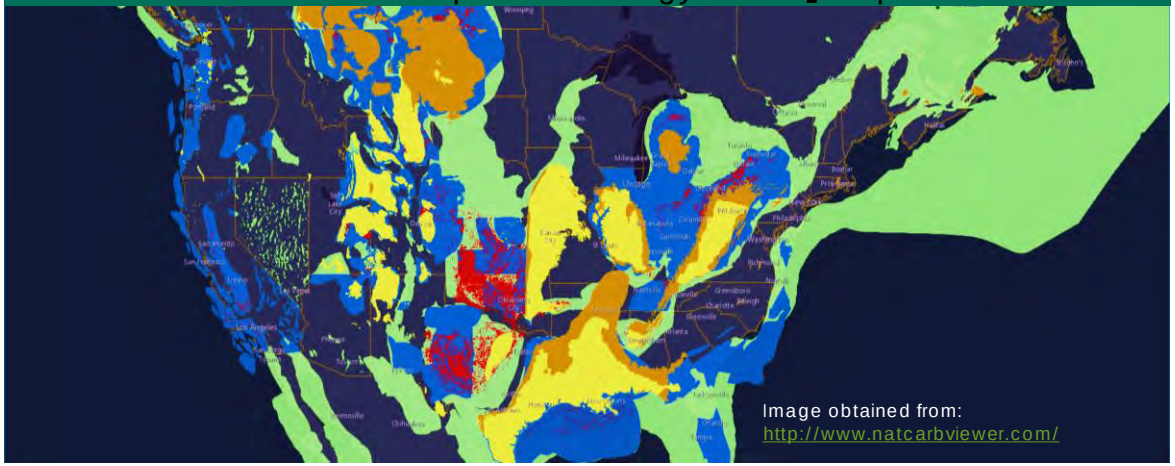
ENHANCED OIL RECOVERY (EOR) USES CO_2 FOR THE PRODUCTION OF OIL, WHILE BEING NET CARBON NEUTRAL (~1 CARBON ATOMS SEQUESTERED FOR EVERY CARBON ATOM IN OIL)

CO_2 CAN ALSO BE SEQUESTERED IN IN DEEP SALINE FORMATIONS

IN THE US, 45Q PROVIDES FEDERAL TAX CREDIT OF $50/TONNE FOR SEQUESTRATION AND $35 FOR EOR



Locations with Acceptable Geology for CO_2 Sequestration



NET POWER

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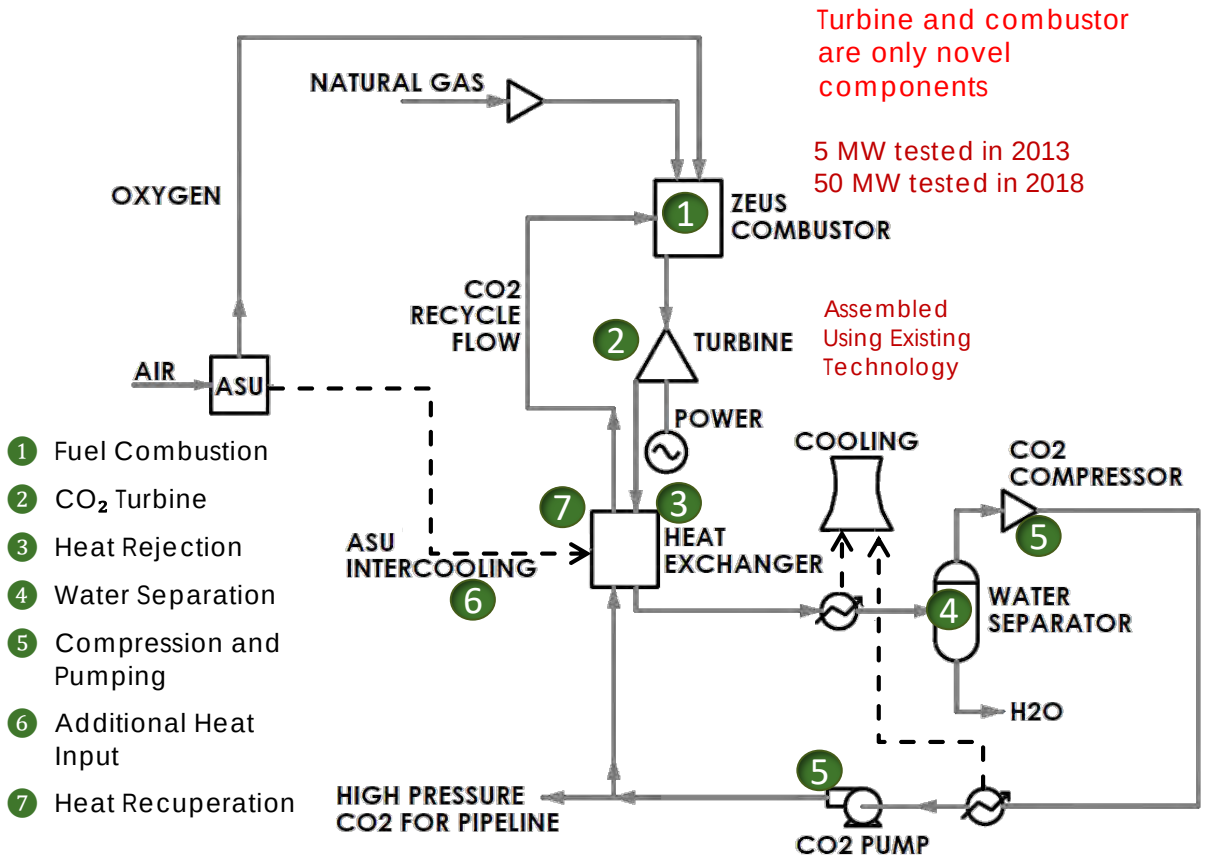
ALLAM CYCLE NATURAL GAS PLATFORM

