



Praxair, Inc.

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*Oxygen Opportunities From
Increasing Use of Coal*

Jefferies Investor Seminar
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Making our planet more productiveSM

www.praxair.com

Forward Looking Statement

This document contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. These statements are based on management’s reasonable expectations and assumptions as of the date the statements are made but involve risks and uncertainties. These risks and uncertainties include, without limitation: the performance of stock markets generally; developments in worldwide and national economies and other international events and circumstances; changes in foreign currencies and in interest rates; the cost and availability of electric power, natural gas and other raw materials; the ability to achieve price increases to offset cost increases; catastrophic events including natural disasters, epidemics and acts of war and terrorism; the ability to attract, hire, and retain qualified personnel; the impact of changes in financial accounting standards; the impact of tax, environmental, home healthcare and other legislation and government regulation in jurisdictions in which the company operates; the cost and outcomes of litigation and regulatory agency actions; continued timely development and market acceptance of new products and applications; the impact of competitive products and pricing; future financial and operating performance of major customers and industries served; and the effectiveness and speed of integrating new acquisitions into the business. These risks and uncertainties may cause actual future results or circumstances to differ materially from the projections or estimates contained in the forward-looking statements. The company assumes no obligation to update or provide revisions to any forward-looking statement in response to changing circumstances. The above listed risks and uncertainties are further described in Item 1A (Risk Factors) in the company’s latest Annual Report on Form 10-K filed with the SEC which should be reviewed carefully. Please consider the company’s forward-looking statements in light of those risks.

Praxair delivers...

Unique Revenue Model

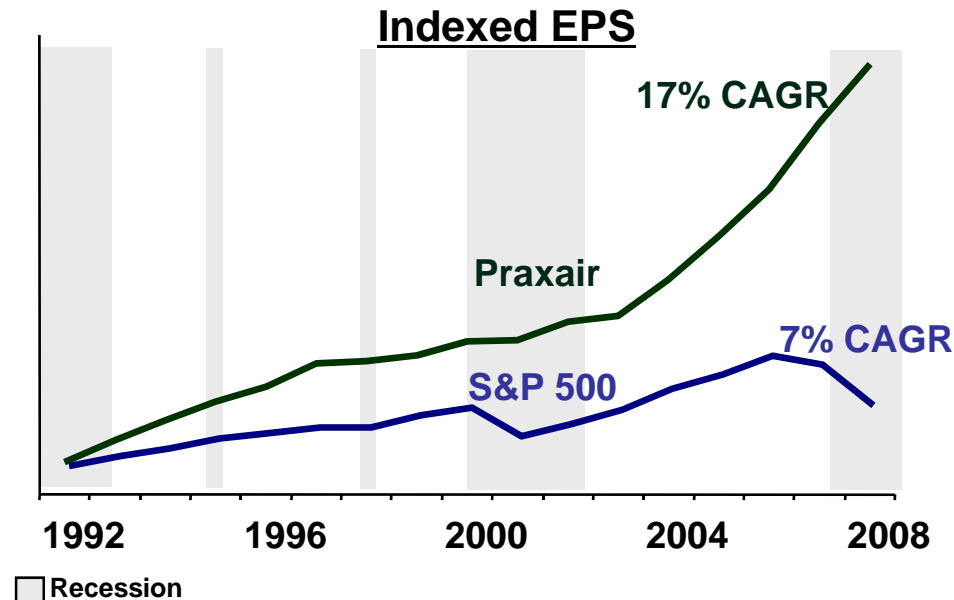
- ◆ Dedicated supply systems
- ◆ Long term contracts
- ◆ No commodity pricing
- ◆ High ROC and cash flow

