Praxair, Inc.

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Senior Vice President

Citi Chemicals for the Non-Chemist Conference
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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 changes in pension plan liabilities; the impact of tax, environmental, healthcare and other legislation and government regulation in jurisdictions in which the company operates; the cost and outcomes of investigations, litigation and regulatory proceedings; 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; the impact of information technology system failures, network disruptions and breaches in data security; 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. Additionally, financial projections or estimates exclude the impact of special items which the company believes are not indicative of ongoing business performance. 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 Form 10-K and 10-Q reports filed with the SEC which should be reviewed carefully. Please consider the company’s forward-looking statements in light of those risks.
Agenda – Industrial Gases

- Industry Overview
- Production
- Distribution
- Integrated Supply Model
- Growth Drivers
- Praxair’s Strategy and Industry-Leading Results
Global Industrial Gas Market

Total Industry Sales: $76 billion

- Air Liquide 21%
- Linde 21%
- Air Products & Chemicals 13%
- Taiyo Nippon Sanso 4%
- Airgas 4%
- Other 23%
- Praxair 14%

Source: Spiritus Consulting 2013
Excludes non-gas sales such as Praxair Surface Technologies

Consolidated industry with four large, global participants
# Industrial Gas Industry Advantages

<table>
<thead>
<tr>
<th></th>
<th>Industrial Gases</th>
<th>Commodity Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Field</td>
<td>Local</td>
<td>Global</td>
</tr>
<tr>
<td>Distribution</td>
<td>Integrated system</td>
<td>Limited scope</td>
</tr>
<tr>
<td>Price</td>
<td>Contract</td>
<td>Spot</td>
</tr>
<tr>
<td>Customer Use</td>
<td>Small part of costs</td>
<td>Significant cost</td>
</tr>
<tr>
<td>Raw Materials</td>
<td>Pass-through</td>
<td>Volatile</td>
</tr>
<tr>
<td>Growth</td>
<td>Steady</td>
<td>Cyclical</td>
</tr>
<tr>
<td>Return on Capital</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>
What We Do and Products We Supply

We supply customers with atmospheric, process and specialty gases, high-performance coatings, and related services and technologies

- **Atmospheric Gases**
  - Produced when air is purified, compressed, cooled, distilled and condensed
  - Oxygen, nitrogen, argon and rare gases

- **Process & Specialty Gases**
  - Produced as by-products of chemical production or recovered from natural gas
  - Carbon dioxide, helium, hydrogen, semiconductor process gases, and acetylene
Industrial Gases Critical To Many Industries

Manufacturing
- Cutting
- Welding
- Glass
- Automotive
24%

Metals
- Steel production
- Stainless steel
- Metal finishing / coating
17%

Energy
- Refining
- Natural gas fracking
- Enhanced oil recovery
- LNG in Brazil
13%

Chemicals
- Production
- Coal gasification
- Syngas production
- Process control
10%

Food & Bev
- Carbonation
- Freezing
- Inerting
- Aquaculture
8%

Electronics
- Semiconductor
- Photovoltaics
- Flat Panel
8%

Healthcare
- Hospitals
- MRI
- Anesthesia
8%

Gases
- Atmospheric: \(O_2\), \(N_2\), \(Ar\)
- Process: \(H_2\), \(He\), \(CO_2\), \(CO\)
- Rare: \(Xe\), \(Kr\), \(Ne\)
- Spec Gases: \(N_2O\), \(SiH_4\), \(High Purity\), \(Blends\)
# Industrial Gases Product Lines

<table>
<thead>
<tr>
<th>Products</th>
<th>Sources</th>
<th>Feedstocks</th>
<th>Distribution Modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen Nitrogen</td>
<td>Air Separation</td>
<td>Air + Power</td>
<td>✓</td>
</tr>
<tr>
<td>Argon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen</td>
<td>Steam-Methane Reforming</td>
<td>Natural Gas or Crude Hydrogen</td>
<td>✓</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>By-product</td>
<td>Crude Carbon Dioxide</td>
<td>✓</td>
</tr>
<tr>
<td>Helium</td>
<td>US Government Helium Reserve</td>
<td>Natural Gas Fields</td>
<td>✓</td>
</tr>
<tr>
<td>Rare Gases</td>
<td>Air Separation</td>
<td>Air + Power</td>
<td>✓</td>
</tr>
</tbody>
</table>

Management of diverse and complex set of products
Hydrogen Steam Methane Reforming Process

Feedstock Processing

- Sulphur removal
- Heavy hydrocarbon processing

Reformer Island

- Catalytic gas reforming
- Catalyst
- Mechanicals
- Tube material

Syngas Shift

- Converts CO to H₂ and CO₂

H₂ PSA

- Hydrogen purification

Hydrogen to Customer

Feedstock

Natural Gas / Naphtha

Louisiana, U.S.
IG Opportunities in US Petchem Industry

Natural Gas/Liquids

POX or ATR → SMR → Ethane Cracking → PSA → GTL → Methanol → Ammonia → Ethylene Oxide/Glycol → POX or ATR

