Texas Clean Energy Project ("TCEP")

Pittsburgh Coal Conference Presentation
Project Update

Tuesday October 7, 2014

Topics

- **Introduction to Summit Power**
- **Introduction to the Texas Clean Energy Project**
- **Project Status**

Introduction to the Sponsor – Summit Power Group, LLC

Summit Power Group, LLC

Founded over two decades ago by former U.S. Secretary of Energy Donald Paul Hodel and Chief Operating Officer of the Department of Energy Earl Gjelde

- Headquartered in Seattle, Washington
- Staff on the ground in Pacific NW, Desert SW, Texas, Midwest, and Washington DC

Summit's traditional business is power project development for would-be project owners on a success fee basis:

- Over 9,000 MW of electric power plants developed
- Total Summit-led projects in service or under contract, including O&M agreements, represent over $10bn of investment

Summit's current principal business lines:

- High efficiency natural gas-fired power plants
- Renewable energy projects including wind power projects & utility scale photovoltaic solar projects
- Carbon capture including post-combustion capture and coal gasification

Summit Carbon Capture:

- Unique integration of market expertise around CO2, oil, and power
- Strong relationships with leading global firms – technology, financial, asset owners
- Deep knowledge of regulation, policy, and public engagement

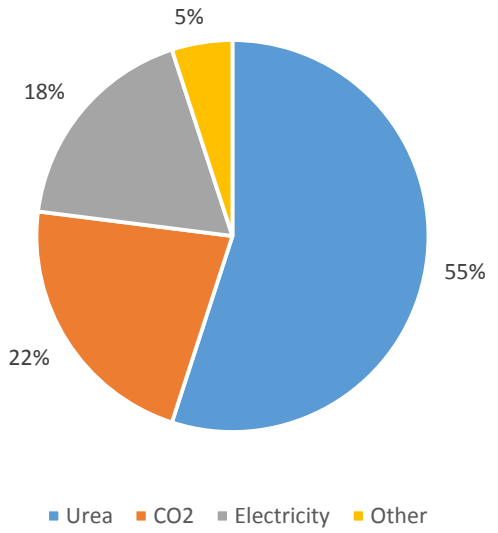
Introduction to the Project

Project Overview

Texas Clean Energy Project ("TCEP" or the "Project")

- An integrated gasification combined cycle ("IGCC") fertilizer and power plant sited in West Texas's Permian Basin
- Relies completely on technologies and components already proven in commercial operation
- Will integrate proven gasification and carbon capture technologies to achieve a high carbon capture rate
- Will achieve state-of-the-art reduction in conventional pollutants such as Hg, NOx, SOx and particulate matter
- The Project utilizes every component of the coal to create revenues
- The Department of Energy granted TCEP a total of $450 million as a competitive cash award
- Produce the following commercial outputs (all of which are fully contracted):
  - **Urea Fertilizer**: expected to produce approximately 700,000+ tons per year of granulated urea
  - **Electric power**: expected to be capable of producing approximately 400+ MW of gross output, with power being consumed for plant use and onsite commercial loads, with the remainder sold to a municipal utility purchaser
  - **Carbon dioxide** ("CO2"): expected to capture 2+ million tons of carbon dioxide annually to be sold for Enhanced Oil Recovery ("EOR") operations in the Permian Basin
  - **Other**: byproducts of the plant, including argon gas, sulfuric acid and slag

Revenue Split in 2021



Unique Features of TCEP

Environmental support

- Summit went to Texas to develop TCEP at the request of national environmental groups
- Key motivation: high CO_2 capture with sequestration
  - Resulting CO_2 emissions will be world's lowest for any commercial scale plant using fossil fuel
- Power block will be air-cooled, not water-cooled
- Water for the gasifier and urea will be from on-site desalinization
- TCEP itself will be a zero liquid discharge ("ZLD") facility
- Lowest air permit limits in the U.S. for SOx, NOx, particulates and mercury
- As a result, air permit was obtained in eight months; no one requested a hearing on the air permit (or any other permit)
- Commitment to establish an independent Carbon Management Advisory Board of top climate scientists and environmental group representatives is unique and important