Secular Growth Drivers

- ◆ Environment
- ◆ Energy
- ◆ Emerging economies

Continuous Improvement

- ◆ New product applications
- ◆ Productivity leadership
- ◆ Flawless execution

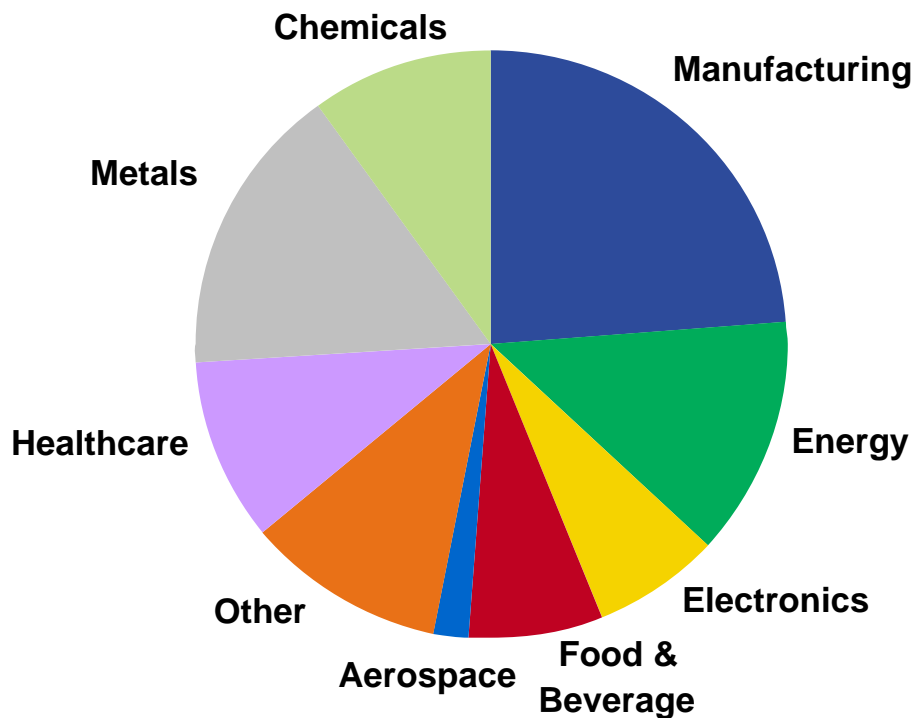


...steady earnings and cash flow due to unique revenue model

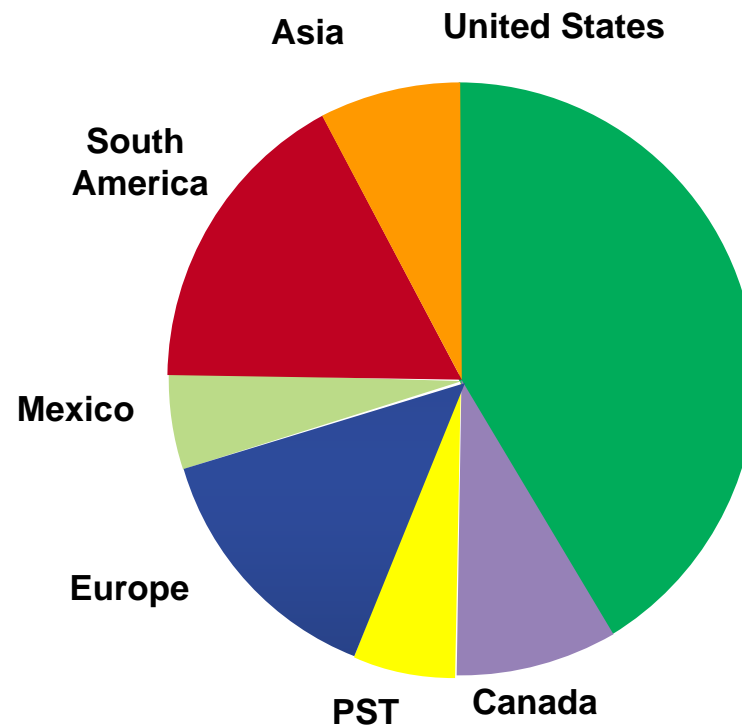
Diverse End Markets and Geographies

