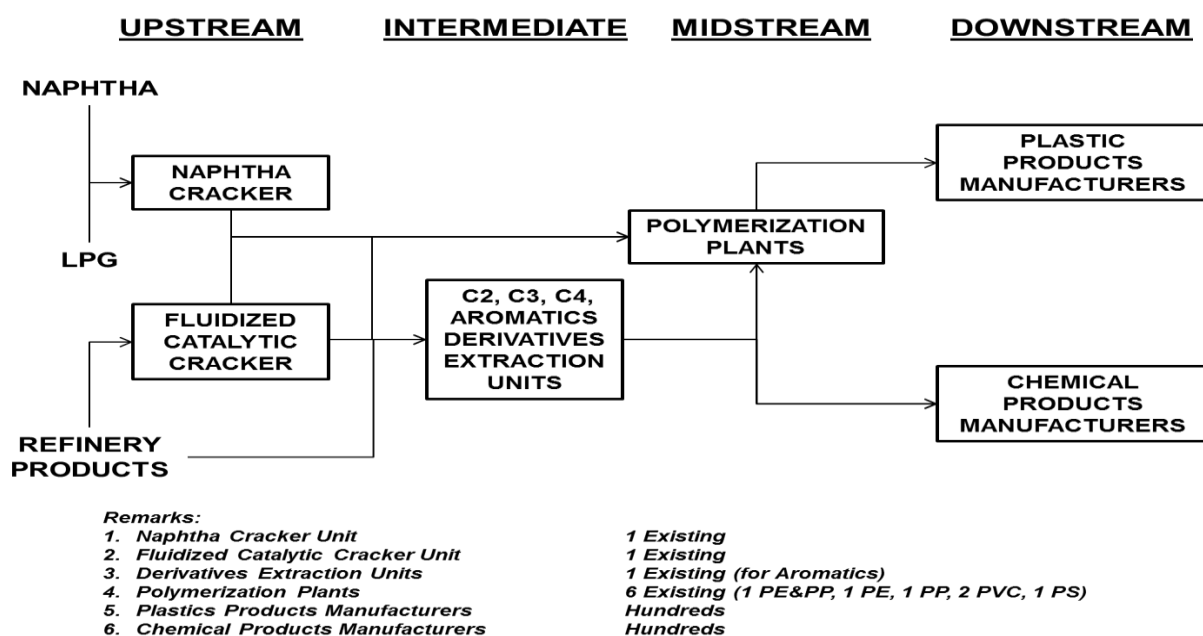


## THE PHILIPPINE PETROCHEMICAL INDUSTRY PROFILE

1. Petrochemicals are organic compounds derived from petroleum raw materials (called naphtha) or natural gas or a derivative produced from such a substance by chemical reaction, e.g., ammonia, carbon black and thousands of organic chemicals. A significant stream of the Petrochemical product tree consists of what are commonly referred to as plastics or synthetic resins.
2. The industry is a strategic and basic sector because of its linkages to upstream, midstream and downstream sectors. This strong linkage provides multiplier effects on enterprises and the economy as a whole. The above Figure 1 shows the sector essentially providing inputs to other major sectors of the economy which themselves create auxiliary and other support industries. There are several businesses which are entirely dependent on petrochemicals and other components which are based on petrochemical inputs. This key feature of this strategic material leads to growth and greater demand for manufacturing facilities, logistics, suppliers and exporters.



3. Product coverage

Table 1. Existing Product Coverage of the Midstream Philippine Petrochemical Industry

H.S. CODE	DESCRIPTION	MFN Rate (%)	ATIGA (%)
3901.1000	Polyethylene having sp.g. of less than 0.94, in primary forms	10	0
3901.2000	Polyethylene having sp.g. of 0.94/ more, in primary forms	10	0
3901.9000	Other polymers of ethylene, in primary forms	3	0
3902.1000	Polypropylene, in primary forms	10	0
3902.3000	Propylene copolymer, in primary form	10	0
3902.9000	Polymers of other olefins, in primary forms	3	0
3903.1900	Other polystyrene, in primary forms	10	0
3903.9000	Other polymers of styrene, in primary forms	3	0
3904.1000	Polyvinyl chloride homopolymer, suspension type, in primary form	10	0
3904.2100	Other polyvinyl chloride, not mixed w/ oth substance,	10	0

H.S. CODE	DESCRIPTION	MFN Rate (%)	ATIGA (%)
	in primary forms		
3904.2200	Polyvinyl chloride, plasticized, in primary forms	10	0

4. Products' uses – PE, PP, PS and PVC are raw materials used in the manufacture of plastic finished products. Most are sold in pellet form, although some are also sold in powder form. Table 2 shows the uses of the various plastic resins.

