November 5th 2015

NRG – Inventys Project CO_2NCEPT

DE-FE-0026581 Phase 1 Kickoff Meeting

Safe harbor statement

This presentation contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements are subject to certain risks, uncertainties and assumptions and typically can be identified by the use of words such as "expect," "estimate," "should," "anticipate," "forecast," "plan," "guidance," "believe" and similar terms. Such forward-looking statements include our future growth and financial performance, Company operations, developments in renewables, and project development. Although NRG believes that its expectations are reasonable, it can give no assurance that these expectations will prove to have been correct, and actual results may vary materially. Factors that could cause actual results to differ materially from those contemplated above include, among others, general economic conditions, hazards customary in the power industry, weather conditions, competition in wholesale and retail power markets, the volatility of energy and fuel prices, failure of customers to perform under contracts, changes in the wholesale and retail power markets, changes in government regulation of markets and of environmental emissions, the condition of capital markets generally, our ability to access capital markets, unanticipated outages at our generation facilities, adverse results in current and future litigation, failure to identify or successfully implement acquisitions and repowerings, the inability to implement value enhancing improvements to plant operations and companywide processes, our ability to realize value through our commercial operations strategy, and our ability maintain successful partnering relationships.

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Kick-off Meeting Agenda

NRG and Objective

Project Team

Program goals and objectives

Key Stakeholders

- Lauren Engineering
- Inventys and our technical approach

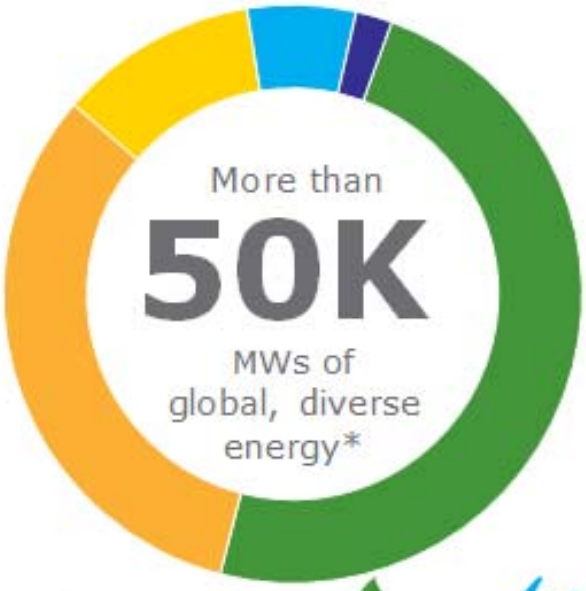
Project Structure/Task Description

Schedule

Budget

Q&A

Our strength in numbers



Our generation capacity can support nearly
1/3 of the US population

Nearly **3,000,000**
recurring retail customers

3rd largest
renewable generation
company in the U.S.

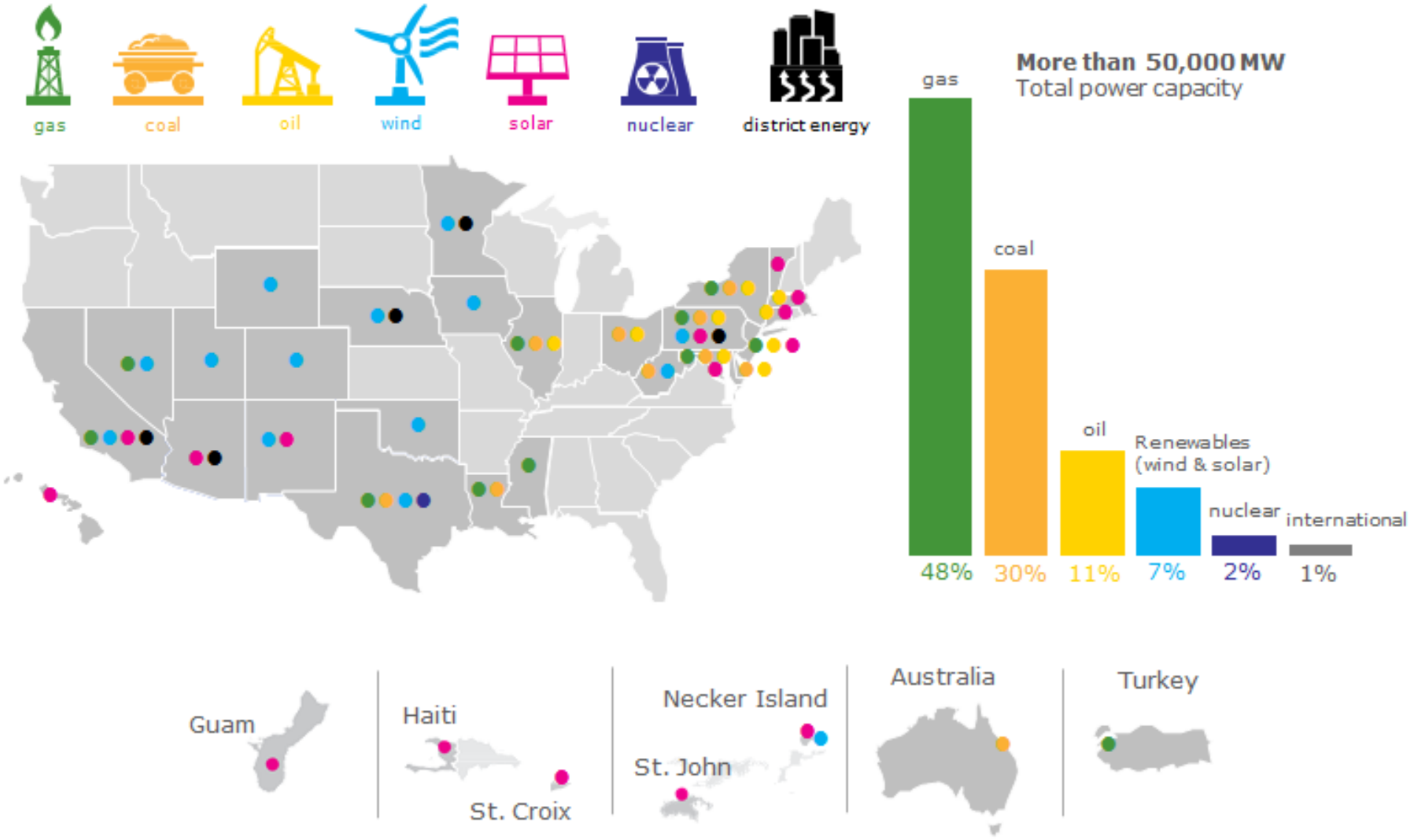
$3 billion+
Invested on environmental improvements

Largest
independent power
producer in U.S.