2009F Sales ~\$9 Bn

End Markets

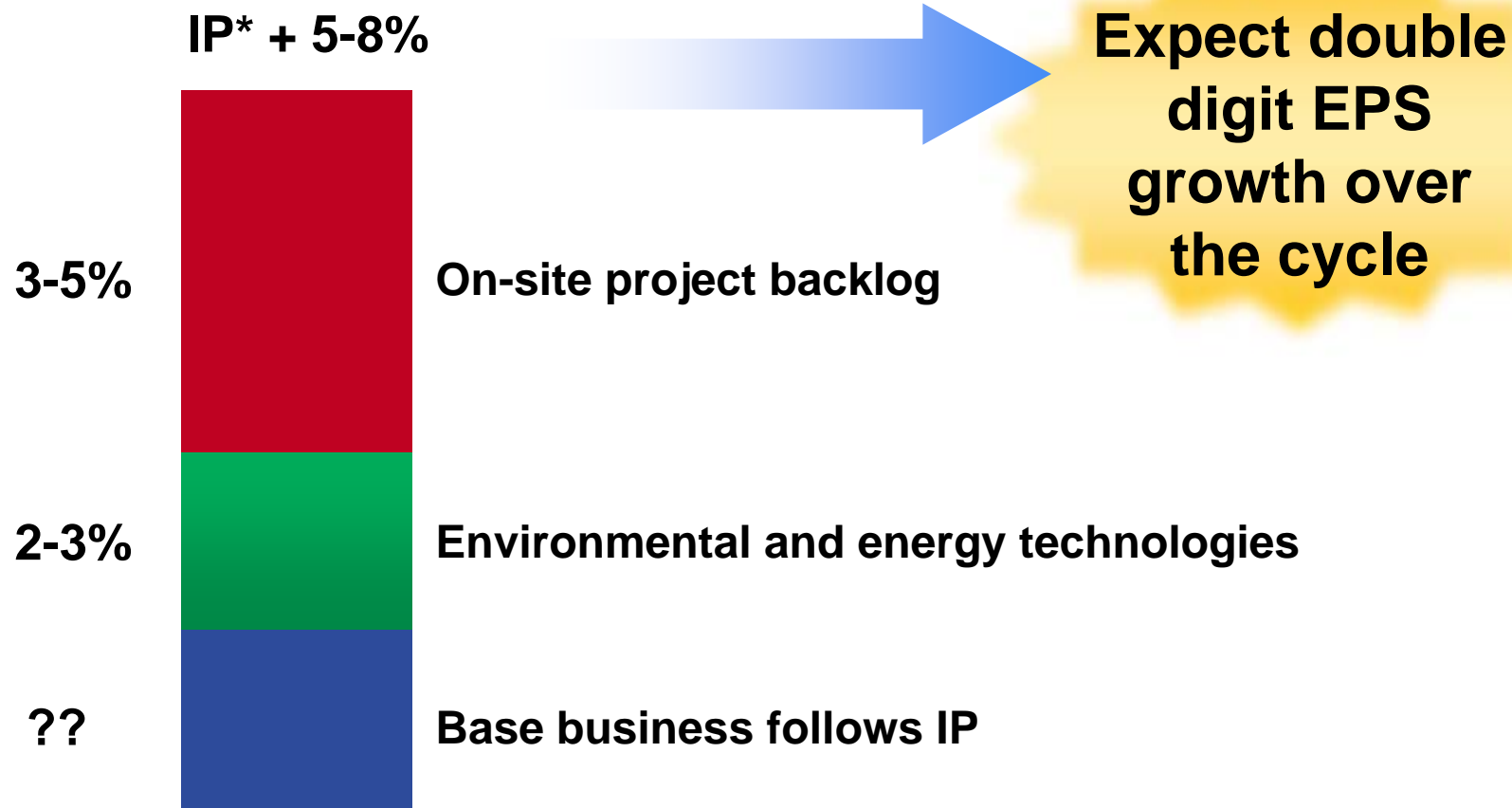


Geographies



Long-Term Growth From New Projects and Technologies

Annual Organic Sales Growth

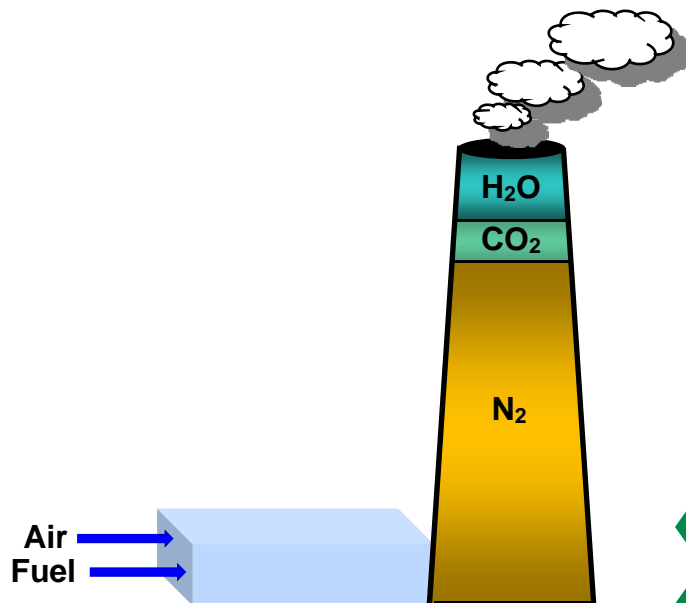


Future earnings growth will significantly outpace the economy

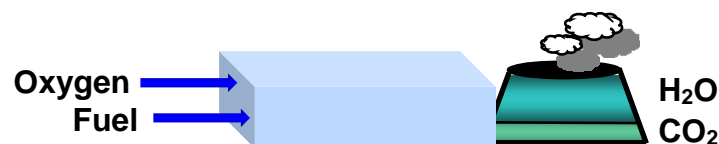
*Industrial production

Why Use Oxygen with Coal?

