

MARKET DEVELOPMENT STRATEGY FOR LNG RETAIL MARKET IN MAKASSAR

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ABSTRACT

As an alternative of energy resources, LNG had big opportunity to replace existing fuel such as LPG and diesel fuel for retail market in industrial and commercial segment. LNG was produced domestically in Indonesia and still surplus compared to LPG and oil fuel which were imported. The importation of LPG (70% import ratio) and oil fuel (40% import ratio) had a negative effect in Indonesia trade balance. As the consequences, substituting LPG and diesel fuel would reduce an importation of fuel which will help to improve the trade balance. In addition, this preliminary study was focus on how to develop an LNG retail market in Makassar area. With no LNG supply in Makassar, the general strategy for the development was product development and diversification strategy. Furthermore, several approaches that need to be considered in LNG market development were (i) collaboration with existing LPG and/or diesel fuel distributor, (ii) creating new LNG retail player association and (iii) initiating environmental regulation to use cleaner fuel such as LNG. These strategies were considered to expedite the substitution of energy to LNG and to hold the potential rejection from existing energy player in Makassar area.

Keywords: LNG retail, Market Development, Makassar area.

INTRODUCTION

Energy plays important role in economic growth, both for the consumption needs and for the production activities of various economic sectors. As a natural resource, energy must be utilized as much as possible for the prosperity of the community and its management must refer to the principle of sustainable development (Elinur, Priyarsono, Tambunan, & Firdaus, 2010). One of the important primary energy in Indonesia is natural gas. As the third largest energy used in Indonesia, natural gas plays important role in national energy mix by contributing 19% of Indonesia's total energy in 2017 and expected to increase to 24% in 2050.

Due to dwindling oil reserves, Indonesia's gas production dominates the total oil and gas production by taking 60% of shares. Estimation in 2020 this portion will increase in 70% in 2020 and 86% in 2050. However, similarly to oil, the gas reserves are predicted, slowly but surely, to decline: current proven reserves are estimated at 102 TCF (PWC, May 2017 - 8th edition).

According to Outlook Energy Indonesia (2016), Natural Gas Reserves are spread throughout Indonesia. Total natural gas reserves in 2015 amounted to 150.39 TSCF. Natural gas production over the past ten years has been relatively volatile, with an average production of around 3.39 million MMSCF per year (Secretariate General of National Energy Council, 2016). Part of natural gas production is used to meet the needs of the domestic industrial sector, power plants, city gas, gas lifts and reinjection and own use. Besides being used for meeting domestic needs, natural gas is also used as an export commodity in the form of LNG and gas pipelines, even over the last ten years, the export value of natural gas is almost half of total production (comparison can be seen in Figure 1).

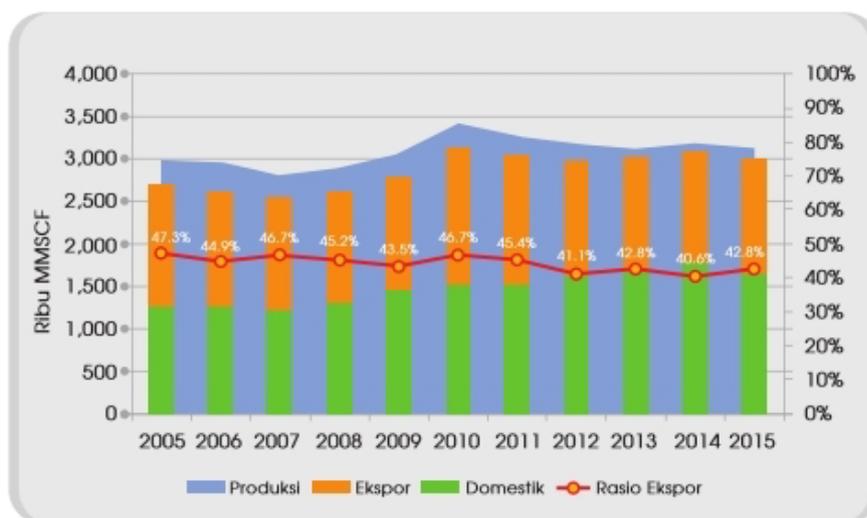


Figure 1. Natural Gas Consumption
Source: (Secretariate General of National Energy Council, 2016)

In contrast with natural gas condition, Indonesia had been a net importer for oil product and Liquefied Petroleum Gas (LPG) as a primary energy sources. The importation of those products had negative impact to Indonesian trade balance. One of the potential initiative to improve Indonesian trade balance was converting oil product and LPG product to natural gas product which still in surplus condition.