Chemical Products IG Sales Intensity

Fuels (via GTL) O₂ ++++
Methanol H₂ / CO +++
Ammonia H₂ N₂ +++
Acetic Acid CO O₂ ++
Ethylene Oxide/Glycol O₂ ++
Ethylene H₂ (Source)

Potential for $1B to $2B in IG industry capex going forward
Praxair provides a suite of products, and technologies and services
Helium – a Process Gas in Limited Supply

Global Helium Supply

- Qatar
- Algeria
- US Refined
- Private Crude
- BLM

Known Prospects

Helium Key End-Markets

- MRI (20%)
- Lift (15%)
- Fiber Optics (10%)
- Electronics (10%)
- Welding (10%)
- Leak Detection (7%)

Diversified sourcing and global management of growing demand

Source: Internal analysis
Air Separation Units (ASU)

Salt Lake City, Utah U.S.

YongIn, South Korea

Volgograd, Russia

ASU for large on-site customers
Merchant Liquid Supply Systems

Sized for customers’ specific requirements
Packaged Gas

Smaller individual volumes; significant metal fabrication/welding
Transportation Vehicles

Serve different volume needs of customers with efficiency
Advantages of Integrated Supply Model

CUSTOMERS

- On-Site (27%)
- Merchant (34%)
- Packaged (30%)

CONTRACTS

- Long-term: 15 – 20 years
- Take-or-pay provisions ensure base return
- Pass-through escalation formulas for energy and inflation preserve return throughout project life

- Medium-term: 3 – 7 years
- Requirements contracts with mix of open contracts, formula and other terms that anticipate changing market conditions
- Low-cost energy purchase & efficient production drives profitability

- Short-term: 1 – 3 years or purchase order contracts
- Bundle gas, rent, services, equipment and technology to maximize customer value

Integrated supply and contract terms drive high return on capital
Secular Growth Drivers…

Energy
- Oil and gas services
- Refinery hydrogen
- Gasification
- Increasing gases intensity

Environment
- Water treatment
- Air emissions
- Infrastructure development
- Modernization

Emerging Economies

Per Capita Industrial Gas Consumption (% of US)
- U.S. 100%
- China 23%
- Mexico 13%
- Brazil 10%
- India 2%

Source: Spiritus Consulting and internal analysis

…provide sustainable growth
O₂ in Steel Production

O₂ Intensity per ton of Steel

Index

Productivity


100  150

Stove Oxygen

Dilute Oxygen Combustion

CoJet System

Hot O₂ Burner

Coke to Pulverized Coal Injection + O₂

Nat Gas + O₂

Direct Reduced Iron

Innovation key contributor to oxygen demand growth
From Daily Life in the Kitchen…

Water
Carbon dioxide used in water treatment

Windows
Krypton improves insulation qualities

Knives, Faucet …
Steel is melted using Praxair’s oxy-fuel combustion technology

Food and Beverage
Seafood, poultry, meat, bakery goods, fruit and prepared foods all benefit from Praxair’s cryogenic freezing or chilling technologies using carbon dioxide or nitrogen. Carbon dioxide for carbonation in beverages.

Lighting
Specialty gases

Microwave, Oven, Refrigerator
Printed wiring boards soldered in nitrogen, route information to display panel. Argon used in stainless steel production.
To Daily Life in the Living Room…

**TV and Electronics**
- Argon shielding gases used to weld metal frames
- Rare-gas & specialty-gas mixtures used to develop display panels
- Nitrogen keeps circuit boards clean
- Praxair Surface Technology coated screws are used to extrude the plastic coverings used on wire and cable.

**Flowers**
- Kept fresh with nitrogen

**Vase**
- Oxygen used in glass production

**Literature**
- Oxygen used in paper production
…To the Edge of Technology

Engine and Drivetrain Components
Heat Treating – N₂, H₂, Ar

Bodies/Frames
Welding and Cutting – Ar, CO₂, He, N₂
Hydroforming – N₂

Assembly (OEMs)
Welding (MIG, TIG, Plasma, Laser) – Ar, CO₂, He, N₂
WWT – O₂, CO₂

Climate Control Systems
Welding, Cutting, Heat Treating – Ar, CO₂, He, N₂, O₂

Production Equipment
Machine Tools
Welding – Packaged Gases

Lighting
Specialty Gases

Windows
Glass Combustion, Float Bath Inerting – O₂, N₂, H₂

Electronics
Circuit Boards – N₂

Tires – N₂

Wide applications in automobile production
Praxair Snapshot

- Industrial Gas (IG) major, largest in Americas
- Industry leading 22% operating margin and 13% return on capital*
- IG critical to customer but small slice of costs … reliable supply is key
- Long-term contracts with take-or-pay clause
- Integrated across supply modes
- Diverse end-markets and geographies