Air Based Combustion



Oxygen Based Combustion



- ◆ 80% lower flue gas volume
- ◆ Fuel savings
- ◆ Lower costs for flue gas treatment
- ◆ Up to 90% reduction in NO_x generation
 - Reduces nitrogen content of flue gas streams

Demonstrated benefits delivered to multiple industries

Three Coal-Based Oxygen Applications

Hot Oxygen - Powdered Coal Injection (PCI) in Blast Furnaces



Praxair supplied Blast Furnace at USS Gary Works

Oxygen Blown Coal Gasification - IGCC, Coal to Chemicals and Coal to Liquid Fuels



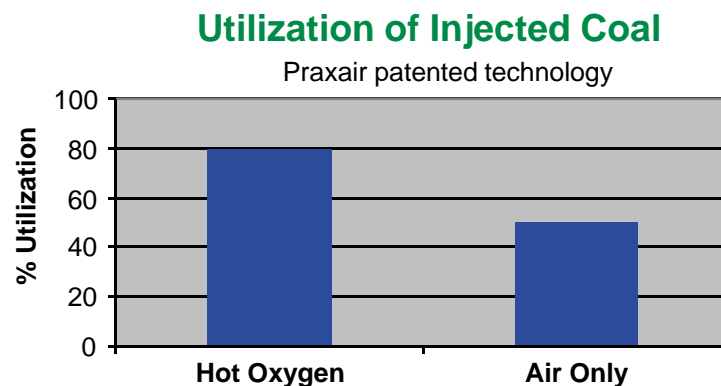
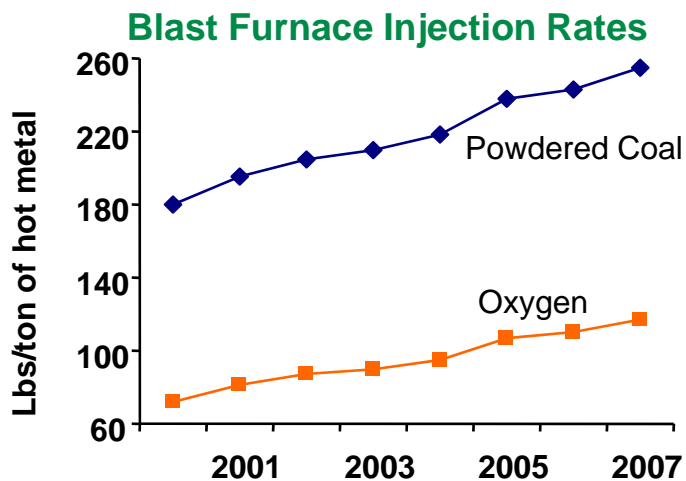
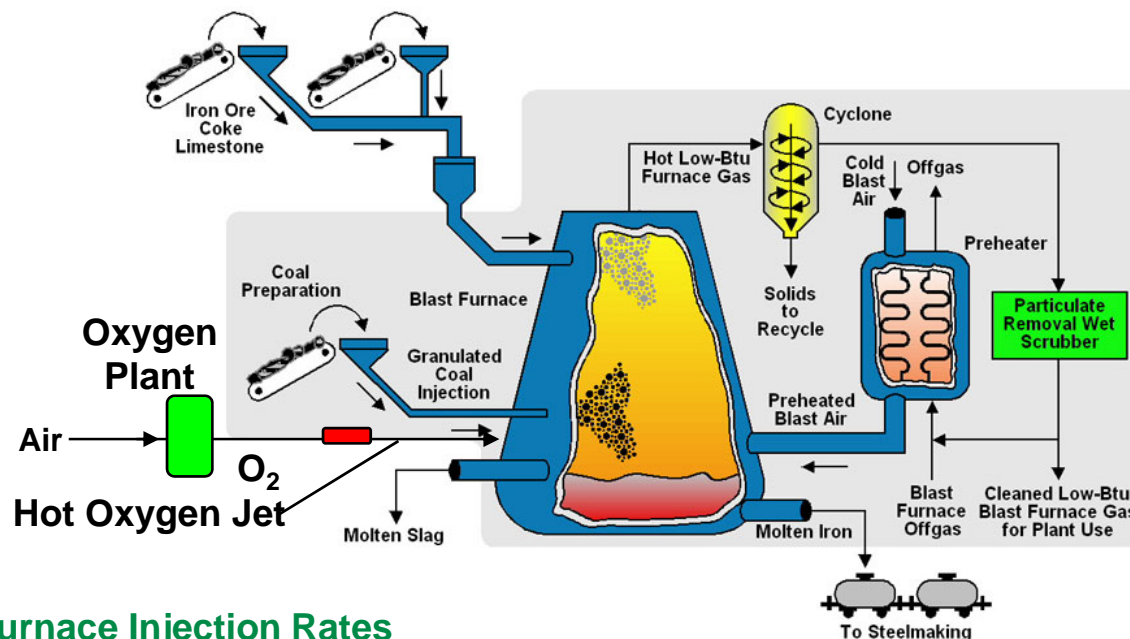
Praxair oxygen supply for Chinese acetic acid producer

