## Agenda – Morning Session 10:00 am – 12:15 pm

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<th>Speaker</th>
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<td>Kelcey Hoyt</td>
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<td>Why Praxair?</td>
<td>Steve Angel</td>
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<td>Managing the Business</td>
<td>Eduardo Menezes</td>
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<td>Product &amp; Energy Management</td>
<td>Scott Kaltrider</td>
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<td>Operations Reliability &amp; Productivity</td>
<td>Sean Durbin</td>
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<td>US Packaged Gases – Growth &amp; Profitability</td>
<td>John Panikar</td>
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<td>Petchem &amp; Refinery – Pursuing New Opportunities</td>
<td>Dan Yankowski</td>
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<td>Canada – Growth through Natural Resources</td>
<td>Matt White</td>
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<td>Mexico – Well-Positioned for Growth</td>
<td>Antonio Cesar</td>
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<td>Q&amp;A</td>
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## Agenda – Afternoon Session 2:00pm to 4:00pm

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<td>Scott Telesz</td>
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<td>Europe – A Tale of Two Economies</td>
<td>Todd Skare</td>
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<tr>
<td>South America – Valuable Long-Term Franchise</td>
<td>Domingos Bulus</td>
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<td>Asia – Growing Profitably</td>
<td>Anne Roby</td>
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<td>Technology Priorities</td>
<td>Ray Roberge</td>
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<td>Project Selection Discipline</td>
<td>Ben Glazer</td>
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<td>Project Execution</td>
<td>Murray Covello</td>
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<tr>
<td>Sustaining Growth &amp; Outperformance</td>
<td>Jim Sawyer</td>
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<tr>
<td>Q&amp;A</td>
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High Performance Culture

Scott Telesz

Executive Vice President since 2010

Europe, Asia, Surface Technologies, Strategy, Procurement

Prior employment
- SABIC, VP Resins 2007-2010

Duke University, BS Electrical Engineering
Harvard University, MBA
1. Safety First… demands operational discipline … positive side effects
2. Profit > Size
3. Stable strategy … stay on course
4. Best practical execution > innovative / futuristic ideas
5. Monthly operating rhythms … avoids quarter-end fire drills
6. Hands On … capex projects, productivity, pricing, risk mitigation
7. Efficient and effective communication … speed, action-oriented
8. Accountability and restrictions enforced … everyone’s responsibility

Rigorous and continuous attention to detail
1. **Project capex is still precious cash**
   - Exhaustive stress test scenarios for returns & risk
   - Avoid “me too” and “must win” rationalization
   - Overruns taken seriously … regardless of size or cause

2. **Unwavering customer negotiation**
   - Onsite and merchant, regardless of size or geography
   - Adhering to our principles > any single opportunity

3. **Conservative acquisitions**
   - Buy quality … integrate thoroughly … remedy mistakes

**Discipline … from start to finish**
1. **Field P&L > HQ Staff**

2. **Org layers** optimized to balance
   - Command / control / accountability at local level
   - Unfiltered information flow and executive touch

3. **Incentive compensation** = $f$ (profit, growth, w/c, ROC)

4. **Performers** rewarded & promoted
   - Highly differentiated, formulaic, transparent

5. **Leadership transitions** without re-org drama / distraction

**Institution > Individual**
Europe – A Tale of Two Economies

Todd Skare
President, Praxair Europe since 2010

- VP, South Region, US Packaged Gases 2009
- Director, Global Supply Systems, Asia 2005
- Business Development Manager, US Industrial Gases 2003
- Prior Praxair experience in Engineering 1992-2002

State University of New York at Buffalo, BS Chemical Engineering
Rutgers, The State University of New Jersey, MBA
**Praxair Europe**

**Growth:**
- Russia investments
- Pipeline expansion in Antwerp
- Oil & Gas in the North Sea

**Ongoing Productivity Initiatives:**
- Rightsizing
- Asset rationalization
- Back office consolidation

**Headcount (ex-Russia)**

<table>
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<tr>
<th>Region</th>
<th>2007</th>
<th>2013</th>
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<tbody>
<tr>
<td>Portugal</td>
<td>2,450</td>
<td>2,230</td>
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**Sales €B**