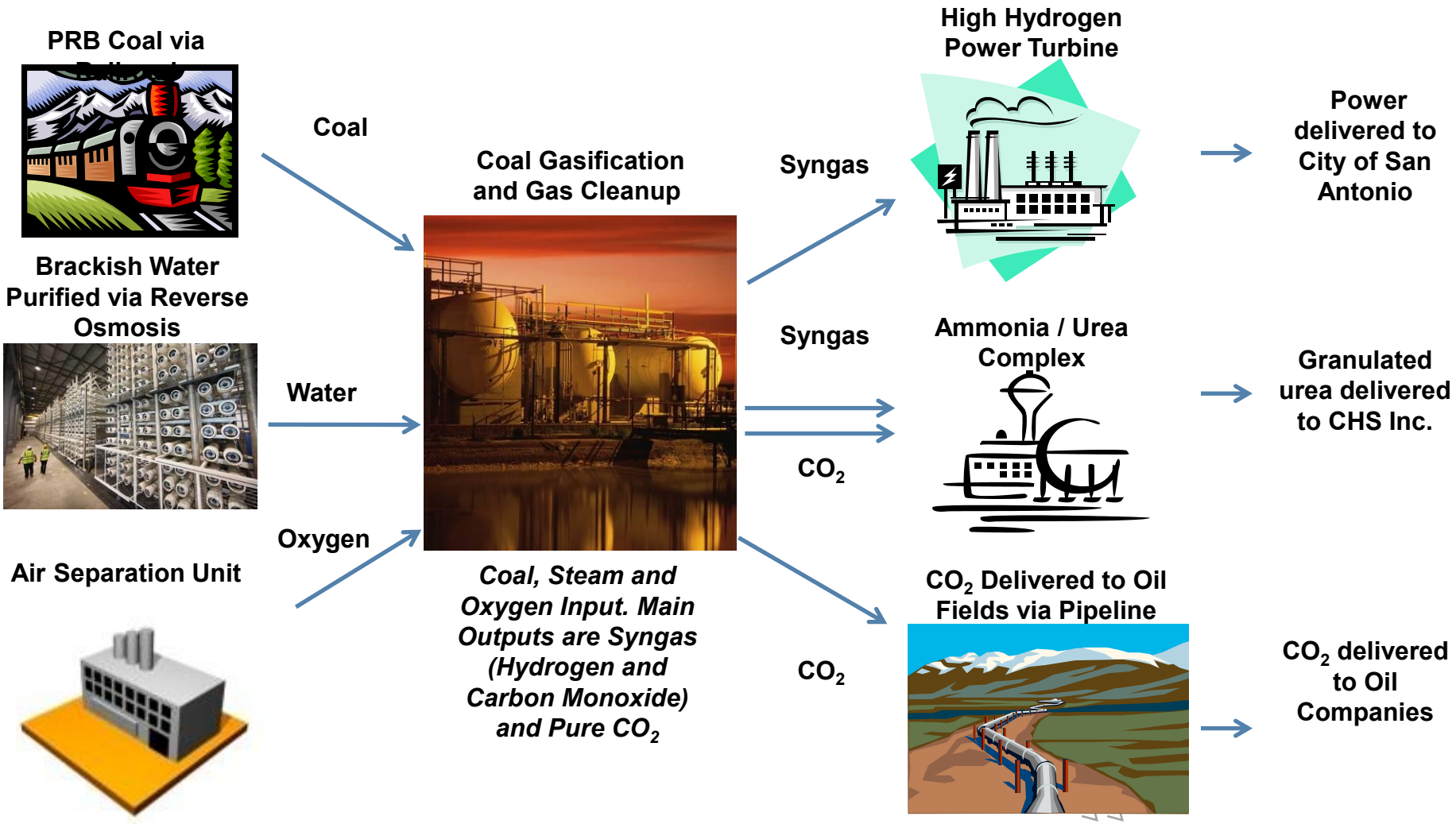
Unique Features of TCEP … Cont'd

Project finance discipline

"TCEP deserved government support because it was designed not to need it." – former head of U.S. Department of Energy's National Energy Technologies Laboratories