This study aims to analyze alternative strategy to develop LNG product in retail market segment in Makassar area. The results of this study are expected to provide the most appropriate strategy for Makassar area based on several criteria. The results are also expected to contribute to the marketing literature and a feedback to energy player especially in Makassar to be aware of LNG as a potential new energy product for retail segment in the future.

LITERATURE REVIEW

Liquefied natural gas (LNG) is natural gas (predominantly CH₄ and small amount of C₂H₆) that has been liquefied with cooling down process for ease and safety storage or transport in ambient pressure. It decreases the natural gas volume up to 1/600th in the gaseous state at standard conditions. LNG is odorless, colorless, non-toxic and non-corrosive. Hazards consist of flammability after vaporization into a gaseous state, freezing and asphyxia. The liquefaction process removes certain impurities, such as dust, acid gases, helium, water, and heavy hydrocarbons, which could cause difficulty in the liquefaction process. The natural gas is then condensed into a liquid by cooling it to approximately -162 °C at close to atmospheric pressure.

Natural gas is mainly converted to LNG for transport over the seas where laying pipelines is not feasible technically and economically (Ulvestad & Overland, 2012). Compared to compressed natural gas (CNG), LNG gives a higher reduction in volume 2.4 times greater in term of (volumetric) energy density or 60 percent that of diesel fuel. This makes marine transportation over long distances by LNG is more cost efficient. In transporting LNG, specially designed cryogenic sea vessels (LNG carriers) or cryogenic road tankers are used. The basic principal of LNG is to transport natural gas to markets, where it is regasified and distributed through pipeline. It also can be used in natural gas vehicles as an alternative fuel, although CNG is more common as vehicles fuel.

In Indonesia, natural gas was the only fossil fuel source outside coal which still in surplus condition with export ratio of 42.8% in 2015 (see Figure 1). In contrast, oil fuel was in deficit condition with an importation of more than 40% from domestic consumption in 2017 (see Figure 2). In LPG, the importation was greater than oil fuel with more than 70% of importation ratio (see Figure 3).

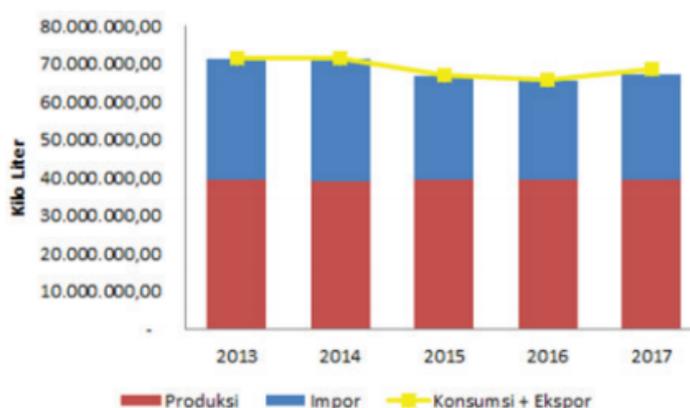


Figure 2. Oil Fuel Supply Demand Condition in Indonesia
Source: (Directorate General of Oil and Gas, 2017)

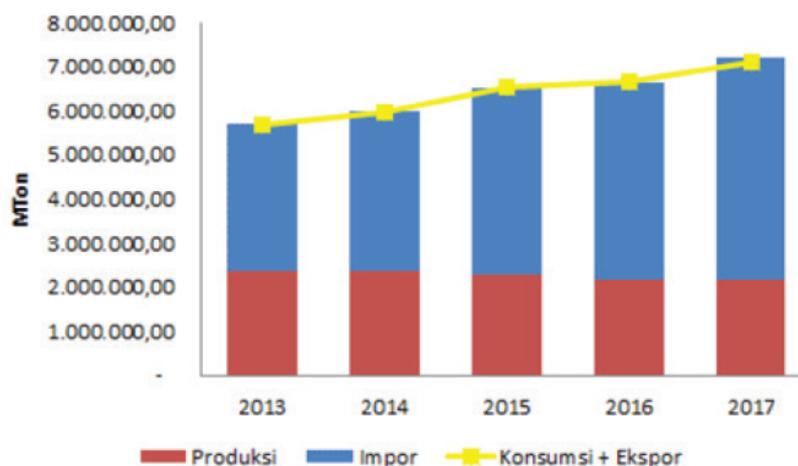


Figure 3. LPG Supply and Demand Condition in Indonesia
Source: (Directorate General of Oil and Gas, 2017)

Market Development Strategy. According to Friedman (2002), a market development strategy seeks to increase sales of existing products or services to existing markets as one component of a core set of growth strategies (see table below).