Fortune 200
- and –
S&P 500 Index

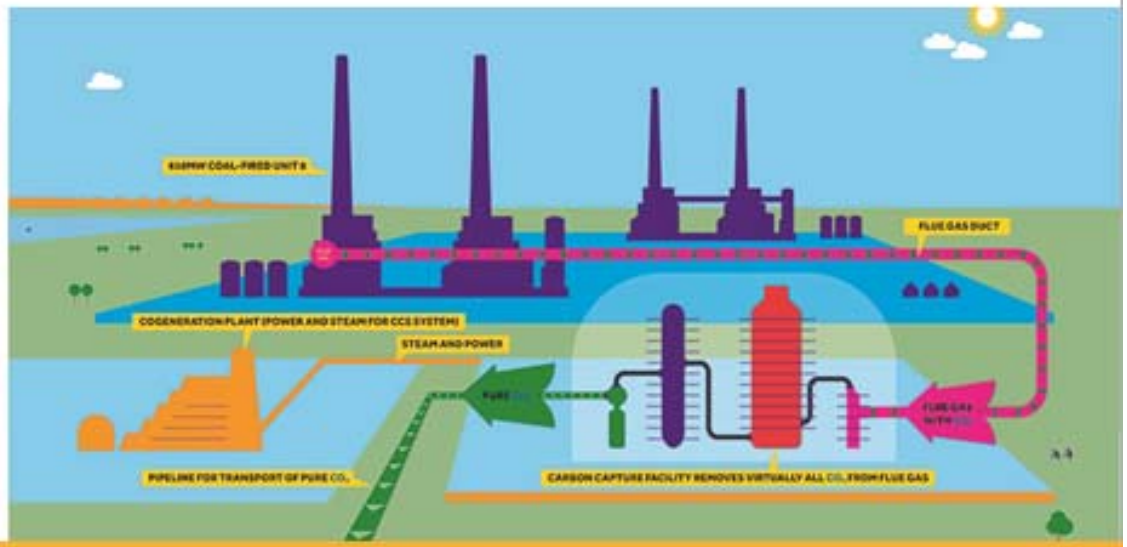
*NRG and NRG Yield Assets excluding 1,346 MW thermal and 68 MW of Home Solar

One of the nation's largest and most diverse generation portfolios



NRG and NRG Yield Assets excluding 1,310 MW thermal and 68 MW of Home Solar. As of 3Q15
Net dependable capacity ratings based on NRG ownership.

Commercial Scale Carbon Capture System



Carbon capture at commercial scale

Building the world's largest post-combustion carbon capture-enhanced oil recovery project

- Will capture approximately 90 percent of carbon dioxide (CO_2) from the flue gas of an existing coal plant
- Captured CO_2 will be used to enhance production at mature oil fields in Texas' Gulf Coast region
- The demonstration facility is expected to be operational by the end of 2016

Focused on driving down the cost of capture

Project Team

Sponsor and Host Site

- David Greeson – Developer & Commercial
- Jim Tharp – Program Manager
- Anthony Armpriester – E & C
- Oscar Rodriquez – Project Controls

Technology Provider

- Andre Boulet – CEO and Co-Founder
- Matt Stevenson – Commercial/Economist
- David Evans – Program Manager
- Soheil Khiavi – Technology Lead

EPC

- Steve Kemper – Business Development
- Jason Fuchs – Program Manager
- Cameron McGaughey – Asst. PM
- Gary Young – Engineering Manager

Project Goals and Objectives

CO_2NCEPT - **C**onfirmation **O**f **N**ovel **C**ost-effective **E**merging **P**ost-combustion **T**echnology.

- The project will utilize the Inventys' VeloxoTherm™ post combustion carbon capture technology to process flue gas from a coal fired power plant using a slipstream larger than 10 MWe [Targeting 25 MWe].

Successfully demonstrate a post-combustion capture technology on coal flue gas that achieves 90% CO_2 capture efficiency of the selected large scale MWe size (10+MWe) with a CO_2 purity greater than 95%; and

Validate the results of the preliminary techno-economic analysis (TEA) and establish the impact of CO_2 capture on the Cost of Electricity (COE).

- The project will be executed in two phases. Phase 1 is the preparation of the comprehensive proposal to be considered for Phase 2.

Phase 1 Goals and Deliverables

GOALS

Phase 1 efforts will establish how the project is going to be structured and executed, define the scope of work and division of responsibility, determine the location of the demonstration, size the project, conduct preliminary design efforts, form the execution approach, and identify any key issues that need to be addressed before a project is undertaken. This phase will ultimately validate the proposed concept and prepare the documentation for the Phase 2 application.

DELIVERABLES

Phase 1 will result in the publication of a series of deliverables, reports, Phase 2 application documents, and execution planning schedules that provides the stakeholders with the necessary information and confidence to make informed decisions regarding proceeding into Phase 2.

Lauren Engineers & Constructors – Overview

Lauren has over 30 years of experience providing fully integrated professional engineering, procurement, construction and fabrication services. We design and build the highest-quality facilities timeliness, integrity and skill.