- **What does this mean?**
  - Project intended from the outset to be financed in private capital markets
  - No experimental technology included – all is existing, proven and warranted (not quite "Soviet tractors bolted together," but nothing very novel either)
  - Integration of fully-warranted components is the only new project feature
- **Three major revenue streams add revenue stability and reduce commodity risk**
  - Gasification plant is like a refinery; chemical transformation of the feedstock (and cleanup) before anything is burned
  - Even the slag is inert, non-leachable, vitrified: a commercial product for cement-making, road-building, etc.
- **Reference plant design means TCEP can be repeated and improved / scaled elsewhere**
  - This proved to be a valuable incentive for the suppliers / vendors / contractors
  - It turns out to be valuable for financing, too – TCEP is not just a "one-off" project
- **CO_2 is a profit center, not a cost to the project and is a key driver of returns**
  - Sales of both CO_2 and VERs (carbon credits) are highly valuable and important to financial performance
- **For urea, TCEP is superior to natural gas-based urea plants**
  - Buyer signed long-term take-or-pay contract because TCEP's urea is priced at a discount to market – and no buyer's capital at risk
  - This is also very low-carbon urea (lowest carbon possible, in fact) – most ammonia plants have massive CO_2 emissions

TCEP conceptual schematic



Project history

2005 TCEP began in 2005 as a joint Siemens-Summit concept

2007 Siemens acquired Sustec gasification technology in 2007

Siemens and Summit worked together on TCEP and a proposed twin in Montana

2008 Penwell site selected after it was fully vetted as finalist site for the FutureGen project. Site benefits include excellent logistical advantages, access to the Permian Basin CO_2 market and the fact that a full environmental impact study had been completed for FutureGen

2009 Received $450mm CCPI 3 Grant in 2009, which was implemented in early 2010

2010 Advanced Coal Program investment tax credit ("ITC") awarded in April 2010

FEED study competitively bid with scope defined and released to Siemens, Fluor, and Linde in June 2010

December 2010, TCEP received an uncontested air permit, with an uncontested EIS and Record of Decision under NEPA

2011 Final FEED deliverables completed in July 2011. EPC contract structure agreed and final contracts executed in December 2011 with Linde / SK E&C on chemical block EPC and Siemens on power block EPC.

2012 Unable to close with Western financing. Introduced to Sinopec and Import Export Bank of China for equity and debt. New EPC contract for the chemical block was negotiated with Sinopec, and Siemens on the power block.

2013 Boom in Gulf Coast construction market drove capex higher than planned, driving the returns lower than needed to attract equity and debt.

2014 Contracting structure and revisions to the plant configuration initiated to address high cost and construction market volatility. Introduced to HQC and Technip as new EPC contractor. FEED Update initiated in July 2014. Closing planned for April 2015.

Status at the end of 2013

Financing Status End of 2013

- **Sept 2012 press release acknowledging the Export-Import Bank of China ("Chexim") to be the sole financial lender to TCEP and Sinopec as the sponsor company**

- **August 2013 full release by Chexim of due diligence team**

- **Chexim loan amount of the EPC contract will be sufficient to provide one hundred percent (100%) of the project debt TCEP requires**

- **Total plant cost higher than needed to attract equity and debt**

EPC Contract Status December 2013

- **We asked all contractors to meet Best & Final EPC Pricing; we came close, but this did not resolve problems**