Table 2. Uses of Plastic Resins

PLASTIC RESIN	FINISHED PRODUCTS
Polyvinyl Chloride (PVC)	Construction supplies such as rigid pipes and fittings, window frames, doors and jambs, insulation for electric wires and cables, corrugated roofs, gutters and downspouts ; films and sheets such as shower curtains, table cloths, book covers and other school supplies, and household items such as floor tiles, linoleum, flexible hoses, upholstery materials, wall covers, tarpaulin, toys, etc.; in the medical field, it is used for blood bags and tubings and other related medical materials
Polystyrene (PS)	Cups, fastfood eating utensils, CD cases, appliance casing and parts, packaging foam, casing and parts for electronic gadgets such as TV sets, radio, stereos, etc.
Polypropylene (PP)	Sacks, toys, adhesive tape, cigarette packaging, pails, furniture, jumbo bags, tarpaulins, strapping, food containers, ropes, snack packaging, parts for appliances and electronic gadgets, cosmetic bottles, etc.
Polyethylene (PE)	Shopping bags. Garbage bags, sack liners, toys, pallets, crates, housewares, food containers, lubricating oil containers, plastic pipes, drums, etc.

(Source: Petrochemicals Roadmap)

5. The total petrochemical investment in the country is estimated to exceed USD 2 billion with over 2,808,600 MT per year total capacity in polymer production. JGSOC has the biggest investment share for all the seven major petrochemical plants in the Philippines, with USD 800 million initial investments. Current capacities are as follows:

Table 3. Petrochemical Plants Currently Operating in the Philippines

COMPANY	PRODUCT	CAPACITY	PLANT LOCATION
Philippine Polypropylene, Inc. (PPI)	PP	160,000 MT	Bataan
JG Summit Petrochemical Corporation	PP	175,000 MT	Batangas
	PE	180,000 MT	
NPC Alliance	PE	250,000 MT	Bataan
Philippine Resins Industries, Inc.	PVC	100,000 MT (expandable to 200,000 MT)	Bataan
Chemrez Technologies, Inc.	PS	30,000 MT	Quezon City
	Unsaturated Polyester (UPH)	10,200 MT	
	Polymer Emulsions	14,400 MT	
	Methyl Ester	60,000 MT	

Petron Corporation	Propylene	140,000 MT	Bataan
	Benzene	20,000 MT	
	Toluene	150,000 MT	
	Mixed Xylene	220,000 MT	

Source: Petrochemicals Roadmap

Additional investments in the petrochemical industry would include the currently approved projects of JGSPC by the BOI, as follows:

Table 4. BOI Approved Projects of JGSPC and JGSOC (December 2016)

Activity	Capacity (in MT/year)	Project Cost (PhP)
Butadiene and Raffinate	70,000	4,212,622,000
	89,000	
Benzene, Toluene, Mixed Xylene, C8+/C9+ Cut, Non-Aromatics	126,000	3,052,519,000
	76,000	
	76,000	
	18,000	
	29,000	
Polypropylene resins	120,000	2,828,172,000
Bimodal polyethylene	251,712	10,018,431,000
Ethylene, Propylene, Mixed C4, Pygas	160,002	8,644,188,000
	51,000	
	26,418	
	78,876	

These projects will be in commercial operations by July 2021.

6. The major players of the industry employ around 1,215 employees directly and 1,822 workers indirectly. With the addition of upstream projects being constructed and expansion plans, direct and indirect employment is estimated to reach more than 5,000 by 2014.
7. Per the Association of Petrochemical Manufacturers of the Philippines (APMP), the Philippines has two producers of polyethylene (PE), i.e. *J.G. Summit Petrochemicals Corp. (JGSPC)* and *NPC Alliance Corporation*, and two producers of polypropylene (PP), i.e. *J.G. Summit Petrochemicals* and *Philippine Polypropylene Inc.* For polyvinyl chloride (PVC), there are two producers, i.e., *Philippine Resins Industries, Inc.* and *General Chemicals and Resins Consortium Inc (non-member)* while for polystyrene (PS) the two active producers are *Chemrez Technologies (D & L Industries, Inc)* and *SMP, Inc. (non-member)*. *Petron Corporation* and *JG Summit Olefins Corp. (JGSOC)* are manufacturers that produce monomers such as ethylene, propylene, benzene, toluene and mixed xylene. *Petron* supplies 100% of its propylene production to its sister company, *Philippine Polypropylene Inc.* which produces polypropylene resins. While the naphtha cracker of *JGSOC* supplies the ethylene and propylene monomer requirements for the PP and PE plants of *JGSPC*.
8. The petrochemical industry uses the following raw materials:

Raw Material	Usage	Source
Ethylene	For the production of PE	JGSPC
Propylene	For the production of PP	JGSPC
Styrene	For the production of PS	Taiwan
Vinyl Chloride	For the production of PVC	Japan, Taiwan

9. Gross Value Added (GVA, in million pesos)

Year	2013	2014	2015	2016
GVA (chemicals & chemical products)	184,363	191,229	220,901	240,265
Total Manufacturing GVA	1,538,913	1,666,515	1,760,988	1,883,922
% Share to Total Mfg. GVA	11.98	11.47	12.54	12.75