Oxy-Coal Combustion - Near Zero Emissions Coal-fired Power Plants

Proposed CCS demonstration project in Holland, MI



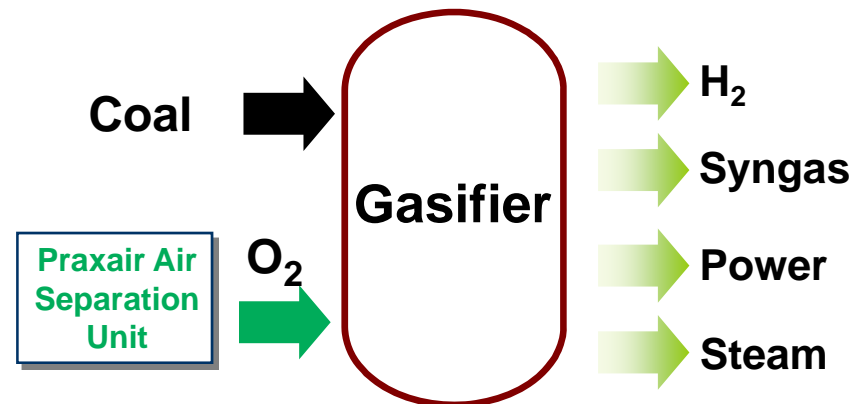
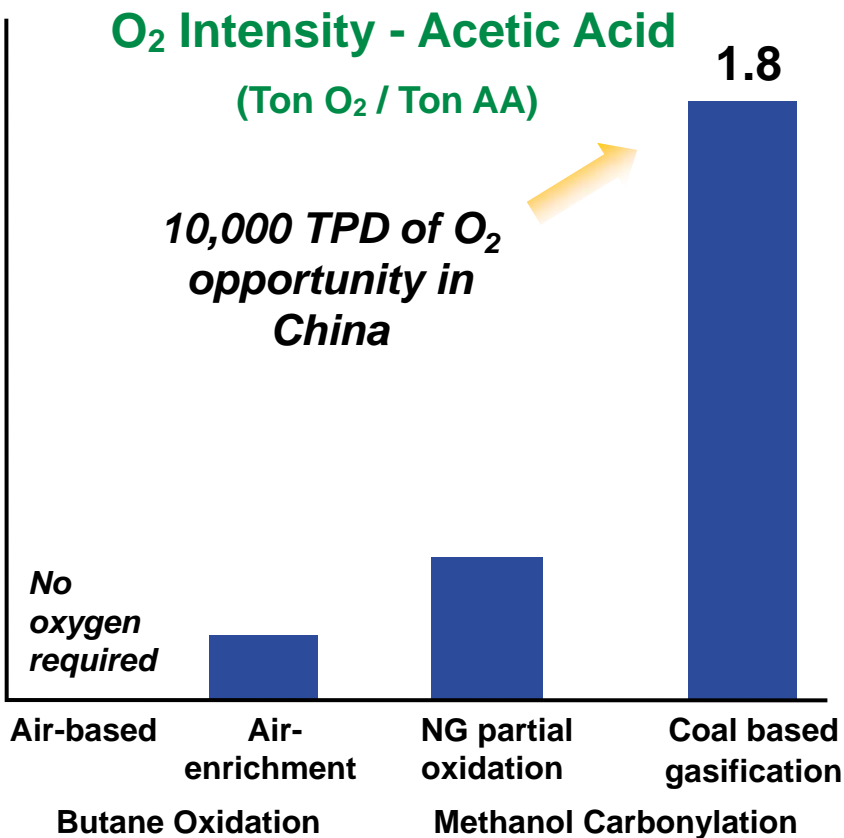
Hot Oxygen for Blast Furnace PCI