OXY-FUEL, SEMI-CLOSED-LOOP, WITH A CO_2 WORKING FLUID.

55 TO 59% (LHV) NET EFFICIENCY (CAN BE ADJUSTED), WITH CAPTURE OF >97% OF CO_2.

CO_2 AND WATER ARE THE ONLY EFFLUENTS. ASU ALSO PRODUCES SALEABLE BYPRODUCTS.

A NEAR-TERM CO_2 SOLUTION THAT UTILIZES MOSTLY EXISTING EQUIPMENT IN A NOVEL WAY.



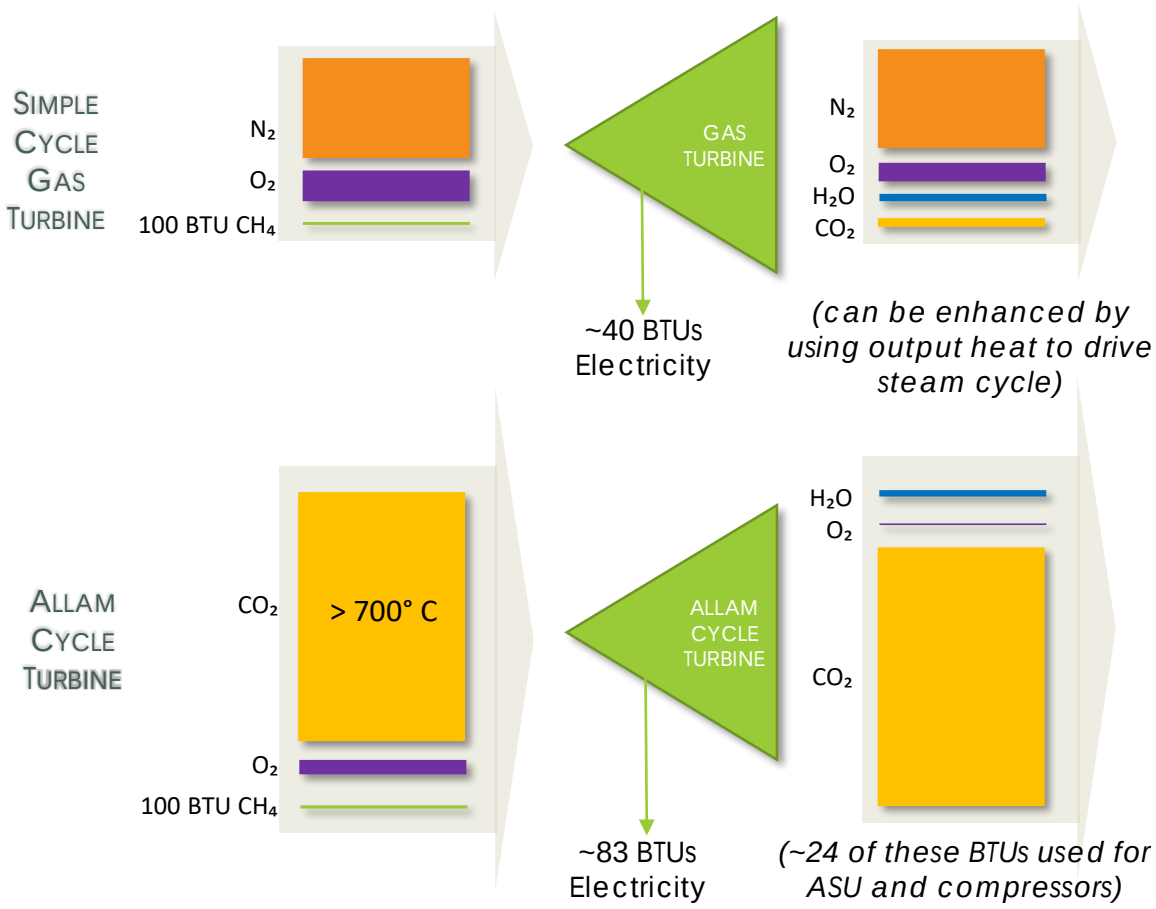
THE ALLAM CYCLE IS A DIFFERENT KIND OF BRAYTON CYCLE