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2013</th>
</tr>
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<tbody>
<tr>
<td>Sales</td>
<td>1.1</td>
<td>1.1</td>
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Margin upside with recovery...continued targeted investment strategy
Praxair Russia

Investment Strategy

- Integrated supply + density
- Quality customers
- Heavily industrialized zones

Sales Outlook

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (MM)</th>
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<tbody>
<tr>
<td>2013</td>
<td>$20</td>
</tr>
<tr>
<td>2017F</td>
<td>~$250</td>
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More opportunities than expected… execution every bit as tough

Praxair Locations

- Existing
- Backlog

- Moscow
- Evraz (3,000 tpd)
- Urals Region
- Volga River Region
- KuibyshevAzot JV (1,400 tpd)
- Nikochem (400 tpd)
- VolzhskyAzot Acq.

Praxair Investor Day | 9/16/2013

[$20 to ~$250$]
South America – Valuable Long-Term Franchise

Domingos Bulus
SVP & President, Praxair South America since 2003

- President, Praxair Asia 2001
- Executive Director, Andean Countries 1996
- General Manager, Colombia 1995
- Industrial Gases Manager, South America 1990
- Prior Praxair experience in Sales & Operations 1984-1989

Gama Filho in Rio de Janeiro, BS Mechanical Engineering
Amana-Key, Advanced Management Program
Praxair in South America

- **Deep, experienced organization**
  - 5,500 employees: 4,300 in Brazil

- **Unrivaled network**
  - 90+ plants remotely monitored
  - 8,000+ deliveries daily
  - 300+ sales locations

- **Outstanding customer retention rate (99%)**

- **Growing faster than competitors**

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**Sales of $2.1B / IG Market = $4.5B**

Praxair Presence

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Building presence for over 100 years
South America Outlook

**Challenges**
- Currency volatility
- High labor and power costs
- Slow pace of government sponsored construction projects
- End of commodity “super cycle”

**Opportunities**
- Vast mineral and hydrocarbons resources
  - Energy and infrastructure projects
- Growing middle class with under-met needs
- Manufacturing base expansion
- Steel industry repositioning

Opportunities outweigh challenges
Resilient Performance in Any Environment

- High bar for productivity
- Price discipline
- Contract optimization
- World-class CRM program
- Applications technology
- Unmatched supply reliability

Expect mid-to-high single digit sales growth annually the next 5 years

Historical Performance vs. IP

Praxair South America Sales (in local currency)

Industrial Production (region weighted average)

CAGR = 9%

CAGR = 3%


CAGR = 3%

CAGR = 9%
Asia – Growing Profitably
Dr. Anne Roby
President, Praxair Asia since 2011

- President, Praxair Electronics 2010
- SVP, Global Sales 2009
- VP, South Region, US Industrial Gases 2006
- Houston Area Pipeline Director, US Industrial Gases 2004
- Prior Praxair experience in Sales and R&D 1991-1999

Villanova University, BS Chemical Engineering
University of Delaware, PhD Chemical Engineering
China Macro & Opportunities

IG Consumption Per Capita (% of US)

US: 100%
China: 20%

Decades of organic growth

Macro Environment
- Slower overall economic growth
- Rebalancing industrial sector
- Government policy driving environmental compliance and technology-intensive industries
- Faster growth inland

Opportunities
- Refining
- Chemicals
- Energy efficiency
- Environmental protection

Praxair China Sales

2012: Base Growth
2017F: New Projects

~15% CAGR

Strong outlook for industrial gases

Source: Spiritus, Praxair internal analysis
Praxair China Versus Other Majors

OP Margin %

Praxair
Comp A
Comp B
Comp C

PX profitability advantage driven by disciplined approach to the market and density strategy

Source: Praxair internal analysis
China Gasification Projects

**Coal Gasification**

- Coal mine
- Coal processing
- Gasifier

**Praxair ASU** $\rightarrow$ $O_2$ $\rightarrow$ Syngas

<table>
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<tr>
<th>Refinery Hydrogen</th>
<th>Fuels (liquids, gas)</th>
<th>Methanol &amp; Olefins</th>
<th>Ammonia</th>
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- Praxair Plants
  - SOPO: 2009, 3,000
  - Wuwei: 2012, 3,000
  - Yankuang Guohong: 2015, 3,000