Hot O₂ enables use of low-cost coal as blast furnace fuel

Coal Gasification

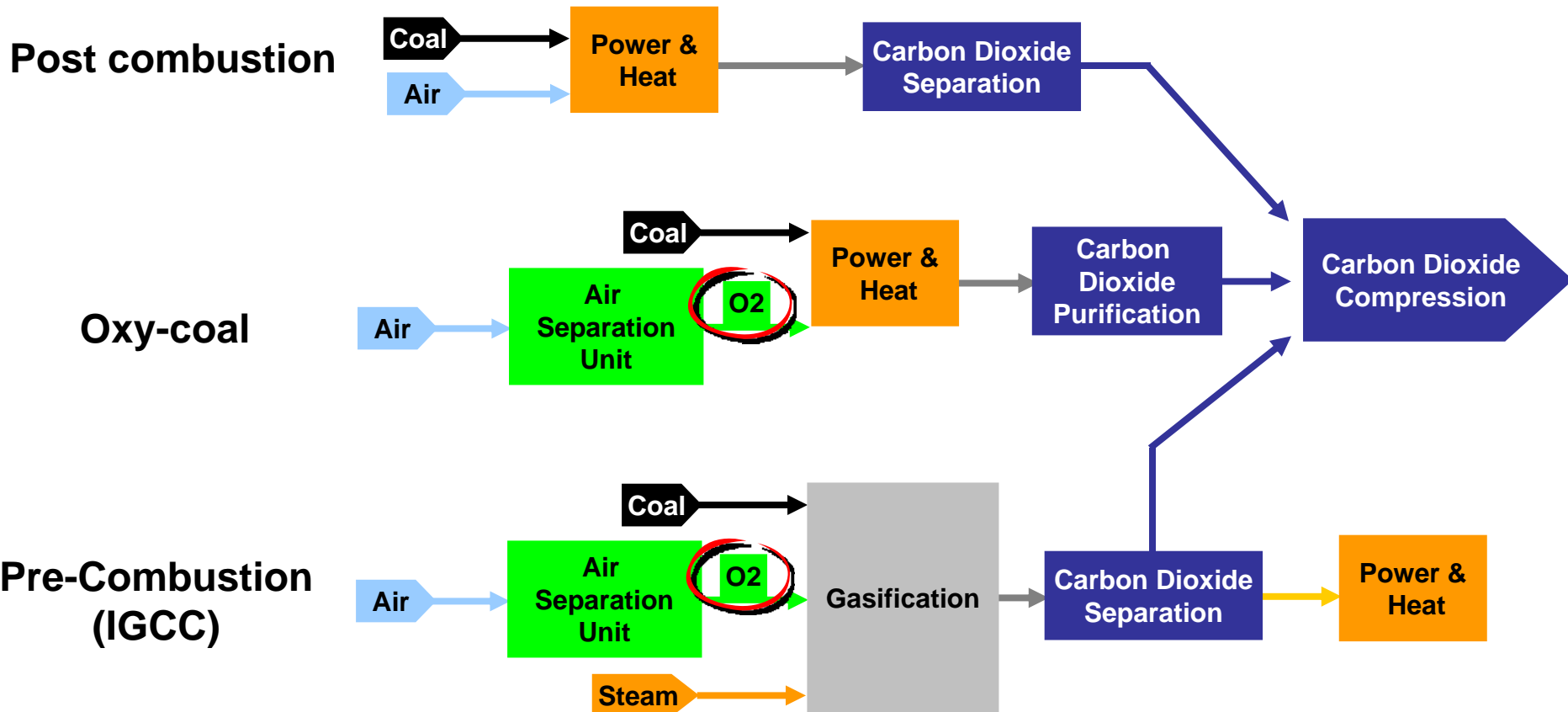
- ◆ China: Syngas chemical feedstock
- ◆ Large integrated oxygen supply