TURBINES ARE DRIVE BY "MASS" AND "HEAT"

THE ALLAM CYCLE INCREASES MASS BY REPLACING THE N_2 IN THE AIR WITH A MUCH GREATER MASS OF CO_2

THE ALLAM CYCLE RECUPERATES EXHAUST HEAT TO WARM THE CO_2 TO HIGH TEMPERATURES

THE SHARPLY INCREASED EFFICIENCIES ARE USED TO OFFSET THE PARASITIC LOADS OF AIR SEPARATION AND RECOMPRESSION

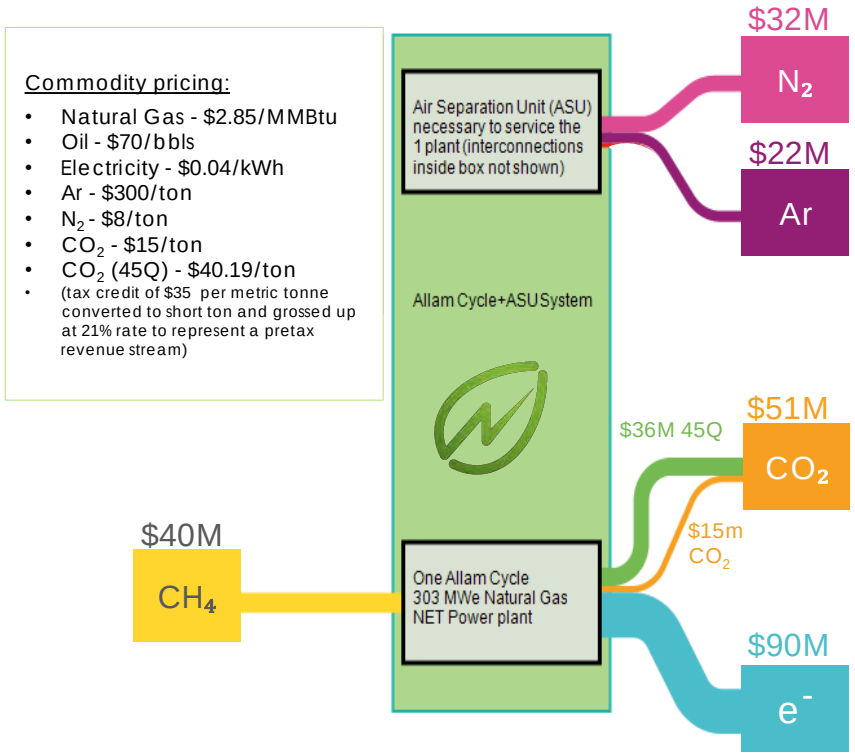


WIDTH OF LINES PROPORTIONAL TO MASS.

NET POWER IS ABOUT MORE THAN POWER

VALUE OF INDUSTRIAL GAS STREAM APPROACHES VALUE OF ELECTRICITY

45Q TAX CREDITS FOR CO_2 CAPTURE PROVIDE $35-50/TON FOR NET POWER'S CO_2.

