

## A Global Leader

As countries develop and economies grow, demand for resources is ever increasing. As one of the world's leading providers of gases, we are helping companies and communities achieve more with the resources at hand. Used ingeniously, gases like oxygen, nitrogen and hydrogen can boost quality and productivity in everything from food to fuel while reducing energy consumption and emissions. At Praxair, we are proud that our gases and technologies help make companies and communities more sustainable. Our enduring value to the customers we serve, the people we employ, and the communities that support us is this: we are making our planet more productive.

Praxair is the largest industrial gases company in North and South America, and one of the largest worldwide, with 2011 sales of \$11 billion. We operate in 50 countries worldwide, serving one million customers and a wide range of industries, including energy, manufacturing, chemicals, metals, healthcare and more.

To learn more about Praxair's nitrogen gas injection services, go to [www.praxair.com](http://www.praxair.com) or call 1-800-PRAXAIR. Then ask Praxair to assist with a field assessment, so you can start getting more oil, from more places, more affordably.

### USA

Praxair, Inc.  
39 Old Ridgebury Road  
Danbury, CT 06810-5113  
Phone: 1-800-PRAXAIR  
[www.praxair.com](http://www.praxair.com)

### Canada

Praxair Canada, Inc.  
1 City Centre Drive, Suite 1200  
Mississauga, Ontario L5B 1M2  
Canada  
Phone: 905.803.1600  
[www.praxair.ca](http://www.praxair.ca)

### Mexico

Praxair Mexico S.A. de C.V.  
Biologo Maximino Martinez No.  
3804  
Col. San Salvador Xochimanca  
02870, Mexico D.F.  
Phone: +52.55.5354.9500  
[www.praxair.com.mx](http://www.praxair.com.mx)

### Europe

Euroholdings  
c/ Orense, 11  
E-28020 Madrid  
Spain  
Phone: +34.91.453.30.00  
[www.praxair.es](http://www.praxair.es)

### Scandinavia

Yara Praxair ASA  
PB 23 Haugenstua  
0915 Oslo  
Norway  
Phone: +47 04277  
[www.yarapraxair.com](http://www.yarapraxair.com)

### South America

White Martins Gases Industriais Ltda.  
Avenida das Américas, 3434,  
Bloco 7, 6<sup>th</sup> Floor  
22640-102 Rio de Janeiro  
Brazil  
Phone: + 55 (21) 3431.2000  
[www.whitemartins.com.br](http://www.whitemartins.com.br)

### Middle East

Praxair Gulf Industrial Gases  
4th Floor, Office No. 3  
Al Wahda Commercial Tower  
Hazza Bin Zayed Street  
Abu Dhabi  
United Arab Emirates

### India

Praxair India Private Limited  
"Praxair House"  
No. 8, Ulsoor Road  
Bangalore – 560 042  
India  
Phone: +91.1800.425.8077  
[www.praxair.com/india](http://www.praxair.com/india)

### China

26F, Kerry Parkside, No. 1155  
Fangdian Rd.  
Pudong, Shanghai, PRC. 201204  
Phone: +86.21.2894.7000  
[www.praxair.cn](http://www.praxair.cn)

### Praxair Korea Co. Ltd

943-19, Shinan Building 16th Fl.  
Kangnam-gu, Daechi-dong  
Seoul, Zip. 135-280  
Korea  
Phone: +82.2.569.4100  
[www.praxair.com/korea](http://www.praxair.com/korea)



## Reserve Growth From Gas Displacement Recovery.



© Copyright 2012, Praxair Technology, Inc.  
All rights reserved

Praxair, the *Flowing Airstream* design, and *Making our planet more productive*, are trademarks or registered trademarks of Praxair Technology, Inc. in the United States and/or other countries.

Praxair, Inc.  
39 Old Ridgebury Road  
Danbury, CT 06810-5113  
USA

[www.praxair.com](http://www.praxair.com)  
[info@praxair.com](mailto:info@praxair.com)

The information contained herein is offered for use by technically qualified personnel at their discretion and risk without warranty of any kind.