**Careful selection of target projects**

- Project Viability
  - End market outlook
  - Technology & operational execution
  - Permitting & water challenges

- Praxair Considerations
  - Customer quality
  - Investment concentration
  - IG Scope

- Praxair Plants
  - Start Up
  - $O_2$ TPD
Geographic selectivity … profitable growth
Technology Priorities

Ray Roberge
SVP & Chief Technology Officer since 2011

- Chief Technology Officer 2008
- President, Electronics 2005
- Director Sales, Electronics 2002
- Director Product Line Development, Global Supply Systems 1998
- Prior Praxair experience R&D & Business Management 1973

Worcester Polytechnic Institute, BS Chemical Engineering
University of Michigan, MS Chemical Engineering
Technology Overview

**Priorities**

- **Supply System Optimization**
  - ASU and HyCO cost reduction
  - Product line designs for high construction costs
  - Sustain productivity savings
  - Operational efficiency
  - Enhanced reliability

- **Applications Technology**
  - New growth applications for developed markets
  - Migrate applications to emerging markets

**Impact**

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

Technology programs aligned with business priorities
Praxair Air Separation Product Lines

**Approach**
- Global designs with product slate flexibility
- Design for sale-of-gas “Total Cost of Ownership”
- Reduce cost 3% every year

**Benefits**
- Rapid learning and project execution
- Recoverable engineering
- Procurement leverage
- Reliability: common spares

**Product Line (P/L) Platforms**
- 10 in 2008
- 15 in 2013
- 20 in 2018F

**P/L Plants Operating or Under Construction**
- 35% in 2008
- 90% in 2013

**P/L Plants as % of Total Plant CapEx**
- 60% in 2008
- 80% in 2013
- 90% in 2018F

Competitive advantage through product line plants
Applications in Emerging Markets

- Environmental
- Metfab
- Steel / Metals
- Pharmaceuticals
- Food & Beverage

IG Consumption Per Capita (% of US)

- US: 100%
- China: 20%
- Mexico: 12%
- Brazil: 10%
- India: 2%

Decades of organic growth

Applications migration driving emerging market growth

Source: Spiritus, Praxair internal analysis
Applications Example – O₂ in Steel Production

O₂ Intensity per ton of Steel

- Coke to Pulverized Coal Injection + O₂
- Nat Gas + O₂
- Direct Reduced Iron
- Hot O₂ Burner
- CoJet System
- Dilute Oxygen Combustion
- Stove Oxygen

Innovations key contributor to oxygen demand growth
Project Selection Discipline

Ben Glazer
Director, Executive Staff & Capital Projects since 2012

- General Manager, Helium & Rare Gases 2009
- Director, Advanced Components, Electronics 2006
- Controller, Oil & Gas Services 2005
- Prior Praxair experience in Finance 2002-2004
- Captain, United States Air Force 1995-2001

US Air Force Academy, BS Mechanical Engineering
Northeastern University, MS Mechanical Engineering
Cornell University, MBA
Managing Our Capital Projects

Project Selection

- Potential Project Identified
- Heads-Up Review
- First Pass Review
- Final Approval

Process focus supports long-term return on capital goals

- Opportunities consistent with stated strategies
- Standard global hurdle rate >> cost of capital
- Single project evaluation model
- Terms & conditions review
- Risk-based return criteria

Project Execution

Monthly Execution Reviews

Audit

Customer Proposal
Praxair Investment Criteria

Criteria

- Guaranteed Cash Flows
- Customer & Asset
- Sovereign Risks
- Execution
- Strategic Alignment

Lower Risk ← Standard Global Hurdle Rate → Higher Risk

Cost Reduction – Take or Pay – Merchant

Counter-party risk
Underlying asset viability

Foreign exchange volatility
Contractual enforcement
Ease of doing business

Product line offering
Execution complexity

Density & integrated supply systems – Stand alone plants – Opportunistic
- Annuity-based business model
- Accretive to ROC within ~5 years
- Successive renewals

