



The Industrial Gases Business in Thailand

*A multi-client report
December 2002*



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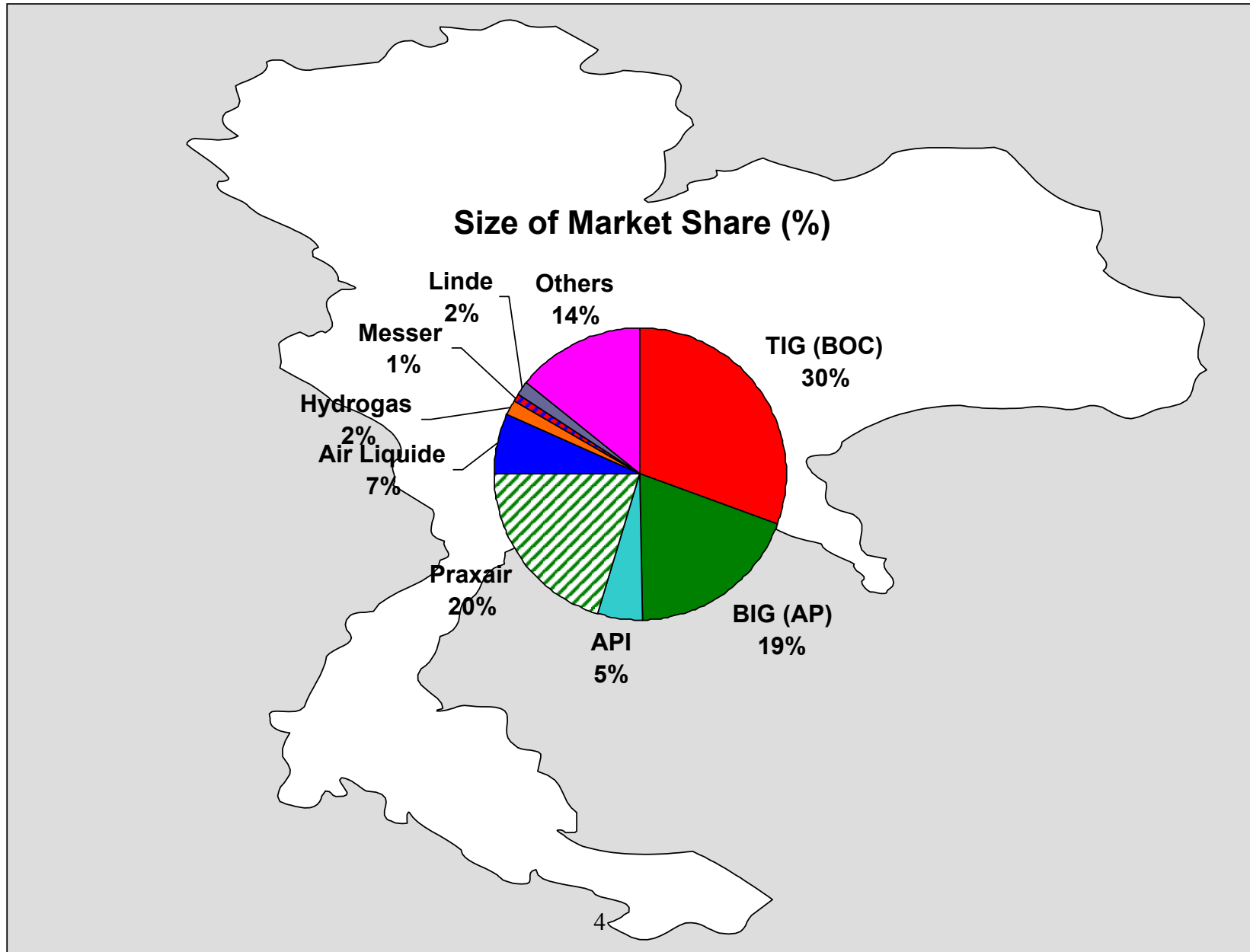
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note : the contents of each report with vary in length according to the size of market and the number of players and the above is a typical example.

[2.0] THE INDUSTRIAL GASES BUSINESS IN THAILAND (SUMMARY)