Services

- EPC/EPCM
- Engineering
- Procurement
- Construction
- Technology Integration

Markets

- Power Generation
- Chemicals / Process
- Petrochemicals
- Refining
- Oil and Gas – Midstream
- Oil and Gas – Upstream

Safety

- LTIR substantially below BLS and CII national averages
- 3.2M hours since last lost-time injury
- ZERO lost-time cases and only one recordable case in 2014

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Lauren Engineers & Constructors – Key Projects

Florida Power & Light
Hybrid Solar Power Facility
Indiantown, FL

Scope of Work: EPC

Acciona
Nevada Solar One
Boulder City, NV

Scope of Work: EPC

Invenergy
Ector County Energy Center
Goldsmith, TX

Scope of Work:
General Contractor

LyondellBasell
Ethylene Furnace
Port Arthur, TX

Scope of Work:
Construction, Procurement and Project Management

HollyFrontier
Refinery Expansion
Woods Cross, UT

Scope of Work: EPC

Confidential Client
Ammonia Plant Expansion
Donaldsonville, LA

Scope of Work: General Contractor

LAUREN

Inventys Introduction

Energy technology company focused on commercializing a breakthrough post-combustion CO_2 capture technology

- VeloxoTherm™ is an intensified rapid cycle Temperature Swing Adsorption (TSA) process
  - Proprietary combination of structured adsorbents, sophisticated cycle design and a novel embodiment to achieve a step-change in the cost of CO_2 capture from dilute flue gases
- Private company, headquartered near Vancouver, Canada
  - ~40 employees
  - 21,000-sq-ft manufacturing facility and a state-of-the-art adsorption characterization laboratory
  - 27 patents granted or pending
  - US patents now granted on all aspects of technology – fundamental structured adsorbent to plant system design and integration
- Strong financial partners and project participants, as well as critical Board leadership in climate policy and the energy sector
  - Board includes Dr Steven Chu, former US Secretary of Energy, Wayne Thomson, Director of Cenovus Energy, and Tracy Evans, former COO of Denbury Resources
  - Equity investors include Chevron and Mitsui
- Company founded in 2007 to apply the founder's expertise in developing and deploying commercial gas separation technology using structured adsorbents into industrial installations

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TECHNOLOGY BACKGROUND

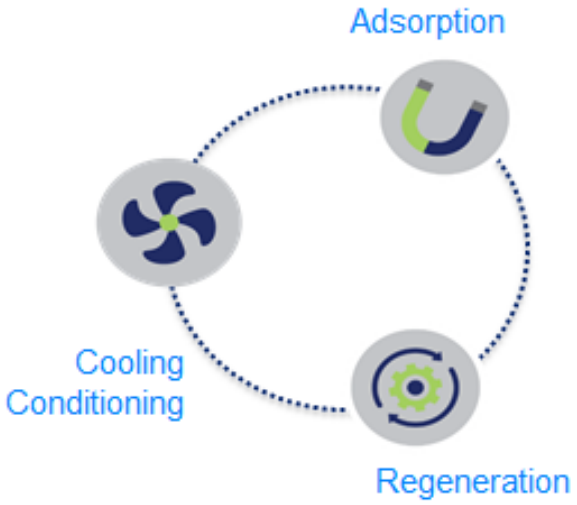
BASIC PRINCIPLES

VeloxoTherm™

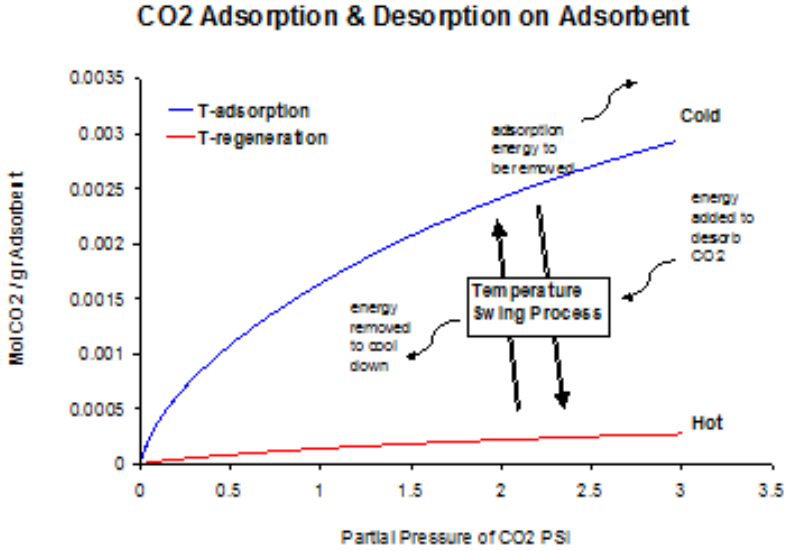
- VeloxoTherm™ is based on Thermal Swing Adsorption
- Solid sorbents applying physisorption have critical advantages relative to liquid solvents and other post-combustion capture technologies as a result of low regeneration energy
- Compared to a traditional packed or moving bed TSA process, VeloxoTherm™ relies on 3 key innovations that enable a step change in capture costs
  - **Enabling Technology #1**: Structured Adsorbents
  - **Enabling Technology #2** : Sophisticated TSA cycle
  - **Enabling Technology #3** : Novel embodiment based on existing and familiar equipment (rotary air preheaters)

Thermal Swing Adsorption

Continuous Cycle Process



Operates Between 2 Temperatures[1]



1. Generic material for explanation purposes, not related to the sorbents used in the VeloxoTherm™ process

Structured Adsorbents

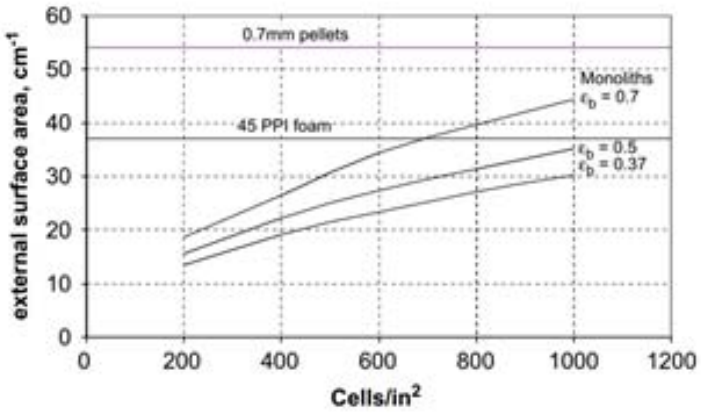
ENABLING TECHNOLOGY #1

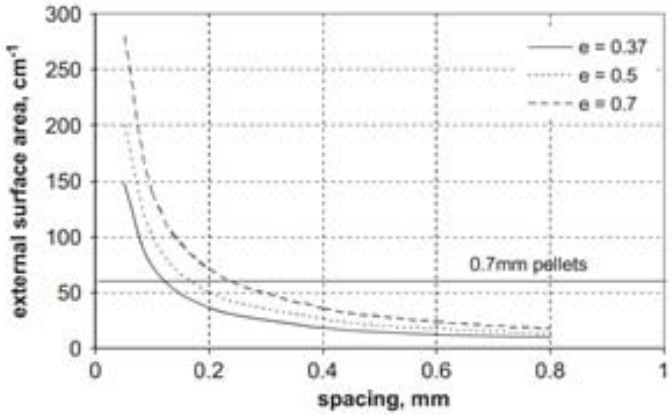
The hydrodynamics, specific surface area, and mass and heat transfer kinetics of structured adsorbents enable critical advantages:

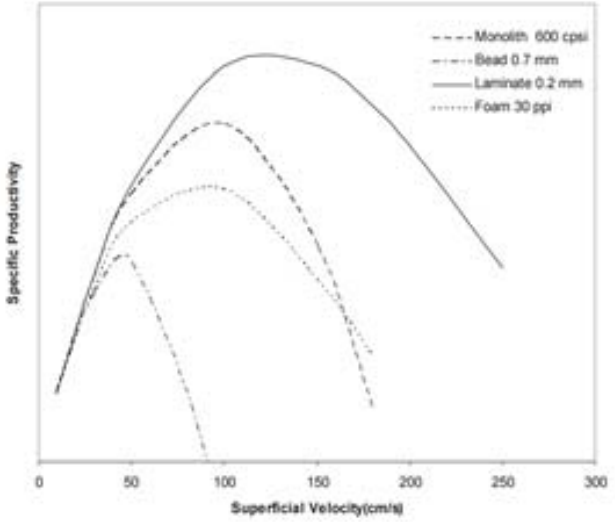
- low pressure drop;
- Immobilized adsorbent with no fluidization or attrition;
- High geometrical (surface) areas per reactor volume;
- High heat and mass transport due to short diffusion paths within the structured materials;
- De-coupled mechanical and separation properties of sorbent;
- Engineered thermal properties of laminates; and,
- Laminate design allows degrees of freedom to tailor void fraction, packing densities, hydrodynamics.

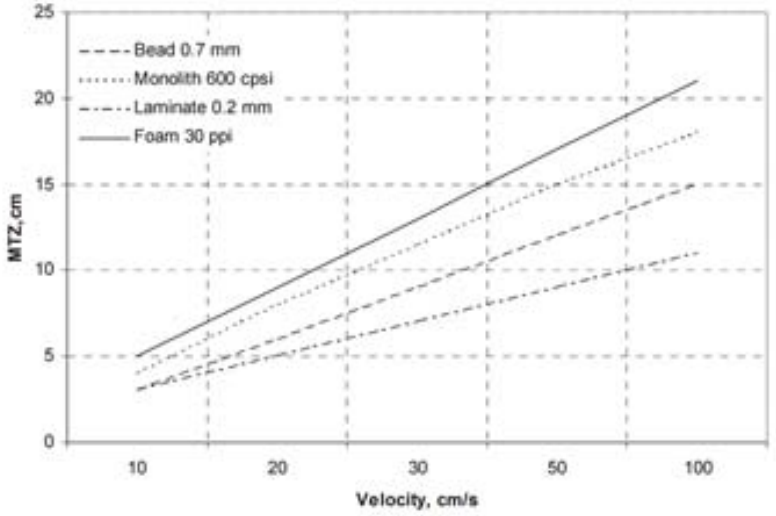
Structured Adsorbents

ENABLING TECHNOLOGY #1









Source: Rezaei, F., (2011). *Optimization of Structured Adsorbents for Gas Separation Processes*. Department of Chemical Engineering Monash University Melbourne, Australia

Structured Adsorbents

ENABLING TECHNOLOGY #1

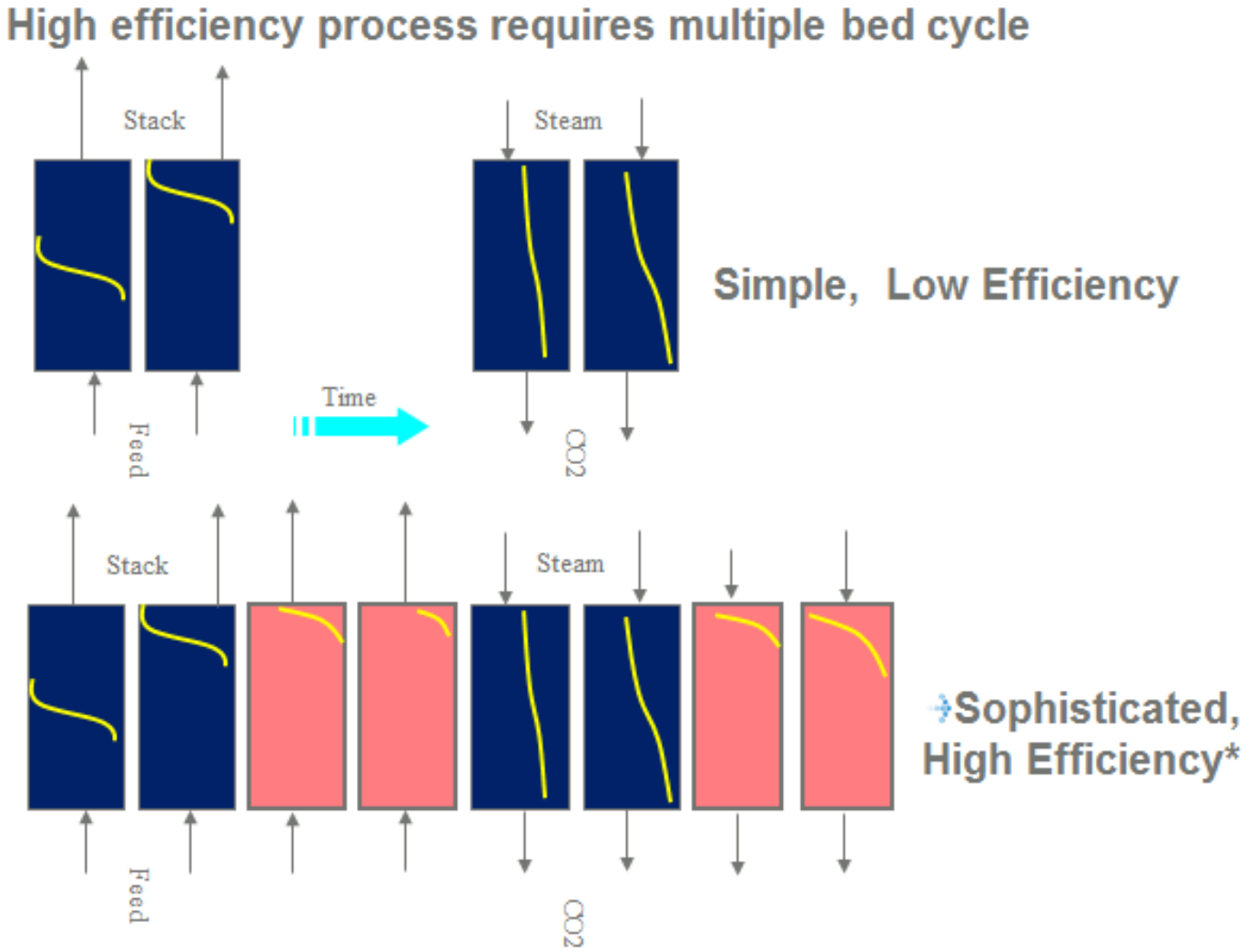
- Flue gases have extremely large volumes and low pressures — it is in this region of high superficial gas velocities that structured adsorbents demonstrate their superiority and make them well suited for post combustion CO_2 capture.

