

Air Products' HyCO Operating Experience

On-Purpose HyCO Plants: Total Capacity >2,800 MMSCFD

NOLA A H ₂	LOUISIANA, USA	H ₂	1965	M.W. KELLOGG
ROZENBURG	NETHERLANDS	H ₂ /CO	1967	HALDOR TOPSOE/Air Products
NOLA B H ₂	LOUISIANA, USA	H ₂	1977	HOWE-BAKER/Air Products
GEISMAR	LOUISIANA, USA	SYNGAS/H ₂	1985	HEAT RESEARCH/Air Products
SACRAMENTO I	CALIFORNIA, USA	H ₂	1986	HYDRO-CHEM
BUTLER	PENNSYLVANIA, USA	H ₂	1987	SELAS
BAYTOWN I	TEXAS, USA	H ₂ /CO	1987	TECHNIP
SACRAMENTO II	CALIFORNIA, USA	H ₂	1989	HOWE-BAKER
HANNIBAL	MISSOURI, USA	H ₂	1991	HYDRO-CHEM
SPRING HILL	W. VIRGINIA, USA	H ₂	1991	HYDRO-CHEM
CINCINNATI	OHIO, USA	H ₂	1992	HOWE-BAKER
KUANTAN	MALAYSIA	H ₂	1992	HOWE-BAKER
MERAK	INDONESIA	H ₂	1992	HOWE-BAKER
TOLUCA	MEXICO	H ₂	1992	HOWE-BAKER
TUSCOLA	ILLINOIS, USA	H ₂	1993	HOWE-BAKER
MARTINEZ I	CALIFORNIA, USA	H ₂	1993	TECHNIP/Air Products
PERNIS	NETHERLANDS	H ₂	1994	M.W. KELLOGG
NOLA C	LOUISIANA, USA	H ₂	1994	M.W. KELLOGG
MARTINEZ II	CALIFORNIA, USA	H ₂	1995	TECHNIP/Air Products
WILMINGTON	CALIFORNIA, USA	H ₂	1995	TECHNIP/Air Products
LAPORTE III	TEXAS, USA	H ₂ /CO	1995	GE POX-TECHNIP/Air Products
PASADENA	TEXAS, USA	H ₂	1996	TECHNIP/Air Products
CAMACARI	BRAZIL	H ₂ /CO	1997	TECHNIP/Air Products
WILTON	TEESSIDE, U.K.	H ₂	1997	TECHNIP/Air Products
BANTING	MALAYSIA	H ₂	1997	TECHNIP/Air Products
SALISBURY	MARYLAND, USA	H ₂	1998	TECHNIP/Air Products
TEESSIDE POX	TEESSIDE, U.K.	H ₂ /CO	1998	GE POX/Air Products
SINGAPORE	SINGAPORE	SYNGAS/ H ₂	1999	TECHNIP/Air Products
GALLATIN	TENNESSEE, USA	H ₂	1999	TECHNIP/Air Products
MIDLAND	MICHIGAN, USA	H ₂	1999	TECHNIP/BAKER/Air Products
CARSON	CALIFORNIA, USA	H ₂	1999	TECHNIP/Air Products