Table 1. Definition of market development

	Existing product(s)	New or modified product(s)
Existing market(s)	Market penetration	Product development
New markets(s)	Market development	Diversification

Source: (Friedman, 2002)

Market development involves existing products that are not modified in any way. Thus, a product that is in some way changed or improved, whether through different packaging or some other feature enhancement, counts as a new product. If this new product is sold to new markets, the firm is using a diversification strategy as opposed to a market development strategy which use existing products.

In addition, Ansoff (1957) define market penetration, market development, product development and diversification as follow:

- Market penetration is an effort to increase company sales without departing from an original product-market strategy. The company seeks to improve business performance either by increasing the volume of sales to its present customers or by finding new customers for present products.
- Market development is a strategy in which the company attempts to adapt its present product line (generally with some modification in the product characteristics) to new missions. An airplane company which adapts and sells its passenger transport for the mission of cargo transportation is an example of this strategy.
- A product development strategy, on the other hand, retains the present mission and develops products that have new and different characteristics such as will improve the performance of the mission.
- Diversification is the final alternative. It calls for a simultaneous departure from the present product line and the present market structure.

Target Market: Segmentation and Evaluation. According to Pride & Ferrel (2012), there are a five-step process for target market selection as shown in Figure 4 below.

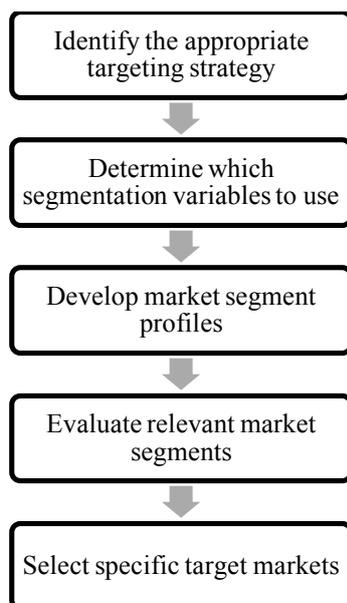


Figure 4. Target Market Selection Process
Source: (Pride & Ferrel, 2016)

Segmentation variables are the characteristics of organizations, groups, or individuals used to divide a market into segments. To select a segmentation variable, markets consider several factors. The segmentation variable should relate to customers' needs for, uses of, or behavior toward the product.

According to Kotler & Keller (2012), segmentation variables for business market can be grouped into five major categories as shown in table below.

Table 2. Major Segmentation Variables for Business Markets

<p>Demographic</p> <ol style="list-style-type: none"> 1. Industry: Which industries should we serve? 2. Company size: What size companies should we serve? 3. Location: What geographical areas should we serve?
<p>Operating Variables</p> <ol style="list-style-type: none"> 4. Technology: What customer technologies should we focus on? 5. User or nonuser status: Should we serve heavy users, medium users, light users, or nonusers? 6. Customer capabilities: Should we serve customers needing many or few services?
<p>Purchasing Approach</p> <ol style="list-style-type: none"> 7. Purchasing-function organization: Should we serve companies with a highly centralized or decentralized purchasing organization? 8. Power structure: Should we serve companies that are engineering dominated, financially dominated, and so on? 9. Nature of existing relationship: Should we serve companies with which we have strong relationships or simply go after the most desirable companies? 10. General purchasing policies: Should we serve companies that prefer leasing? Service contract? Systems purchases? Sealed bidding? 11. Purchasing criteria: Should we serve companies that are seeking quality? Service? Price?
<p>Situational Factors</p> <ol style="list-style-type: none"> 12. Urgency: Should we serve companies that need quick and sudden delivery or service? 13. Specific application: Should we focus on a certain application of our product rather than all applications? 14. Size or order: Should we focus on large or small orders?
<p>Personal Characteristics</p> <ol style="list-style-type: none"> 15. Buyer-seller similarity: Should we serve companies whose people and values are similar to ours? 16. Attitude toward risk: Should we serve risk-taking or risk-avoiding customers? 17. Loyalty: Should we serve companies that show high loyalty to their suppliers?