Differentiators

- Disciplined investments in core IG drive density and returns
- Execution culture
- Constant focus on price and productivity
- Strong cash flow generation and disciplined capital allocation

2013 Sales

By Segment

- North America 52%
- South America 17%
- Europe 13%
- Asia 13%
- PST 5%

By Supply Mode

- Packaged Gases 30%
- Merchant 34%
- On-Site 27%
- Other 9%

By End Market

- Manufacturing 24%
- Metals 17%
- Energy 13%
- Aerospace 3%
- Chemicals 10%
- Electronics 8%
- Other 9%
- Food / Bev 8%
- Healthcare 8%

Consistently leading the industry in profitability and return on capital

*Praxair 2013 non-GAAP measure; refer to Annual Report for reconciliation
### Sustaining a Competitive Advantage

#### Strategy
- Select geographies – best footprint
- Core industrial gas
- Sale of gas model
- Integrated supply
- Build density

#### Technology
- Product line advantage
- Lowest total cost of ownership
- Innovations for customers

#### Execution
- Safety
- Operational discipline
- Capital investment
- Productivity
- Contract management
- Project execution
- Integrity and compliance

#### People
- High performers
- Disciplined operators
- Detail-oriented
- Nimble and adaptive
- Excellent leaders
- Non-hierarchical

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High performance culture…drives future results
Innovation Overview

**Priorities**
- ASU and HyCO cost reduction
- Product line designs for high construction costs
- Sustain productivity savings
- Operational efficiency
- Enhanced reliability
- New growth applications
- Global replications

**Impact**
- ~3% per year lower cost to serve
- 5%+ per year
- Drive top-line growth

Innovation programs aligned with business priorities
Applications Meeting Customer Needs

- Energy savings
- Environmental compliance
- Productivity
- Cost reduction
Solid growth fundamentals:
- manufacturing, energy, chemical and metals
- Packaged gas acquisition opportunities
- U.S. petchem proposal activity

Growth opportunities
- Expanding domestic demand and infrastructure projects
- Vast mineral and hydrocarbon resources
- #1 or #2 position in 8 out of 9 countries

Growing & building density

Best positioned & preferred supplier
Europe & Asia

2013 Sales $1.5B
13% of Praxair

- Right-sized costs in the South
- Density and efficiency improvement with Italian acquisition & France divestiture
- Growing in the North, entering Russia

Growth Opportunities
- Refining
- Chemicals
- Environmental
- Application technologies
- Energy efficiency

Deliver strong margin leverage
Density focus…profitable growth

Existing Facility
Pipeline
Backlog
20 Years of Growth and Outperformance

Financial Leverage:
High ROC and cash flow

Operating Leverage:
Price + productivity > inflation

Continued focus on growing EPS faster than revenue

EPS
13% CAGR

OP
11% CAGR

SALES
8% CAGR

Balanced use of cash to maximize return to shareholders
Consistent Outperformance

- **Strategic Focus**
- **Operational Excellence**
- **Disciplined Capital Allocation**

### Operating Margin* (% of sales)

<table>
<thead>
<tr>
<th>Year</th>
<th>Praxair</th>
<th>Industry Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>1996</td>
<td>22%</td>
<td>11%</td>
</tr>
<tr>
<td>2000</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>22%</td>
<td></td>
</tr>
</tbody>
</table>

### Operating Cash Flow Growth (index 1992 = 1.0)

<table>
<thead>
<tr>
<th>Year</th>
<th>Praxair</th>
<th>Industry Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>1996</td>
<td>1.11</td>
<td>1.0</td>
</tr>
<tr>
<td>2000</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2004</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2008</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2013</td>
<td>2.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### Return on Capital

- **Praxair**: 13% (10 year average)
- **Comp 1**: 9%
- **Comp 2**: 11%
- **Comp 3**: 15%

Leading value creation in the industry

Source: Factset
Industry Average ex-Praxair
*Praxair non-GAAP measure; refer to Annual Report for reconciliation
## Sustainable Development Aligned with Business Strategy

### 2013 Achievements

<table>
<thead>
<tr>
<th>Business Drivers</th>
<th>Economic</th>
<th>Environmental</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENERGY</strong></td>
<td></td>
<td><strong>2X GHG benefit</strong> vs. total GHG emissions</td>
<td><strong>Safety Record 5X</strong> better than U.S. industry average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$3 Billion revenue from Eco-Portfolio</td>
<td></td>
</tr>
<tr>
<td>ENVIRONMENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EMERGING ECONOMIES</strong></td>
<td>Sustainable Productivity</td>
<td>&gt;50 million people served with safe drinking water</td>
<td>&gt;1 Million beneficiaries from community engagement (cumulative, 2009-2013)</td>
</tr>
<tr>
<td>EXECUTION</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Praxair has been a member of the Dow Jones Sustainability Indices for 12 consecutive years.*