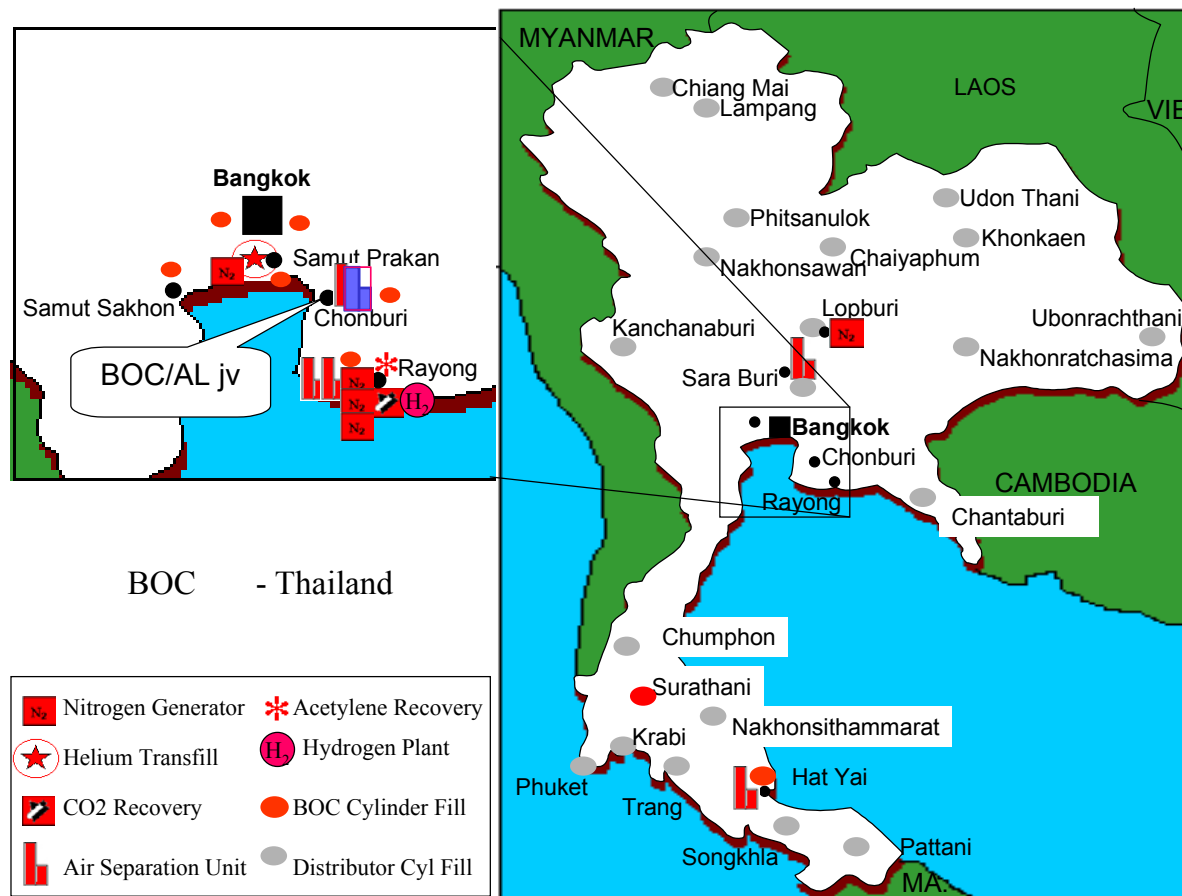
[3.0] STRUCTURE OF SUPPLY

[3.1] GAS COMPANY PROFILES

3.1.1 Thailand Industrial Gases (TIG)

- Originally formed in 1970

FIGURE 3.1.1
INDUSTRIAL GAS SUPPLY STRUCTURE FOR TIG, 2001



3.1.2 Bangkok Industrial Gases (BIG)

BIG is a 50.6% subsidiary of Air Products & Chemicals Inc of the US – the remainder is made up of local Thai businesses.

- Air Products entered the industrial gases business in Thailand in 1987 - forming the venture with local business investors.
- BIG operates major ASUs in Map Ta Phut and another in Chon Buri (Bo Win) which also have liquefiers attached to them. The later complex is under loaded due to the delay/cancellation of some of the larger end-user complexes.
- The company also has an extensive O₂, N₂ and H₂ pipeline system in Map Ta Phut and also has a jv pipeline system with BOC in part of Map Ta Phut (MIG).

GAS	NAMEPLATE CAPACITY (TPD)	COMMENTS
GOX	1 255	3 large ASUs
GAN	1 510	3 Large ASUs plus N2 Generator
LIQUEFIER	729	
LAR	65	
LCO2	-	

- BIG's strategy for Thailand follows its parent company – Air Products and Chemicals Inc – in that it is predominantly an on-sites and bulk industrial gases business.

[3.2] GAS PRODUCTION PLANTS

Table 3.2.1 provides a capacity database of the main gas production facilities owned by the major gas companies in Thailand.

TABLE 3.2.1
MAJOR GAS COMPANY CAPACITY DATA BASE
(tons per day, nm3/hr for H₂ only)

Location	Start	Tech.	GOX	GAN	Liquid	
Salan (Sara Buri)	1990	BOC	40	236	231	
Map Ta Phut	1993	BOC	85	229	233	8
Hat Yai	1997	BOC			110	2
Map Ta Phut	1998	BOC	400	800		15
Rayong	1994	BOC		54		
Samut Prakan	1994	BOC		25		
Rayong	1997	BOC		54		
Lopburi	1997	BOC		20		
Rayong	1997	BOC		25		
Chabang	1997	BOC		135		
Chabang	1998	AL	150	300	150	
	1988	AP	135	200		
	1994	AP	500			

[4.0] DEMAND

[4.2] Merchant Gas Business

Based on our analysis of the merchant gases business in Thailand, we present the demand for gases in the country in Table 4.2.2, which provides an outline of the expected demand, in volume (tpd) for Industrial Gases in Thailand, by end-use industry, for 2001.....

TABLE 4.2.2
ESTIMATED DEMAND FOR MAJOR GASES, BY END-USE - 2001
(tpd)

Supply Mode	Oxygen (Merchant)	Nitrogen (Merchant)	Argon (Total)	Carbon Dioxide
Primary Metal	35	80	20	
Petrochemical/Chemical	15	250		-
Refining	10	135		
Metal Fabrication	150	45	25	40
Other		55		
	15			