Source: (Kotler & Keller, 2012)

In selecting specific target markets, there are some considerations whether customers' needs differ enough to warrant segmentation and which segments to target. Considerations such as the firm's available resources, managerial skills, employee expertise, facilities, the firm's overall objectives, possible legal problems, conflicts with interest groups, and technological advancements must be considered when deciding which segments to target (Pride & Ferrel, 2016).

RESEARCH METHOD

To analyze the most appropriate market development strategy, the research was conducted by case study model. Makassar area was selected as the case study.

A qualitative method was used to get primary data from subject matter expert (SME) by face to face interview using open question approach. The SME was selected from professional in LNG and/or Natural Gas business which have strategic business and/or marketing experiences. In addition, secondary data is used to support the primary information that has been obtained from the library materials, literature, previous research, books, and so forth.

In the analysis process, the research was conducted using Qualitative Comparative Analysis. Qualitative Comparative Analysis (QCA) is a case-based method that enables evaluators to systematically compare cases, identifying key factors which are responsible for the success of an intervention (Baptist & Befani, 2015). In this study, the comparison was done between target market selection process theory and segmentation variables for business market theory with the situation of LNG retail market in Makassar.

In addition, there were some limitation in this study. The study was focus on the expert judgment from subject matter expert and using secondary data to support the analysis.

RESULTS AND DISCUSSIONS

LNG Retail as Alternative Fuel. With increasing Indonesian energy demand in retail sector, most of the supply was fulfilled by oil-based fuel product and LPG. However, domestic production of crude oil and LPG in Indonesia was not sufficient compared to the increasing demand. As the consequences, Indonesia had been a net importer of oil since early 2000's. On the other hand, the condition of natural gas production was better with surplus of gas production compared to domestic demand. This condition gave an opportunity to substitute the energy demand from oil-based product and LPG to natural gas product.

One of the challenges to substitute oil-based product and LPG to natural gas product was the easiness of product handling and transportation. Oil-based product and LPG could be transported in liquid phase while natural gas normally in gaseous phase. However, natural gas could be condensed into liquid phase by reducing the temperature to approximately -162°C which known as LNG product. In Liquid form, LNG product had a big potential to substitute oil-based product and LPG because the price of LNG product was lower.

Market Segmentation in LNG Retail. For retail sector, LNG was comparable with another fuel product such as diesel fuel, Liquefied Petroleum Gas (LPG) and Compressed Natural Gas (CNG). However, the application of LNG for retail sector still very limited in Indonesia. The main reason was the distribution channel and infrastructure to bring LNG in small amount was not developed yet. With current policy in Indonesia to focus on domestic demand for LNG, there were several plans to develop LNG infrastructure which could be used for retail sector. In the LNG infrastructure already in place, there will be a huge potential for LNG product to replace diesel fuel and LPG for retail sector because LNG, as a fuel commodity, is more competitive.

As an energy commodity, fuel would be a primary resource for most of the people in every segment. In this study, the market segmentation for LNG retail would be limited to demographic variable, namely industry type, company size (or volume) and location. For location, this study would focus only for Makassar city. The Market segmentation for this study in LNG retail is shown in Table 3 below.

Table 3. Market Segmentation in LNG Retail

Industry Type	Size	Gas Consumption
Industrial	Large	> 12,000 m ³ /month
	Small	< 12,000 m ³ /month
Commercial	Large	> 500 m ³ /month
	Small	< 500 m ³ /month

Similar with LPG business, the market segmentation in LNG retail business was based on the size of energy consumption of each industry type. The energy consumption size would determine the size of LNG product to be delivered to the customer. For example, the LNG product for industrial customer would be based on standard container size. In addition, the LNG product for commercial customer (Hotel, restaurant, hospital, mall, etc) would be based on smaller LNG tank. Based on the market segmentation above, the LNG retail product could be divided based on the size of the product as shown in table below.

Table 4. Typical LNG Retail Product

Segmentation	Product Size	Description
Industrial	40' iso tank	43,500 L
	20' iso tank	~20,000 L
Commercial	Micro Bulk Storage	230 L

Source: (Chart Inc., 2013)

Potential Target Market. In Makassar with no experience of using LNG, the market for LNG retail would be an existing LPG user and industrial diesel user. LNG product would give more value for both industrial customer and commercial customer in term of cost efficiency and cleaner fuel.

In LPG, the product is also divided into 2 major categories which are industrial user and commercial user. The LPG product in Indonesian market is shown in Table 5 below.