09/12  
P-9919A

Telephone:  
1-800-PRAXAIR (1-800-772-9247)  
(716) 879-4077

Fax:  
1-800-772-9985  
(716) 879-2040

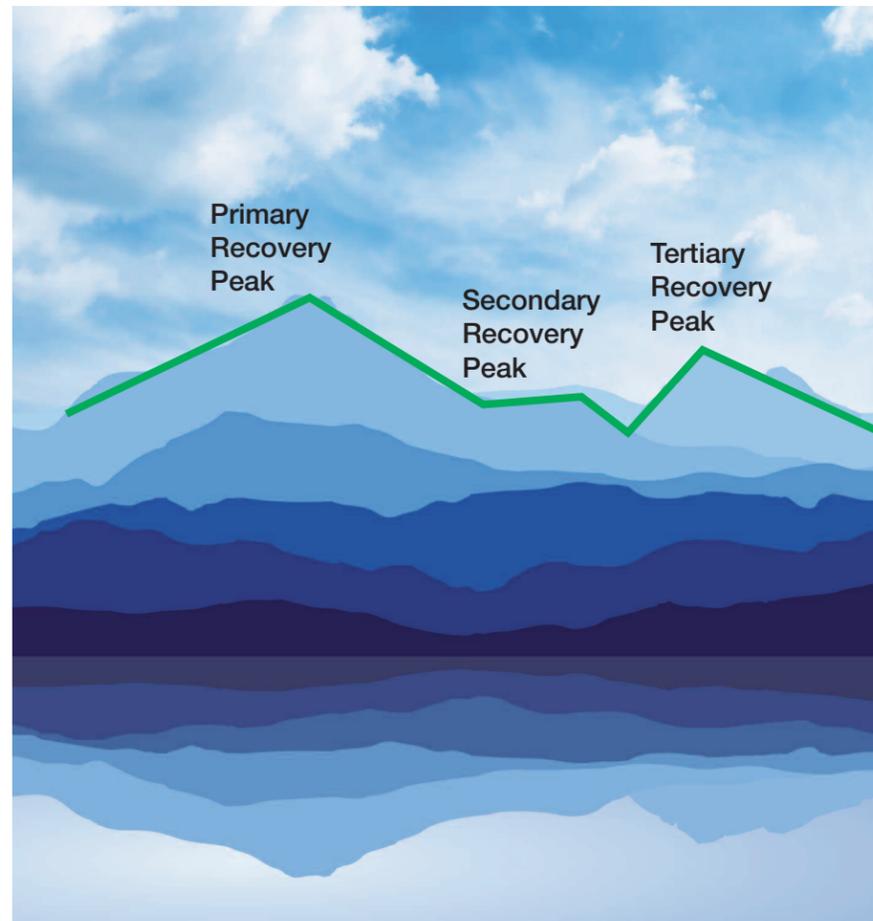
# Increase Your Oil Field Output. Minimize Your Costs.

Both CO<sub>2</sub> and N<sub>2</sub> injection in oil or gas reservoirs can grow your current reserves. Enhanced oil and gas recovery methods have been in use for years. But many common methods have serious shortcomings, both in terms of cost and applicability. Enhanced oil and gas recovery (EOR) with Praxair's nitrogen gas injection process or CO<sub>2</sub> supply, however, are cost-effective, field-proven and versatile.

## Nitrogen from Air. Increased Versatility.

Praxair can design, build, own and operate a complete on-site air separation plant – in any field.

### Stages of Reserve Growth



Using proven technology, a Praxair plant can provide N<sub>2</sub> at the pressure and purity which your project needs. Also Praxair will work with oil companies to necessary CO<sub>2</sub> volumes for EOR floods.

## Nitrogen Injection

Nitrogen inerting is a proven, cost-effective, versatile and smart way to get more from your fields.

Nitrogen is an inert, non-corrosive and oxygen-free gas, so there are minimal problems with equipment maintenance and repair. CO<sub>2</sub> is a well established EOR solvent with industry standard field handling procedures.