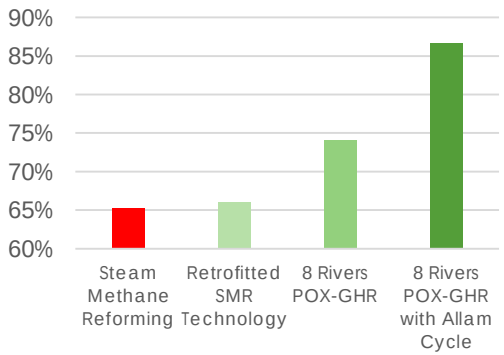


8 RIVERS HYDROGEN CAN INTEGRATE WITH THE ALLAM CYCLE

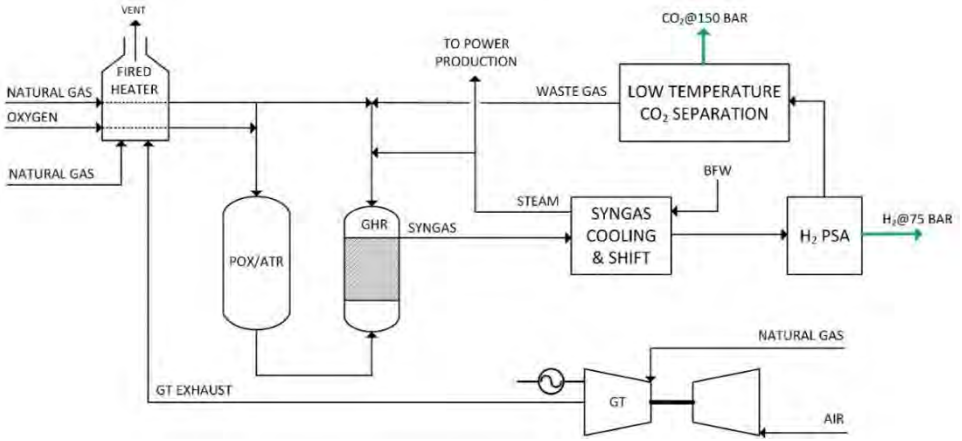
8 RIVERS HAS INVENTED A HYDROGEN TECHNOLOGY WITH 90% CARBON CAPTURE THATOUTCOMPETES STEAM METHANE REFORMING.

AN OPTIONAL ALLAM CYCLE INTEGRATION GIVES IT 100% CO_2 CAPTURE AND HIGHER EFFICIENCY.

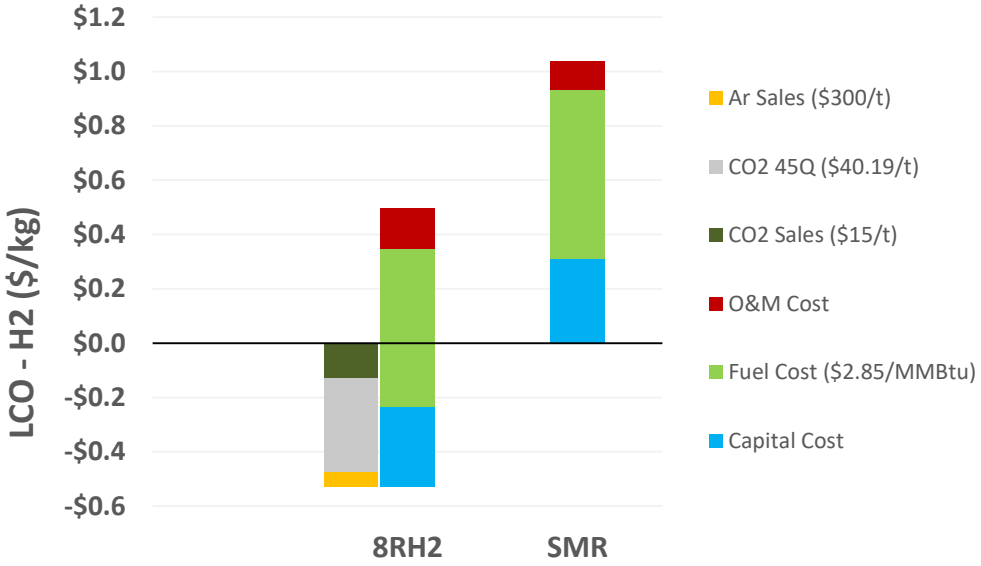
H_2 Conversion Efficiency (H_2 btu out/thermal btu in)