Table 5. Typical LPG Product

Segmentation	Product Size	Description
Industrial	LPG Bulk 2 T	Using skid tank
	LPG Bulk 4 T	
	LPG Bulk 8 T	
Commercial	LPG Tank 12 kg	Using small LPG tank
	LPG Tank 50 kg	

Source: (Sadikun, 2018)

With benefit of lower commodity price and excess domestic product, LNG product have strong position to replace LPG product and industrial diesel fuel. For existing LPG bulk consumer (2 T – 8 T), the LNG in iso tank (20 feet or 40 feet) would be suitable as the substitute of LPG. In addition, LNG product in small tank (230 L) could also replace the LPG for commercial segment specifically to substitute LPG tank 50 kg. However, it would be challenging to replace smaller LNG tank 12 kg due to the higher cost of LNG tank compared to LPG tank. In addition, most of industrial diesel fuel product was delivered through diesel truck which similar to LNG iso tank in 20 feet container.

Market Development Strategy. The initial target market for LNG retail product would be to replace existing fuel such as LPG and diesel oil. With very limited LNG retail player in Indonesia, most companies that interested to develop LNG retail business would use product development or diversification strategy (according to Ansoff (1957) definition) to develop LNG retail market in Makassar. The similarity for both strategy is to introduce new product (in this case is LNG) to existing market or new market.

A company that had been in energy business in Makassar, such as a distributor of LPG, had a benefit of energy market knowledge in Makassar. Therefore, the strategy for this company was product development strategy which focus on replacing their existing buyer to LNG product. In addition, the company could increase their profit by substituting new target market outside their existing buyer.

For a company that had no operation in Makassar, the diversification strategy should be fit. If the company had been in energy business, the strategy called a concentric diversification by adding LNG retail product to their other existing energy product. This type of company had less competitive advantages compare to existing energy player in Makassar in term of market knowledge. To compete, this company should have other competitive advantage such as lower cost structure or better branding.

In risk perspective, a diversification strategy puts a significant risk on a company due to entering an unknown market. Before deciding to diversify, there are three tests that could be used to measure the riskiness or the chances of success of diversification. First test called The Attractiveness Test. This test was to measure whether the industries or markets chosen for diversification was still attractive. One of the tools that could be used was Porter's 5 Forces Analysis. The second test called The Cost-of-entry Test. This test was to ensure that the cost of entry was not capitalize all future profits. The last test called The Better-off Test. This test was to ensure that the new unit or business must gain a competitive advantage from the corporation or vice-versa.

Other challenge for product development or diversification strategy in LNG retail was a resistance from existing supplier in substituting LPG and diesel fuel to LNG product. There were several approaches that could be implemented to make substitution process smoother.

Firstly, a company could collaborate with existing player in LPG and diesel fuel distribution business. In the energy supply business, one of the crucial issue was the logistics and distribution of the product. Having synergy with existing distributor would give a benefit in utilizing existing distribution channel of existing product to introduce new product. Secondly, a company should create new association of LNG seller and distributor. The association would be a communication channel to demonstrate the benefit of LNG to government, industry player and Makassar community. Finally, a company could initiate new environmental regulation for cleaner energy. The regulation could be an incentive from government to industry who willing to convert from traditional fuel to cleaner fuel such as LNG.

CONCLUSION

Developing new energy product such as LNG for retail market would face big challenge because the main target market is the already matured existing fuel product such as LPG and diesel fuel. The two-main challenges were the undeveloped LNG infrastructure and the less familiarity of customer to LNG product.

Despite those challenges, the opportunity of using LNG for retail energy market was big because LNG have lower commodity price, produces domestically and have cleaner emission. It is a matter of time that LNG would be developed as a fuel in Indonesia big city such as Makassar.

Based on interview with LNG expert and practitioner, the general strategy for LNG market development in Makassar is product development and diversification strategy because currently, there is no LNG in Makassar market. To support the strategy, several approaches that need to be considered in LNG market development are (i) collaboration with existing LPG and/or diesel fuel distributor, (ii) creating new LNG retail player association and (iii) initiating environmental regulation to use cleaner fuel such as LNG.

With no precedent of LNG retail business in Makassar, there was no specific policy in place to regulate the LNG retail business. The business player that interested in LNG retail business should have a good advocacy to Indonesian government, so the policy could give more incentive to the business.

In addition to this study, further quantitative study to potential LNG market in Makassar could be conducted to get an insight of consumer behavior and preference on energy product.

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