State Property	Granular Sorbent	Structured Sorbents
Sorbent Reactor Configuration	Packed Bed	Laminated Sorbent
Characteristic Dimension(s)	0.7 mm	0.1 mm x 0.1 mm
Specific Surface Area [m^2/m^3]	5,400	10,000
Mass Transfer Coefficient [s^{-1}]	287	1629
Superficial Gas Velocity [cm/s]	280	280
Pressure Drop (Pa)	2,000	110

Calculated Values
Source: Inventys
Adapted From: Rezaei, F., (2011). *Optimization of Structured Adsorbents for Gas Separation Processes*. Department of Chemical Engineering Monash University Melbourne, Australia

Sophisticated TSA Cycle

ENABLING TECHNOLOGY #2

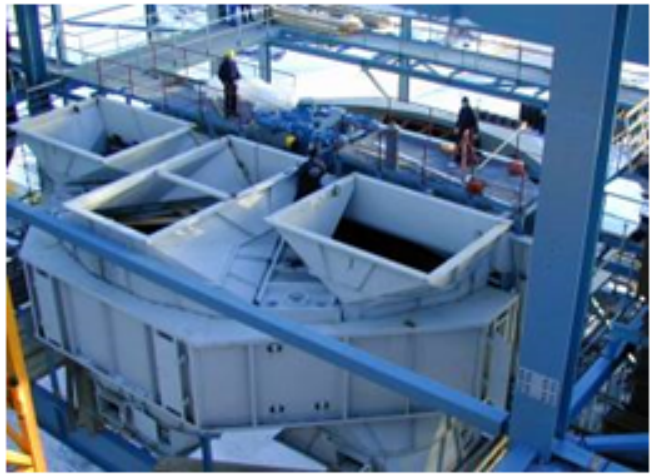


*For explanation purposes, not an exact representation of an actual cycle design for a coal-fired application

Rotary Adsorption Machine

ENABLING TECHNOLOGY #3

- The physical embodiment for the VeloxoTherm™ process is rotary air preheaters, which have been used in the process industries for more than eighty years
- Utilizing a rotary embodiment to implement the optimized TSA cycle of Veloxotherm™ and take advantage of the process intensification of structured adsorbents allows:
  - Design is based on existing rotary air preheaters utilized in the power industry at the same scale and conditions as a full scale commercial VeloxoTherm™ plant
  - Can implement the sophisticated cycle design of VeloxoTherm™ without the need for discrete vessels, multiple large switching valves (high risk of failure) and complicated interconnecting piping/ducting



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TECHNOLOGY BACKGROUND

TECHNOLOGY STATUS

Technology Roadmap

- >2,000 hrs of operation on engineering scale pilot plant capturing CO_2 from natural gas fired boiler – (if in coal service RAM scale of ~0.5MWe equivalent)
- Completed detailed design and in long lead procurement for field pilot to capture 10 TPD from existing OTSG in Saskatchewan (gas handling equivalent to ~20 TPD, or ~1MWe in coal service)
- Next step is large scale pilot/commercial "pioneer" plants
  - Current NRG/DOE program – ~500 TPD coal based slipstream large scale pilot
  - Lloyd area pioneer - ~170 TPD OTSG application (~340 TPD coal equivalent)
  - Large scale oil sands OTSG pioneer – 1,000 TPD OTSG application (~2,000 TPD coal equivalent)