8 Rivers POX-GHR Hydrogen Process



Levelized Cost of 8 Rivers Hydrogen

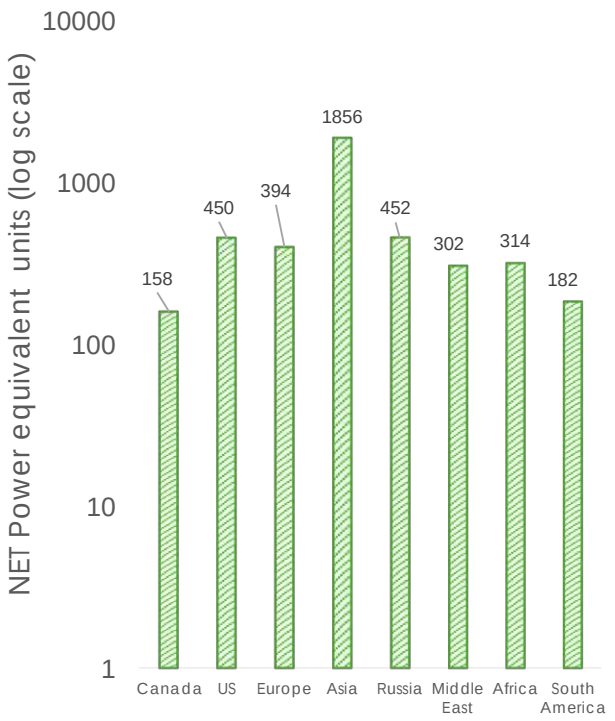


THE DEMAND FOR CO_2 IS SUBSTANTIAL

DEMAND FOR CO_2 FROM NET POWER PLANTS OUTSTRIPS IEA PROJECTIONS FOR NEW AND REPLACEMENT POWER PLANTS

Power

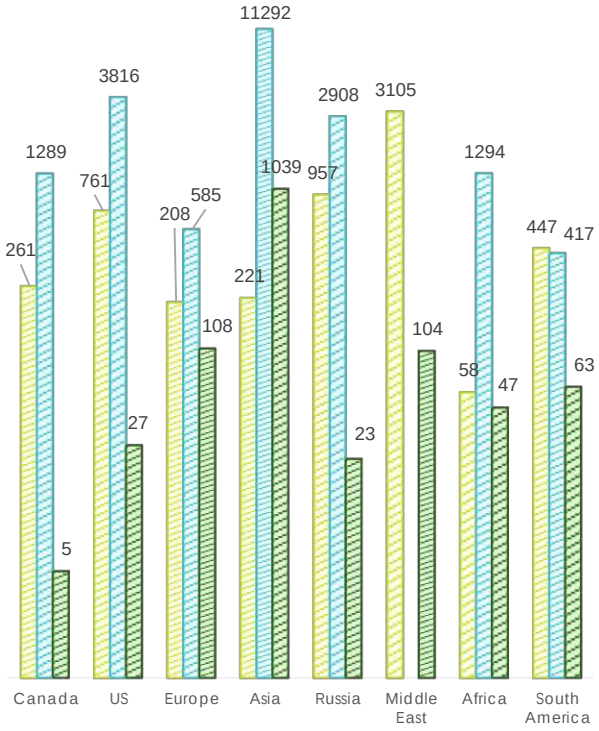
NUMBER OF NET POWER 300 MW PLANTS NEEDED BY REGION TO FULFILL NEW AND REPLACEMENT FOSSIL BUILDS



Power Demand to 2040 (IEA) (total units 4,108) (3.5 billion tpy CO_2)

CO_2

NUMBER OF NET POWER 300 MW PLANTS NEEDED FOR TO MEET CURRENT CO_2 DEMAND FOR EOR, ECBMR, AND CEMENT



EOR Demand (Kuuskraa) (total unit 6,018) (4.9 billion tpy CO_2)

ECBMR Demand (Godec, Dipietro) (total units 21,601) (17.7 billion tpy CO_2)

Cement (USGS 2012) (total units 1415) (1.2 billion tpy CO_2)

THE NET POWER ADVANTAGE - THE ALLAM CYCLE

THIS DIAGRAM HAS "PRESSURE" LOGARITHMICALLY SPACED UP AND DOWN.