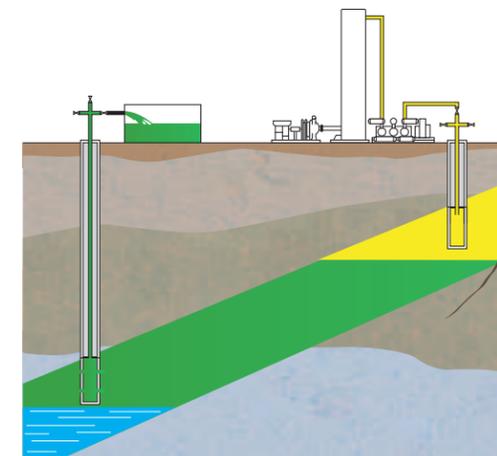


### Tap into our expertise.

Praxair has more than 30 years experience in nitrogen gas injection for EOR. We've provided turnkey installations in North and South America, including the second largest nitrogen plant in the world.

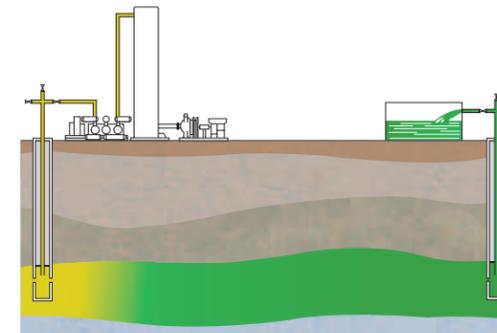
We can assist with preliminary screening studies to determine the suitability of nitrogen gas injection for your field. We'll also determine the optimum supply option, injection pressure and drive system (electric or gas). Praxair offers superior project execution for pilot projects, field tests and full-scale operations.

# Cost-effective technology for a number of applications.



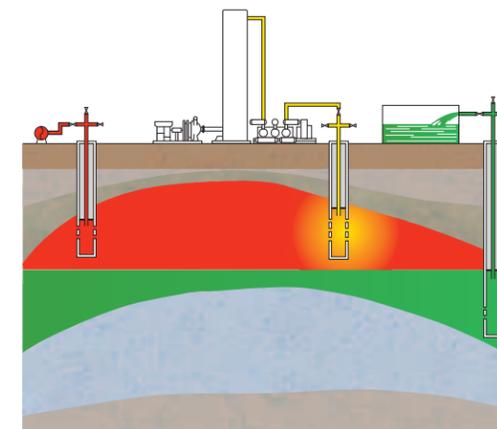
## 1. Gas Assisted Gravity Drainage

Low density nitrogen can enhance the gravity drainage of a steeply dipping reservoir. In deep reservoirs, gravity stable miscible displacement could be achieved with nitrogen.



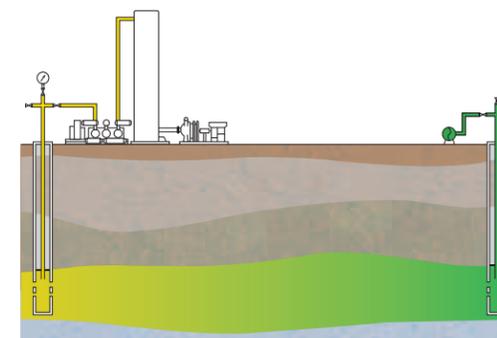
## 2. Miscible Displacement

Whether your reservoir is miscible with N<sub>2</sub> or CO<sub>2</sub>, these solvents can be used to drive an oil bank toward a producing well. Praxair can work with your company to supply these gases for pilot of full-field floods.



## 3. Pressure Maintenance

By injecting nitrogen to displace gas cap gas, saleable natural gas is recovered and reservoir pressure is maintained. This allows producers to gain today's attractive price for natural gas, without waiting for oil depletion. Reserve growth from condensate recovery can also be attained.



## 4. Immiscible Displacement

Immiscible displacement can swell oil, decrease viscosity and change relative permeability to increase oil production.