Praxair Consolidated Return on Capital Average

Economic Term (years)

Investment | Initial Contract Term | Renewal
Praxair project portfolio well-balanced across geographies

Based on announced projects for competitors
Project Execution

Murray Covello
Vice President, Global Supply Systems since 2009

- VP, Global Operations Excellence 2008
- President, Praxair Asia 2005
- VP, Operations and Services, US Industrial Gases 2002
- President, Canada 1999

University of Toronto, BS Mechanical Engineering
York University, MBA
Disciplined Project Execution Process

Front End Loading (FEL) Process

- Budgetary estimate
- Conceptual design
- Initial cost estimate
- Design iterations
- Control cost estimate
- Risk plans
- Procurement & contracts
- Operations input

Project Execution

- Design & Build
- Start-Up
- Management Project Reviews
- Audit

Careful selection and superior execution ensure expected ROC

* FEL-1 & 2 – increasingly detailed project estimates
Praxair Engineering Deployment Strategy

- IP-sensitive engineering in US
- China team for local projects and global detailed design
- Building strong Russian capabilities
- 3rd party engineering firms to balance workload
- Engineering capacity leveraged by product line concepts
- Work transfer facilitated by IT and common tools
- Mobile and talented teams

Global product line design … local execution

1,000+ Headcount

- US Design
- US Project
- Other NA Project
- South America
- Europe/Russia
- China
- India
- Other Asia
Praxair Capex Project Results

**Cost Performance**
(% variance to control budget)

- 2008: 0.9%
- 2009: 0.4%
- 2010: -0.5%
- 2011: 2.3%
- 2012: 2.3%

**Schedule Performance**
(% variance to control schedule)

- 2008: 2.8%
- 2009: 1.9%
- 2010: 3.5%
- 2011: 2.3%
- 2012: 3.8%

**Current Challenges**
- New geographies: Russia
- Construction cost escalation: Brazil

**Solutions**
- China prefabrication / sourcing, local capability, contractor management
- Leverage Brazil fabrication and execution team

Proven execution capability...key to delivering expected project returns
Sustaining Growth & Outperformance

Jim Sawyer
EVP & Chief Financial Officer since 2000

- VP & Treasurer 1994
- Assistant Treasurer 1992
- Area Treasurer, Europe 1989
- Prior Praxair experience in Finance 1985

Wesleyan University, BS Geology and Environmental Sciences
Massachusetts Institute of Technology, MBA
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

1993 1995 1997 1999 2001 2003 2005 2007 2009 2011
What We Heard Today

**Emerging Markets**
- Russia
  - Brazil infrastructure
- Mexico oil & gas
- Brazil infrastructure
  - China gasification

**Energy**
- US petchem projects
- Canada natural resources
- North America manufacturing
  - Growing applications & intensity

**Environmental**
- Air & water quality

**Opportunity Margin Expansion**
- High performance culture
- Disciplined pricing
- Integrated supply & density
- Energy management
- Sustainable productivity
- P&L accountability
- Industry-leading ROC 14-15%
  - Increasing free cash flow
  - Double-digit EPS growth
  - 1-2% annual share reduction

**Growth from diverse sources... continued leverage down the P&L**
Cash Flow Projections (2013-17F Cumulative)

**Cash Flow Generated from Operations**
$17 billion (24% of sales)

- **North America**: $10 billion (14% of sales)
- **Asia**: $7 billion (10% of sales)
- **Europe**: $6 billion (8% of sales)
- **South America**: $4 billion (6% of sales)

**Cash Flow Distributed**
$7 billion (10% of sales)

- **Dividends**: $5 billion
- **Share Repurchase**: $2 billion

**Cash Flow Invested**
$10 billion (14% of sales)

- **North America**: $8 billion (12% of sales)
- **Asia**: $2 billion (3% of sales)
- **Europe**: $1 billion (2% of sales)
- **South America**: $1 billion (2% of sales)

 Balanced use of cash to maximize return to shareholders
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.