Source: PSA

10. Trade performance (exports and imports)

Table 4. Exports (in FOB Value, US\$)

2012	2013	2014	2015	2016
66,713,791	49,661,339	37,361,719	191,362,560	150,438,045

Source: PSA, as processed by DTI-EMB (as of 1 April 2016)

Table 5. Exports by Product (in FOB Value, US\$)

PRODUCT	2012	2013	2014	2015	2016
PE	<b>38,748,773</b>	15,391,011	5,622,479	<b>110,755,741</b>	<b>93,225,744</b>
PP	5,606,788	7,207,276	12,521,442	69,435,630	44,870,763
PS	2,653,507	2,484,759	850,217	731,551	673,666
PVC	19,704,723	<b>24,578,293</b>	<b>18,367,581</b>	10,439,638	11,667,872

Source: PSA, as processed by DTI-EMB

Table 6. Top 10 Export Markets (2016) (in FOB Value, US\$)

MARKET	EXPORTS
Indonesia	41,136,636
Belgium	33,105,673
China	22,483,185
Vietnam	16,706,228
Malaysia	8,611,906
Portugal	4,976,185
Israel	4,035,687
Slovenia	2,888,604
Japan	2,781,380
Myanmar	2,471,341

Source: PSA, as processed by DTI-EMB

Table 7. Imports (in FOB Value, US\$)

2012	2013	2014	2015	2016
583,685,992	565,244,562	1,014,045,664	572,998,679	739,329,872

Source: PSA, as processed by DTI-EMB

Table 8. Imports by Product (in FOB Value, US\$)

PRODUCT	2012	2013	2014	2015	2016
PE	271,351,489	275,295,861	527,139,252	302,404,767	352,646,094
PP	180,061,567	162,930,487	312,118,263	145,650,001	172,859,100
PS	94,288,786	89,328,953	115,141,623	85,463,307	131,147,188
PVC	37,984,150	37,689,261	59,646,526	39,480,604	82,677,490

Source: PSA, as processed by DTI-EMB

Table 9. Top 10 Suppliers of Philippine Imports (2016) (in FOB Value, US\$)

SUPPLIER	IMPORTS
Thailand	167,802,854
Singapore	164,999,766
Malaysia	101,677,605
Taiwan ( Rep. of China)	52,187,796
Japan	51,057,386
South Korea	40,905,151
Saudi Arabia	35,206,061
Qatar	27,902,756
China, People's Republic of	21,851,918
Indonesia	20,352,261

Source: PSA, as processed by DTI-EMB

#### 11. Support to Industry Development

- The government extends its support to the petrochemical industry by qualifying for BOI registration based on criteria set under the 2017 Investment Priorities Plan (IPP), wherein registered firms are entitled to fiscal and non-fiscal incentives provided that their registered activity/ies satisfies the requirements and conditions set by the administering Investment Promotion Agency (IPA). The IPP outlines the government preferred industries that are considered strategic to the economy in terms of multiplier effects, linkages to other sectors, value added and job generation.
- The appointment of an Industry Champion by DTI-BOI who will coordinate all industry development and investment promotion efforts for the petrochemical industry, will help in carrying out programs and projects geared to entice additional investments and technology acquisition to further develop the sector's competitiveness through the implementation of action items in the industry roadmap.

#### 12. Strengths and Opportunities of the Sector

- Strengths
  - World-class technology is being effectively managed by highly-competent engineers and staff
  - Minimal wait period for product delivery provided by local firms (just-in-time delivery)
  - Availability of after-sales and technical service support teams for product development and troubleshooting
  - Flexible product grade formulations based on customer requirements

- Opportunities
  - Operation of a naphtha cracker plant in 2014 that will secure raw material supply in the local market
  - Growing economic activities brought about by increasing domestic consumer and industrial demand
  - Low per-capita consumption of resins compared to global consumption rate

### 13. The Petrochemical Industry Roadmap

Based on the Petrochemical Industry Roadmap, the industry emphasized the importance of the full integration of the petrochemical industry which includes the expansion of naphtha production and diversification of petrochemical products, so as to help in achieving inclusive growth and sustainable socio-economic development. The need for the petrochemical industry integration is seen vital as there are gaps in the supply value chain that needs to be filled in.

The midstream petrochemical industry has 8 industry players which provide the needs of its downstream plastics industry consisting of more than 100 players. Due to the insufficient supply of raw materials, the downstream industry is forced to import its requirement. Therefore, a supply chain gap in the midstream petrochemical exists; and this will be partly addressed by the naphtha cracker as it will produce polyethylene (PE) and polypropylene (PP). Other than PE and PP, an expanded PVC production is needed to meet domestic demand. The size of the PVC expansion necessitates an economical supply of chlorine from chlor-alkali plant.