3,000 TPD Praxair product line plant

Significant growth opportunity – 6,000 TPD in backlog

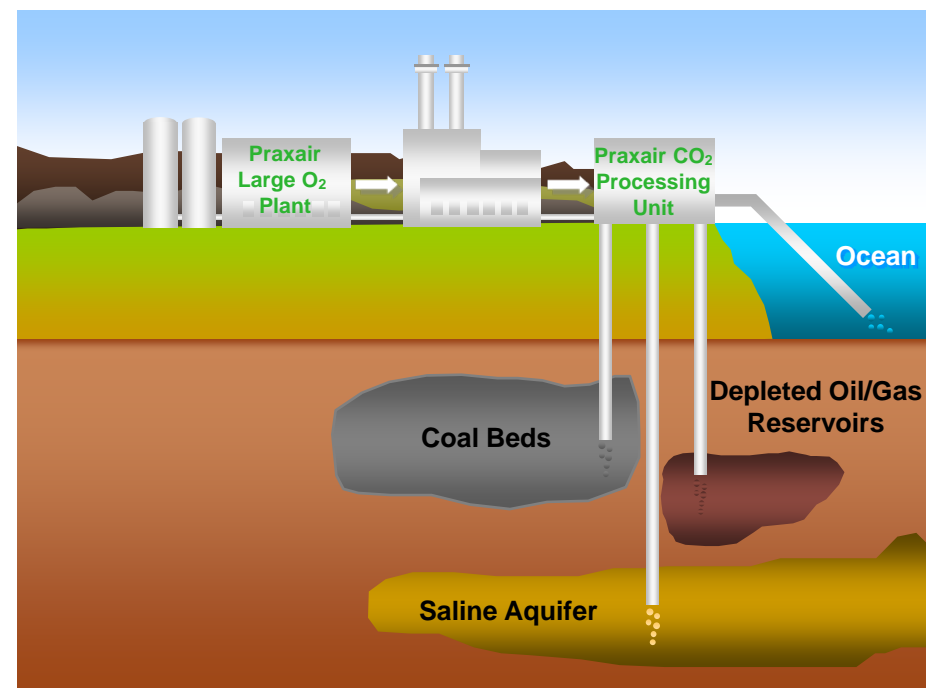
Carbon Dioxide Capture Technologies



Oxy-coal and IGCC require large amounts of O₂ to reduce CO₂ emissions from coal-based power generation

Praxair Oxy-Coal Technology

- ◆ **Combustion technology with up to 99% CO₂ capture**
 - Partnership with Foster Wheeler and Battelle
 - Retrofits and greenfield
 - Demo projects (US, Europe)
- ◆ **Requires large O₂ plants**
 - 10,000-12,000 TPD
 - ~\$500MM capital investments



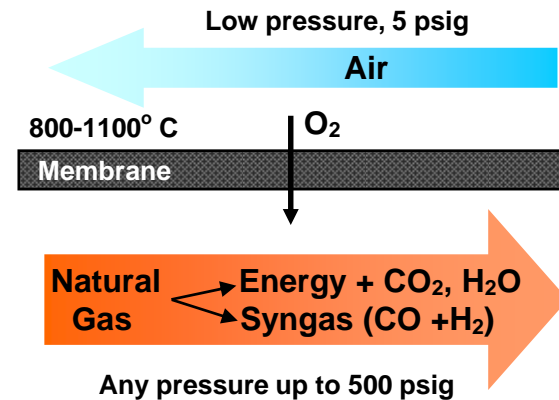
Clean-coal power station with CO₂ capture

Commercialization depends on GHG legislation

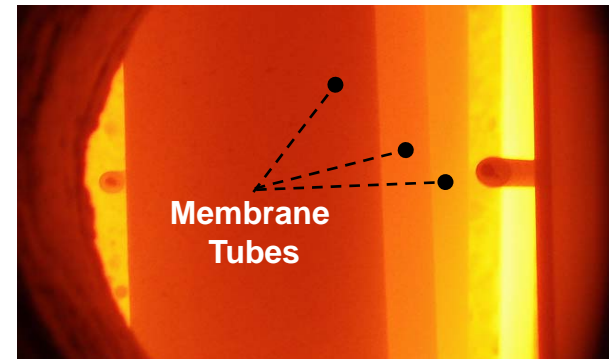
Praxair's Integrated O₂ Transport Membrane Supply

- ◆ Ceramic membrane built into process equipment
- ◆ Combustion and syngas applications

Integrated O₂ Supply



Application	Projected Oxygen Cost Reduction, %
Gasification	10-30
Gas-to-liquids	70-90
Clean coal-based power plant	40-60