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RALEIGH	NORTH CAROLINA, USA	H ₂	2000	TECHNIP/Air Products
BAYTOWN HyCO	TEXAS, USA	SYNGAS/CO	2000	GE/Air Products
PT. ARTHUR I	TEXAS, USA	H ₂	2000	TECHNIP/Air Products
GEISMAR II	LOUISIANA, USA	SYNGAS/CO/H ₂	2001	Air Products
ZHUHAI I	ZHUHAI, CHINA	H ₂	2001	CALORIC
LLANWERN	WALES, UK	H ₂	2002	TECHNIP/Air Products
TARRAGONA	SPAIN	H ₂	2002	TECHNIP/Air Products
PIOMBINO	ITALY	H ₂	2002	CALORIC
CRESSIER	SWITZERLAND	H ₂	2003	TECHNIP/Air Products
CATLETTSBURG	KENTUCKY, USA	H ₂	2003	TECHNIP/Air Products
MANTOVA	ITALY	H ₂	2004	TECHNIP/Air Products
WESTLAKE	LOUISIANA, USA	H ₂	2004	TECHNIP/Air Products
ZIBO	SHANDONG, CHINA	H ₂	2004	CALORIC
NOLA D	LOUISIANA, USA	H ₂	2004	TECHNIP/Air Products
ZHUHAI II	ZHUHAI, CHINA	H ₂	2004	CALORIC
ZHANG JIAGANG	JIANGSU, CHINA	H ₂	2004	CALORIC
WESTPORT I	MALAYSIA	H ₂	2005	CALORIC
CONVENT	LOUISIANA, USA	H ₂	2005	TECHNIP/Air Products
PT. ARTHUR II	TEXAS, USA	H ₂	2006	TECHNIP/ACPI
JOLIET	ILLINOIS, USA	H ₂	2006	TECHNIP/ACPI
EDMONTON I	ALBERTA, CAN	H ₂	2006	TECHNIP/Air Products
SARNIA	ONTARIO, CAN	H ₂	2006	TECHNIP/Air Products
EDMONTON II	ALBERTA, CAN	H ₂	2008	TECHNIP/Air Products
TAIWAN	CHINA	H ₂	2008	CALORIC
GARYVILLE	LOUISIANA, USA	H ₂	2009	TECHNIP/Air Products
BATON ROUGE	LOUISIANA, USA	H ₂	2010	TECHNIP/Air Products
CORPUS CHRISTI	TEXAS, USA	H ₂	2010	LINDE
ROTTERDAM	THE NETHERLANDS , EU	H ₂	2011	TECHNIP/Air Products
WESTPORT II	MALAYSIA	H ₂	2011	CALORIC
LULING	LOUISIANA, USA	H ₂	2012	TECHNIP/Air Products
DETROIT	MICHIGAN, USA	H ₂	2012	TECHNIP/Air Products
CHENGDU	SICHUAN, CHINA	SYNGAS/H ₂	2013	TECHNIP
ST. CHARLES	LOUISIANA, USA	H ₂	2014	TECHNIP/Air Products

Air Products' Operating Experience – Under Construction (as of 2014)

On-Purpose HyCO Plants: Capacity U/C – >300 MMSCFD

SCOTFORD
KOCHI

ALBERTA, CANADA
KERALA, INDIA

H₂
SYNGAS/H₂

2015
2015

TECHNIP/Air Products
TECHNIP/Air Products

Global Refining H₂ Capacity Awarded

New Business Announcements Since 2001

AP Key Customer	Location	Capacity (MMSCFD)
ConocoPhillips, Citgo	Westlake, Louisiana	110
Murphy Oil	New Orleans, Louisiana	40
Marathon	Catlettsburg, Kentucky	34
Suncor (Petro-Canada), Imperial Oil	Edmonton, Alberta	71
Suncor (Petro-Canada II)	Edmonton, Alberta	105
Suncor	Sarnia, Ontario	81
Motiva	Convent, Louisiana	110
Marathon	Garyville, Louisiana	120
ExxonMobil	Baton Rouge, Louisiana	>100
ExxonMobil	Baytown Expansion, Texas	70
Valero	Pt. Arthur II SMR, Cogen	110
ExxonMobil	Joliet, Illinois	18
Repsol	Tarragona, Spain	63
Petro-Plus	Cressier, Switzerland	8
MOL	Mantova, Italy	15
MarkWest Energy Partners, Citgo	Corpus Christi, Texas	>30
ExxonMobil, Shell	Botlek, Netherlands	>100
AP Pipeline System	Luling, Louisiana	>100
Marathon	Detroit, Michigan	>50
PetroChina	Sichuan, China	>90
Valero	Norco, Louisiana	>150
Shell	Scotford, Alberta, Canada	>150
BPCL	Kochi, Kerala, India	~165

Total Awarded: ~1.9 Billion SCFD