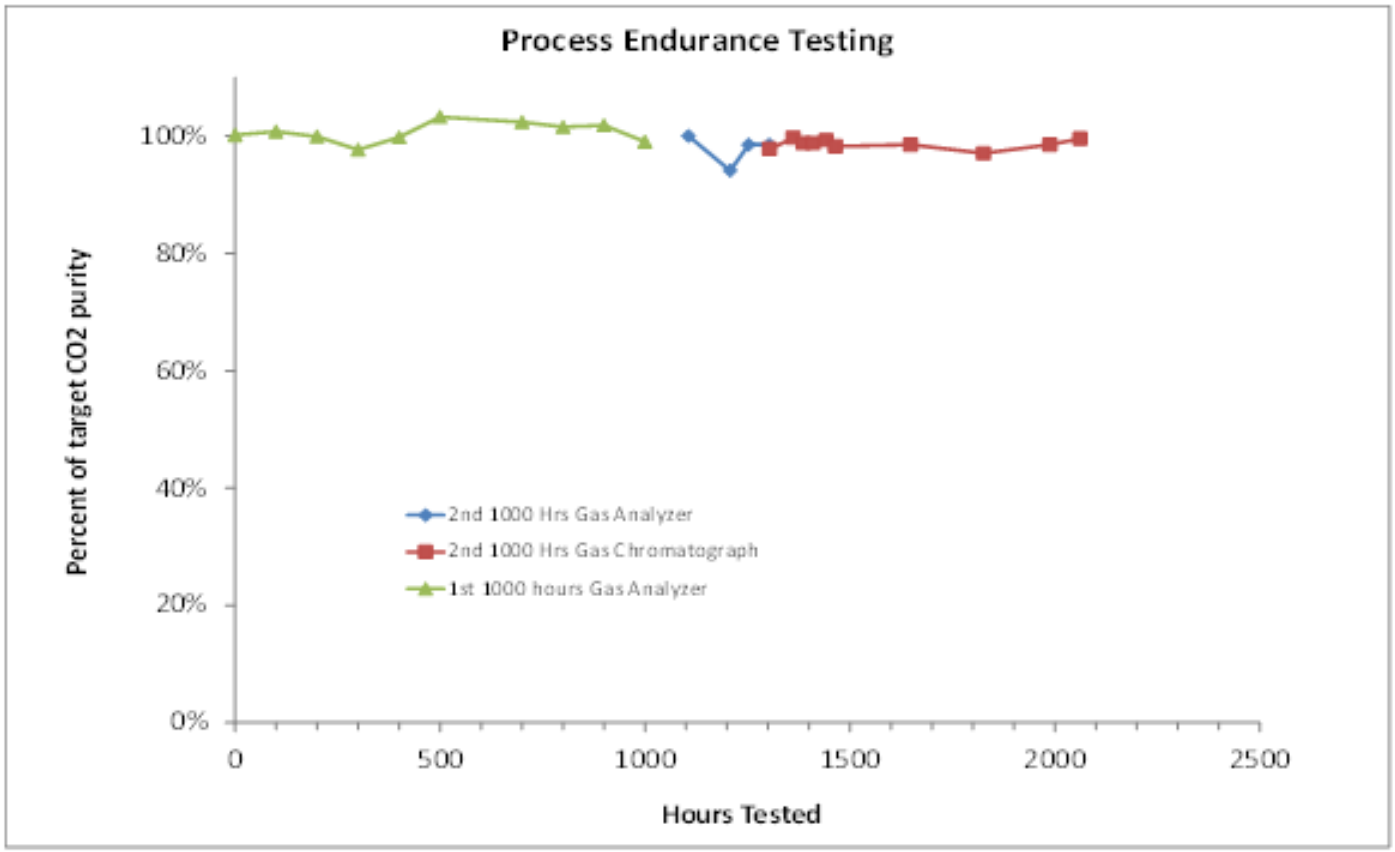
Engineering Scale Pilot

Sized for ~0.5 MWe as platform for scale dependant design (seals, flow distribution), durability and performance stability under long term unattended operation

- Rotary Adsorption Machine
  - Industrial Machine
  - Rotary HEX
  - Bearing and drives
- Full length beds tested
  - Bed length 1.5 m
  - Exact momentum balance
- Full TSA cycle tested
  - Exact mass balance
- Rotary valves demonstrated
  - Contact seal design
  - Rotating ~ 1 RPM