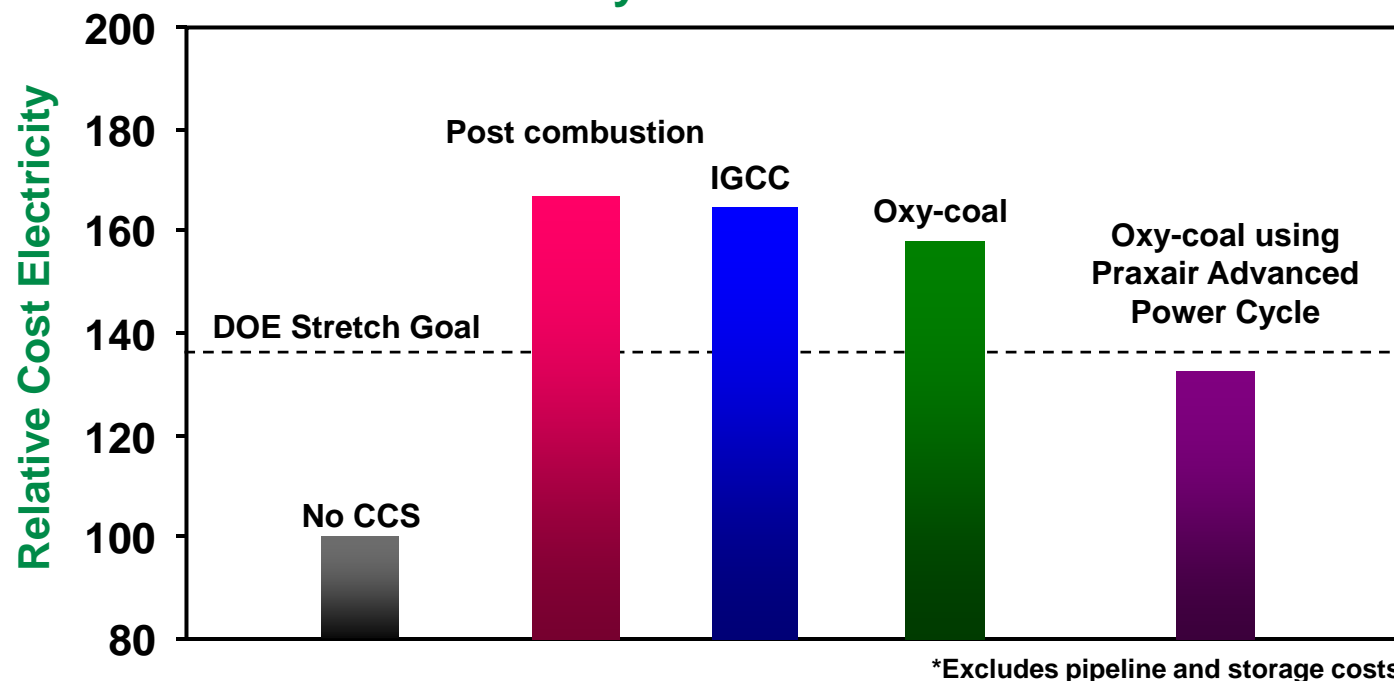


Combustion on Membrane Surface
Looking through reactor port

Praxair's Advanced Power Cycle

- ◆ Uses ceramic membranes to supply oxygen
- ◆ Highest efficiency zero emission/CCS technology for coal-based power
- ◆ Only technology that out-performs DOE stretch goals
- ◆ Cost effective at CO₂ tax/credit ~\$30/ton
- ◆ Combines elements of IGCC and oxy-fuel combustion

Cost of Electricity from Coal-based Power Plants



Oxygen as an Enabler for Coal

<u>Industry</u>	<u>Impact of Oxygen on Coal Utilization</u>
Steel	Maximizes rate of coal injection in blast furnaces
Chemicals	Required to produce high purity H ₂ and CO from coal for chemical synthesis
Energy	Necessary for conversion of coal to liquid and gaseous fuels
Utilities	Reduces cost of CO ₂ capture and sequestration from coal based power plants

Coal's value maximized by oxygen

Principles of Sustainable Development

Governance and Integrity

Maintain strong systems and a culture of global corporate governance, compliance, ethics, human rights, integrity and accountability.

Strategic Leadership

Stay current with, and take advantage of, emerging global opportunities, developments and challenges to position Praxair for the future.

Customer Commitment

Focus relentlessly on the delivery of customer value through continuous innovation that helps our customers enhance their product quality, service, reliability, productivity, safety, energy efficiency and environmental performance.

Environmental Responsibility

Achieve continuous environmental performance improvement and energy efficiency in our operations.

Employee Safety and Development

Provide opportunities that allow employees to develop to their fullest potential in a creative, inclusive and safe environment.

Community Support

Participate in community development in regions where we operate.

Financial Performance

Maintain year-on-year recognition from shareholders and stakeholders for top-tier financial performance.

Stakeholder Engagement and Communication

Partner with internal and external stakeholders to achieve a strong, secure and sustainable society, economy and environment.



Dow Jones Sustainability Indexes