AND "ENTHALPY" IS EVENLY SPACED FROM LEFT TO RIGHT. ENTHALPY IS A MEASURE OF ENERGY. AS YOU MOVE FROM LEFT TO RIGHT, YOU ARE INJECTING ENERGY *INTO* THE SYSTEM, AND VICE VERSA.

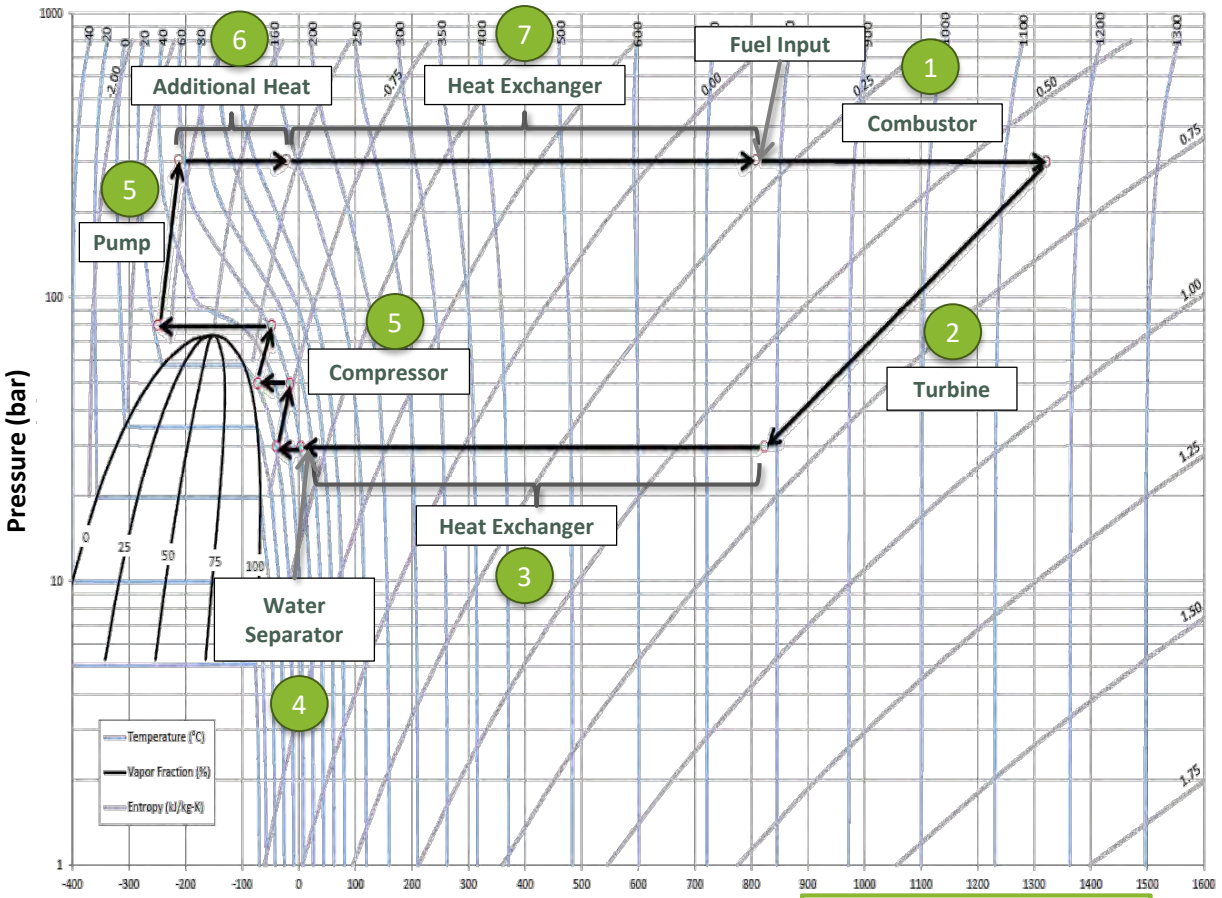
TEMPERATURE IS ON THE UP-DOWN BLUE LINES. TO THE RIGHT, THEY AND ENTHALPY MOVE TOGETHER.

THE "DOME" IS AN IMPORTANT LANDMARK. ABOVE THE TOP, CO_2 IS "SUPERCRITICAL". BELOW THE TOP AND TO THE RIGHT, CO_2 IS A GAS, AND TO THE LEFT, CO_2 IS A LIQUID. INSIDE, IT IS A MIXTURE OF GAS AND LIQUID.