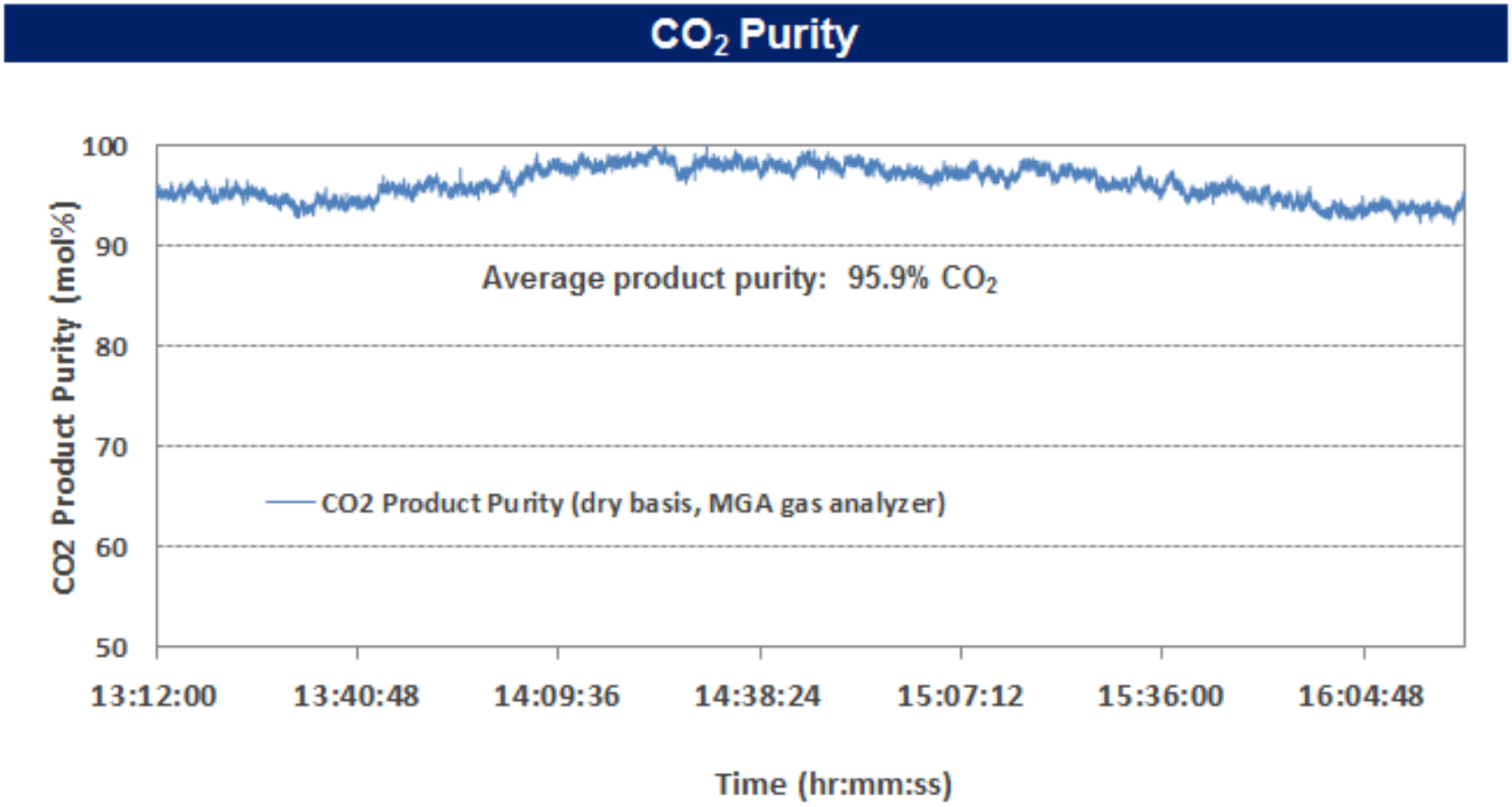
Performance & Results

- Long term testing of process for performance stability performed on engineering scale pilot plant (RAM) – using natural gas fired flue gas with elevated NOx levels (72ppmv)
- Product CO2 purity remain stable and constant over 2,000 hours.



Performance & Results

- Product CO2 purity remain stable and constant as shown by test data.
- CO_2 recovery of 88% calculated for integrated cycle



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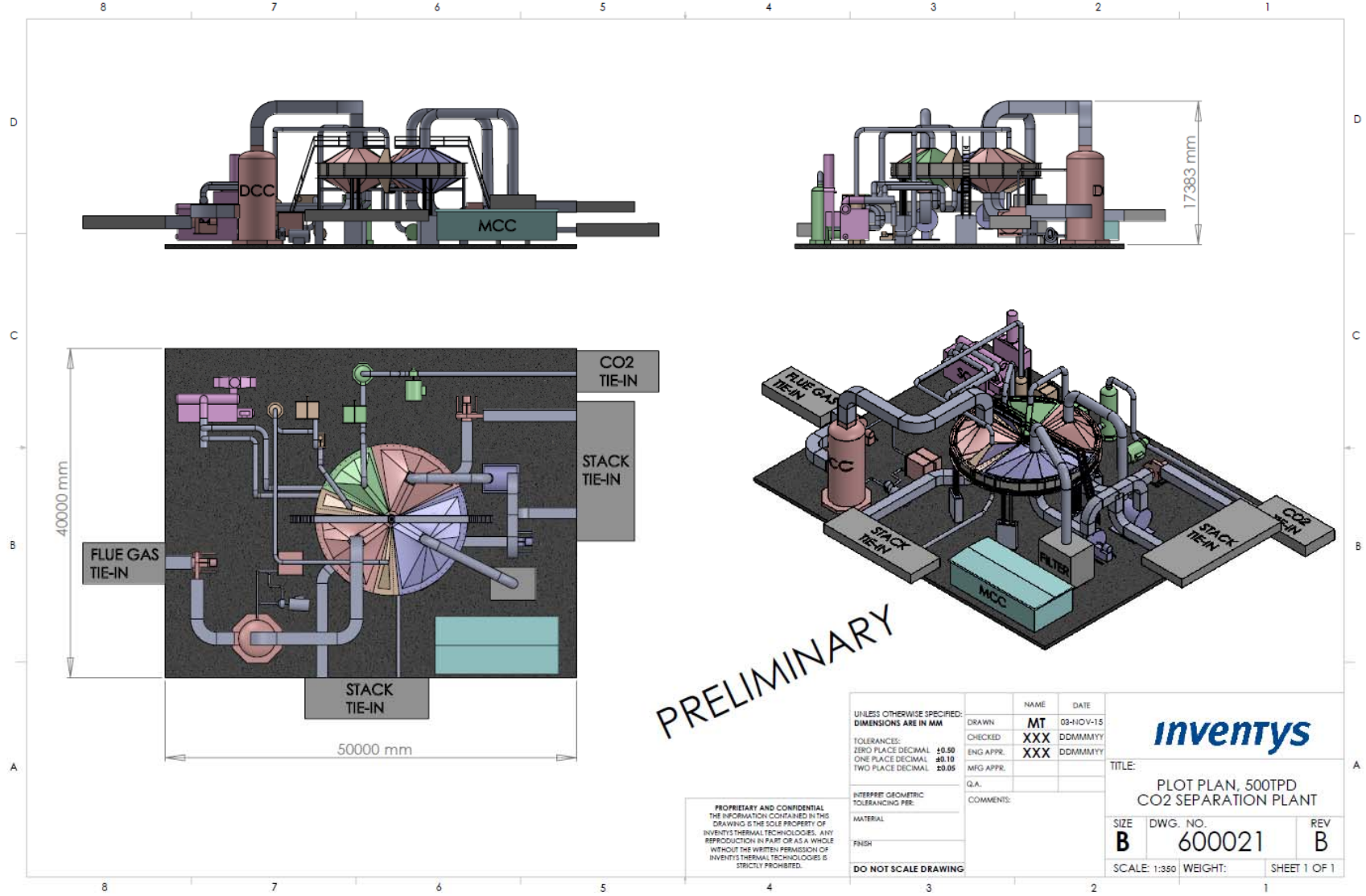
NRG CO_2NCEPT
TECHNICAL
APPROACH

PROCESS & PROJECT DESIGN

Current Status

- Contract with NRG in place
- Preliminary design basis received from NRG
- Preliminary PFD, P&IDs and Mass & Energy Balance developed
- Lauren working on detailed P&IDs for equipment
- Inventys developing optimal cycles and process conditions
- Site visits completed and Utility review in progress
- Engineering Design Hardware (EDH) in place at NRG site to characterize site-specific flue gas requirements