- **Total dollar amount quoted by EPC Contractors for a firm price LSTK contract was too high to finance**
  - Project could not satisfy requirements for debt service coverage ratios without reducing the debt amount
  - Project could not satisfy equity participants' minimum hurdle rates (IRR) without reliance on high-efficiency tax equity deal

- **So Summit went to work to formulate an alternative EPC contracting structure to reduce total cost significantly**
  - Recognizing that the current Texas construction market caused concern to contractors
  - Believing a single large construction contractor could cut costs

Status in 2014

Project Changes Going Forward – “Phase Shift”

1. **Cut Capex**
   - Evaluate changes to the plant configuration to optimize and reduce cost
2. **Reconfigure EPC**
   - Analyze contracting structure to address pancaking of risk and volatile construction market

1. Efforts to Reduce Capital Costs

Key Changes to Project

- Replace two (2) SFG-500 gasifiers and with one (1) SFG-850.
- Change F-class power block to H-class combined cycle.
- Delete one sulfuric acid train.
- Delete one coal mill.
- Delete one sour water stripper.
- Reduce raw water tankage to 3.5 days.
- Reduce sulfuric acid tankage.
- Reduce size of coal pile by 30%.
- Optimize coal handling per vendor recommendation.
- Optimize urea storage and handling.

Advantages/Improvements

- Latest technology for gasification and power generation, with resulting improvements in efficiency and capacity.
- Significant reduction in cost while maintaining revenue streams.
- Avoid pancaking of risk.
- Mitigate the risk associated with construction volatility.

2. Efforts to Enhance EPC Contract Structure

- **Designing a structure to address:**
  - Overheated construction market in the US Gulf Coast Region
  - Placing contractors in roles where they are most experienced and best in class
  - Minimizing the “pancaking” of risk contingency
  - Maximizing savings from economies of scale (mancamp, safety, quality, traffic control)
  - Maximizing procurement savings

- **Structure Overview: E, P, & C as subcontracts to lead EPC Contractor**
  - One Single Construction Contractor
  - One Engineering Contractor
  - One Worldwide Procurement Contractor
  - All 3 as subs to lead EPC contractor

Implementing the Cost Savings

- **Initiate a FEED Update for the purposes of validating the assumptions, optimizing synergies, and reducing costs**
- **Areas of interest;**
  - Procurement plan; optimize bulk material purchase to obtain savings.
  - Modularization plan; develop a design that maximizes the amount of factory assembly to reduce construction cost and minimize field changes and extra work.
  - Construction plan; optimize management, common services to reduce cost.
  - Construction plan; optimize schedule to reduce overall schedule by several months.

FEED Partners and EPC contractors

- China Huanqui Contracting and Engineering Corporation (HQC)
  - Wholly owned by China National Petrochemical Corporation, a state owned entity
  - Worldwide EPC contractor for process and petrochemical facilities
  - Design and procurement engineer for Shenhua Ningxia CTL project utilizing Siemens gasifiers
  - Responsible to lead the FEED Update
  - Lead EPC contractor
  - Equity investor and Chinese sponsor for the debt
- Technip
  - EPC firm
  - Subcontractor to HQC for the FEED Update
  - Consortium partner of HQC for the EPC contract
- Siemens
  - EP provider for the gasifier, power island, and other equipment
  - Lead contractor for the O&M
- CH2M Hill
  - Owner's Engineer for the FEED Update and EPC

New Planning Schedule

1. **FEED Update: July 2014 – February 2015**
   - Confirm new plant configuration and cost
2. **Reconfigure EPC / O&M Contracts: Preliminary December 2014**
   - Preliminary completion with placeholders for cost, performance, schedule
   - Finalize with FEED results in February 2015
3. **Financial Closing: April – June 2015**
4. **NTP: Immediately After Financing**
5. **On-Site Construction: Begins By Fall 2015**
6. **Mechanical Completion: June 2018**
7. **Commercial Operation: November 2018**

Questions?

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See also:
www.summitpower.com
www.texascleanenergyproject.com