ONE MORE THING. THE PURPLE LINES ARE "ENTROPY" LINES. THINK OF THESE AS RAILROAD TRACKS FOR GOING UP AND DOWN IN PRESSURE. IN THE TURBINE, THE TRACKS GO FROM UPPER RIGHT AND DOWN AND TO THE LEFT. THE LEFT-RIGHT DISTANCE IN ENTHALPY IS THE AMOUNT OF POWER THE TURBINE PRODUCES.

NOTE THAT ON THE LEFT, THESE RAILROAD TRACKS ARE STEEPER, AND THOSE FOR THE PUMP ARE STEEPER THAN THOSE FOR THE COMPRESSOR. THAT MEANS IT TAKES LESS ENERGY (LEFT-RIGHT) TO PUMP THAN TO COMPRESS.

ONE LAST THING. THE SYSTEM DESIGN POINT IS WHERE THE TURBINE DUMPS INTO THE HEAT EXCHANGER. ASK YOURSELF "WHY?"



45Q TAX CREDIT FOR CO_2 CAPTURE AND STORAGE

- TAX LEGISLATION (45Q) PASSED IN THE U.S. IN FEB '18, PLACING SIGNIFICANT VALUE ON CAPTURED AND SEQUESTERED CO2
- TAX CREDIT VALUE IS $428M (PRE-TAX REAL VALUE BASIS) FOR A 2022 COD PROJECT WITH EOR

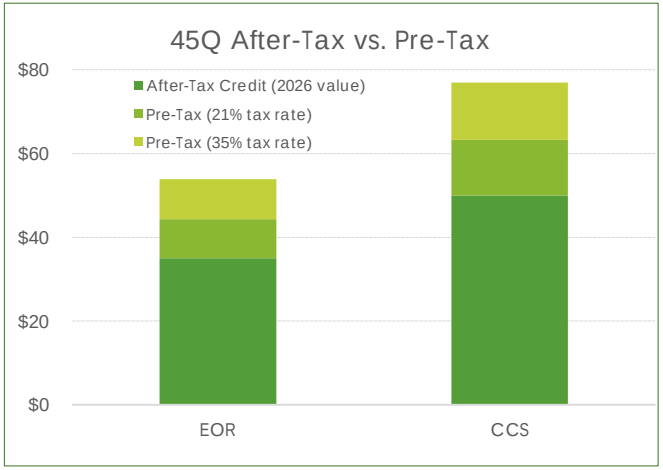
	EOR or Chemical Conversion	Sequestration
2021 (ramping from present to 2026)	$24/mt	$36/mt
2026 (ramped at inflation after 2026)	$35/mt	$50/mt

ELIGIBLE FACILITIES CAN CLAIM CREDITS FOR UP TO 12 YEARS

JANUARY 1, 2024 DEADLINE TO COMMENCE CONSTRUCTION

IF CO_2 USED FOR EOR, MUST CAPTURE AT LEAST 500,000 TONNES/YEAR.

CREDITS ASSIGNED TO THE FACILITY OPERATOR, MAY BE TRANSFERRED TO THE CO_2 STORAGE ENTITY



NET POWER COMPLEMENTS RENEWABLES

DEEP DECARBONIZATION, WITHOUT DIMINISHING RETURNS.

SOLAR AND WIND'S RELIANCE ON NATURAL GAS BACK-UP CEASES TO BE A CO_2 PROBLEM WITH NET POWER

Turns out wind and solar have a secret friend: Natural gas

By **Chris Mooney**

- NET POWER REMOVES SOLAR AND WIND'S RELIANCE ON COMBINED CYCLE
- IT PROVIDES PEAKING, BACK-UP, AND RAMPING, WITH ZERO CO_2.
- OUR RAMP RATE IS HIGHER THAN CCGT AND COMPARABLE TO CT
- EACH PLANT CAN CREATE >150 MWH OF ELECTRICITY STORAGE

NETPOWER'S ECONOMICS ARE DIFFERENT

- MOST CARBON CAPTURE PROJECTS FAIL IN A HIGH RENEWABLES WORLD BECAUSE THEY CAN'T SURVIVE LOW CAPACITY FACTORS.
- NET POWER RETAINS ITS ADVANTAGE OVER CCGT REGARDLESS OF CAPACITY FACTOR, BECAUSE NET POWER'S CAPEX-OPEX RATIO IS EQUIVALENT TO CCGT.

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