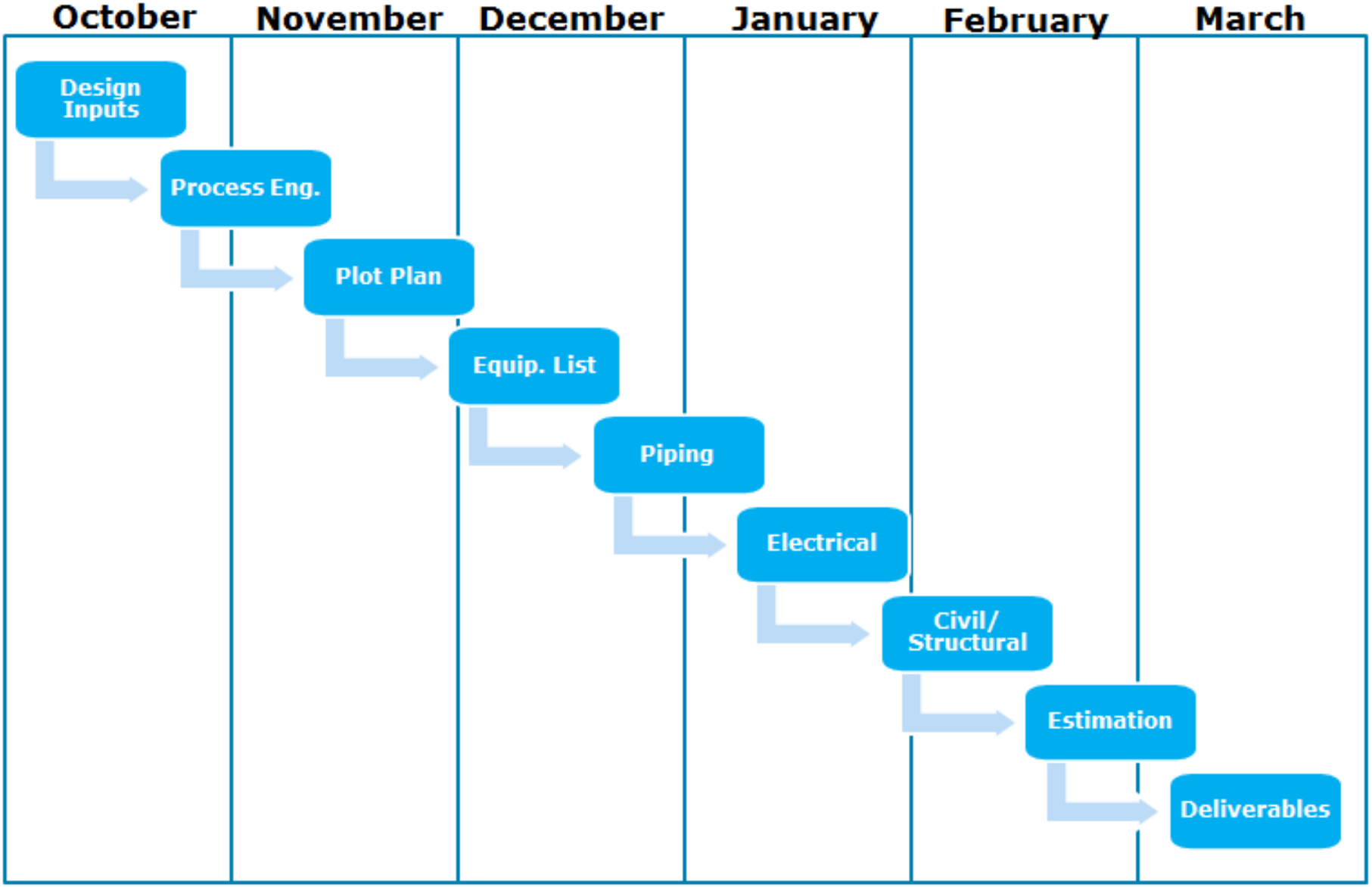
Preliminary GA | NRG CO_2NCEPT



Phase 1 Project Structure and Task Description

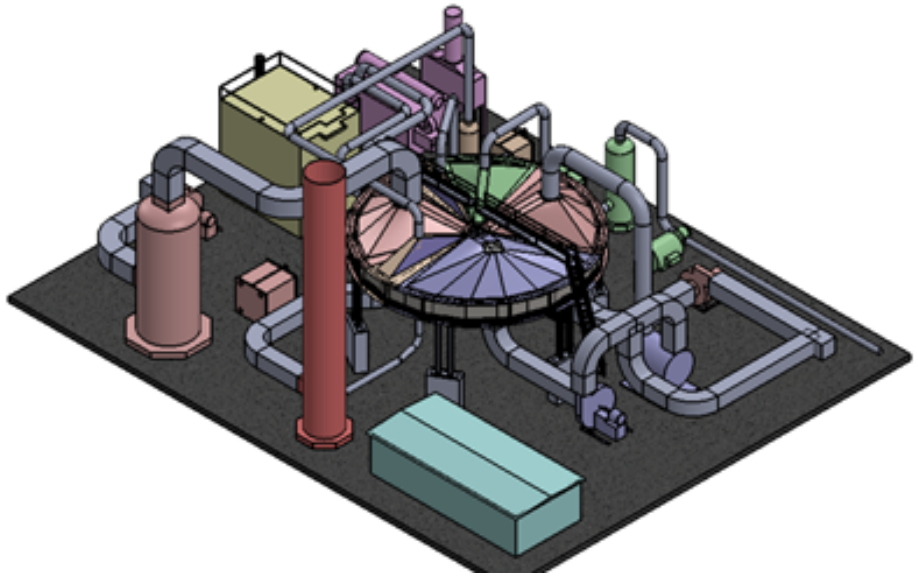
Task 1: Project Management	Includes all project management functions, administration of the grant, finance and accounting functions, the preparation and submission of reports as required, sub award management and communications
Task 2: CCS Development	Technical development of customary design packages including PFDs, H&MBs, P&IDs, Equipment Lists, civil/structural design information, a plot plan, electrical load list, one-line drawings to develop estimate and execution approach to Phase 2.
Task 3: BOP Development	Technical development of customary design packages including PFDs, H&MBs, P&IDs, Equipment Lists, civil/structural design information, a plot plan, electrical load list, one-line drawings to develop estimate and execution approach to Phase 2.
Task 4: Owner's Eng. Support	Technical review of Tasks 2 & 3 along with technical writing support of Phase 2 reports where necessary.

Phase 1 High Level Schedule



Current Status

- Selected a size – Targeting 25MWe (500 TPD)
- Distributed Design Basis Documents & DOR
- Selected Location – W.A. Parish Unit 5
- Working on Site Arrangement – next slide
- Developing Process Engineering Deliverables
- Installed Test Rig at Limestone Station



Project Location

Thank you